2020 SAP Integrated Report

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About This Report

Content

The SAP Integrated Report 2020 presents our full-year financial, social, and environmental performance in one integrated report ("SAP Integrated Report") available at *www.sapintegratedreport.com*. Since 2012, we have taken into consideration the recommendations of the International Integrated Reporting Framework.

The SAP Integrated Report also serves as our United Nations (UN) Global Compact progress report. Since 2018, we have also reported on our contribution to the UN Sustainable Development Goals (SDGs) and embedded the recommended disclosures of the Task Force on Climate-Related Financial Disclosures (TCFD).

Basis of Presentation

Our combined management report is prepared in accordance with the German Commercial Code and the relevant German Accounting Standards. The combined management report is also a management commentary complying with the International Financial Reporting Standards (IFRS) Practice Statement Management Commentary.

Our consolidated financial statements are prepared in accordance with IFRS. Our executive management has confirmed the effectiveness of our internal controls over financial reporting.

Our non-financial report is prepared in accordance with sections 289b and 315b of the German Commercial Code, which require us to report, for both, SAP SE and SAP Group, on social, environmental, and other non-financial matters. All non-financial information stipulated in the German Commercial Code, sections 315c and 289c that is relevant to understand SAP's development, performance of the business, and the position of the Group and SAP SE is included in our combined management report. Rather than repeating this information, our Non-Financial Report (which is part of this integrated report at *http://www.sap.com/investors/sap-2020-combined-non-financial-report*) provides references to the sections of our combined management report in which the required disclosures are made.

The social and environmental data and information included in the SAP Integrated Report is prepared in accordance with the GRI Standards: Core option. This GRI option indicates that a report contains the minimum information needed to understand the nature of the organization, its material topics and related impacts, and how these are managed. We apply the GRI principles (sustainability context, stakeholder inclusiveness, materiality, and completeness) for defining report content. We also report on SDGs identified as material to our strategy.

Greenhouse gas data is prepared based on the Greenhouse Gas Protocol.

Data

All financial and non-financial data and information for the reporting period is reported utilizing SAP software solutions and sourced from the responsible business units.

The reporting period is fiscal year 2020. The report encompasses SAP SE and all subsidiaries of the SAP Group. To make this report as current as possible, we have included relevant information available up to the auditor's opinion dated February 24, 2021. The report is available in English and German.

Independent Audit and Assurance

KPMG AG Wirtschaftsprüfungsgesellschaft has audited our consolidated financial statements and our combined management report (including the information to which our non-financial report makes references). Additionally, KPMG has provided assurance on selected sustainability information in accordance with the International Standard on Assurance Engagements (ISAE) 3000, a pertinent standard for the assurance of sustainability reporting. Both the Independent Auditor's Report and the Assurance Report of the Independent Auditor for sustainability information are available in the *Independent Auditor's Report* section and the *Independent Assurance Report* section.

Concept and Realization

This report was designed by SAP and created with SAP S/4HANA software and the SAP Disclosure Management application.

Key Facts

€ millions, unless otherwise stated	**2020**	2019	Δ in %
Revenues			
Cloud (IFRS)	8,080	6,933	17
Cloud (non-IFRS)	8,085	7,013	15
Software licenses (IFRS)	3,642	4,533	–20
Software licenses (non-IFRS)	3,642	4,533	–20
Software support (IFRS)	11,506	11,547	0
Software support (non-IFRS)	11,506	11,548	0
Cloud and software (IFRS)	23,228	23,012	1
Cloud and software (non-IFRS)	23,233	23,093	1
Total revenue (IFRS)	27,338	27,553	–1
Total revenue (non-IFRS)	27,343	27,634	–1
Applications, Technology & Support Segment revenue	21,680	21,664	0
Concur Segment revenue	1,505	1,609	–6
Qualtrics Segment revenue	681	508	34
Services Segment revenue	3,157	3,447	–8
Share of more predictable revenue (IFRS, in %)	72	67	7
Share of more predictable revenue (non-IFRS, in %)	72	67	7
Operating Expenses			
Cost of cloud (IFRS)	–2,699	–2,534	7
Cost of cloud (non-IFRS)	–2,451	–2,228	10
Cost of software licenses and support (IFRS)	–2,008	–2,159	–7
Cost of software licenses and support (non-IFRS)	–1,911	–2,018	–5
Cost of cloud and software (IFRS)	–4,707	–4,692	0
Cost of cloud and software (non-IFRS)	–4,362	–4,247	3
Total cost of revenue (IFRS)	–7,886	–8,355	–6
Total cost of revenue (non-IFRS)	–7,362	–7,655	–4
Research and development (IFRS)	–4,454	–4,292	4
Profits and Margins			
Cloud gross margin (in % of corresponding revenue, IFRS)	66.6	63.5	5
Cloud gross margin (in % of corresponding revenue, non-IFRS)	69.7	68.2	2
Software and support gross margin (IFRS, in %)	86.7	86.6	0
Software and support gross margin (non-IFRS, in %)	87.4	87.4	0
Cloud and software gross margin (in % of corresponding revenue, IFRS)	79.7	79.6	0
Cloud and software gross margin (in % of corresponding revenue, non-IFRS)	81.2	81.6	0
Gross margin (in % of total revenue, IFRS)	71.2	69.7	2
Gross margin (in % of total revenue, non-IFRS)	73.1	72.3	1
Applications, Technology & Services Segment gross margin (in % of corresponding revenue)	80	81	–1
Intelligent Spend Group Segment gross margin (in % of corresponding revenue)	79	78	1
Qualtrics Segment gross margin (in % of corresponding revenue)	78	78	0
Services Segment gross margin (in % of corresponding revenue)	29	24	21
Operating profit (IFRS)	6,623	4,473	48

€ millions, unless otherwise stated	**2020**	2019	Δ in %
Operating profit (non-IFRS)	8,287	8,208	1
Operating margin (in % of total revenue, IFRS)	24.2	16.2	49
Operating margin (in % of total revenue, non-IFRS)	30.3	29.7	2
Free cash flow	6,000	2,276	164
Net liquidity (net debt)	–6,503	–8,286	–22
Days sales outstanding (DSO, in days)	78	71	11
Equity ratio (total equity in % of total assets)	51	51	0
Effective tax rate (IFRS, in %)	26.8	26.7	1
Effective tax rate (non-IFRS, in %)	26.5	26.2	1
Order Entry			
Current cloud backlog	7,155	6,681	7
Orders – number of cloud deals (in transactions)	16,888	15,679	8
Share of cloud orders greater than €5 million based on total cloud order entry volume (in %)	29	31	–6
Share of cloud orders smaller than €1 million based on total cloud order entry volume (in %)	34	32	6
Orders – number of on-premise software deals (in transactions)	45,616	52,584	–13
Share of software orders greater than €5 million (in % of total software order entry)	30	32	–6
Share of software orders less than €1 million (in % of total software order entry)	36	35	3
Key SAP Stock Facts			
Earnings per share, basic (in €)	4.35	2.78	56
Earnings per share, basic (non-IFRS, in €)	5.41	5.11	6
Dividend per share[2] (in €)	1.85	1.58	17
Market capitalization[1] (in € billions)	131.70	147.81	–11
Employees and Personnel Expenses			
Number of employees[1, 3]	102,430	100,330	2
Personnel expenses per employee – excluding share-based payments (in € thousands)	122	131	–8
Women working at SAP (in %)	33.6	33.5	0
Women in management[1] (total, in % of total number of employees)	27.5	26.4	4
Employee Engagement Index (in %)	86	83	4
Business Health Culture Index (in %)	80	80	0
Leadership Trust Index (LTI, as NPS)	62	59	5
Employee retention (in %)	95.3	93.3	2
Customer			
Customer Net Promoter Score	4.0	–6.0	>100
Environment			
Net greenhouse gas emissions (in kilotons)	135	300	–55
Total energy consumption (in GWh)	693	955	–27
Total data center electricity consumption (in GWh)	361	318	14

[1] Numbers based on year end.

[2] Numbers are based on the proposed dividend and on level of treasury stock at year-end.

[3] Full-time equivalents

Contents

About This Report ... 1
Key Facts ... 2

To Our Stakeholders **6**

Letter from the CEO ... 7
SAP Executive Board ... 10
Investor Relations ... 12
Report by the Supervisory Board ... 15
Compensation Report ... 23
Responsibility Statement ... 42
Independent Auditor's Report ... 43

Combined Management Report **49**

General Information About This Management Report ... 50
Strategy and Business Model ... 52
Performance Management System ... 57
Products, Research & Development, and Services ... 63
Security, Data Protection, and Privacy ... 68
Customers ... 71
Employees and Social Investments ... 72
Energy and Emissions ... 77
Financial Performance: Review and Analysis ... 80
Corporate Governance Fundamentals ... 98
Business Conduct ... 100
Human Rights and Labor Standards ... 102
Risk Management and Risks ... 104
Expected Developments and Opportunities ... 123

Consolidated Financial Statements IFRS **128**

Notes ... 135
Section A – Customers ... 138
Section B – Employees ... 144
Section C – Financial Results ... 153
Section D – Invested Capital ... 161
Section E – Capital Structure, Financing, and Liquidity ... 171
Section F – Management of Financial Risk Factors ... 177
Section G – Other Disclosures ... 193
Management's Annual Report on Internal Control over Financial Reporting in the Consolidated Financial Statements ... 207

Further Information on Economic, Environmental, and Social Performance **208**

About This Further Information on Economic, Environmental, and Social Performance ... 209
Connectivity of Financial and Non-Financial Indicators ... 210
Materiality ... 218
Stakeholder Engagement ... 220
Sustainability Management ... 221
Our Contribution to the UN Sustainable Development Goals ... 222
Sustainable Procurement ... 225
Waste and Water ... 227
Public Policy ... 229
Memberships, Partnerships, and Commitments ... 230

Non-Financial Notes: Social Performance 231
Non-Financial Notes: Environmental Performance 232
GRI Content Index and UN Global Compact Communication on Progress 237
Task Force on Climate-Related Financial Disclosure (TCFD) 242
Assurance Report of the Independent Auditor regarding Sustainability Information 243

Additional Information **245**

Five-Year Summary 246
Glossary 251
Financial Calendar and Addresses 264
Financial and Sustainability Publications 265
Publication Details 266

To Our Stakeholders

Letter from the CEO	**7**
SAP Executive Board	**10**
Investor Relations	**12**
Report by the Supervisory Board	**15**
Compensation Report	**23**
Responsibility Statement	**42**
Independent Auditor's Report	**43**

Letter from the CEO



Dear Fellow Shareholders,

2020 was a year none of us will ever forget. The coronavirus has turned the world upside down, and the year has also brought into focus other major challenges – just think climate change or geopolitical tensions. Despite the difficulties the year posed, I hope that you and your loved ones are healthy and safe. For everyone impacted by the COVID-19 pandemic, my sincerest thoughts are with you.

At SAP, we live by our purpose to help the world run better and improve people's lives. So, as the pandemic took hold, in addition to supporting our communities, our priority was to ensure the safety of our employees, partners, and customers, while safeguarding business continuity. We moved nearly all our interactions with customers to a virtual context, including sales, go-lives, and support. Through the year, our software helped companies develop and distribute vaccines, make their supply chains more resilient, adjust business processes, and stay close to their employees' and customers' needs; in short, our resources and solutions helped them move forward.

2020 also brought changes to SAP. In April, I took over as SAP's sole CEO. This is both an honor and a huge responsibility, and I am wholeheartedly committed to the long-term success of SAP.

In the face of headwinds from the pandemic and ensuing economic crisis, SAP showed our resilience, strength, discipline, and agility in 2020, exceeding all of the topline outlook indicators of our revised outlook and achieving the upper end of the revised profit outlook[1)].

I would like to share an overview of our results:

- Cloud revenue continued to be the major growth driver, growing 18%. This was impacted by a decline in transactional revenue in our Intelligent Spend business mainly due to a decrease in business travel. Excluding Intelligent Spend, growth across our SaaS/PaaS offerings was 27%.
- Current cloud backlog increased by 14%.
- Total revenue grew 1%.
- Operating profit increased by 4%.
- Cloud gross margin increased 3.1pp, reflecting increased efficiency in cloud delivery.
- Operating cash flow doubled since last year to €7.2 billion, while free cash flow increased to €6.0 billion.

We achieved strong performance in our non-financials. A renewed focus on putting our customers first led to a strong 10-point increase in the Customer Net Promoter Score. The Employee Engagement Index increased a further three percentage points to a record high. And thanks to our continued efforts, together with reduced travel, we were able to decrease our net greenhouse gas emissions to 135 kt, less than half of the prior year's emissions.

With this, we are pleased that we were able to pay a full dividend in 2020 and returned an additional €1.5 billion to shareholders through a share buyback. For 2020, we have proposed an annual dividend of €1.85 per share, representing an increase of 17%.

Our share price performance experienced volatility through the year. While it ended 2020 down 10.9%, SAP remained the most valuable company in the DAX with a market capitalization of €132 billion. The volatility during the first part of the year was related to the pandemic. SAP stock dropped sharply in October after we announced an adjustment to our strategy and medium-term outlook. I know that this was not easy for our shareholders, but we must respond decisively to the requirements of our customers in a fast-changing world.

We will not weigh the success of our customers and the significant growth potential of SAP against short-term priorities. This is why we are making investments in our portfolio and innovations that further enable customers to adapt to today's highly volatile environment and accelerate our growth in the cloud. Sustainable value creation will continue to be our top priority.

To this end, we have worked tirelessly to further strengthen our portfolio. Since the beginning of 2020, we have focused our application portfolio on areas where we win clearly, shifting our application workloads to the cloud and embedding intelligence in all our applications. We have tremendously improved integration across our portfolio and will continue our efforts in 2021 at full speed. We are moving away from our legacy infrastructure and accelerating migration to one harmonized cloud delivery platform. We have made SAP Business Technology Platform THE platform for integration, extensibility, and data-to-value, based on one domain model and many other world-class application services. We strengthened our partner ecosystem, extending our solutions and leveraging game-changing capabilities. We have entered new markets, building on the strength of our core:

- With SAP's industry cloud, we are providing modular cloud solutions to extend the core business of our customers in an open environment, tailored to their individual needs.
- We are embedding sustainability into our applications, to manage not only the top- and bottom line of an enterprise, but also to measure and account for environmental factors – the "green" line.
- SAP Business Network enables our customers to manage complex supply chain dependencies no longer along sequential process steps but with all stakeholders in real time.
- We initiated our business process intelligence offering to allow customers to model, understand, improve, and transform their business processes at scale.

And already in 2021, we introduced the RISE with SAP offering, supporting our customers' holistic business transformation and their move of mission-critical core ERP processes to the cloud.

The challenges we faced over the last year reconfirmed the relevance of SAP as well as our extensive responsibility and the impact we can have on the economy, the society, and the environment.

We are honored to support the global fight against COVID-19. In Germany, together with Deutsche Telekom, we developed a contact tracing app (Corona-Warn-App), which is key to breaking infection chains. In fact, seventeen of the top 20 global vaccine producers run SAP solutions. We also support many logistics companies and organizations around the globe that are at the forefront of vaccine distribution.

We looked at ways we can drive social justice and equality. Among efforts worldwide, we have set a new goal to double the share of Black and African-American employees in the workforce in the United States within the next three years. The share of women

[1)] Note: All growth rates are non-IFRS at constant currencies.

in management increased to 27.5%, and we remain committed to our goal of 30% by 2022.

We held digital skill-building and coding programs, training 117,000 teachers and engaging 2.3 million underserved people and youth, more than half of which were girls.

Turning to our responsibility to the environment, we have pulled forward our goal to become carbon neutral from 2025 to 2023.

2020 was certainly an inflection point and a true catalyst for our customers to drive their transformation efforts. We have an exceptional opportunity to partner with them in a way that only SAP can, thanks to our deep knowledge of business processes, industries, and the mutual trust we have established over our operating history.

In closing, you have my word that our focus is on:

- Putting our customers' success and their business transformation first
- Investing in R&D to accelerate the pace of innovation and co-innovate with our customers
- Empowering every employee to flourish
- Creating opportunities for social justice to prevail
- Delivering to our investors long-term value by accelerating our profitable cloud growth and turning SAP into the cloud leader it is meant to be.

I am truly optimistic and deeply excited about the future of SAP. I am convinced that, together, we can reinvent how businesses run and continue to help the world run better and improve people's lives.

Sincerely,

Christian Klein
CEO, SAP SE

SAP Executive Board



Christian Klein
CEO



Sabine Bendiek
Chief People Officer, Labor Relations Director



Adaire Fox-Martin
Customer Success (until January 31, 2021)



Luka Mucic
Chief Financial Officer



Juergen Mueller
Chief Technology Officer



Scott Russell
Customer Success (since February 1, 2021)



Thomas Saueressig
SAP Product Engineering



Julia White
Marketing, Communications, and Solutions (since March 1, 2021)

Investor Relations

Turbulent Stock Year – SAP Remains Number 1 on DAX

The COVID-19 pandemic dominated the stock markets in 2020, overshadowing other topics such as Brexit, political unrest, and the presidential election in the United States. At the same time, pressure on investments remained high in the persistently low interest rate environment. Comprehensive federal support packages and advances in vaccine development also served to whet investors' risk appetite, which increased rapidly following the initial shock. The stock markets not only rebounded significantly from their year lows as a result, they even reached record highs in several countries, including Germany and the United States. Against this backdrop, SAP stock was also influenced by company-specific events. Losing 10.9% year on year, it significantly underperformed the benchmark indexes DAX 30 and NASDAQ 100, which grew 3.5% and 47.6%, respectively. With a market capitalization of €131.7 billion at year end, SAP nevertheless continued to be the most valuable company on the DAX.

SAP Stock Loses Ground Despite Good Growth Prospects

SAP stock started the year at € 120.32, the Xetra closing price on December 31, 2019, and, with the markets rallying, reached an interim high of € 129.44 on February 19, the same day SAP announced an increase in the dividend to €1.58 and a share buyback in the amount of €1.5 billion. This upward trend included a brief slump at the end of January following publication of our preliminary full year 2019 results, which, despite a raised forecast for 2020, disappointed investors on account of weaker than expected growth in cloud business. From February 24 onwards, the stock markets experienced a massive downturn caused by the pandemic, which saw the SAP share price plunge more than 30% to reach its lowest level for the year of €87.63 on March 19.

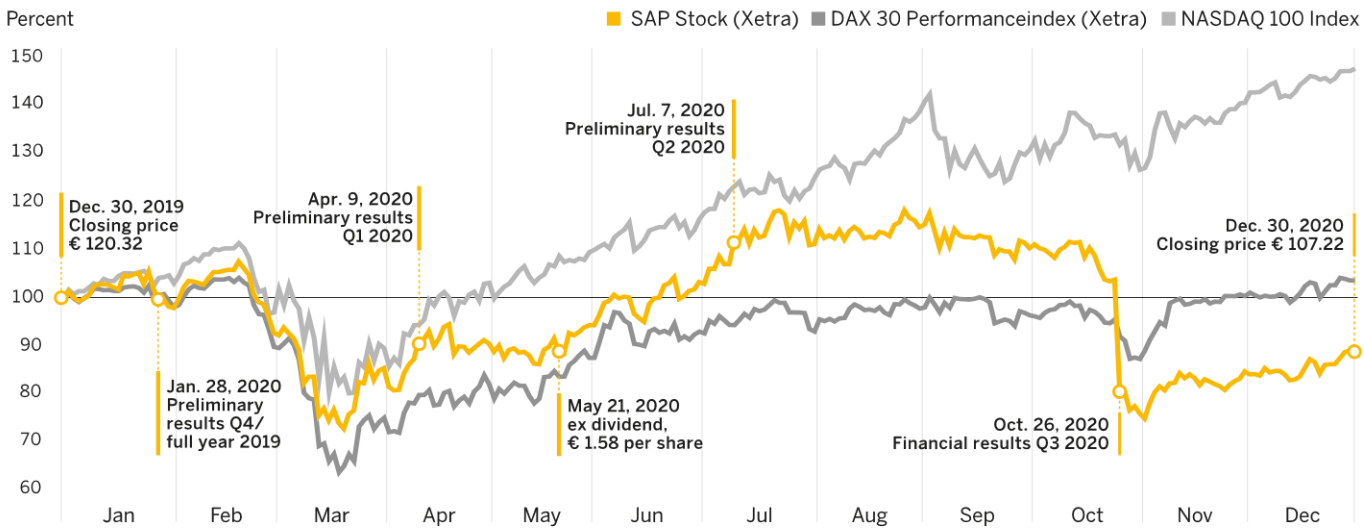
Nevertheless, SAP stock clearly outperformed the market in the coming months and was able to maintain this lead during the recovery that followed. The quick implementation of comprehensive economic stimulus and aid packages raised the capital markets' hopes of a swift economic recovery. Technology stocks that benefited from pandemic-driven digitalization trends thus performed significantly better than other stocks in the process.

Our preliminary results for the first quarter of 2020, released on April 8, impressed with strong growth in cloud business; the numbers and the COVID-19-related forecast adjustment both exceeded market expectations, pushing our share price up 4.8%.

SAP stock continued its recovery, and by the end of June even exceeded the previous year's level. Better-than-expected preliminary figures for the second quarter of 2020 then gave the share price an additional strong boost on July 9, taking it a new all-time high on July 22 before lifting it even higher to €142.26 on August 26. Several waves of selling triggered by profit-taking in U.S. technology stocks, plus rising COVID-19 infection rates, subsequently brought the share price back down to the €130 range in September.

On October 25 we published our third-quarter results together with the announcement of our accelerated cloud transition and our revised mid-term outlook. The markets responded with great disappointment. The stock plunged 22% on a single day, and continued to fall until November 2, closing at €90.18. While the accelerated cloud transition will slow revenue and operating income growth over 2021 and 2022, the revised strategy enables a new path of sustainable and highly profitable growth, and as such, both metrics should return to a strong upward trajectory in the medium term. At year's end, the regulatory approval of vaccines and the start of immunization in many countries increasingly lifted investor sentiment despite new waves of infections. SAP stock benefited from this good mood, climbing to €107.22 on December 30. Nevertheless, the stock ended the year with a loss of 10.9%.

SAP Stock in Comparison to Major Indices December 30, 2019 to December 30, 2020



Dialog with Investors Continues Virtually

SAP continuously engaged with the investment community in 2020. Throughout the year, members of the Executive Board of SAP SE and the Investor Relations (IR) team discussed our latest strategy and business development as well as how SAP was helping customers during the pandemic with institutional investors, analysts, and private investors worldwide. With the onset of the pandemic, SAP decided to host all events virtually as of March 2020 to ensure the health of all investors, employees, and service providers. An event for European buy-side analysts at SAP's global headquarters in Walldorf (Germany) on February 20 was the last physical event in the Investor Relations program in 2020.

The IR team, together with senior management, held more than 110 meetings last year including one-on-one phone calls, video conferences and virtual road shows to maintain the dialog with investors and analysts. Members of the Executive Board and the IR team and participated in more than 20 conferences worldwide. In June, we hosted a special event at the virtual SAPPHIRE NOW conference, which included a Q&A session for investors and financial analysts. Moreover, SAP held the 2020 Annual General Meeting of Shareholders (AMG) virtually without physical presence for the first time, in accordance with the German emergency legislation to cope with the COVID-19 outbreak. We held an extended third quarter financial analyst conference call in October 2020 highlighting our new strategic vision.

We continued our dialogue with socially responsible investors (SRI), providing them with insights into our environmental, social, and corporate governance policies. SAP representatives engaged with retail shareholders at virtual events. The IR team and the Treasury team also maintained regular communication with the debt investor community.

We provide a wide range of information about SAP and its shares online. Our communications channels include our Twitter feed @sapinvestor and the quarterly SAP INVESTOR magazine. Shareholders can reach the IR team directly by telephone hotline and by e-mail at investor@sap.com. We also publish an overview of the latest analyst consensus in collaboration with Vara Research.

We provide a Webcast for all key investor events at which members of our Executive Board speak, and we post all relevant presentations on the Investor Relations Web site.

Key Facts About SAP Stock/SAP ADRs

Listings	
Germany	Berlin, Frankfurt, Stuttgart
United States (ADRs)	New York Stock Exchange
IDs and symbols	
WKN/ISIN	716460/DE0007164600
NYSE (ADRs)	803054204 (CUSIP)
Reuters	SAPG.F or .DE
Bloomberg	SAP GR
Weight (%) in indexes as at 12/31/2020	
DAX 30	10.22
Prime All Share	7.41
CDAX	8.47
HDAX	7.92
Dow Jones STOXX 50	3.07
Dow Jones EURO STOXX 50	4.52

Return on SAP Common Stock — WKN 716460/ISIN DE007164600

Percent, unless otherwise stated			
Initial investment €10,000			
Date of investment	12/31/2010	12/31/2015	12/31/2019
Period of investment	10 years	5 years	1 year
Value as at 12/31/2020[1] (in €)	28,354	14,612	8,911
Average annual return	**11.0**	**7.9**	**–10.9**
Performance comparators			
DAX 30 Performance — total return index	7.1	5.0	3.5
REX General Bond — total return index	1.6	0.9	1.7
S&P 500 Composite — total return index	12.6	10.3	6.7
S&P North American Technology Software Index	20.3	23.0	32.2

[1] Assuming all dividends were reinvested

Source: Bloomberg

Return on SAP ADRs — 803054204 (CUSIP)

Percent, unless otherwise stated			
Initial investment US$10,000			
Date of investment	12/31/2010	12/31/2015	12/31/2019
Period of investment	10 years	5 years	1 year
Value at 12/31/2020[1] (in US$)	25,959	16,484	9,731
Average annual return	**10.0**	**10.5**	**–2.7**
Performance comparators			
S&P 500 Composite — total return index	11.6	12.9	16.3

[1] Assuming all dividends were reinvested

Source: Bloomberg

Dividend Increased to €1.85

It is our policy to pay a dividend totaling 40% or more of IFRS profit after tax.

At the Annual General Meeting of Shareholders, the Executive Board and the Supervisory Board of SAP SE will recommend increasing the total dividend for fiscal year 2020 by 17% to €1.85 per share (2019: €1.58). This represents a payout ratio of 41% (2019: 55%).

Share Buyback Completed

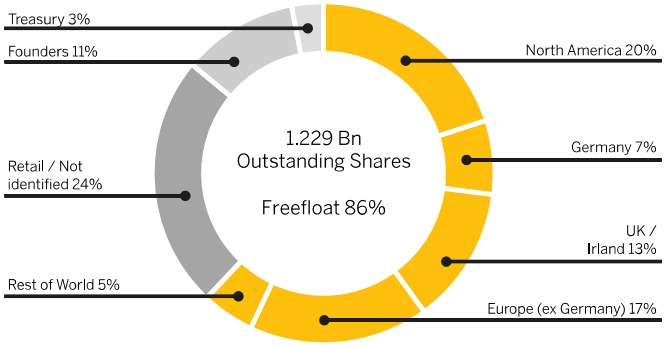
SAP completed its share buyback program of approximately €1.5 billion in the first quarter of 2020. SAP bought back 14,070,538 shares at an average price of approximately €106.04 between February 20 and March 19, 2020.

Capital Stock Unchanged

SAP's capital stock as at December 31, 2020, was €1,228,504,232 (2019: €1,228,504,232). It is issued as 1,228,504,232 no-par shares, each with an attribute value of €1 in relation to capital stock.

Shareholder Structure

Applying the definition accepted on the Frankfurt Stock Exchange, which excludes treasury stock from the free float, as at December 31, 2020, the free float stood at 86% (December 31, 2019: 86%).



*35% of institutional investors (marked yellow) are classified as socially responsible investors (SRIs)

Report by the Supervisory Board

Dear Shareholders,

In the following, we would like to inform you about the work of the Supervisory Board in the fiscal year 2020.

Collaboration Between the Supervisory Board and the Executive Board

In the past fiscal year, the Supervisory Board of SAP SE advised the Executive Board on an ongoing basis with regard to the management of the Company and kept the Executive Board's global management of the Company under observation and scrutiny for legal compliance, adherence to proper accounting principles, business focus, and expediency. We were directly involved when the Executive Board made any decision of fundamental importance to SAP.

The Supervisory Board received regular, full, and timely reports from the Executive Board, both from members in person and in written documents. This ensured that we were always up to date, even between meetings, on the Company's strategy, planning, business performance, risks, risk management, compliance (in other words, adherence to laws, to the Company's Articles of Incorporation, and to internal policies), and on transactions of special significance for SAP. In its reports, the Executive Board also informed us in particular where business deviated from plan or target, and why. In addition, the Supervisory Board members can turn to SAP Digital Boardroom at any time to call up comprehensive metrics for all business areas in real time and generate evaluations and analyses as required. The solution affords us an up-to-date view of SAP's business performance whenever we need it – with maximum transparency.

The content and scope of the Executive Board's reports to us fully met our requirements for them, The Executive Board came to Supervisory Board meetings for discussion of the agenda items. We questioned and probed the Executive Board to satisfy ourselves that the information it gave us was plausible. We approved, after careful examination and discussion with the Executive Board, all transactions requiring approval by the Supervisory Board whether by law, the Articles of Incorporation, or the Supervisory Board's list of transactions requiring its consent.

The Supervisory Board chairperson and the two Co-CEOs, and subsequently the sole CEO, were in continuous contact, which meant that the Supervisory Board chairperson was always informed without delay of all important events that were significant for assessing SAP's situation and progress or for the management and governance of the Company. Moreover, the chairperson of the Supervisory Board discussed SAP's strategy, business performance, risks, risk management, compliance, and other key topics and decisions regularly with the CEO. This enabled the Supervisory Board chairperson to update the members of the Supervisory Board between meetings.

Supervisory Board Meetings and Resolutions

In the past fiscal year, the Supervisory Board of SAP SE held four ordinary meetings and three extraordinary meetings at which we deliberated and resolved on all matters of relevance to the Company. Due to the travel and contact restrictions imposed on us as a result of the coronavirus pandemic, we conducted the majority of our plenary meetings and Committee meetings, which are normally held as physical meetings, in 2020 as video conferences or as hybrid sessions, where some members attended physically and the remainder online. We also adopted 10 resolutions by correspondence vote. The table on the following page provides an overview of the individual members' attendance at the Supervisory Board's plenary sessions and committee meetings in the year under review.

The Supervisory Board and its committees also convened wholly or partly without the Executive Board as necessary in 2020 to deliberate on items that pertained to the Executive Board or required internal discussion among Supervisory Board members alone. This was notably the case in two of the seven plenary sessions and in the Nomination Committee meetings. In addition, the shareholder representatives and the employee representatives independently discussed individual agenda items as required prior to the adoption of resolutions in plenary sessions. The Supervisory Board addressed the following key topics during the year:

Adjustment of Company Strategy

The effects of the coronavirus pandemic on the economy and the accelerated transition of our customers to the cloud are two major factors that prompted the Executive Board to adjust SAP's corporate strategy and thus its medium-term goals. We assessed and discussed the planned strategy updates in depth with the Executive Board. At a special strategy session on July 21 and 22, 2020, ahead of the Supervisory Board's July meeting, we consulted with the Executive Board on changes to the Company's strategic direction for the coming years and examined in detail the advantages, risks, and implementation of the contemplated measures. In an extraordinary Supervisory Board meeting on October 25, 2020, the Executive Board subsequently informed us about the financial impacts it expected the planned strategy adjustment – namely a faster transition of SAP to the cloud – and the ongoing coronavirus pandemic would have on SAP's medium-term goals. With the customers' needs in mind, the Executive Board has opted for a series of measures and investments designed to expedite the harmonization of SAP's cloud business, create more room for organic innovation, and, ultimately, speed our customers' transition to the cloud. We support this decision by the Executive Board to focus on the long-term success of our customers and thus of SAP.

IPO of Qualtrics

Acquired by SAP in 2019, Qualtrics International Inc. ("Qualtrics") is one of the leading providers of experience management software. At the Supervisory Board's extraordinary meeting on July 26, 2020, the Executive Board presented its plans to take Qualtrics public. The aim of the initial public offering (IPO) is to fortify the acquiree's finances and to create the necessary conditions for unlocking the full market potential of Qualtrics. Immediately prior to the plenary session, the Finance and

Meeting Participation of SAP Supervisory Board Members During Fiscal Year 2020

	Plenum		Committees		All Meetings		
Supervisory Board Members	Meetings	Participation	Meetings	Participation	Meetings	Participation	**Participation in %**
Prof. Dr. h.c. Hasso Plattner	7	7	13	13	20	**20**	**100 %**
Pekka Ala-Pietilä	7	7	14	14	21	**21**	**100 %**
Panagiotis Bissiritsas	7	7	26	25	33	**32**	**97 %**
Aicha Evans	7	7	13	12	20	**19**	**95 %**
Diane Greene (until 9.12.2020)	7	6	7	7	14	**13**	**93 %**
Prof. Dr. Gesche Joost	7	7	7	7	14	**14**	**100 %**
Margret Klein-Magar	7	7	18	18	25	**25**	**100 %**
Monika Kovachka-Dimitrova	7	7	7	7	14	**14**	**100 %**
Lars Lamadé	7	7	10	10	17	**17**	**100 %**
Bernard Liautaud	7	7	13	13	20	**20**	**100 %**
Gerhard Oswald	7	7	28	28	35	**35**	**100 %**
Christine Regitz	7	7	19	19	26	**26**	**100 %**
Dr. Friederike Rotsch	7	7	27	27	34	**34**	**100 %**
Heike Steck	7	7	7	7	14	**14**	**100 %**
Christa Vergien-Knopf	7	7	7	7	14	**14**	**100 %**
Gunnar Wiedenfels	7	7	20	20	27	**27**	**100 %**
James Wright	7	7	23	23	30	**30**	**100 %**
Ralf Zeiger	7	6	7	7	14	**13**	**93 %**

Investment Committee had convened, likewise in an extraordinary meeting, to discuss these plans in detail. The Committee had submitted a comprehensive list of questions in this regard to the Executive Board and, on this basis, analyzed and discussed with the latter the advantages and disadvantages of listing Qualtrics. The Executive Board had reaffirmed that SAP would remain the majority shareholder of Qualtrics after the IPO and continue to fully consolidate it. On the recommendation of the Finance and Investment Committee, we gave our approval in principle to tackle the Qualtrics IPO and begin the planning of the transaction. Once the Executive Board had worked out the framework conditions and details of the IPO, the basic principles of pricing, and options for a possible time plan, we returned to this subject in our October meeting – following intensive groundwork by the Finance and Investment Committee. The Executive Board gave us a status update on the IPO preparations, the envisaged schedule, and the price indications. After discussing these details with the Executive Board, we approved, on the recommendation of the Finance and Investment Committee, the proposed implementation roadmap. In addition, we gave advance approval for certain members of the SAP Executive Board to assume mandates on Qualtrics' Board of Directors as part of the IPO. Given the ongoing, complex preparations for Qualtrics' stock market entry, important questions regarding the exact timing of the IPO, the pricing, and internal corporate structure still needed to be clarified and decided upon. We therefore tasked the Finance and Investment Committee to discuss these questions with the Executive Board and approve the final agreed approach on our behalf. In its meeting on December 16, 2020, the Finance and Investment Committee deliberated on the aforementioned details of the IPO and, after extensive discussions with the Executive Board, approved the listing based on the information and data presented to us.

Matters Relating to Compliance and Cybersecurity

SAP's Office of Ethics & Compliance (OEC) kept the Audit Committee continually apprised throughout the reporting year on the ongoing investigations being conducted with the assistance of external counsel into potential violations of anticorruption laws (including the U.S. Foreign Corrupt Practices Act (FCPA)). The Audit Committee in turn reported on the status of these compliance matters to the full Supervisory Board at the ordinary plenary meetings held in February, July, and October 2020. Said updates included the status of SAP's voluntary cooperation with local authorities, the U.S. Securities and Exchange Commission (SEC), and the U.S. Department of Justice (DOJ), as well as the status of investigations into the export controls and economic sanctions violations that SAP had voluntarily self-disclosed. The Audit Committee also monitored the effectiveness of the improvement measures introduced by the Executive Board in the preceding years.

In our February 19, 2020, meeting, the Executive Board reported that an internal assessment launched by it had identified potential cybersecurity gaps in certain of SAP's cloud products. We responded by tasking the Audit Committee to monitor the further

course of the investigation, the information provided to the customers concerned, as well as the technical and other steps taken by the Executive Board to mitigate the identified security issues in the affected products. We also resolved to seek assistance from external consultants to help us address the complex technical and legal questions in this regard. We were subsequently updated on the status of these investigations in our meeting on April 9, 2020. The Executive Board reported to the Audit Committee regularly on this matter throughout the year, especially after it was discovered that one or more contractually agreed IT security standards were not being met for all our cloud products at that time. We closely monitored the effectiveness of the remedial measures that had been implemented. In our ordinary sessions on July 23 and October 22, 2020, the chairperson of the Audit Committee and senior internal officers gave the full Supervisory Board a progress report on the investigations, the correction of the security gaps that had been identified, and the corresponding communication with affected customers. We were also informed that the above-mentioned deviations from the contractually agreed or statutory IT security standards had been rectified at the end of July 2020.

Realignment of the Executive Board

There were a number of changes on the Executive Board in 2020 on both personal and organizational level. At our meeting on February 19, 2020, the Executive Board presented its planned organizational changes aimed at further strengthening the focus on customers in SAP's internal processes, as well as the associated adjustments in the Group structure and the impacts these adjustments would have on segment reporting. A key part of the realignment was the bundling of the sales, services, and support organizations in the Customer Success Board area led by Adaire Fox-Martin, the merging of the product management, development, and support organizations led by Thomas Saueressig, and the consolidation of integrated data management solution development and SAP platform and technology development headed by Juergen Mueller. Prior to this meeting, the Executive Board members Michael Kleinemeier and Stefan Ries had each reached a mutual decision with the Supervisory Board to end their employment with SAP effective April 30, 2020, and May 31, 2020, respectively, which is why we were also able to approve the terms of their Executive Board termination agreements when we convened in February. The organizational changes presented to us were then implemented step by step over the remainder of fiscal 2020. We approved the resulting adjustments to the Executive Board members' portfolios at our May, August, and October meetings, by means of circular correspondence vote in each case. The Supervisory Board held an extraordinary meeting on April 20, 2020, at which we discussed and approved the appointment of Christian Klein as sole CEO of the Executive Board and his corresponding assumption of additional tasks. At the same time, we mutually agreed with former Co-CEO Jennifer Morgen the terms of the early termination of her SAP Executive Board contract effective April 30, 2020. Having already dealt with the search for candidates to replace Stefan Ries as head of SAP's Human Resources (HR) department at our April 9, 2020, meeting, we subsequently approved the appointment of Sabine Bendiek as the new chief people officer and labor relations director when we met on July 23. The appointment to this position was initially for a term of three years with effect from March 1, 2021. We further agreed that six months after taking up her post on the Executive Board, Ms. Bendiek would additionally assume the role of COO. When we met in October, we were able to resolve on her earlier appointment to the Executive Board effective January 1, 2021, as she was in a position to join the Executive Board earlier than originally expected. In December 2020, the Supervisory Board appointed Scott Russell as a new member of the Executive Board effective February 1, 2021. He took over the Customer Success Board area from Adaire Fox-Martin, who resigned her seat on the Executive Board at her own wish and departed the Company on January 31, 2021. Also in December, we appointed Julia White as a further member of the Executive Board effective March 1, 2021. She will lead the new Marketing and Solutions Board area as chief marketing and solutions officer. The Supervisory Board resolved these appointments by way of circular correspondence vote.

Other key topics addressed at our meetings in 2020 notably included the following:

Meeting in February (Meeting to Discuss the Financial Statements)

In a plenary session on February 19, 2020, the Executive Board reported on the outcome of the 2019 employee survey and the Company's 2019 financial results. We then discussed in detail the finance plan for 2020 as presented to us by the Executive Board, and approved same. Next, we turned our attention to Executive Board compensation. We first determined the amount of Executive Board compensation for 2019 by deciding on the total target achievement and the payouts for the individual Executive Board members under the Short-Term Incentive (STI) 2019 Plan. After that, we deliberated on Executive Board compensation for 2020. We defined the key performance indicators (KPIs) for the STI 2020 and set the target numbers for each KPI and their relative weightings. In addition, we set the specific target numbers for each KPI of the Long-Term Incentive Program 2020 (LTI 2020). The Supervisory Board, as required, evaluated the appropriateness of the individual Executive Board members' total compensation for fiscal 2020, and in each case found it to be appropriate in terms of amount, structure, objective criteria, and for each member's responsibilities and tasks. We referred in this regard to an appropriateness certificate obtained beforehand from an external compensation consulting firm. Continuing, we set a cap for Executive Board pay in accordance with new regulatory requirements to then deliberate and finally resolve on the new compensation system for the Executive Board that had been developed step by step since the autumn of 2019. For more information about the STI 2020, the LTI 2020, and the other elements of the compensation package for Executive Board members, see the *Compensation Report*. On recommendation of the General and Compensation Committee, the Supervisory Board also resolved that members of the Executive Board shall not have more than one supervisory board mandate at a non-group entity in the future. In addition, the Supervisory Board turned its attention to the SAP SE financial statements and the consolidated financial statements for 2019, the audits conducted by KPMG AG Wirtschaftsprüfungsgesellschaft (KPMG), and the Executive Board's proposed resolution on the appropriation of retained earnings for 2019. The auditor attended the meeting and reported in detail on the audit and its findings for each of the focus areas that had been agreed between the auditor and the Audit

Committee. The auditor also related the discussions on those matters at the preceding meetings of the Audit Committee. The auditor then discussed the results of the audit with the Supervisory Board and answered our questions. The Audit Committee had comprehensively prepared all topics in connection with the financial statements and the consolidated financial statements for 2019, and in particular reported on the form and scope of its examination of the documents relating to the financial statements, which it recommended we approve. The Supervisory Board approved the audit. There were no findings from our own examination, so we gave our consent to the SAP SE and consolidated financial statements for 2019. We then reviewed the Executive Board's proposal to appropriate retained earnings as well as its proposal to buy back SAP shares in fiscal year 2020. In accordance with the Audit Committee's recommendation, we endorsed the Executive Board's proposal concerning the appropriation of retained earnings and approved the capital return for 2020 proposed by the Executive Board by authorizing treasury stock purchases totaling €1.5 billion. Next, we passed our further proposed resolutions for the agenda of the Annual General Meeting of Shareholders on May 20, 2020. In particular, this included approving the proposal to the Annual General Meeting concerning the election of an auditor for 2020, which followed the Audit Committee's recommendation to us. Also in this meeting, we extended the list of transactions and business management measures for which the Executive Board must obtain the Supervisory Board's consent, and were informed about SAP's equity investments during the fiscal year 2019 as well as SAP's donation activities.

Meeting in April

On April 9, 2020, we resolved to renew Luka Mucic's Executive Board contract for a further five years to May 31, 2026, and resolved that as a general rule, Executive Board contracts in future be renewed for only three years. The Executive Board then gave us an overview of the first-quarter results for 2020, and we consented to the Executive Board's requested authorization to conduct external financing transactions worth up to €2.5 billion. Together with the Executive Board, we decided to make use of the legislation that was enacted in response to the coronavirus pandemic and published in the Federal Law Gazette on March 27, 2020, and hold the Annual General Meeting in virtual form. We also resolved, based on the updated German Corporate Governance Code (Code), which came into effect on March 20, 2020, to remove the deductible for Supervisory Board members in the D&O liability insurance as of July 1, 2020. Further, we examined the new rules on the treatment of "related-party transactions", that is, business transactions with related companies and persons, under the German Act on the Implementation of the Second EU Shareholders' Rights Directive (ARUG II), and consented to an internal recording and evaluation procedure in this regard. The Supervisory Board thereby delegated its power of approval for relevant related-party transactions to the Finance and Investment Committee.

Resolutions Adopted by Correspondence in June and July

By way of correspondence vote, we resolved in June on the appointment of the new manager of the Corporate Development and Strategy department, and in July on the appointment of a new regional manager for Latin America and the Caribbean and a new regional manager for EMEA South.

Meeting in July

Ahead of our July meeting, the Supervisory Board held a special, two-day strategy session which took the place of the Technology and Strategy Committee meeting. In addition, at our meeting in July, the Executive Board gave us an account of business in the second quarter of 2020 and performance in the first half year, emphasizing the unprecedented circumstances brought about by the coronavirus pandemic. Referring to management's presentation, we discussed with the Executive Board its plans to potentially adjust SAP's strategic direction, which are described in more detail at the beginning of this report.

Resolution Adopted by Correspondence in September

In September 2020, we approved, on the recommendation of the Finance and Investment Committee, the acquisition of the Austrian company Emarsys eMarketing Systems AG, a leading provider of omnichannel customer engagement platforms in the cloud.

Meeting in October

At our meeting on October 22, 2020, the Executive Board first reported on business performance in the third quarter. We next discussed the impact of the coronavirus pandemic on the STI 2020, and concluded that we did not want to adjust the targets in the STI 2020 plan. In addition, the Supervisory Board assessed the independence of its shareholder representatives pursuant to the new recommendations contained in the current December 16, 2019, version of the Code. Based on the findings from our own examination, we determined that all shareholder representatives were independent in the meaning of the Code and were therefore to be named in the *Corporate Governance Statement*. We also resolved on what we believe to be the appropriate number of independent shareholder representative members, and determined that the Supervisory Board has an appropriate number of independent members in the meaning of the Code, also when the shareholder structure is taken into account. In agreement with the Executive Board, we also adopted, for regular publication in October 2020, the annual *Declaration of Implementation* of the Code, and updated the profile of skills and expertise for the Supervisory Board.

Resolution Adopted by Correspondence in December

In December 2020, the Supervisory Board resolved by way of correspondence to set up an additional Committee as of January 1, 2021, to address the preparation and implementation of SAP's business strategy for China.

The Work of the Supervisory Board Committees

The committees made a key contribution to the work of the Supervisory Board in 2020, and reported on their work to us, including their preparatory work for and decisions made on the relevant agenda items of the subsequent Supervisory Board

meetings. The following committees were in place in the year under review:

- **General and Compensation Committee:** Hasso Plattner (chairperson), Pekka Ala-Pietilä, Panagiotis Bissiritsas, Aicha Evans, Margret Klein-Magar, Lars Lamadé, Bernard Liautaud, Christine Regitz, Friederike Rotsch, Ralf Zeiger
- **Audit Committee:** Gunnar Wiedenfels (chairperson), Panagiotis Bissiritsas, Margret Klein-Magar, Gerhard Oswald, Friederike Rotsch, James Wright
- **Finance and Investment Committee:** Friederike Rotsch (chairperson), Panagiotis Bissiritsas, Gerhard Oswald, Christine Regitz, Gunnar Wiedenfels, James Wright
- **Technology and Strategy Committee:** Hasso Plattner (chairperson), Christine Regitz (deputy chairperson), Aicha Evans, Diane Greene (until December 9, 2020), Gesche Joost, Monika Kovachka-Dimitrova, Lars Lamadé, Bernard Liautaud, Gerhard Oswald, Heike Steck, Christa Vergien-Knopf, James Wright
- **People and Organization Committee:** Gerhard Oswald (chairperson), Pekka Ala-Pietilä, Aicha Evans, Gesche Joost, Monika Kovachka-Dimitrova, Heike Steck, Christa Vergien-Knopf, Ralf Zeiger
- **Nomination Committee:** Hasso Plattner (chairperson), Pekka Ala-Pietilä, Diane Greene (until July 2, 2020), Bernard Liautaud, Gerhard Oswald (since July 23, 2020)

Each of the aforementioned committees was active in 2020. For more information about the Supervisory Board committees and their duties, see the *Corporate Governance section of SAP's Web site*.

Besides the matters described above, the committees focused primarily on the following topics in 2020:

- The *General and Compensation Committee* held five ordinary and two extraordinary meetings. In particular, the Committee, in fulfillment of the tasks assigned to it, extensively prepared and discussed in advance the deliberations and resolutions of the Supervisory Board concerning the Executive Board compensation, thetermination agreements for departing Executive Board members, and the HR decisions described above, or it adopted its own resolutions in these matters. At its first meeting in February 2020, the Committee was presented with the annual report from the corporate governance and insider trading compliance officer, and deliberated on how many supervisory board mandates an Executive Board may generally be allowed to have at non-Group listed companies. When it met in July 2020, the Committee focused onthe SAP Flight Travel Policy for Executive Board members, which governed the use of SAP aircraft, as well the new recommendations in the Code regarding the independence of supervisory board members, and updated the Committee's rules of procedure. The Supervisory Board's decisions with respect to the submission of the declaration of implementation of the Code and ascertaining the independence of shareholder representative members were prepared in October 2020.
- The *Audit Committee* held nine meetings – two of which jointly with the Finance and Investment Committee – in 2020. At its meetings, the Committee deliberated on the course of business over the quarter concerned, the accounting processes, the preparation of quarterly financial reports, and the quarterly reports to be published. Other regular meeting topics included SAP's risk management system, its internal control system, its compliance system (including specific compliance issues, the status of corresponding SAP-internal investigations, and case-related collaboration with authorities), and cybersecurity. During its physical meeting in February 2020, the Committee focused on the financial accounts of SAP SE and the SAP Group for 2019 and prepared the Supervisory Board's proposals to the Annual General Meeting of Shareholders concerning the appointment of the auditor and the appropriation of retained earnings. The decision on the recommendation regarding the appointment of the auditor was preceded by a review of the auditor's independence, qualifications, and quality of work. To monitor the latter, the Audit Committee obtained regular reports from the auditor on its internal quality assurance standards and on any material findings from internal quality audits, from external quality controls via peer review, and from any investigations conducted by the government or regulators into the auditor's audits. In addition, the internal audit department reported on the fiscal year 2019 and its audit plan for 2020. At mid-year, the internal audit department informed the Committee about its audit findings to date as well as its plans for the second half of 2020. Moreover, the Audit Committee continuously adapted and monitored the invitation to tender issued by it in 2020 for the audit of the SAP SE and consolidated financial statements as well as further audit services commencing in the fiscal year 2023. In this connection, an extraordinary meeting was set for December 2020, at which the candidates presented themselves to the Audit Committee, following which the Audit Committee assessed the candidates. When it met in October, the Audit Committee examined, among other things, the potential impact of the planned IPO of Qualtrics on SAP's financial reporting and audit. The auditor also informed the Committee about the potential impact of the Wirecard scandal on external audit and corporate governance. The auditor attended all Audit Committee meetings except for the extraordinary meeting in December, and reported in depth on its audit work and on its quarterly reviews of selected software agreements. The Committee discussed the audit focus with the auditor at its July meeting, and the audit fees with the auditor at its meeting in October. As reported in more detail below, the Committee also held two joint meetings with the Finance and Investment Committee in February and December 2020 to discuss the Group annual plan for 2020 and the preliminary Group annual plan for 2021.
- The *Finance and Investment Committee* held seven ordinary meetings and four extraordinary meetings in the reporting year. Two of its meetings, one in February and one in December 2020, were joint meetings with the Audit Committee. An internal training session was also held at which the Committee learned more about capital market topics. In February 2020, the Committee discussed with the Executive Board the Company's plans to buy back its own shares and recommended that the Supervisory Board approve the share buyback in the form proposed. In addition, the Committee discussed Qualtrics and the refinancing measures for the acquisition loan. Further, the Committee received its regular written update on SAP's equity investments during the preceding fiscal year. In the joint meeting

with the Audit Committee that followed, the members of both Committees discussed the annual plan for 2020 and voted in favor of recommending its approval to the Supervisory Board. In the April meeting, the Executive Board reported on selected investor relations topics and updated the Committee on SAP's Best Run initiatives. At the extraordinary meeting held in April, the Committee recommended, after thorough deliberation, that the Supervisory Board approve the establishment of a flexible external financing framework to safeguard liquidity for the period to March 31, 2021. In addition, the Executive Board informed the Committee about its plans to sell off the SAP Digital Interconnect (SDI) division. The Committee subsequently approved the sale of this division to the Swedish company Sinch AB at an ordinary meeting in May. At the Committee's regular meeting in July, the Executive Board presented a revised outlook for fiscal 2020 and explained the portfolio planning which had been based on the targets of the Best Run initiative. The extraordinary meeting in September was dedicated to resolving on the planned acquisition of Emarsys eMarketing Services AG. In October, representatives from Sapphire Ventures, LLC gave the Committee an overview of the European and U.S. market for venture capital in technology and a status report on the active SAP venture capital funds. In addition, the Committee discussed the Executive Board's planned strategy for SAP's presence in the Chinese market, and the Executive Board reported on the events planned for SAP investors. In December 2020, the Committee held a second joint meeting with the Audit Committee, at which the Executive Board presented the preliminary 2021 Group annual plan. This meeting was held in preparation for the Supervisory Board meeting in February 2021, at which the full Supervisory Board routinely resolved to approve the 2021 Group annual plan.

- The *Technology and Strategy Committee* met three times in 2020. It discussed key technology trends in the software industry in the years to come and SAP's corporate and product strategies. The Executive Board explained SAP's technology strategy to the Committee members at its February meeting, where the two bodies also discussed the further development and integration of Intelligent Enterprise Suite, which was based on SAP Business Technology Platform and driven by SAP HANA. The meeting participants also discussed what opportunities for innovation and simplification this presented. In April 2020, the Executive Board updated the Committee on the measures to integrate the Ariba, Fieldglass, SuccessFactors, and Concur applications, and provided an outlook for their technical development going forward. It also provided a status report on the realignment of products in the Customer Experience Management segment. In October 2020, the Committee first dealt with a new "Move to the Cloud" concept that was designed to help existing customers move their SAP applications to the cloud more easily in pre-defined phases. Thereafter, the Committee went over the latest progress reports on SAP S/4HANA Cloud and SAP's platform strategy.
- The *People and Organization Committee* held four meetings in 2020. When it met in January, the Committee discussed the Company's 2020 organizational structure, focusing particularly on the go-to-market and development areas. It referred in this regard to an overview the Executive Board gave it of the latest organizational changes and the goals of the individual Executive Board areas. The Committee was also updated on the Company's HR strategy for 2020 to 2023. The meeting in March was devoted to the coronavirus pandemic and the global measures that had been taken as a result both within and outside the Company. The Committee also revisited the impacts of the organizational changes that had been introduced in January on employees. Key topics of the July meeting were the results of the SAP employee survey, the strategic measures in the area of diversity, and an update on the ongoing coronavirus situation. The effects of the pandemic on employees and their work were again discussed in the October meeting. In addition, the Committee was given an introductory presentation on SAP's location strategy and an overview of the structure and implementation roadmap for the Company's general HR strategy. Following this, the Committee members and the Executive Board discussed the results of the second employee survey of 2020.
- The *Nomination Committee* met three times in the reporting year. In February and April, it discussed succession planning for members leaving their posts. When the Committee convened in December 2020, it deliberated on a successor for Diane Greene, who stepped down from the Supervisory Board in December for personal reasons. This meeting had been preceded by an intensive search for suitable candidates, on the basis of which the Committee nominated Dr. Qi Lu as her possible successor.

Regular reports from the committees ensured that we were kept fully informed of all matters covered by the committees and were able to discuss them thoroughly.

Corporate Governance

SAP's corporate governance and insider trading compliance officer monitored our compliance with those recommendations in the Code with which we claim to comply in SAP SE's declaration, and reported in full to the General and Compensation Committee in this regard. Detailed information about compliance with the Code is available in the Executive and Supervisory Boards' *Corporate Governance Statement.* Members of the Supervisory Board and of the Executive Board had no conflicts of interest that recommendations E.1 and E.2 of the Code require to be disclosed to the Supervisory Board. Insofar as Supervisory Board members hold executive positions in companies or have material equity in companies that currently have business dealings with SAP, we do not see any impairment of their independence. The scope of these transactions is relatively small and, moreover, takes place at arm's length. During the year under review, the Compensation Committee approved transactions involving a member of the Executive Board in 2019 which were all consistent with industry standards and immaterial. Other than those contracts mentioned in this report, the Company made no other contracts with members of the Executive Board or Supervisory Board that would have required a resolution of the Supervisory Board.

The Supervisory Board closely examined the Corporate Governance Statement and, by way of correspondence vote on February 16, 2021, approved same with the combined SAP Group and SAP SE management report.

Training and Professional Development

The members of the Supervisory Board had the opportunity once again to engage in training and professional development throughout the year, with appropriate support from the Company. Three dedicated training events in February 2020, for example, enabled the Audit Committee members to enhance their knowledge about SAP's non-financial KPIs Customer Net Promoter Score, Employee Engagement, and Carbon Impact, as well as gain a better understanding of the calculation methods, information sources, and control mechanisms behind those values. In July 2020, the Finance and Investment Committee took part in a training event devoted to investor relations topics that focused particularly on finance industry mechanisms relevant to SAP. The above training events were recorded and made available afterwards to the rest of the Supervisory Board. In November 2020, the Supervisory Board members were invited to two one-hour training sessions on the Internet of Things (IoT) and Digital Supply Chain (DSC) scheduled for January 2021. Moreover, the Supervisory Board can also avail itself of a wide range of recorded training sessions from 2019 on a specially configured training platform.

SAP SE and Consolidated Financial Reports for 2020

KPMG audited the SAP SE and consolidated financial reports for 2020. The Annual General Meeting of Shareholders appointed KPMG as the SAP SE and SAP Group auditor on May 20, 2020. The Supervisory Board had proposed the appointment of KPMG on the recommendation of the Audit Committee. Before proposing KPMG to the Annual General Meeting of Shareholders as auditor for the year, the chairperson of the Supervisory Board and the Audit Committee obtained confirmation from KPMG that circumstances did not exist that might prejudice or raise any doubt concerning its independence as the Company's auditor. In that connection, KPMG informed us of the volume of the services that were not part of the audit which it had either provided to the Group in the past year or was engaged to provide in the year to come. The Supervisory Board has agreed with KPMG that the auditor should report to the Supervisory Board and record in the auditor's report any fact found during the audit that is inconsistent with the declaration given by the Executive Board and the Supervisory Board concerning implementation of the German Corporate Governance Code. KPMG examined the SAP SE financial statements prepared in accordance with the German Commercial Code, the consolidated financial statements prepared in accordance with International Financial Reporting Standards (IFRSs) as required by the German Commercial Code, section 315e, and the combined SAP Group and SAP SE management report prepared in accordance with the German Commercial Code, and certified them without qualification. The auditor thus confirmed that, in its opinion and based on its audit in accordance with the applicable accounting principles, the SAP SE and consolidated financial statements give a true and fair view of the net assets, financial position, and results of operations of SAP SE and the SAP Group. The auditor also confirmed that the combined SAP SE and SAP Group management report is consistent with the corresponding financial statements and as a whole gives a suitable view of the position of SAP SE and the SAP Group and of foreseeable opportunities and risks. In accordance with section 317(3b) of the German Commercial Code, the auditor also examined and confirmed that the renderings of the financial statements, the management report, the consolidated financial statements, and the combined management report contained in the files submitted on an electronic data carrier, which can be accessed by the issuer on the secure client portal, and prepared for the purposes of disclosure comply in all material respects with the requirements of section 328 (1) of the German Commercial Code regarding the electronic reporting format ("ESEF format"). KPMG had completed its audit of SAP's internal control over financial reporting and certified without qualification that it complies with the applicable U.S. standards. The auditor stated in its opinion that it considers SAP's internal controls with respect to the consolidated financial statements to be effective in all material respects. Additionally, it provided assurance on selected qualitative and quantitative sustainability disclosures included in the Integrated Report but outside of the Management Report. All Audit Committee and Supervisory Board members received – initially in the form of drafts that were identical to the final documents – the documents concerning the financial statements mentioned above, the audit reports prepared by KPMG, and the Executive Board's proposal concerning the appropriation of retained earnings in good time.

On February 24, 2021, the Executive Board prepared the financial accounts of SAP SE and the SAP Group for 2020, comprising the SAP SE financial statements, the consolidated financial statements, and the combined management report, as well as the combined non-financial report and submitted them without delay to the Supervisory Board.

The Executive Board explained the financial statements of SAP SE and the SAP Group and its proposal concerning the appropriation of retained earnings at the meeting of the Audit Committee on February 23, 2021 (based on the drafts identical to the final documents) and at the meeting of the Supervisory Board on February 24, 2021. Members of the Executive Board answered questions from the Audit Committee and the Supervisory Board. At the Audit Committee meeting, they also explained the Annual Report on Form 20-F prepared in accordance with the applicable U.S. standards as well as the combined non-financial report.

After the Executive Board had explained them, the Audit Committee and the Supervisory Board reviewed the financial statement documents (based on drafts identical to the final documents) along with the combined non-financial report, taking KPMG's audit reports (or the drafts identical to the final documents) into account. The representative of the auditor who attended presented full reports on the audit and the results of the audit to the Audit Committee and Supervisory Board meetings and explained its audit reports (or final drafts thereof). The auditor also reported that it had not identified any material weaknesses in SAP's internal control and risk-management systems for financial reporting. Both the Audit Committee and the Supervisory Board asked detailed questions about the form, scope, and results of the audit. The Audit Committee reported to the Supervisory Board on its own review of the financial statements of SAP SE and the SAP Group, its discussions with the Executive Board and with the auditor, and its supervision of the financial reporting process. It confirmed that as part of its supervisory work, it had addressed the SAP Group's internal control, risk management, and internal auditing systems, and found the systems to be effective.

The Committee also reported that KPMG had told it that no circumstances had arisen that might give cause for concern about

KPMG's impartiality, and informed us about the services KPMG had provided that were not part of the audit. The Committee reported that it had examined the auditor's independence, taking the non-audit services it had rendered into consideration, and stated that in the Committee's opinion the auditor possessed the required degree of independence and expertise.

The Audit Committee and the Supervisory Board satisfied themselves that KPMG had conducted the audit properly. In particular, they concluded that both the audit reports and the audit itself fulfilled the legal requirements. On the basis of the report and the Audit Committee's recommendation, the Supervisory Board approved the audit and, since there were no findings from our own examination, we gave our consent to the SAP SE financial statements, the consolidated financial statements, and the combined management report (including the Executive Board's corporate governance statement pursuant to the German Commercial Code, sections 315d and 289f), as well as the combined non-financial report pursuant to the German Commercial Code, sections 315b and 289b. The financial statements and combined management report were thus formally adopted upon approval by the Supervisory Board. The Supervisory Board's opinion of the Company and the Group coincided with that of the Executive Board as set out in the combined management report. The Supervisory Board considered the proposal presented by the Executive Board concerning the appropriation of retained earnings. We had regard to the requirements of dividends policy, the effects on the liquidity of SAP SE and the SAP Group, and the interests of the shareholders. We also discussed these matters with the auditor. We then endorsed the Executive Board's proposal concerning the appropriation of retained earnings, in accordance with the Audit Committee's recommendation. Finally, we approved this present Report.

Changes on the Executive Board and Supervisory Board in 2020

Christian Klein became SAP's sole CEO on April 20, 2020, after Jennifer Morgan mutually agreed with the Supervisory Board to leave the Company effective April 30, 2020. Michael Kleinemeier likewise left SAP on April 30; 2020, after 30 years of service to the Company, and Stefan Ries departed the Company on May 31, 2020. Diane Greene resigned from the Supervisory Board on December 9, 2020. Her successor Dr. Qi Lu was appointed to the Supervisory Board by order of the court with effect from December 21, 2020. The Supervisory Board would like to sincerely thank Ms. Greene and the Executive Board members who relinquished their functions in the year under review for their invaluable contribution to the success of the Company.

The coronavirus pandemic has affected all areas of life and posed major challenges for people around the world. The Supervisory Board thanks the current members of the Executive Board and all SAP employees for their tireless dedication to SAP under these extraordinary circumstances.

For the Supervisory Board

Professor Hasso Plattner
(Chairperson)

Compensation Report

Note: This compensation report is part of the audited management report.

Compensation for Executive and Supervisory Board Members

This compensation report describes the two compensation systems, outlines the criteria that apply to the compensation for the year 2020, and discloses the amount of compensation. Both compensation systems were approved by the Annual General Meeting on May 20, 2020.

Compensation for Executive Board Members

Compensation System for 2020

The compensation for Executive Board members is intended to reflect the demanding role of Executive Board members leading a global company in a rapidly evolving sector. The compensation level is aimed to be competitive to support SAP in the global market for highly skilled executives, especially in the context of the international software industry. It is our goal that our Executive Board compensation provides sustainable incentive for committed, successful work in a dynamic business environment.

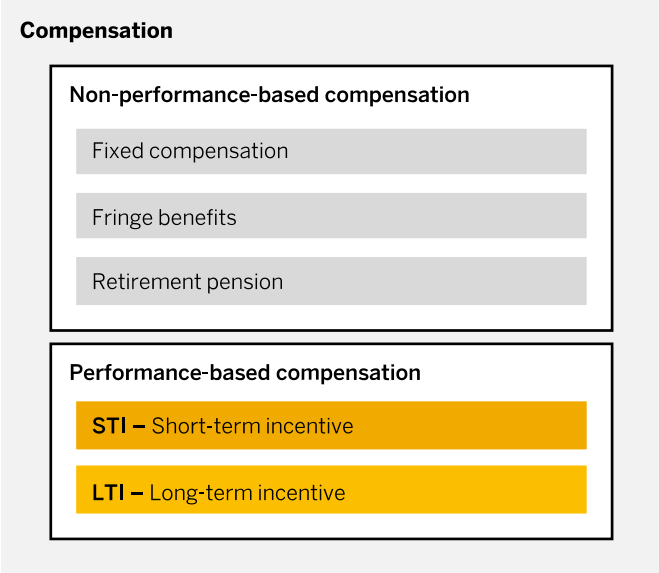
The Supervisory Board – supported by its General and Compensation Committee – determines the compensation for each Executive Board member based on their individual role and performance in its first regular meeting of each fiscal year, following the principles that the compensation:

- Promotes the business strategy
- Ensures that extraordinary performance is appropriately rewarded and any failure to achieve specific targets triggers a tangible reduction in the compensation
- Is in line with market standards in terms of its level and structure and reflects the Company's size, complexity, and economic situation
- Takes account of the pay structure in the Company as a whole. In this context, the compensation is compared with the pay of SAP executives and non-executive SAP employees to ensure that the principle of proportionality is observed within SAP.

The compensation system is, to a major extent, already aligned with the compensation agreements currently in place, with the exception of a few provisions relating to fringe benefits and/or pension commitments. When, in future, new members are appointed or members are reappointed, the Supervisory Board will ensure that the specific total compensation is aligned with the compensation system.

For more information about the work of the Supervisory Board and its committees, see the *Report by the Supervisory Board*.

The compensation contains performance-based elements and non-performance-based elements, as follows:



The amount of performance-based compensation depends primarily on SAP's performance against predefined target values (Key Performance Indicators, KPIs) and on the SAP share price, and is subject to hurdles and caps. These KPIs and their target values as well as their weighting are set by the Supervisory Board each year and are aligned to the SAP budget for that year or to SAP's externally communicated financial ambitions.

The Supervisory Board sets the individual total target compensation for each Executive Board member, comprised of the fixed compensation element and the two performance-based elements. This target compensation is benchmarked based on SAP's global strategy, market position, business performance and future prospects of economy, and the compensation paid at comparable national and international companies. The benchmarking was conducted in February 2020 based on the compensation data from the DAX 30 companies as well as U.S.-based IT and other technology companies[1]. The performance-based elements each correspond to a target achievement of 100% of all KPIs. The Supervisory Board reviews, assesses, and sets these compensation targets, in its first meeting of each fiscal year (February 19, 2020, for 2020). The Supervisory Board is of the opinion that this approach ensures that the compensation is appropriate.

[1] The following US-based companies were included: Adobe, Amazon.com, Apple, Automatic Data Processing, Cisco Systems, Cognizant Technology Solutions, Dell Technologies, DXC Technology, Facebook, Hewlett Packard Enterprise, International Business Machines, Microsoft, Netflix, Oracle, salesforce.com, ServiceNow, VMware, Western Digital, Workday.

The compensation system is designed to support the growth in value for the Company over the long term. The long-term incentive element therefore has significant weighting, making up about two-thirds of the CEO's compensation target, and more than 50% of each Executive Board member's compensation target.

In the case of any extraordinary, unforeseeable events, the Supervisory Board is entitled, at its reasonable discretion, to adjust the performance-based compensation before payout upwards or downwards in the interest of SAP. This discretion is limited to +/–20% for the STI and to +/–10% for the LTI. No corrections to the payout amounts paid in May 2020 were made.

The individual elements of SAP's Executive Board compensation are described in more detail below.

Non-Performance-Based Compensation

Fixed Compensation

The fixed compensation is paid monthly in 12 equal installments in the Executive Board member's home currency[2].

Fringe Benefits

The contractually guaranteed fringe benefits mainly comprise additional benefits such as insurance contributions, benefits in kind, expenses for maintenance of two households, use of aircraft, and tax gross-ups according to local conditions. The recurring fringe benefits are limited in terms of value to 10% of fixed compensation for ordinary Executive Board members and to 20% for the CEO. Executive Board members who have their permanent residence abroad are granted reimbursement of expenses for tax advice with a limited value of 15% of fixed compensation for ordinary Executive Board members and 30% for the CEO. In case of a relocation to Germany from abroad, a relocation package of up to 15% of fixed compensation for ordinary Executive Board members and up to 30% for the CEO can be granted.

Additionally, to the extent that compensation benefit earned prior moving to the SAP Executive Board is lost due to this move, a one-off payment (sign-on bonus) could be granted in an amount of up to 200% of the fixed compensation.

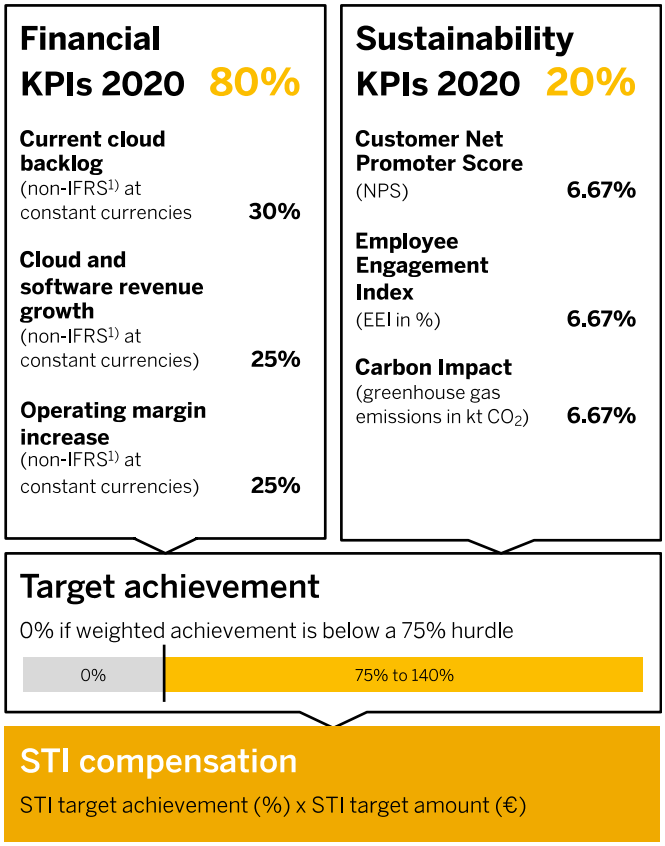
Retirement Pension

The retirement pension plan that applies at SAP is based on defined contributions. For Executive Board members whose permanent place of residence is abroad, SAP may specify a retirement pension plan that applies for employees at a company belonging to the SAP Group in the relevant country, limited to 30% of fixed compensation.

[2] Home currency is the currency of the Executive Board member's primary place of residence.

Performance-Based Compensation

Short-Term Incentive



[1] Based on SAP's non-IFRS metrics as defined for use in SAP's 2019 full-year external financial reporting

The short-term, one-year performance-based compensation (Short-Term Incentive, STI) is determined based on a set of financial targets (financial KPIs) and sustainability targets (sustainability KPIs).

For the STI 2020, the financial KPIs have a total weighting of 80% and comprise non-IFRS constant currency current cloud backlog in 2020; year-over-year growth in non-IFRS constant currency cloud and software revenue in 2020; and non-IFRS constant currency operating margin development in 2020 year over year.

The sustainability KPIs have a total weighting of 20%, and comprise Customer Net Promoter Score, which measures SAP's customer loyalty; Employee Engagement Index, which measures SAP's employee commitment, pride, and loyalty; and Carbon Impact, which measures SAP's greenhouse gas emissions.

The KPIs and their respective target values are derived from SAP's budget for the respective year. For more information about KPIs, see the *Performance Management System* section.

If the weighted target achievement is below 75%, there is no STI payout. In this case, the target achievement for these KPIs is set to zero. As of the 2021 financial year, the percentage required for total target achievement will be reduced from 75% to 50%.

On February 24, 2021, the Supervisory Board assessed SAP's performance against the agreed targets and determined the amount of the STI 2020 for the entire Executive Board. The target achievement is based on targets set in February 2020. These targets were not adjusted despite significant negative impacts of COVID-19 on SAP's business performance leading to external guidance being lowered during the course of the year. The target achievement was as follows:

- 69.5% for cloud and software revenue growth (100% target equals +7.0%),
- 100.0% for operating margin increase (100% target equals +60 bp to +92 bp),
- 0% for current cloud backlog (100% target equals €8,215 million) due to a target achievement below the 50% hurdle,
- 105.7% for customer Net Promoter Score (100% target equals a change of –3 points to +3 points),
- 116% for Employee Engagement Index (100% target equals 84%), and
- 140% for Carbon Impact (100% target equals 238 kt CO_2).

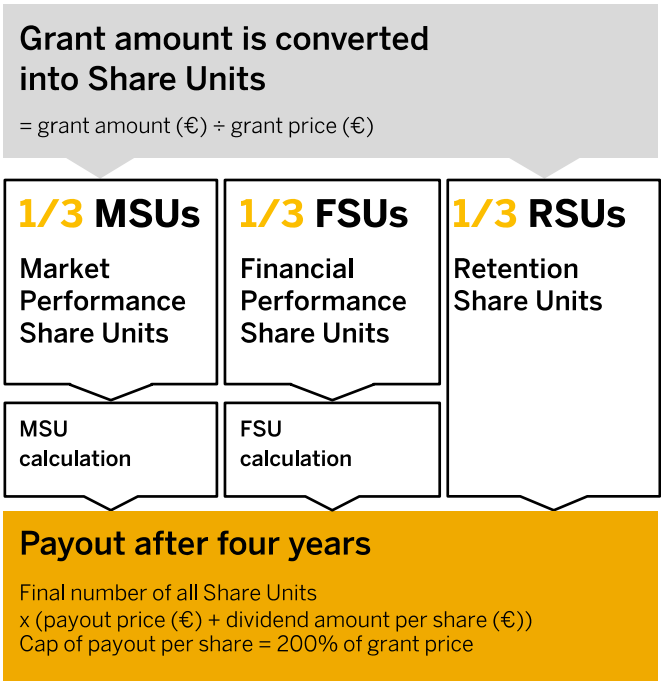
As the weighted target achievement of 66.5% for the KPIs is below the 75% hurdle, there is no STI payout.

Long-Term Incentive

The Supervisory Board introduced a new long-term multi-year performance-based compensation plan effective from January 1, 2020, and onwards: the SAP Long-Term Incentive Program 2020 (LTI 2020). The LTI 2020 is awarded in annual tranches and reflects SAP's long-term strategy and thus sets uniform incentives for the Executive Board members to achieve key targets from the long-term strategic plans. The LTI 2020 also serves to reward the Executive Board members for long-term SAP share price performance as compared to the market, thus ensuring that shareholders' interests are also honored. In addition, the LTI 2020 includes a component designed to ensure long-term retention of our Executive Board members.

The LTI 2020 is a virtual share program under which annual tranches with a term of approximately four years each are granted. When the individual tranches are awarded, a certain grant amount specified in the Executive Board member's service contract is converted into virtual shares (Share Units) in each case. The grant amount cannot exceed 700% of the fixed compensation (based on the relevant euro amounts when determining the specific compensation). For this purpose, the grant amount is divided by the SAP share price, which corresponds to the arithmetic mean on the 20 trading days after scheduled publication of the preliminary results for the fourth quarter and the year as a whole (grant price). In 2020, the preliminary results were published on January 28, 2020. The Share Units so allocated are composed of 1/3 financial performance share units (FSUs), 1/3 market performance share units (MSUs), and 1/3 retention share units (RSUs). All three types of Share Unit have a vesting period of approximately four years.

LTI Grant Process



In contrast to RSUs, FSUs and MSUs are subject to numerical changes. Moreover, FSUs, MSUs, and RSUs may be forfeited in whole or in part. In this context, the following applies:

Numerical Change in FSUs

The final number of FSUs changes depending on SAP's performance against the three equally weighted financial KPI targets over the entire three-year performance period. The financial KPIs for the FSU tranche granted for 2020 are derived from SAP's communicated mid-term ambition for 2023 as published in April 2019. Cloud revenue and total revenue have a cap of 120% and a hurdle of 80% target achievement, while operating income has a cap of 110% and a hurdle of 90% target achievement.

1/3 FSUs
Originally granted

SAP's financial target achievement

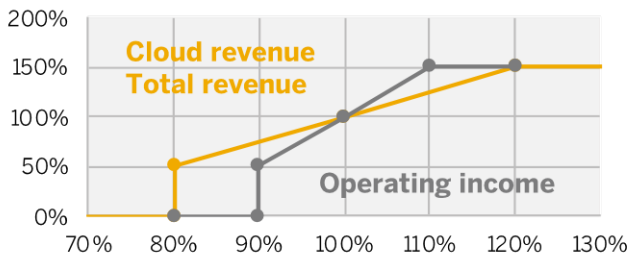
100% = SAP achieves 100% of the three equally weighted financial targets

1/3 Cloud revenue (non-IFRS[1)] at constant currencies)

1/3 Total revenue (non-IFRS[1)] at constant currencies

1/3 Operating income (non-IFRS[1)] at constant currencies)

resulting in a
Financial performance factor



Final number of FSUs after three years

Originally granted number x financial performance factor (%)

[1)] Based on SAP's non-IFRS metrics as defined for use in SAP's 2019 full-year external financial reporting

The following examples of the FSU calculation illustrate possible outcomes assuming 1,000 FSUs granted:

SAP financial performance is better than targets		
Total revenue performance factor		100%
Cloud revenue performance factor		125%
Operating income performance factor capped at		150%
Financial performance factor	(100% + 125% + 150%) / 3	125%
Final number of FSUs	125% x 1,000	1,250

SAP financial performance does not meet the targets		
Total revenue performance factor below 50%		0%
Cloud revenue performance factor		65%
Operating income performance factor		100%
Financial performance factor	(0% + 65% + 100%) / 3	55%
Final number of FSUs	55% x 1,000	550

Numerical Change in MSUs

The number of MSUs initially awarded is likewise multiplied by a performance factor. The performance factor depends on the amount of the total shareholder return (TSR) on the SAP share, measured for an entire performance period of approximately three years, and ranked in relation to the TSR performance of the companies of the NASDAQ-100 Index (Index). TSR means the performance of the share, combining share price development and granted and reinvested dividends. The market performance factor has a cap at 150% at the 75th percentile (P-75) and a hurdle of 50% at 25th percentile (P-25); below the hurdle, no MSUs are considered.

1/3 MSUs
Originally granted

TSR performance: SAP relative to Index

100% = SAP is ranked to the median of the index companies

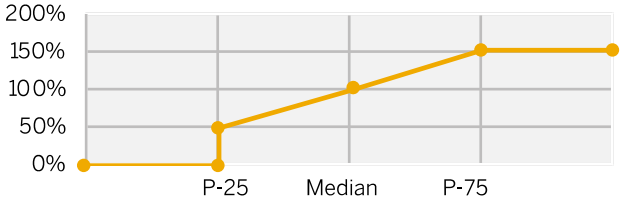
Index TSR performs better than SAP TSR

SAP is ranked less than the median of the index companies

SAP TSR performs better than Index TSR

SAP is ranked better than the median of the index companies.
Performance factor is only higher than 100% when SAP TSR performance is positive.

resulting in a
Market performance factor



Final number of MSUs after three years

Originally granted number x market performance factor (%)

The following examples of the MSU calculation illustrate possible outcomes assuming 1,000 MSUs granted:

SAP TSR performs better than TSR of NASDAQ-100 companies		
SAP TSR performance		+10%
Performance factor	55th percentile	110%
Final number of MSUs	110% x 1,000	1,100

SAP TSR performs better than TSR of NASDAQ-100 companies; cap is triggered		
SAP TSR performance		+18%
Performance factor	80th percentile	160%
	Cap 75th percentile	150%
Final number of MSUs	150% x 1,000	1,500

SAP TSR performs better than TSR of NASDAQ-100 companies; in a downwards market trend		
SAP TSR performance		–5%
Performance factor	60th percentile	120%
	Cap due to required positive performance	100%
Final number of MSUs	100% x 1,000	1,000

TSR of NASDAQ-100 companies performs better than SAP TSR; low hurdle is triggered		
SAP TSR performance		–5%
Performance factor	20th percentile	40%
	Hurdle 25th percentile	0%
Final number of MSUs	0% x 1,000	0

Payout of FSUs, RSUs, and MSUs

The value of the existing FSUs, MSUs, and RSUs will be paid out in euros following the Annual General Meeting of SAP, which accepts the financial statements for the third financial year following the financial year in which the Share Units were awarded. The performance of the Share Units is linked to the performance of the SAP share price, including dividend payments. Accordingly, an amount is paid out for each Share Unit (subject to the specifics described below) which equals the then-current SAP share price plus those dividends that were disbursed in respect of an SAP share in the period from the beginning of the year in which the Share Units were awarded until the end of the third year following the year in which the Share Units were awarded. The arithmetic mean of the SAP share price on the 20 trading days after scheduled publication of the preliminary results for the fourth quarter and the year as a whole will be used as the payout price.

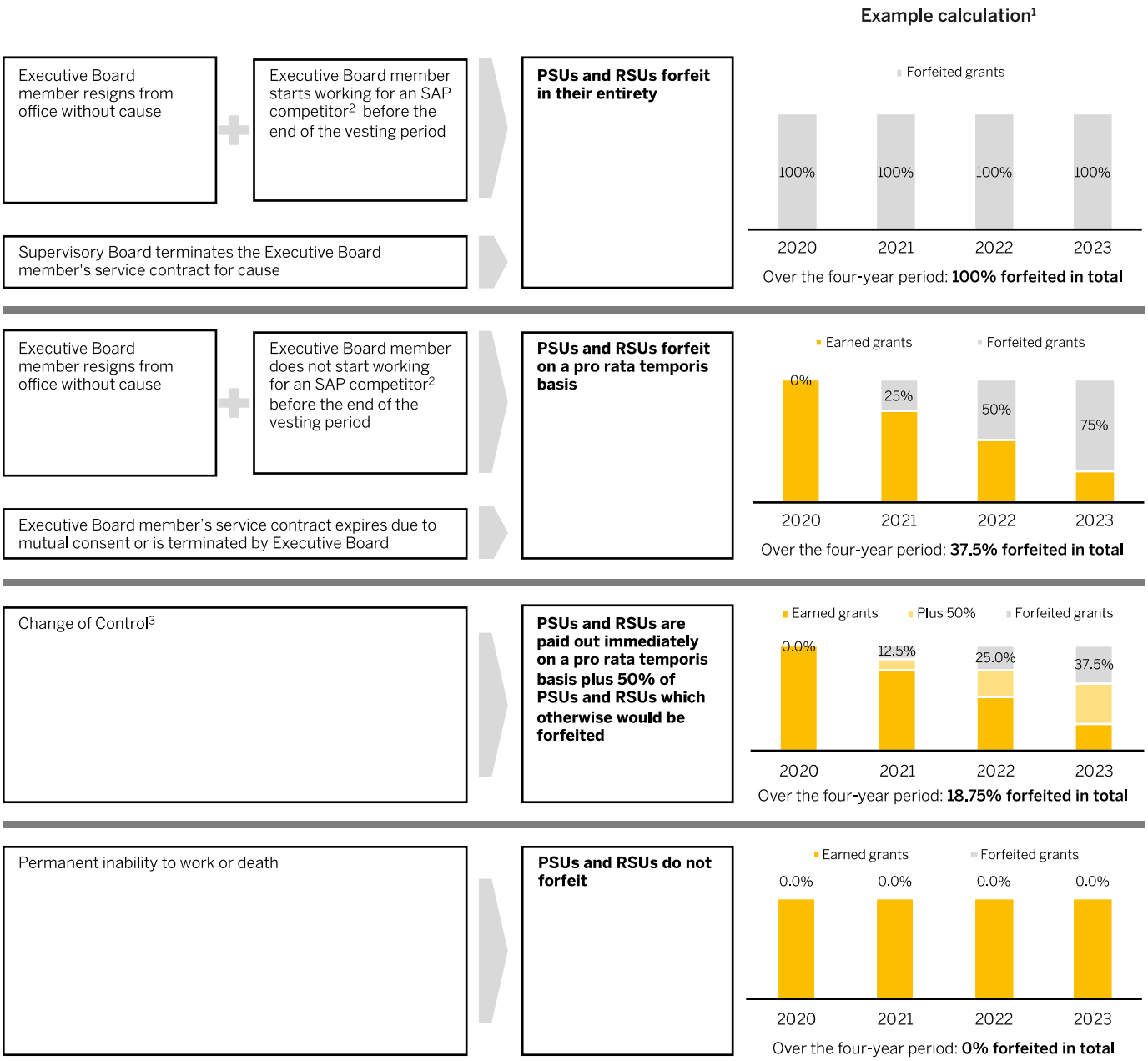
The payout amount per Share Unit, including the dividend amounts due on the Share Units, is capped at 200% of the grant price. Due to the potential change in the number of FSUs and MSUs, the maximum possible payout amount under any of the annual tranches of the LTI 2020 thus equals, arithmetically, approximately 267% of the grant amount. Any potential foreign currency exchange rate risk is borne by the Executive Board members themselves.

However, all types of Share Unit may expire during the entire term of a tranche under certain conditions.

LTI Forfeiture Rule

If an Executive Board member's service contract is terminated before the end of the third year following the year in which the Share Units were granted, the PSUs (FSUs, MSUs) and RSUs are forfeited in whole or in part, depending on the circumstances of the relevant resignation from office or termination of the service contract. In case Share Units are forfeited in part, the percentage of the forfeiture is proportional to the four-year vesting period of each grant. This means that 25% of the grant is earned each year of the vesting period. Unearned grants are forfeited.

LTI Forfeiture Rules



[1] Example calculation with four tranches (grant allocation of 100%, stable share price from grant to vest, and no consideration of performance condition); Executive Board member's contract terminates after year four (December 31, 2023).
[2] As defined in the individual Executive Board members' contracts.
[3] For the definition, see the *Early End-of-Service Undertakings* section.

Foreign Currency Exchange Rate Cap

Where the fixed compensation and the STI are paid out in the Executive Board member's home currency, the total (gross) payout amount resulting from the fixed compensation and the STI for a financial year is limited to a maximum euro equivalent in case of exchange rate fluctuations. The euro cap for a full financial year equals 120% each for the sum of the fixed compensation and STI target amount converted into euro plus 20% of the grant amount for a tranche under the LTI 2020.

Target and Maximum Compensation

The compensation system allows for total target compensation (not considering any fringe benefits, retirement pension, and foreign currency exchange rate cap) of up to €6.0 million for

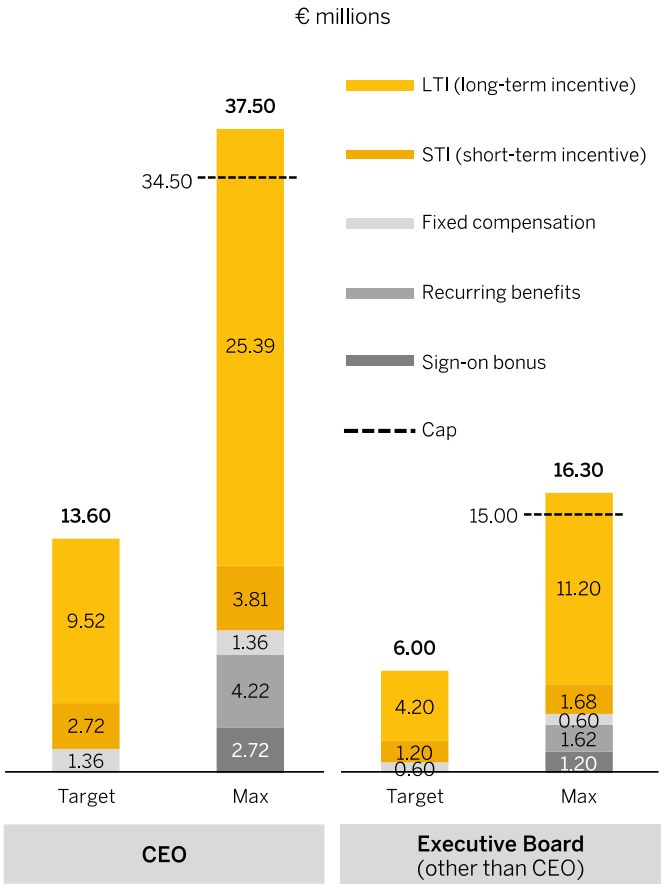
ordinary Executive Board members and up to €13.6 million for the CEO.

The proportion of total target compensation consisting of fixed compensation, the STI, and the LTI (without fringe benefits and retirement pension) must be within the following ranges:

- Fixed compensation: 10% to 20%
- STI: 20% to 30%
- LTI: 50% to 70%

Maximum compensation is the maximum amount which may be paid to an Executive Board member in total for a financial year. The maximum compensation (not considering any fringe benefits, retirement pension, and foreign currency exchange rate cap) is €13.2 million for ordinary Executive Board members and €29.8 million for one CEO. The maximum total compensation including all maximum possible fringe benefits, is €15.0 million for ordinary Executive Board members and €34.5 million for one CEO. When determining the compensation structure and the target compensation for the individual members of the Executive Board, the Supervisory Board must ensure that the potential payments, taking the STI and LTI caps into account, cannot exceed the maximum compensation and the maximum total compensation.

To illustrate the maximum total compensation, the LTI is allocated as high as the defined ranges allow, and the fixed compensation is allocated as low as the defined ranges allow. For this purpose, the recurring benefits include retirement pension, foreign currency exchange rate cap, and other fringe benefits.



Clawback Provisions

SAP has the contractual right to request that the Executive Board member returns any payments made from the STI or LTI if it subsequently emerges that the payment was not justified in whole or in part because targets were not achieved at all or not achieved in the scope assumed when calculating the payment amount due on account of false information having been provided. In such case, the Executive Board member is obliged to repay to SAP the amount by which the payment actually made exceeds the payment amount due on the basis of the targets actually achieved. Such contractually agreed claim to repayment supplements the claim for restitution of unjustified enrichment pursuant to section 812 of the German Civil Code (BGB).

Offsetting Compensation in Case of Roles Assumed Inside and Outside the Group

At the request of the Supervisory Board, the Executive Board member will assume roles on the supervisory board or similar bodies at affiliates of SAP without receiving separate compensation. If, in exceptional cases, it is impossible to rule out compensation for a role assumed within the Group, it will be offset against the other compensation due to the Executive Board member. The Supervisory Board has to agree before an Executive Board member assumes any roles on supervisory boards or similar bodies at companies outside the Group and will decide in the individual case whether and to what extent any compensation is to be offset against compensation paid by SAP.

Adjustment of Compensation

Based on the annual compensation review, the Supervisory Board may reduce the total compensation or individual compensation components, but only in the scope required by applicable law. No adjustments were made in 2020.

In its February meeting, the Supervisory Board resolved granting and payout of supplementary compensation, as permitted under the Compensation system in exceptional situations. Despite unprecedented challenges posed by the COVID-19 pandemic, related restrictions, and the ensuing economic crisis, the Executive Board exhibited extraordinary performance, ensuring the company remains profitable and positioned for long-term, sustainable success.

Specifically, the Executive Board members responded swiftly to the dynamic situation, ensuring the safety of employees, partners and customers while safeguarding business continuity, amongst others, by facilitating virtual sales and remote implementations. A Pandemic Taskforce was set-up to stay close to employee needs and ensure their well-being, including through mental health initiatives. This focus on customers and employees is reflected in an increase of the Customer Net Promoter Score (NPS) by 10 points and an increase in Employee Engagement Index. In a completely virtual setting, the Executive Board increased the speed of transformation for SAP. The IPO of Qualtrics and the strategic partnership with Microsoft Teams are just two examples. The Executive Board did not reduce employee hours, consider lay-offs, or accept large state aid packages. It safeguarded profitability by ensuring cloud and software revenue growth and applying cost-savings measures where appropriate, which have increased the Company's operating profit. In 2020, the company exceeded all revised 2020 revenue targets and hit the high end of its operating

profit outlook, even as the COVID-19 crisis persisted. In fact, except for cloud revenue the company ultimately reached the guidance provided in April 2020. Cloud revenue continued to be the major growth driver, growing 18% at constant currencies. This was impacted by a decline in transactional revenue in the Intelligent Spend business mainly due to a decrease in business travel. Excluding this, cloud revenue growth across the Company´s Software-as-a-Service and Platform-as-a-Service Cloud solutions was 27% at constant currencies.

In addition, the company achieved record cash flow results with a 106% increase in Operating Cash Flow and a 164% increase in Free Cash Flow, paid an increased dividend (55% payout ratio) and completed a €1.5 billion share buyback program in 2020.The Supervisory Board considers the supplementary compensation a positive signal to current and future members of the Executive Board, presenting an opportunity to strengthen their commitment to SAP and contributing to safeguarding the Company's long-term success.

The Supervisory Board decided on the supplementary compensation for: Christian Klein (€1,100,000), Adaire Fox-Martin (€800,000), Luka Mucic (€700,000), Juergen Mueller: (€700,000), and Thomas Saueressig (€700,000). The supplementary compensation will be paid out after the Annual General Meeting of Shareholders in May 2021. All Executive Board members are obliged to purchase SAP shares worth at least the net payout amount in accordance with appropriate trading period regulations. These shares are subject to a three-year holding period.

Overview of the Relations Between Target and Payout for Performance-Based Compensation

The total target achievements of the STI reflect the relation between the target amount and the payout amount. The STIs for the years 2016 to 2019 were already paid out.

STI Total Target Achievement

Percentage	**2020**	2019	2018	2017	2016
	0	82.4	93.0	88.2	104.4

The relation between the LTI target amounts for the 2017 to 2020 tranches and the theoretical payout amounts are based on SAP's share price at year end. The 2016 tranche discloses the relation between the respective target amount and the actual payout amount in May 2020. The payout price for the tranche 2016 was calculated as the average share price between January 29 and February 25, 2020.

Relation Between Target Amount and Payout Amount of the LTI

Percentage	**LTI 2020**	LTI 2016 Plan			
	2020 Tranche[1]	2019 Tranche[1]	2018 Tranche[1]	2017 Tranche[1]	2016 Tranche
12/31/2020	**45.5**	100.9	48.0	49.9	79.2
12/31/2019	**NA**	156.6	126.4	110.5	138.7

[1]Consideration of theoretical payout amounts based on SAP's share price at year end

Amount of Compensation for 2020

We present the Executive Board compensation disclosures in accordance with the recommendations of the German Corporate Governance Code ("GCGC"). Furthermore, the tables below provide a reconciliation statement following the requirements of sections 314 and 315 of the German Commercial Code (*Handelsgesetzbuch,* or "HGB") as specified in the German Accounting Standards ("GAS 17"). Pursuant to the recommendations of the GCGC, the value of benefits granted for the year under review as well as the benefits received, that is, the amounts disbursed for the year under review, are disclosed below based on the reference tables recommended in the GCGC (version 2017). In contrast to the disclosure rules stipulated in the German HGB and GAS 17, the GCGC includes the pension expense, that is, the service cost according to IAS 19, in the Executive Board compensation and requires the additional disclosure of the target value for the one-year variable compensation and the maximum and minimum compensation amounts achievable for the variable compensation elements.

Executive Board Members' Compensation

German Corporate Governance Code

€ thousands	Christian Klein CEO						Adaire Fox-Martin Member of the Executive Board					
			Benefits Granted		Benefits Received				Benefits Granted		Benefits Received	
	2020	2020 (Min)	2020 (Max)	2019	2020	2019	2020	2020 (Min)	2020 (Max)	2019	2020	2019
Fixed compensation	1,100.0	1,100.0	1,100.0	789.9	1,100.0	789.9	800.0	800.0	800.0	700.0	800.0	700.0
Fringe benefits[2]	17.9	17.9	17.9	14.8	17.9	14.8	28.3	28.3	28.3	31.0	28.3	31.0
Total	**1,117.9**	**1,117.9**	**1,117.9**	**804.7**	**1,117.9**	**804.7**	**828.3**	**828.3**	**828.3**	**731.0**	**828.3**	**731.0**
Supplementary compensation	1,100.0	1,100.0	1,100.0				800.0	800.0	800.0			
One-year variable compensation	1,900.0	0	2,660.0	1,301.8	1,072.7	1,046.9	1,200.0	0	1,680.0	1,125.8	927.6	1,046.9
Multi-year variable compensation												
LTI 2020	5,095.8	0	14,667.0				3,705.9	0	10,666.6			
LTI 2016 Plan				3,407.9						2,823.1		
RSU Milestone Plan 2015												
Total	**9,213.7**	**2,217.9**	**19,544.9**	**5,514.4**	**2,190.6**	**1,851.6**	**6,534.2**	**1,628.3**	**13,974.9**	**4,679.9**	**1,755.9**	**1,777.9**
Service cost												
Total according to GCGC	**9,213.7**	**2,217.9**	**19,544.9**	**5,514.4**	**2,190.6**	**1,851.6**	**6,534.2**	**1,628.3**	**13,974.9**	**4,679.9**	**1,755.9**	**1,777.9**

€ thousands	Michael Kleinemeier Member of the Executive Board (until 4/30/2020)						Jennifer Morgan Co-CEO and Member of the Executive Board (until 4/30/2020)					
			Benefits Granted		Benefits Received				Benefits Granted		Benefits Received	
	2020	2020 (Min)	2020 (Max)	2019	2020	2019	2020[1]	2020 (Min)	2020 (Max)	2019[1]	2020[1]	2019[1]
Fixed compensation	233.3	233.3	233.3	700.0	233.3	700.0	353.1	353.1	353.1	762.1	353.1	762.1
Fringe benefits[2]	1.3	1.3	1.3	29.0	1.3	29.0	106.4	106.4	106.4	125.8	106.4	125.8
Total	**234.6**	**234.6**	**234.6**	**729.0**	**234.6**	**729.0**	**459.5**	**459.5**	**459.5**	**887.9**	**459.5**	**887.9**
Supplementary compensation												
One-year variable compensation	1,125.8	0	1,576.1	1,125.8	927.6	1,046.9	1,703.2	0	2,384.5	1,251.5	1,031.2	978.4
Multi-year variable compensation												
LTI 2020	2,199.6	0	6,330.9				5,095.8	0	14,667.0			
LTI 2016 Plan				2,387.0	1,880.1					3,731.2		
RSU Milestone Plan 2015						473.8						
Total	**3,560.0**	**234.6**	**8,141.6**	**4,241.7**	**3,042.3**	**2,249.7**	**7,258.5**	**459.5**	**17,511.0**	**5,870.5**	**1,490.7**	**1,866.2**
Service cost							1.1	1.1	1.1	104.6	1.1	104.6
Total according to GCGC	**3,560.0**	**234.6**	**8,141.6**	**4,241.7**	**3,042.3**	**2,249.7**	**7,259.6**	**460.6**	**17,512.1**	**5,975.1**	**1,491.8**	**1,970.8**

German Corporate Governance Code

€ thousands	Luka Mucic Member of the Executive Board						Juergen Mueller Member of the Executive Board					
			Benefits Granted		Benefits Received				Benefits Granted		Benefits Received	
	2020	**2020 (Min)**	**2020 (Max)**	2019	**2020**	2019	**2020**	**2020 (Min)**	**2020 (Max)**	2019	**2020**	2019
Fixed compensation	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0	700.0
Fringe benefits[2]	15.7	15.7	15.7	12.0	15.7	12.0	18.7	18.7	18.7	13.5	18.7	13.5
Total	**715.7**	**715.7**	**715.7**	**712.0**	**715.7**	**712.0**	**718.7**	**718.7**	**718.7**	**713.5**	**718.7**	**713.5**
Supplementary compensation	700.0	700.0	700.0				700.0	700.0	700.0			
One-year variable compensation	1,125.8	0	1,576.1	1,125.8	927.6	1,046.9	1,125.8	0	1,576.1	1,125.8	927.6	
Multi-year variable compensation												
LTI 2020	2,199.6	0	6,330.9				2,014.4	0	5,798.0			
LTI 2016 Plan				2,387.0	1,880.1					2,185.8		
RSU Milestone Plan 2015						3,732.5						
Total	**4,741.1**	**1,415.7**	**9,322.7**	**4,224.7**	**3,523.4**	**5,491.4**	**4,558.9**	**1,418.7**	**8,792.8**	**4,025.1**	**1,646.3**	**713.5**
Service cost												
Total according to GCGC	**4,741.1**	**1,415.7**	**9,322.7**	**4,224.7**	**3,523.4**	**5,491.4**	**4,558.9**	**1,418.7**	**8,792.8**	**4,025.1**	**1,646.3**	**713.5**

€ thousands	Stefan Ries Member of the Executive Board (until 5/31/2020)						Thomas Saueressig Member of the Executive Board					
			Benefits Granted		Benefits Received				Benefits Granted		Benefits Received	
	2020	**2020 (Min)**	**2020 (Max)**	2019	**2020**	2019	**2020**	**2020 (Min)**	**2020 (Max)**	2019	**2020**	2019
Fixed compensation	291.7	291.7	291.7	700.0	291.7	700.0	700.0	700.0	700.0	116.7	700.0	116.7
Fringe benefits[2]	10.4	10.4	10.4	21.8	10.4	21.8	17.6	17.6	17.6	2.1	17.6	2.1
Total	**302.1**	**302.1**	**302.1**	**721.8**	**302.1**	**721.8**	**717.6**	**717.6**	**717.6**	**118.8**	**717.6**	**118.8**
Supplementary compensation							700.0	700.0	700.0			
One-year variable compensation	1,125.8	0	1,576.1	1,125.8	927.6	1,046.9	1,125.8	0	1,576.1	188.1	155.0	
Multi-year variable compensation												
LTI 2020	769.5	0	2,214.8				2,014.4	0	5,798.0			
LTI 2016 Plan				2,010.7	1,190.0					515.2		
RSU Milestone Plan 2015												
Total	**2,197.3**	**302.1**	**4,093.0**	**3,858.3**	**2,419.7**	**1,768.7**	**4,557.8**	**1,417.6**	**8,791.7**	**822.1**	**872.6**	**118.8**
Service cost												
Total according to GCGC	**2,197.3**	**302.1**	**4,093.0**	**3,858.3**	**2,419.7**	**1,768.7**	**4,557.8**	**1,417.6**	**8,791.7**	**822.1**	**872.6**	**118.8**

German Corporate Governance Code

€ thousands	Total Executive Board			
	Benefits Granted		Benefits Received	
	2020	2019	**2020**	2019
Fixed compensation	4,878.1	5,168.6	4,878.1	5,168.6
Fringe benefits[2]	216.3	250.0	216.3	250.0
Total	**5,094.4**	**5,418.5**	**5,094.4**	**5,418.6**
Supplementary compensation	4,000.0		0	
One-year variable compensation	10,432.0	8,370.2	6,896.9	6,213.1
Multi-year variable compensation				
LTI 2020	23,095.0			
LTI 2016 Plan		19,447.9	4,950.2	
RSU Milestone Plan 2015				4,206.3
Total	**42,621.4**	**33,236.6**	**16,941.5**	**15,838.0**
Service cost	1.1	104.6	1.1	104.6
Total according to GCGC	**42,622.5**	**33,341.2**	**16,942.6**	**15,942.6**

[1] The value of the fixed and one-year variable compensation is granted in U.S. dollars. For conversion purposes from U.S. dollars into euro, for fixed compensation the average exchange rate and for the one-year variable compensation the year-end exchange rate of the respective period applies.

[2] Insurance contributions, the private use of company cars and aircraft, benefits in kind, compensation for unused vacation, expenses for maintenance of two households, reimbursement of costs for preparation of tax returns, and tax gross-ups according to local conditions.

Reconciliation Reporting of Total Compensation Pursuant to Section 314(1)(6a) HGB in Connection with GAS 17

€ thousands	Christian Klein		Adaire Fox-Martin		Michael Kleinemeier	
	2020	2019	**2020**	2019	**2020**	2019
Total according to GCGC	**9,213.7**	**5,514.4**	**6,534.2**	**4,679.9**	**3,560.0**	**4,241.7**
Less granted annual variable compensation	–1,900.0	–1,301.8	–1,200.0	–1,125.8	–1,125.8	–1,125.8
Plus allocated actual annual variable compensation	0	1,072.7	0	927.6	0	927.6
Less service cost						
Total compensation	**7,313.7**	**5,285.3**	**5,334.2**	**4,481.7**	**2,434.2**	**4,043.6**

€ thousands	Jennifer Morgan		Luka Mucic		Juergen Mueller	
	2020	2019	**2020**	2019	**2020**	2019
Total according to GCGC	**7,259.6**	**5,975.1**	**4,741.1**	**4,224.7**	**4,558.9**	**4,025.1**
Less granted annual variable compensation	–1,703.2	–1,251.5	–1,125.8	–1,125.8	–1,125.8	–1,125.8
Plus allocated actual annual variable compensation	0	1,031.2	0	927.6	0	927.6
Less service cost	–1.1	–104.6				
Total compensation	**5,555.3**	**5,650.2**	**3,615.3**	**4,026.6**	**3,433.1**	**3,826.9**

€ thousands	Stefan Ries		Thomas Saueressig		Total Executive Board	
	2020	2019	2020	2019	2020	2019
Total according to GCGC	**2,197.3**	**3,858.3**	**4,557.8**	**822.1**	**42,622.5**	**33,341.2**
Less granted annual variable compensation	–1,125.8	–1,125.8	–1,125.8	–188.1	–10,432.0	–8,370.2
Plus allocated actual annual variable compensation	0	927.6	0	155.0	0	6,896.9
Less service cost					–1.1	–104.6
Total compensation	**1,071.6**	**3,660.1**	**3,432.0**	**788.9**	**32,189.4**	**31,763.3**

Vertical Pay Ratio

The vertical pay ratio compares the total target compensation granted to the CEO and the Executive Board members other than CEO with the total target compensation granted to the Executives and all employees collectively who were employed at year end. In order to ensure comparability, only fixed compensation, one-year and multi-year variable compensation are considered. The Executives comprise the first and second management levels below the Executive Board, that is, the Global Executive Team (GET) and the Senior Executive Team (SET).

2020

Ratio		CEO	Executive Board (other than CEO)
	Average Annual Compensation (in € thousands)	8,095.8	4,352.9
Executives	915	**9**	**5**
Employees including Executives	103	**78**	**42**

2019

Ratio		Co-CEO[1]	Executive Board (Other Than Co-CEO)[1]
	Average Annual Compensation (in € thousands)	8,604.5	4,196.4
Executives	915	9	5
Employees including Executives	103	84	41

[1]Due to the changes on the Executive Board during 2019, we have annualized the target compensation for our calculation.

2018

Ratio		CEO	Executive Board (other than CEO)
	Average Annual Compensation (in € thousands)	10,384.3	3,942.3
Executives	906	11	4
Employees including Executives	99	105	40

2017

Ratio		CEO	Executive Board (other than CEO)
	Average Annual Compensation (in € thousands)	11,209.2	3,880.0
Executives	923	12	4
Employees including Executives	101	111	39

2016

Ratio		CEO	Executive Board (other than CEO)
	Average Annual Compensation (in € thousands)	11,785.4	4,090.8
Executives	823	14	5
Employees including Executives	99	119	41

Share-Based Payment Information Relating to Long-Term Incentives

Members of the Executive Board received, hold, or held Share Units issued to them under the LTI 2020 and hold or held Share Units issued to them under the LTI 2016 Plan. For more information about the terms and details of these programs, see the Notes to the Consolidated Financial Statements, *Note (B.3).*

Grants Under the LTI 2020

	Year Granted	Total Share Units	MSUs (⅓)	FSUs (⅓)	RSUs (⅓)	Fair Value at Time of Grant	
		Quantity	Quantity	Quantity	Quantity	€ thousands	
Christian Klein (CEO)	2020	44,502	14,834	14,834	14,834	5,096	[1]
Adaire Fox-Martin	2020	32,364	10,788	10,788	10,788	3,706	[1]
Michael Kleinemeier (until 4/30/2020)	2020	19,209	6,403	6,403	6,403	2,200	[1]
Jennifer Morgan (until 4/30/2020)	2020	44,502	14,834	14,834	14,834	5,096	[1]
Luka Mucic	2020	19,209	6,403	6,403	6,403	2,200	[1]
Juergen Mueller	2020	17,592	5,864	5,864	5,864	2,014	[1]
Stefan Ries (until 5/31/2020)	2020	6,720	2,240	2,240	2,240	770	[1]
Thomas Saueressig	2020	17,592	5,864	5,864	5,864	2,014	[1]
Total	2020	**201,690**	**67,230**	**67,230**	**67,230**	**23,095**	

[1] Fair value at time of grant: €122.22 per MSU, €110.65 per FSU/RSU

Grants Under the LTI 2016 Plan

	Year Granted		Total Share Units	RSUs (40%)	PSUs (60%)	Fair Value at Time of Grant		
			Quantity	Quantity	Quantity	€ per RSU	€ per PSU	€ thousands
Christian Klein (CEO)	2019	[1]	7,797	3,119	4,678	117.39	139.97	1,021
	2019		26,047	10,419	15,628	88.54	93.71	2,387
Adaire Fox-Martin	2019	[2]	3,970	1,588	2,382	101.98	115.10	436
	2019		26,047	10,419	15,628	88.54	93.71	2,387
Michael Kleinemeier (until 4/30/2020)	2019		26,047	10,419	15,628	88.54	93.71	2,387
Jennifer Morgan (until 4/30/2020)	2019	[1]	6,378	2,552	3,826	117.39	139.97	835
	2019	[2]	4,634	1,853	2,781	101.98	115.10	509
	2019		26,047	10,419	15,628	88.54	93.71	2,387
Luka Mucic	2019		26,047	10,419	15,628	88.54	93.71	2,387
Juergen Mueller	2019		23,852	9,541	14,311	88.54	93.71	2,186
Stefan Ries (until 5/31/2020)	2019		21,941	8,776	13,165	88.54	93.71	2,011
Thomas Saueressig	2019		3,986	1,594	2,392	114.67	138.96	515
Total	2019		**202,793**	**81,118**	**121,675**			**19,448**

[1] Additional grant due to appointment as Co-CEO

[2] Additional grant due to extension of responsibilities

Executive Board Members' Holdings

LTI 2020

Quantity of Share Units	Year Granted	Holding on 1/1/2020	Granted			Forfeited	**Holding on 12/31/2020**
			MSUs (⅓)	FSUs (⅓)	RSUs (⅓)		
Christian Klein (CEO)	2020	0	14,834	14,834	14,834	0	44,502
Adaire Fox-Martin	2020	0	10,788	10,788	10,788	0	32,364
Michael Kleinemeier (until 4/30/2020)[1]	2020	0	6,403	6,403	6,403	0	19,209
Jennifer Morgan (until 4/30/2020)[2]	2020	0	14,834	14,834	14,834	29,790	14,712
Luka Mucic	2020	0	6,403	6,403	6,403	0	19,209
Juergen Mueller	2020	0	5,864	5,864	5,864	0	17,592
Stefan Ries (until 5/31/2020)[3]	2020	0	2,240	2,240	2,240	0	6,720
Thomas Saueressig	2020	0	5,864	5,864	5,864	0	17,592
Total		**0**	**67,230**	**67,230**	**67,230**	**29,790**	**171,900**

[1] In connection with Michael Kleinemeier's extension agreement, a vesting period of one year has been agreed. Forfeiture assuming termination as at 12/31/2020

[2] Forfeiture under the leaver rules assuming termination as at 4/30/2025

[3] Forfeiture under the leaver rules assuming termination as at 3/31/2024

The Share Units granted in 2020 have a remaining term of 3.2 years

LTI 2016 Plan

Quantity of Share Units	Year Granted	Holding on 1/1/2020	Exercised	Forfeited[1]	Adjustment Based on Target Achivement	Balanced PSUs[2]	**Holding on 12/31/2020**
Christian Klein (CEO)	2019	33,844	0	0	0	0	33,844
	2018	22,385	0	0	0	0	22,385
Adaire Fox-Martin	2019	30,017	0	0	0	0	30,017
	2018	26,574	0	0	0	0	26,574
	2017	18,539	0	0	0	0	18,539
Michael Kleinemeier (until 4/30/2020)[3]	2019	26,047	0	13,015	0	12,556	25,588
	2018	26,574	0	6,639	0	3,983	23,918
	2017	27,619	0	0	0	0	27,619
	2016	37,898	15,159	0	–22,739	0	0
Jennifer Morgan (until 4/30/2020)[4]	2019	37,059	0	0	0	0	37,059
	2018	26,574	0	0	0	0	26,574
	2017	18,539	0	0	0	0	18,539
Luka Mucic	2019	26,047	0	0	0	0	26,047
	2018	26,574	0	0	0	0	26,574
	2017	27,619	0	0	0	0	27,619
	2016	37,898	15,159	0	–22,739	0	0
Juergen Mueller	2019	23,852	0	0	0	0	23,852
Stefan Ries (until 5/31/2020)[5]	2019	21,941	0	0	0	0	21,941
	2018	22,385	0	0	0	0	22,385
	2017	23,265	0	0	0	0	23,265
	2016	23,987	9,595	0	–14,392	0	0
Thomas Saueressig	2019	3,986	0	0	0	0	3,986
Total		**569,223**	**39,913**	**19,654**	**–59,870**	**16,539**	**466,325**

[1] Forfeiture according to leaver rules
[2] To balance disadvantages from leaver rules under the LTI 2016 Plan
[3] Forfeiture under the leaver rules assuming termination as at 12/31/2020
[4] Forfeiture under the leaver rules assuming termination as at 4/30/2025
[5] Forfeiture under the leaver rules assuming termination as at 3/31/2024

The Share Units granted in 2019 have a remaining term of 2.1 years, the Share Units granted in 2018 have a remaining term of 1.1 years, and the Share Units granted in 2017 have a remaining term of 0.1 years.

Total Expense for Share-Based Payment

€ thousands	2020	2019
Christian Klein (CEO)	1,438.6	1,924.8
Adaire Fox-Martin	673.6	2,667.3
Michael Kleinemeier (until 4/30/2020)	2,552.8	3,253.4
Jennifer Morgan (until 4/30/2020)	3,597.2	2,893.9
Luka Mucic	44.3	3,390.6
Juergen Mueller	719.6	767.5
Stefan Ries (until 5/31/2020)	1,738.5	2,645.5
Thomas Saueressig	408.4	128.3
Total	**11,173.0**	**17,671.3**

Total expense for the share-based payment plans of Executive Board members was determined in accordance with IFRS 2 (Share-Based Payments) and consists exclusively of obligations arising from Executive Board activities.

End-of-Service Benefits

Regular End-of-Service Undertakings

Retirement Pension Plan

The following retirement pension agreements apply to the individual members of the Executive Board:

– Adaire Fox-Martin, Christian Klein, Michael Kleinemeier, Luka Mucic, Juergen Mueller, Stefan Ries, and Thomas Saueressig are entitled to receive a retirement pension when they reach the retirement age of 62 and retire from their Executive Board seat; or a disability pension depending on a health examination if, before reaching the regular retirement age, they become subject to occupational disability or permanent incapacity. A surviving dependent's pension is paid on the death of a former member of the Executive Board. The disability pension is 100% of the vested retirement pension entitlement and is payable until the beneficiary's 62nd birthday, after which it is replaced by a retirement pension. The surviving dependent's pension is 60% of the retirement pension or vested disability pension entitlement at death. Entitlements are enforceable against SAP SE. Current pension payments are reviewed annually for adjustments and, if applicable, increased according to the surplus in the pension liability insurance. If service is ended before the retirement age of 62, pension entitlement is reduced in proportion as the actual length of service stands in relation to the maximum possible length of service. The applied retirement pension plan is contributory. The contribution is 4% of applicable compensation up to the applicable income threshold plus 14% of applicable compensation above the applicable income threshold. For this purpose, applicable compensation is 180% of annual base salary. The applicable income threshold is the statutory annual income threshold for the state pension plan in Germany (West), as amended from time to time.

– SAP made contributions to a third-party pension plan for Jennifer Morgan, as disclosed in the tables 'German Corporate Governance Code'. SAP's matching contributions are based on payments by Jennifer Morgan into this pension plan.

Total Defined Benefit Obligations (DBO) and Net Defined Benefit Liability (Asset) to Executive Board Members

€ thousands	Christian Klein (CEO)[1]	Adaire Fox-Martin[1]	Michael Kleinemeier (until 4/30/2020)[1]	Luka Mucic[1]	Juergen Mueller[1]	Stefan Ries (until 5/31/2020)[1]	Thomas Saueressig[1]	Total
DBO 1/1/2019	112.8	183.4	338.6	543.8	0	277.4	0	1,456.0
Less plan assets market value 1/1/2019	141.3	257.0	507.6	635.7	0	419.3	0	1,960.9
Net defined benefit liability (asset) 1/1/2019	**–28.5**	**–73.6**	**–169.0**	**–91.9**	**0**	**–141.9**	**0**	**–504.9**
DBO change in 2019	244.7	207.6	205.9	475.0	149.7	251.4	41.9	1,576.2
Plan assets change in 2019	145.9	160.6	171.2	147.2	0	144.9	0	769.8
DBO 12/31/2019	357.5	391.0	544.5	1,018.8	149.7	528.8	41.9	3,032.2
Less plan assets market value 12/31/2019	287.2	417.6	678.8	782.9	0	564.2	0	2,730.7
Net defined benefit liability (asset) 12/31/2019	**70.3**	**–26.6**	**–134.3**	**235.9**	**149.7**	**–35.4**	**41.9**	**301.5**
DBO change in 2020	410.6	174.9	–544.5	129.7	133.1	17.1	166.4	487.3
Plan assets change in 2020	147.9	163.7	–678.8	167.5	301.5	75.9	163.7	341.4
DBO 12/31/2020	768.1	565.9	0	1,148.5	282.8	545.9	208.3	3,519.5
Less plan assets market value 12/31/2020	435.1	581.3	0	950.4	301.5	640.1	163.7	3,072.1
Net defined benefit liability (asset) 12/31/2020	**333.0**	**–15.4**	**0**	**198.1**	**–18.7**	**–94.2**	**44.6**	**447.4**

[1] The values shown here only reflect the pension entitlements that Christian Klein, Adaire Fox-Martin, Michael Kleinemeier, Luka Mucic, Juergen Mueller, Stefan Ries and Thomas Saueressig will receive from the retirement pension plan for Executive Board members.

The table below shows the annual pension entitlement earned during the Executive Board membership of each member of the Executive Board on reaching the scheduled retirement age of 62, based on entitlements from SAP under performance-based and salary-linked plans.

Annual Pension Entitlement

€ thousands	**Vested on 12/31/2020**	Vested on 12/31/2019
Christian Klein (CEO)	14.7	8.2
Adaire Fox-Martin	17.2	11.8
Michael Kleinemeier (until 4/30/2020)	-	20.0
Luka Mucic	33.0	27.6
Juergen Mueller	9.7	4.8
Stefan Ries (until 5/31/2020)	18.8	16.8
Thomas Saueressig	4.9	0.2

These are vested entitlements. To the extent that members continue to serve on the Executive Board and that therefore more contributions are made for them in the future, pensions actually payable at the scheduled retirement age will be higher than the amounts shown in the table.

Postcontractual Non-Compete Provisions

Each Executive Board member's contract includes a 12-month postcontractual non-compete agreement. During this non-compete period, Executive Board members receive abstention payments corresponding to 50% of their average contractual compensation as members. This average is calculated on the basis of the preceding three years. Any other occupational income generated by the Executive Board member is deducted from their compensation. In accordance with the GCGC, the Supervisory Board will offset any severance payments against such compensation for abstention.

The following table presents the theoretical amounts for the net present values of the postcontractual non-compete abstention payments. The calculation assumes the following:

- The Executive Board member leaves SAP at the end of their respective current contract term.
- Their final average contractual compensation prior to their departure equals their compensation in 2020.

Actual postcontractual non-compete payments will likely differ from these amounts depending on the time of departure and the compensation levels and target achievements at the time of departure.

Net Present Values of the Postcontractual Non-Compete Abstention Payments

€ thousands	Contract Term Expires	**Net Present Value of Postcontractual Non-Compete Abstention Payment[1]**
Christian Klein (CEO)	4/30/2025	3,109
Adaire Fox-Martin	6/30/2021	2,270
Luka Mucic	3/31/2026	1,452
Juergen Mueller	12/31/2021	1,370
Thomas Saueressig	10/31/2022	1,372
Total		**9,574**

[1] For the purpose of this calculation, the following discount rates have been applied: Christian Klein –0.02%; Adaire Fox-Martin –0.31%; Luka Mucic 0.07%; Juergen Mueller –0.28%; Thomas Saueressig –0.23%.

Early End-of-Service Undertakings

Severance Payments

The standard contract for all Executive Board members provides that on termination before full term (for example, by the Company without cause where the member's appointment is revoked, where the member becomes occupationally disabled, or in connection with a change of control), SAP SE will pay to the member the outstanding part of the compensation target for the entire remainder of the term, appropriately discounted for early payment. In accordance with the GCGC, section G.13, payments made to an Executive Board member due to early termination must not exceed twice the annual total compensation. In the case of change of control, the payment must not exceed 150% of the severance payment cap. Members are not entitled to that severance payment if they have not served SAP as a member of the Executive Board for at least one year or if they leave SAP SE for reasons for which they are responsible.

If an Executive Board member's appointment to the Executive Board expires or ceases to exist because of, or as a consequence of, change or restructuring, or due to a change of control, SAP SE and each Executive Board member has the right to terminate the employment contract within eight weeks of the occurrence by giving six months' notice. A change of control is deemed to occur when:

- A third party is required to make a mandatory takeover offer to the shareholders of SAP SE under the German Securities Acquisition and Takeover Act;

- SAP SE merges with another company and becomes the subsumed entity;
- A control or profit transfer agreement is concluded with SAP SE as the dependent company.

An Executive Board member's contract can also be terminated before full term if their appointment as an Executive Board member of SAP SE is revoked in connection with a change of control.

Postcontractual Non-Compete Provisions

Abstention compensation for the postcontractual non-compete period as described above is also payable on early contract termination.

Payments to Executive Board Members Resigning in 2020

Michael Kleinemeier reached a mutual agreement with the Supervisory Board to end his employment at SAP effective April 30, 2020. The STI 2020 was handled according to plan terms. He received the following payments in connection with his retirement for the remainder of the term of appointment until December 31, 2020:

- A severance payment equaling the appropriately discounted target salary (base salary plus target STI) totaling € 1,220,242.
- Granted rights under the LTI 2016 Plan were handled according to plan terms with respect to the performance criteria and the payout schedule.
- Granted rights under the LTI 2020 were handled according to plan terms. The already granted tranche 2020 was not reduced according to the leaver rules.
- For a period of 12 months, monthly abstention compensation for the postcontractual non-compete period totaling € 2,062,298.

Jennifer Morgan reached a mutual agreement with the Supervisory Board to end her employment at SAP with effect on April 30, 2020. The STI 2020 was handled according to plan terms. She received the following payments in connection with her retirement for the remainder of the term of appointment until April 30, 2025:

- She received a severance payment of the target salary (base salary plus target STI) for the remainder of the term until April 30, 2025, totaling US$16,500,000 (equaling €15,000,000).
- Granted rights under the LTI 2016 Plan and the LTI 2020 were handled according to plan terms with respect to the performance criteria and the payout schedule. The tranche 2020 was reduced on a pro rata temporis basis.
- The post-contractual non-compete obligation applied, and the abstention compensation has been offset against the severance payment in accordance with section G. 13 of the GCGC.

Stefan Ries reached a mutual agreement with the Supervisory Board to end his employment at SAP with effect on May 31, 2020. The STI 2020 was handled according to plan terms. He received the following payments in connection with his retirement for the remainder of the term of appointment until March 31, 2024:

- A severance payment equaling the appropriately discounted target salary (base salary plus target STI) totaling € 6,998,708.
- Granted rights under the LTI 2016 Plan and the LTI 2020 were handled according to plan terms with respect to the performance criteria and the payout schedule.
- For a period of 12 months, monthly abstention compensation for the postcontractual non-compete period totaling € 1,828,155.

Permanent Disability

In case of permanent disability, an Executive Board member's contract will end at the end of the quarter in which the permanent inability to work was determined. The Executive Board member receives, in addition to a potential disability pension under the retirement plan described above, the monthly basic salary (fixed compensation) for a further 12 months starting from the date the permanent disability is determined.

Payments to Former Executive Board Members

In 2020, we paid pension benefits of €3,009,600 to Executive Board members who had retired before January 1, 2020 (2019: €2,081,100). At the end of 2020, the DBO for former Executive Board members who had retired or left SAP before January 1, 2020, was €44,042,900 (2019: €44,306,300). Plan assets of €32,758,400 are available to meet these obligations (2019: €31,074,600).

Executive Board: Other Information

We did not grant any compensation advance or credit to, or enter into any commitment for the benefit of, any member of our Executive Board in 2020 or the previous year.

As far as the law permits, SAP SE and its affiliated companies in Germany and elsewhere indemnify and hold harmless their respective directors and officers against and from the claims of third parties. To this end, we maintain directors' and officers' (D&O) group liability insurance. The policy is annual and is renewed from year to year. The insurance covers the personal liability of the insured group for financial loss caused by its managerial acts and omissions. The current D&O policy includes an individual deductible for Executive Board members of SAP SE as required by section 93 (2) of the AktG.

Compensation for Supervisory Board Members

Compensation System

Supervisory Board members' compensation is governed by our Articles of Incorporation, section 16.

Each member of the Supervisory Board receives, in addition to the reimbursement of their expenses, an annual basic compensation of €165,000. The chairperson receives €275,000 and the deputy chairperson €220,000 annually. In addition, we reimburse members of the Supervisory Board for the value-added tax payable on their compensation.

For membership of the Audit Committee, Supervisory Board members receive an additional fixed annual compensation of €16,500, and for membership of any other Supervisory Board committee €11,000, provided that the committee concerned has met in the year. The chairperson of the Audit Committee receives €27,500, and the chairpersons of the other committees receive €22,000. The fixed remuneration is payable after the end of the year.

Any members of the Supervisory Board who have served for less than the entire year receive one-twelfth of the annual remuneration for each month of service commenced. This also applies to the increased compensation of the chairperson and the deputy chairperson(s) and to the remuneration for the chairperson and the members of a committee.

Supervisory Board Members' Compensation in 2020

€ thousands	2020			2019		
	Fixed Compensation	**Compensation for Committee Work**	**Total**	Fixed Compensation	Compensation for Committee Work	Total
Prof. Dr. h.c. mult. Hasso Plattner (chairperson)	275.0	66.0	341.0	275.0	53.2	328.2
Margret Klein-Magar (deputy chairperson)	220.0	27.5	247.5	220.0	26.6	246.6
Pekka Ala-Pietilä	165.0	33.0	198.0	165.0	18.3	183.3
Panagiotis Bissiritsas	165.0	38.5	203.5	165.0	39.4	204.4
Martin Duffek (until 5/15/2019)	NA	NA	NA	68.8	16.0	84.8
Aicha Evans	165.0	33.0	198.0	165.0	33.0	198.0
Diane Greene (until 12/9/2020)	165.0	17.4	182.4	110.0	11.0	176.0
Andreas Hahn (until 5/15/2019)	NA	NA	NA	68.8	9.2	77.9
Prof. Dr. Gesche Joost	165.0	22.0	187.0	165.0	22.0	187.0
Monika Kovacka-Dimitrova (from 5/15/2019)	165.0	22.0	187.0	110.0	14.7	124.7
Lars Lamadé	165.0	22.0	187.0	165.0	22.9	187.9
Bernard Liautaud	165.0	33.0	198.0	165.0	22.0	187.0
Dr. Qi Lu (from 12/21/2020)	13.8	NA	13.8	NA	NA	NA
Gerhard Oswald	165.0	66.0	231.0	165.0	52.3	217.3
Christine Regitz	165.0	33.0	198.0	165.0	30.3	195.3
Dr. Friederike Rotsch	165.0	49.5	214.5	165.0	43.1	208.1
Dr. Erhard Schipporeit (until 5/15/2019)	NA	NA	NA	68.8	20.6	89.4
Robert Schuschnig-Fowler (until 5/15/2019)	NA	NA	NA	68.8	9.2	77.9
Dr. Sebastian Sick (until 5/15/2019)	NA	NA	NA	68.8	9.2	77.9
Heike Steck (from 5/15/2019)	165.0	22.0	187.0	110.0	14.7	124.7
Pierre Thiollet (until 5/15/2019)	NA	NA	NA	68.8	4.6	73.3
Christa Vergien-Knopf (from 5/15/2019)	165.0	22.0	187.0	110.0	14.7	124.7
Dr. Gunnar Wiedenfels (from 5/15/2019)	165.0	38.5	203.5	110.0	25.7	135.7
James Wright (from 5/15/2019)	165.0	38.5	203.5	110.0	25.7	135.7
Ralf Zeiger (from 5/15/2019)	165.0	22.0	187.0	110.0	14.7	124.7
Total	**3,148.8**	**605.9**	**3,754.7**	**3,217.5**	**552.7**	**3,770.2**

In 2020, we received services from members of the Supervisory Board (including services from employee representatives on the Supervisory Board in their capacity as employees of SAP) in the amount of €1,625,800 (2019: €1,976,000).

Long-Term Incentives for the Supervisory Board

We do not offer members of the Supervisory Board share-based payment for their Supervisory Board work. Any share-based payment awards received by employee-elected members relate to their position as SAP employees and not to their work on the Supervisory Board.

Supervisory Board: Other Information

We did not grant any compensation advance or credit to, or enter into any commitment for the benefit of, any member of our Supervisory Board in 2020 or the previous year.

Hasso Plattner, the chairperson of the Supervisory Board, entered into a consulting contract with SAP after joining the Supervisory Board in May 2003. The contract does not provide for any compensation. The only cost we incurred under the contract was the reimbursement of expenses.

As far as the law permits, we indemnify Supervisory Board members against, and hold them harmless from, claims brought by third parties. To this end, we maintain directors' and officers' (D&O) group liability insurance. In accordance with our Articles of Incorporation, the premiums for the insurance policy are paid by SAP.

Responsibility Statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the Consolidated Financial Statements give a true and fair view of the assets, finances, and operating results of the SAP Group, and the management report of the Group and SAP SE includes a fair review of the development and performance of the business and the position of the Group and SAP SE, together with a description of the principal opportunities and risks associated with the expected development of the Group and SAP SE.

Walldorf, February 24, 2021
SAP SE
Walldorf, Germany

Executive Board of SAP SE

Christian Klein

Sabine Bendiek

Luka Mucic

Jürgen Müller

Scott Russell

Thomas Saueressig

Independent Auditor's Report

For the consolidated financial statements and Group Management Report we have issued an unqualified auditor's report. The English language text below is a translation of the independent auditor's report.

To SAP SE, Walldorf

Report on the Audit of the Consolidated Financial Statements and of the Group Management Report

Opinions

We have audited the consolidated financial statements of SAP SE, Walldorf, and its subsidiaries (the Group), which comprise the consolidated statements of financial position as at December 31, 2020, consolidated income statements, consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the financial year from January 1 to December 31, 2020 and notes to the consolidated financial statements, including a summary of significant accounting policies.

In addition, we have audited the combined Group Management Report by the SAP Group and the management report of SAP SE, Walldorf ("Group Management Report") for the financial year from January 1 to December 31, 2020. In accordance with German legal requirements, we have not audited the content of those components of the Group Management Report specified in the "Other Information" section of our auditor's report.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB [Handelsgesetzbuch: German Commercial Code], as well as the IFRSs as adopted by the International Accounting Standards Board and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at December 31, 2020, and of its financial performance for the financial year from January 1 to December 31, 2020 and
- the accompanying Group Management Report as a whole provides an appropriate view of the Group's position. In all material respects, this Group Management Report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the Group Management Report does not cover the content of those components of the Group Management Report specified in the "Other Information" section of the auditor's report.

Pursuant to Section 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the Group Management Report.

Basis for the Opinions

We conducted our audit of the consolidated financial statements and of the Group Management Report in accordance with Section 317 HGB and the EU Audit Regulation No. 537/2014 (referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW) as well as in supplementary compliance with the International Standards on Auditing (ISAs) and guidelines of the Public Company Accounting Oversight Board (United States).

Our responsibilities under those requirements, principles and standards are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the Group Management Report.

Key Audit Matters in the Audit of Consolidated Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the financial year from January 1 to December 31, 2020. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, we do not provide a separate opinion on these matters.

Software license revenue recognition

Refer to note (A.1) – Revenue and Group Management Report, section Risk Management and Risks.

THE FINANCIAL STATEMENT RISK

In the financial year 2020 SAP generated revenue of EUR 27.3 billion, of which EUR 15.1 billion relate to revenues from sales of software licenses and support.

The evaluation of software licenses revenue recognition bears an inherent risk of errors as SAP´s software customer contracts are complex. SAP defined detailed policies, procedures and processes to manage the accounting for its customer contracts, which are also described in the notes. Applying them often requires significant judgments, in particular in the assessment of the following:

1. whether various contracts are economically interrelated,
2. whether products and services qualify as separate performance obligations, and

3. the allocation of the transaction price of a customer contract to the performance obligations in the contract based on standalone-selling prices.

There is the financial statement risk that the recognition cut-off of software license revenue as at the balance sheet date is incorrect and that revenues are allocated incorrectly.

OUR AUDIT APPROACH

On software revenue recognition, we evaluated the compliance of SAP's accounting policies with the IFRS Framework and IFRS 15.

We evaluated the design and tested the operating effectiveness of certain internal controls related to the revenue process including controls related to the identification of economically interrelated contracts, separate performance obligations and allocation of the transaction price to the performance obligations in the contract.

For a sample of customer contracts, which were selected using a statistical approach, we:

- inspected the underlying contractual agreements and other related documents as well as inquired with SAP's accounting and/or sales representatives to evaluate SAP's assessment of whether contracts were economically interrelated as well as evaluate the identified performance obligations and allocation of transaction price,
- obtained and inspected external confirmations of the key terms and conditions from the respective customers to test whether contracts were economically interrelated, as well as to evaluate the identified performance obligations,
- evaluated the allocation of the transaction price for each of the deliverables that qualified as a separate performance obligation by assessing the methodology applied and testing mathematical accuracy of the underlying calculations.

For the majority of software support revenue, we compared the actual support revenue with the support revenue that is expected based on last year's support revenue, the loss rate of last year´s support contracts and the current year software sales that trigger additional support revenue.

OUR OBSERVATIONS

SAP has developed an adequate framework for determining the accounting treatment for its revenue. For the vast majority of the software arrangements entered into during 2020, it was clear which of SAP's revenue recognition policies should be applied. Where there was room for interpretation, SAP's judgment was balanced and appropriate.

Assessment of the Group's uncertain tax treatments

Refer to note (C.5) – Income Taxes, and Group Management Report section Risk Management and Risks.

THE FINANCIAL STATEMENT RISK

SAP operates in multiple tax jurisdictions with complexities and uncertainties due to different interpretations of tax laws, such as those involving revenue sharing and cost reimbursement arrangements between SAP Group entities, changing tax laws and intercompany financing transactions. The determination of provisions for tax uncertainties requires SAP to make judgments on tax issues and develop estimates regarding SAP's exposure to tax risks. SAP regularly engages external experts to provide tax opinions to support their own risk assessment. The risk for the consolidated financial statements relates to the completeness, measurement and disclosure of the provision for uncertain tax treatments. As of December 31, 2020 SAP disclosed contingent liabilities relating to tax uncertainties of EUR 1.2 billion.

OUR AUDIT APPROACH

We evaluated the design and tested the operating effectiveness of certain internal controls over the tax process including controls over the Group's assessment of tax law and the process to estimate the related exposures. We assessed the competency, skills and objectivity of the external experts and evaluated the related expert opinions. We inquired of the Group's tax department and inspected correspondence with the relevant tax authorities. We involved tax professionals with specialized skills and knowledge, who assisted in evaluating SAP´s conclusion´s over the estimate of tax uncertainties based on their knowledge and experience regarding the application of relevant legislation by tax authorities and the courts.

Finally, we assessed whether the disclosures in the notes with respect to uncertain tax treatments are complete and appropriate.

OUR OBSERVATIONS

SAP's judgments as to the amounts recognized as tax provisions for tax uncertainties as of December 31, 2020 are appropriate. The disclosures in the notes to the consolidated financial statements are complete and appropriate.

Recoverability of the carrying amount of goodwill for the Concur Segment

Refer to note (D.2) – Goodwill.

THE FINANCIAL STATEMENT RISK

SAP performs its annual goodwill impairment test at the level of its operating segments as there are no lower levels within SAP at which goodwill is monitored for internal management purposes.

As of December 31, 2020, SAP reported goodwill of EUR 27.6 billion, of which EUR 3.3 billion was allocated to the Concur segment.

The respective impairment test is complex and involves significant judgment. The key assumptions relate to the budgeted revenue growth and budgeted operating margin. Minor changes to those assumptions had a significant effect on the fair value less costs of disposal. SAP engaged an external valuation expert to support SAP in performing the goodwill impairment test.

There is the risk for the financial statements that the required impairments were not sufficiently recorded. In addition, there is the risk that the disclosures in the notes associated herewith are not appropriate.

OUR AUDIT APPROACH

We evaluated the design and tested the operating effectiveness of certain internal controls over the impairment process including budgeted revenue growth and budgeted operating margin assumptions for the Concur Segment. We involved our valuation professionals with specialized skills and knowledge, who assisted in assessing the measurement of the fair value less costs of disposal. We evaluated SAP's budgeted revenue growth and budgeted operating margin assumptions by comparing them to publicly available market data for comparable companies. We performed an independent sensitivity analysis for each assumption listed above

using own assumptions that we have developed based on external sources.

To provide for the appropriate application and the mathematical accuracy of the valuation model utilized, we recalculated the Company's calculations on the basis of elements selected in a risk-orientated manner and analyzed deviations.

We assessed the competency, skills and objectivity of the external valuation expert engaged by SAP.

Finally, we assessed whether the disclosures in the notes with respect to the recoverability of the carrying amount of the goodwill are appropriate. This also included an assessment as to the appropriateness of the disclosures in the notes pursuant to IAS 36.134(f) with respect to sensitivities resulting from reasonably possible changes of key assumptions underlying the valuation.

OUR OBSERVATIONS

The approaches underlying the impairment testing of goodwill are appropriate and consistent with the applicable accounting and valuation principles. SAP applied a balanced set of assumptions in determining the fair value less costs of disposal. The disclosures in the notes associated herewith are appropriate.

Other Information

The Executive Board and the Supervisory Board, respectively, of SAP SE is responsible for the other information. The other information comprises the following unaudited information in the Group Management Report:

- the combined non-financial report, included in section "General Information About This Management Report" of the Group Management Report,
- the corporate governance statement, included in section "Corporate Governance Fundamentals" of the Group Management Report, and
- Information extraneous to the Group Management Report and marked as unaudited.

The other information also includes the annual report on Form 20-F and remaining parts of the annual report.

The other information does not include the consolidated financial statements, group management report information and our auditor's report thereon.

Our opinions on the consolidated financial statements and on the Group Management Report do not cover the other information and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the Group Management Report information audited for content or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

In addition, we were engaged to perform an independent assurance engagement on selected qualitative and quantitative sustainability disclosures of the integrated report 2020. In regard to the nature, extent and conclusions of this independent assurance engagement we refer to our Independence Assurance Report dated on February 24, 2021.

Responsibilities of the Executive Board and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report

The Executive Board of SAP SE is responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB as well as IFRS as adopted by the International Accounting Standards Board and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the Executive Board is responsible for such internal control as the Executive Board has determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Executive Board is responsible for assessing the Group's ability to continue as a going concern. The Executive Board also has the responsibility for disclosing, as applicable, matters related to going concern. In addition, the Executive Board is responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the Executive Board is responsible for the preparation of the Group Management Report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with the German legal requirements and appropriately presents the opportunities and risks of future development. In addition, the Executive Board is responsible for such arrangements and measures (systems) as the Executive Board has considered necessary to enable the preparation of the Group Management Report that is in accordance with the applicable German legal requirements, the German Accounting Standards number 17 and 20 (GAS 17, GAS 20) and the IFRS Practice Statement Management Commentary and to be able to provide sufficient appropriate evidence for the assertions in the Group Management Report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the Group Management Report.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the Group Management Report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the Group Management Report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) as well as in supplementary compliance with ISAs and guidelines of the Public Company Accounting Oversight Board (United States) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this Group Management Report.

We exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the Group Management Report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the Group Management Report in order to design audit procedures that are appropriate in the circumstances.
- Evaluate the appropriateness of accounting policies used by the Executive Board and the reasonableness of accounting estimates made by the Executive Board and related disclosures.
- Conclude on the appropriateness of the Executive Board's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the Group Management Report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU as well as with IFRSs as adopted by the International Accounting Standards Board and the additional requirements of German commercial law pursuant to Section 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the Group Management Report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.
- Evaluate the consistency of the Group Management Report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the Executive Board in the Group Management Report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the Executive Board as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with the Supervisory Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Supervisory Board with a statement that we have complied with relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable the related safeguards.

From the matters communicated with the Supervisory Board, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report, unless law or regulation precludes public disclosure about the matter.

Other Legal and Regulatory Requirements

Report on Internal Control over Financial Reporting in the Consolidated Financial Statements pursuant to PCAOB

Opinion on Internal Control over Financial Reporting in the Consolidated Financial Statements

We have audited the internal control over financial reporting in the consolidated financial statements of SAP SE, Walldorf, and its subsidiaries in place as at December 31, 2020. This control system is based on criteria set out in the Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, SAP maintained, in all material respects, effective internal control over financial reporting in the consolidated financial statements as at December 31, 2020 based on the criteria set out in the Internal Control – Integrated Framework (2013) issued by the COSO.

Executive Board's and Supervisory Board's Responsibility for the Internal Control over Financial Reporting in the Consolidated Financial Statements

SAP SE's Executive Board is responsible for maintaining effective internal control over financial reporting in the consolidated financial statements and assessing its effectiveness, which is included in the Executive Board's report on the internal control over consolidated financial reporting.

A company's internal control over financial reporting in the consolidated financial statements is a process designed to provide reasonable assurance regarding the reliability of financial reporting in the consolidated financial statements and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting in the consolidated financial statements includes policies and procedures to (1) ensure an accounting system that in reasonable detail accurately and fairly reflects the transactions and dispositions of the company's assets, (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect material misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The Supervisory Board is responsible for overseeing the Group's internal control over financial reporting in the consolidated financial statements.

Auditor's Responsibility for the Internal Control over Financial Reporting in the Consolidated Financial Statements

Our responsibility is to express an opinion on the internal control over financial reporting in the consolidated financial statements based on our audit. We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether effective internal control over financial reporting in the consolidated financial statements was maintained in all material respects. Our audit of internal control over financial reporting in the consolidated financial statements included obtaining an understanding of internal control over financial reporting, assessing the risk of material deficiencies in internal control, testing and evaluating the design and operating effectiveness of internal control based on this assessment, and performing such other procedures as we considered necessary in the circumstances.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Assurance Report in accordance with Section 317 (3b) HGB on the Electronic Reproduction of the Consolidated Financial Statements and the Group Management Report Prepared for Publication Purposes

We have performed an assurance engagement in accordance with Section 317 (3b) HGB to obtain reasonable assurance about whether the electronic reproduction of the consolidated financial statements and the group management report (hereinafter the "ESEF documents") contained in the file that can be downloaded by the issuer from the electronic client portal with access protection, "sap-2020-12-31AR.zip" (SHA256 hash value: 524a6c728259ec888 fbcf7f40b8807a71777e3f475e49598987baafe5a335708) and prepared for publication purposes complies in all material respects with the requirements of Section 328 (1) HGB for the electronic reporting format ("ESEF format"). In accordance with German legal requirements, this assurance engagement only extends to the conversion of the information contained in the consolidated financial statements and the group management report into the ESEF format and therefore relates neither to the information contained in this reproduction nor any other information contained in the above-mentioned electronic file.

In our opinion, the reproduction of the consolidated financial statements and the group management report contained in the above-mentioned electronic file and prepared for publication purposes complies in all material respects with the requirements of Section 328 (1) HGB for the electronic reporting format. We do not express any opinion on the information contained in this reproduction nor on any other information contained in the above-mentioned file beyond this reasonable assurance conclusion and our audit opinion on the accompanying consolidated financial statements and the accompanying group management report for the financial year from January 1, 2020 to December 31, 2020 contained in the "Report on the Audit of the Consolidated Financial Statements and the Group Management Report" above.

We conducted our assessment of the reproduction of the consolidated financial statements and the group management report contained in the above-mentioned electronic file in accordance with Section 317 (3b) HGB and the Exposure Draft of the IDW Assurance Standard: Assurance in accordance with Section 317 (3b) HGB on the Electronic Reproduction of Financial Statements and Management Reports Prepared for Publication Purposes (ED IDW AsS 410). Accordingly, our responsibilities are further described below. Our audit firm has applied the IDW Standard on Quality Management 1: Requirements for Quality Management in Audit Firms (IDW QS 1).

The company's management is responsible for the preparation of the ESEF documents including the electronic reproduction of the consolidated financial statements and the group management report in accordance with Section 328 (1) sentence 4 item 1 HGB and for the tagging of the consolidated financial statements in accordance with Section 328 (1) sentence 4 item 2 HGB.

In addition, the company's management is responsible for the internal controls they consider necessary to enable the preparation of ESEF documents that are free from material non-compliance with the requirements of Section 328 (1) HGB for the electronic reporting format, whether due to fraud or error.

The company's management is also responsible for the submission of the ESEF documents together with the auditor's

report and the attached audited consolidated financial statements and audited group management report as well as other documents to be published to the operator of the German Federal Gazette [Bundesanzeiger].

The Supervisory Board is responsible for overseeing the preparation of the ESEF documents as part of the financial reporting process.

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material non-compliance with the requirements of Section 328 (1) HGB, whether due to fraud or error. We exercise professional judgement and maintain professional scepticism throughout the assurance engagement. We also:

- Identify and assess the risks of material non-compliance with the requirements of Section 328 (1) HGB, whether due to fraud or error, design and perform assurance procedures responsive to those risks, and obtain assurance evidence that is sufficient and appropriate to provide a basis for our assurance conclusion.
- Obtain an understanding of internal control relevant to the assessment of the ESEF documents in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing a conclusion on the effectiveness of these controls.
- Evaluate the technical validity of the ESEF documents, i.e. whether the electronic file containing the ESEF documents meets the requirements of Commission Delegated Regulation (EU) 2019/815 on the technical specification for this electronic file.
- Evaluate whether the ESEF documents enable an XHTML reproduction with content equivalent to the audited consolidated financial statements and the audited group management report.
- Evaluate whether tagging the ESEF documents with Inline XBRL technology (iXBRL) provides an appropriate and complete machine-readable XBRL copy of the XHTML reproduction.

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor at the annual general meeting on May 20, 2020. We were engaged by the Chairman of the Audit Committee of the Supervisory Board of SAP SE on July 7, 2020, and this engagement was confirmed on July 24, 2020. We have been the group auditor of SAP SE without interruption since the financial year 2002.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

In addition to the financial statement audit, we have provided to group entities the following services that are not disclosed in the consolidated financial statements or in the Group Management Report:

We audited the financial statements of SAP SE and performed various financial statement audits at subsidiaries. Furthermore, other assurance services required by law or on a contractual basis were performed, including an assurance engagement on selected qualitative and quantitative sustainability disclosures of the Integrated Report 2020 and an EMIR assurance service pursuant to section 20 of German Securities Trading Act [WpHG] and service organization attestation procedures.

German Public Auditor Responsible for the Engagement

The German Public Auditor responsible for the engagement is Bodo Rackwitz.

Mannheim, February 24, 2021

KPMG AG
Wirtschaftsprüfungsgesellschaft
[Original German version signed by:]

Rackwitz
Wirtschaftsprüfer
[German Public Auditor]

Conrad
Wirtschaftsprüfer
[German Public Auditor]

Combined Management Report

General Information About This Management Report	**50**
Strategy and Business Model	**52**
Performance Management System	**57**
Products, Research & Development, and Services	**63**
Security, Data Protection, and Privacy	**68**
Customers	**71**
Employees and Social Investments	**72**
Energy and Emissions	**77**
Financial Performance: Review and Analysis	**80**
Corporate Governance Fundamentals	**98**
Business Conduct	**100**
Human Rights and Labor Standards	**102**
Risk Management and Risks	**104**
Expected Developments and Opportunities	**123**

General Information About This Management Report

Basis of Presentation

This combined group management report by the SAP Group (collectively, "we," "us," "our," "SAP," "Group," or "Company") and the management report of SAP SE have been prepared in accordance with sections 289, 289a, 289f, 315, 315a, and 315d of the German Commercial Code and German Accounting Standards (GAS) No. 17 and 20. The combined group management report is also a management commentary complying with the International Financial Reporting Standards (IFRS) Practice Statement "Management Commentary".

The German Commercial Code, sections 289b and 315b, requires us to prepare, for both SAP SE and the SAP Group, a non-financial statement within the management report or a non-financial report outside of the management report in which we report on social, environmental, and other non-financial matters. The required disclosures can be, but do not need to be, a separate section in our management report. Instead, the information required can also be provided, in an integrated manner, in the different sections of the management report. SAP released a combined non-financial report outside of the combined management report but within our online integrated report with references to the sections of our combined management report. This combined non-financial report is available at *http://www.sap.com/investors/sap-2020-combined-non-financial-report*. We believe that this approach is best aligned with SAP's integrated reporting strategy, also taking into account that all non-financial information stipulated in the German Commercial Code, sections 289c and 315c, that is relevant to understand SAP's development, business performance, and the position of the Group and SAP SE is included in our combined group management report.

Our auditor, KPMG AG Wirtschaftsprüfungsgesellschaft (KPMG), audited SAP's combined group management report, except for information that was not subject to the statutory audit of our combined group management report, but on which a limited assurance engagement was performed as stated in this paragraph. Additionally, KPMG performed an independent assurance engagement on selected qualitative and quantitative sustainability disclosures. The sections *SAP's Impact; Security, Data Protection, and Privacy; Employees and Social Investments; Energy and Emissions; Business Conduct;* and *Human Rights and Labor Standards* include information that was not subject to the statutory audit of our combined group management report, but on which a limited assurance engagement was performed. These sections contain further explanations about the audit scope in an info box at the end of the respective section marked by the symbol 🔍. For more information about the scope of the assurance and the underlying reporting criteria, see KPMG's *Independent Auditor's Report* and the *Assurance Report of the Independent Auditor on Selected Qualitative and Quantitative Sustainability Disclosures* in the SAP Integrated Report.

All of the information in this report relates to the situation as at December 31, 2020, or the fiscal year ended on that date, unless otherwise stated.

Forward-Looking Statements

This management report contains forward-looking statements and information based on the beliefs of, and assumptions made by, SAP management using information currently available to them. Any statements contained in this report that are not historical facts are forward-looking statements as defined in the U.S. Private Securities Litigation Reform Act of 1995. We have based these forward-looking statements on our current expectations, assumptions, and projections about future conditions and events. As a result, our forward-looking statements and information are subject to uncertainties and risks, many of which are beyond our control. If one or more of these uncertainties or risks materializes, or if management's underlying assumptions prove incorrect, our actual results could differ materially from those described in or inferred from our forward-looking statements and information. We describe these risks and uncertainties in the *Risk Management and Risks* section.

The words "aim," "anticipate," "assume," "believe," "continue," "could," "counting on," "is confident," "development," "estimate," "expect," "forecast," "future trends," "guidance," "intend," "may," "might," "outlook," "plan," "predict," "project," "seek," "should," "strategy," "want," "will," "would," and similar expressions as they relate to us are intended to identify such forward-looking statements. Such statements include, for example, those made in the *Operating Results* section, our quantitative and qualitative disclosures about market risk pursuant to the International Financial Reporting Standards (IFRS), namely IFRS 7 and related statements in our Notes to the Consolidated Financial Statements; *Expected Developments and Opportunities* section; *Risk Management and Risks* section; and other forward-looking information appearing in other parts of this report. To fully consider the factors that could affect our future financial results, both this report and our Annual Report on Form 20-F should be considered, as well as all of our other filings with the U.S. Securities and Exchange Commission (SEC). Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date specified or the date of this report. We undertake no obligation to publicly update or revise any forward-looking statements as a result of new information that we receive about conditions that existed upon issuance of this report, future events, or otherwise unless we are required to do so by law.

This report includes statistical data about the IT industry and global economic trends that comes from information published by sources including International Data Corporation (IDC), Gartner, the European Central Bank (ECB), and the International Monetary Fund (IMF). This type of data represents only the estimates of IDC, Gartner, the ECB, the IMF, and other sources of industry data. SAP

does not adopt or endorse any of the statistical information provided by sources such as IDC, Gartner, the ECB, the IMF, or other similar sources that is contained in this report. The data from these sources is subject to risks and uncertainties, and subject to change based on various factors, including those described above, in the *Risk Management and Risks* section, and elsewhere in this report. These and other factors could cause our results to differ materially from those expressed in the estimates made by third parties and SAP. We caution readers not to place undue reliance on this data.

Strategy and Business Model

Overview of SAP

Founded in 1972, SAP is a global company headquartered in Walldorf, Germany. Our legal corporate name is SAP SE. SAP is a market leader in enterprise application software[1] as well as in enterprise resource planning, supply chain management, data integration and quality, and master data management. The SAP Group has a global presence and employs more than 100,000 people.

Our ordinary shares are listed on the Frankfurt Stock Exchange. American Depositary Receipts (ADRs) representing SAP SE ordinary shares are listed on the New York Stock Exchange (NYSE). SAP is a member of Germany's DAX and TecDAX as well as the Dow Jones EURO STOXX 50, the Dow Jones Sustainability Index World, and the Dow Jones Sustainability Index Europe. As at December 31, 2020, SAP was the most valuable company in the DAX based on market capitalization. SAP was ranked as the most sustainable software company in the Dow Jones Sustainability Indices for the fourteenth consecutive year.

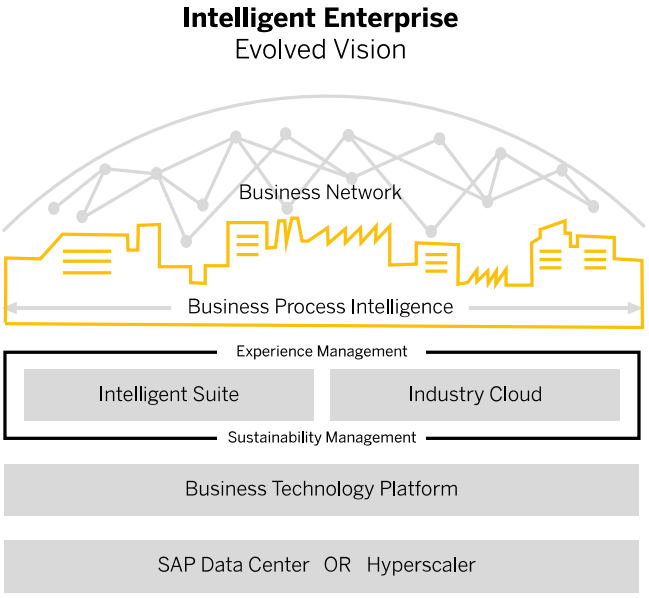
Our Purpose

Our purpose at SAP is to "help the world run better and improve people's lives." Based on the conviction that technology and digitalization can help solve environmental, economic, and social challenges, SAP considers this overarching theme in our innovation efforts. Today's challenges, including demographic change, rapid technological change, climate change, and the COVID-19 pandemic, have led to disruptions of all kinds across the globe. SAP aims to fulfill the requirements created by a more complex economic environment for both our customers and ourselves. Therefore, our vision is tailored to a common goal of being an innovative and trusted partner for our customers – and to support them in reinventing the way their business runs. The dynamic expansion of our technological foundation serves the overarching objectives of creating resilient, profitable, and sustainable business outcomes for our customers. We also aspire to transform ourselves and help our customers become intelligent enterprises[2] that both respect the planet we live on and uphold human dignity across the entire value chain.

In line with our purpose, we are committed to supporting the United Nations Sustainable Development Goals (UN SDGs). Technology-driven innovation underpins how SAP, together with our customers and our partner ecosystem, can execute initiatives across all 17 of the UN SDGs. Examples of how we are doing this include the focus of social investments on building digital skills and our guiding principles for artificial intelligence (AI).

Our Strategy – The Intelligent Enterprise

To serve our purpose and to respond to the changing market conditions, SAP has evolved our Intelligent Enterprise strategy by emphasizing key principles to drive innovation, integration, and agility, as well as speed. The evolution of our strategy is closely tied to the objective that every substantial business element is connected and interlinked. The components of our Intelligent Enterprise are detailed below.



- Our **business network** brings together cross-company business processes. The network builds on our digital supply chain, procurement, logistics, asset management, travel and expense, contingent workforce, and platform solutions.
- Our **business process intelligence** offerings aim to enable companies to quickly understand, improve, transform, and manage their business processes at scale. It provides one common foundation for a business process semantic layer, which contains capabilities for process insights and process improvements.
- Our **experience management** solutions bring experience data into an intelligent enterprise, connecting user, customer, brand, and employee sentiment in every decision and action.
- Our **intelligent suite** is the base on which to run agile, integrated end-to-end business processes. It helps manage business-critical elements of the organization – employees, customers, products, spend, finance, and IT.

[1] Enterprise application software is computer software specifically developed to support and automate business processes.
[2] An "intelligent enterprise" is an event-driven, real-time business powered by technology that includes machine learning, robotic process automation, Internet of Things, and analytics capabilities to help scale innovation.

- Our **industry cloud** allows customers to discover and deploy vertical solutions from SAP and our partners. We aim to apply industry best practices and extend current business processes.
- Our **sustainability management** solutions help our customers minimize carbon footprints, reduce waste through responsible supply chain management, and enable diversity across all business practices.
- Our **business technology platform** is a foundation layer, which provides data management and analytics and is the hub for application integration and extension. It also allows customers to use embedded intelligent technologies such as AI, robotic process automation, machine learning, and the Internet of Things.
- To complete our own technology provisioning, we pursue a balanced cloud approach by lifting our existing base of customers to state-of-the-art cloud delivery on an **SAP converged cloud** running in SAP data centers or on **hyperscalers**.

Reinventing How Businesses Run

To execute against this ambitious strategy, SAP defined strategic moves under the program called "**Reinvent How Businesses Run**."

To that end, we focus our application portfolio on creating differentiating capabilities and on areas where we can win decisively. We are strongly committed to innovating in new markets by building on our core software and technology and by facilitating business change that addresses the future of work. We are aiming to vitalize agility, speed, and integration by creating a world-class business technology platform, together with a strong developer and partner ecosystem. We are linking to customer success by focusing on business outcomes. Furthermore, we are accelerating engagement with our active partner ecosystem.

In January 2021, SAP introduced **RISE with SAP**, a new single offer on a single contract that supports a customer's transformation journey to an intelligent enterprise. RISE with SAP provides a path to the cloud for customers, without high upfront cost, and with faster time to value and the flexibility to decide which capabilities to use at what point in time. Together with our ecosystem, we aim to provide what companies need to holistically transform their business - from business process redesign to technical migration services and cloud infrastructure of choice up to our SAP Business Technology Platform, access to the Business Network, and SAP S/4HANA Cloud.

For more information about the products and solutions offered as part of our strategy framework, see the *Products, Research & Development, and Services* section.

Our people are critical to the execution of our strategy, as our diverse workforce is key to delivering innovations to help our customers transform their businesses. For more information, see the *Employees and Social Investments* section.

Subsidiaries, Acquisitions, and Divestitures

Subsidiaries

SAP SE is the parent company of the SAP Group. As at December 31, 2020, the SAP Group comprised 269 companies that develop, distribute, and provide our products, solutions, and services. For a list of our subsidiaries, associates, and other equity investments, see the Notes to the Consolidated Financial Statements, *Note (G.9).*

Qualtrics IPO

In July 2020, SAP announced its intention to take Qualtrics public through an initial public offering (IPO) in the United States. The primary objective for the IPO is to fortify Qualtrics' ability to capture its full market potential within the Experience Management space. Trading commenced on the NASDAQ stock exchange in New York City on January 28, 2021, with a starting price of US$30.00. For more information about the Qualtrics IPO, see *Note (G.8), Events After the Reporting Period.*

Acquisitions

We will continue to focus on organic investments in technology and innovations that ensure sustainable growth of our solution portfolio to drive our short-term, midterm, and long-term ambitions. Additionally, we may make targeted acquisitions to complement our solution offerings and improve coverage in key strategic markets.

In November 2020, SAP closed its acquisition of **Emarsys**, a leading omnichannel customer engagement platform provider. By enhancing the SAP Customer Experience portfolio, Emarsys solutions change how commerce is managed digitally to deliver hyperpersonalized, omnichannel engagements in real time. For more information about acquisitions, see *Note (D.1), Business Combinations and Divestitures*.

In January 2021, SAP announced it had entered into an agreement to acquire **Signavio**, a leader in the enterprise business process intelligence and process management space. For more information, see *Note (G.8), Events After the Reporting Period*.

Divestitures

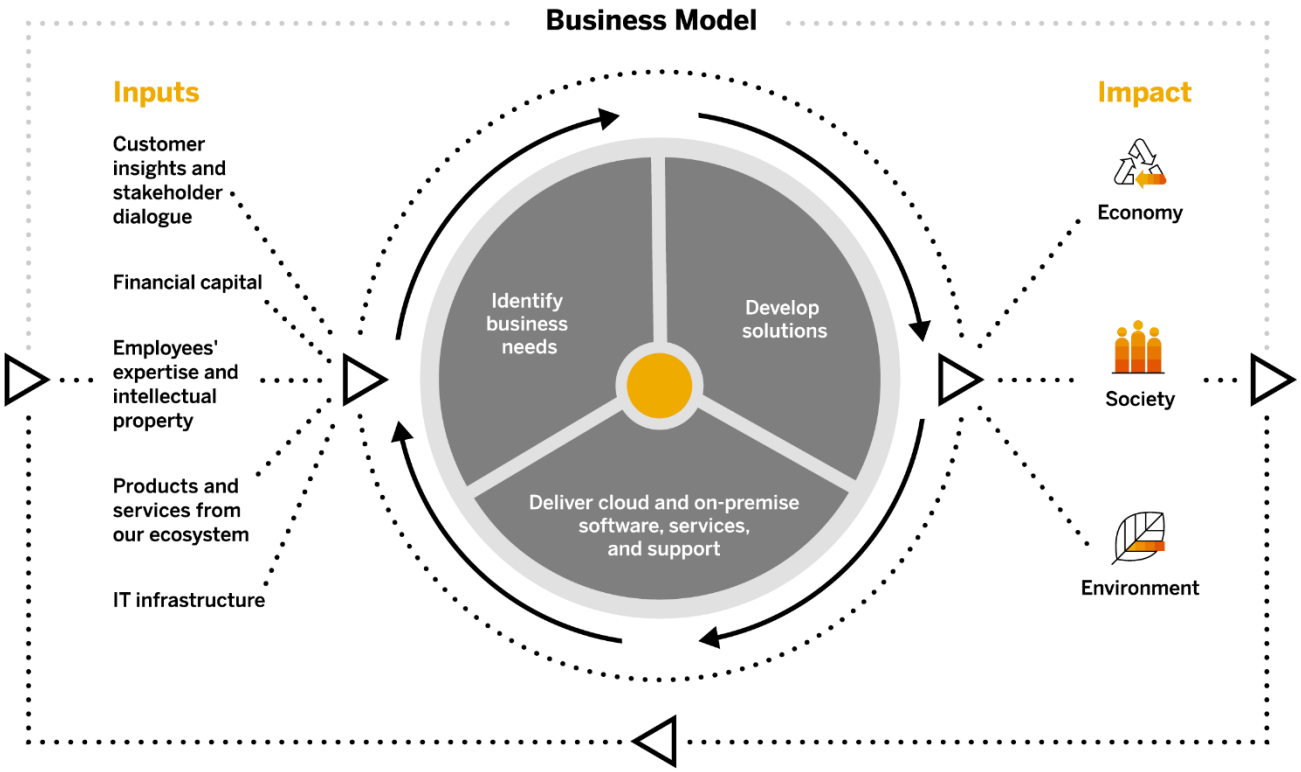
On May 5, 2020, SAP and Sinch AB ("Sinch") announced that they had entered into an agreement for Sinch to acquire the **SAP Digital Interconnect** group. The business sold consists of several SAP subsidiaries as well as assets transferred from certain SAP entities. The transaction closed on November 1, 2020.

For more information about divestitures, see *Note (D.1), Business Combinations and Divestitures*.

Sapphire Ventures

In addition to our investments in organic growth and acquisitions, SAP also supports entrepreneurs that aspire to build industry-leading businesses through venture capital funds managed by **Sapphire Ventures**. Sapphire Ventures manages over US$4.2 billion and has invested in more than 170 companies. These include growth-stage technology companies and early-stage venture capital funds. Sapphire Ventures pursues opportunities in which it can help fuel enterprise growth by adding expertise, relationships, geographic reach, and capital. It places a particular focus on companies in Europe, Israel, and the United States.

SAP's Impact



Our Business Model

This section describes our business model as defined in the International Integrated Reporting Framework as "an organization's system of transforming inputs, through its business activities, into outputs and outcomes that aims to fulfil the organization's strategic purposes and create value over the short, medium, and long term."

We create value by identifying the business needs of our customers, then developing and delivering software solutions, services, and support that address these needs. By obtaining customer feedback, we strive to continuously improve our solutions, identify further business needs, and deliver enhanced value to our customers across the whole lifecycle.

Inputs

This process does not happen in a vacuum. It is enabled by internal and external inputs, and most importantly customer insights, customer experience and broader stakeholder dialogue, financial capital, employees' expertise, intellectual property, products, and services from our partner ecosystem, as well as the IT infrastructure we rely on.

Impact

Our solutions help create impact for our customers and – through them – in the world.

SAP software and programs primarily support the UN SDGs 3 (Good Health and Well-Being); 4 (Quality Education); 8 (Decent Work and Economic Growth); 9 (Industry, Innovation, and Infrastructure); 10 (Reduced Inequalities); 12 (Responsible Consumption and Production); and 13 (Climate Action). For example, SAP software helps:

- Companies work better to bring economic prosperity and fairly paid jobs to people around the world.
- Organizations optimize resource utilization, aspiring for a world with zero waste.
- SAP customers increase their overall resource productivity and transform their businesses to reduce carbon footprint.

We are deeply committed to empowering the world's youth, experienced staff pursuing additional education, differently abled people, and the unemployed with the right skills to thrive in the digital economy. We offer programs that range from inspiring early stage innovation to scaling mature social enterprises.

Furthermore, we know there is power in collaboration and therefore we engage in a wide range of partnerships to address SDG 17 (Partnerships for the Goals).

Trade-Offs

We are also aware of potential negative impacts of our business activities and strive to mitigate these. For example:

- An acceleration of the digital divide could decouple societal groups from entire segments of the economy, impacting employment potential. Therefore, SAP focuses our social investment activities on providing digital skills to underprivileged people. For more information, see the *Employees and Social Investments* section.
- We expect increasing energy consumption due to our own growth and increasing digitization globally. Therefore, we offer a green cloud to help reduce the CO_2 footprint. For more information, see the *Energy and Emissions* section.

Audit Scope

The content of the "SAP's Impact" section was not subject to the statutory audit of our combined group management report. However, our external auditor, KPMG, performed an independent limited assurance engagement on the contents of this section.

Measuring Our Success

We use the following financial and non-financial objectives to steer our company:

- Growth
- Profitability
- Customer loyalty
- Employee engagement
- Carbon impact

The table below provides an overview of the specific key performance indicators (KPIs) used to measure performance within these objectives and compares this performance with our goals.

Outlook and Results for 2020

Strategic Objective	KPI	2020 Outlook (non-IFRS, at constant currencies)	2020 Results (non-IFRS, at constant currencies)
Growth	Cloud revenue	€8.0 billion to €8.2 billion*	€8.24 billion
	Cloud and software revenue	€23.1 billion to €23.6 billion*	€23.72 billion
	Total revenue	€27.2 billion to €27.8 billion*	€27.90 billion
Profitability	Operating profit	€8.1 billion to €8.5 billion*	€8.50 billion
Customer Loyalty	Customer Net Promoter Score	–3 to –1	4
Employee Engagement	Employee Engagement Index	84% to 86%	86%
Carbon Impact	Net greenhouse gas emissions	150 kt**	135 kt

* The outlook for these metrics was communicated in January 2020 and was updated in April and October 2020 to reflect the expected impact of the COVID-19 pandemic on SAP's business results. The 2020 outlook numbers above reflect the updated outlook from October 2020.

** The outlook for net greenhouse gas emissions was communicated in January 2020 and was updated in July and October 2020 to reflect the expected impact of the COVID-19 pandemic on SAP's greenhouse gas emissions. The 2020 outlook numbers above reflect the updated outlook from October 2020.

Note: A reconciliation of non-IFRS results to IFRS equivalents is available in the *Performance Management System* section.

Outlook for 2021

Strategic Objective	KPI	2020 Results (non-IFRS)	2021 Outlook (non-IFRS, at constant currencies)
Growth	Cloud revenue	€8.09 billion	€9.1 billion to €9.5 billion
	Cloud and software revenue	€23.23 billion	€23.3 billion to €23.8 billion
Profitability	Operating profit	€8.28 billion	€7.8 billion to €8.2 billion
Customer Loyalty	Customer Net Promoter Score	4	5 to 10
Employee Engagement	Employee Engagement Index	86%	84% to 86%
Carbon Impact	Net greenhouse gas emissions	135 kt	145 kt

Note: A reconciliation of non-IFRS results to IFRS equivalent is available in the *Performance Management System* section.

Ambitions for 2025

Strategic Objective	KPI	2025 Ambition (non-IFRS)
Growth	Cloud revenue	More than €22 billion
	Total revenue	More than €36 billion
Profitability	Operating profit	More than €11.5 billion
Customer Loyalty	Customer Net Promoter Score	Steady increase
Employee Engagement	Employee Engagement Index	84% to 86%
Carbon Impact	Net greenhouse gas emissions	0 kt (from 2023 onward)

Note: A reconciliation of non-IFRS results to IFRS equivalents is available in the *Performance Management System* section.

Performance Management System

We use various performance measures to manage our performance with regard to our primary financial objectives, which are growth and profitability, and our primary non-financial objectives, which are customer loyalty and employee engagement. We view growth and profitability as indicators of our current performance, while we see customer loyalty and employee engagement as indicators of our future performance.

Measures to Manage Our Financial Performance

Measures to Manage Our Operating Financial Performance

In 2020, we used the following key measures to manage our operating financial performance:

Cloud revenue (non-IFRS): This revenue driver comprises the main revenues of our fast-growing cloud business. Revenue from cloud is derived from fees earned from providing customers with any of the following:

- Software as a service (SaaS)
- Platform as a service (PaaS)
- Infrastructure as a service (IaaS)
- Premium cloud support beyond regular support embedded in cloud offerings

For more information regarding cloud revenue and a description of these services, see the Notes to the Consolidated Financial Statements, *Note (A.1)*.

We use the cloud revenue (non-IFRS) measure at both actual currencies and constant currencies.

Cloud and software revenue (non-IFRS): We use cloud and software revenue (non-IFRS) expressed in both actual currencies and constant currencies to measure our revenue growth. Our cloud and software revenue includes cloud revenue plus software licenses and support revenue. Cloud revenue and software revenue are our key revenue drivers because they tend to affect our other revenue streams. Generally, customers that buy software licenses also enter into related support contracts, and these generate recurring support revenue after the software sale. Support contracts cover standardized support services and unspecified future software updates and enhancements. Cloud and software revenue also tends to stimulate services revenue, which is earned by providing customers with professional services, premium engagement services, training services, messaging services, and payment services.

Total revenue (non-IFRS): We use total revenue (non-IFRS) to measure our growth at both actual currencies and constant currencies. The total of cloud revenue and support revenue divided by total revenue is the share of more predictable revenue. This measure provides additional insight into our sustained business success.

Current cloud backlog (CCB): We use current cloud backlog, both in actual and at constant currencies, to manage our operating financial performance. The CCB measures our overall go-to-market success in the committed cloud business. The CCB is the contractually committed cloud revenue we expect to recognize over the upcoming 12 months as of a specific key date. Thus, it is a subcomponent of our overall remaining performance obligations following IFRS 15.120. For our committed cloud business, we believe the CCB is a valuable indicator of go-to-market success, as it reflects both new contracts closed as well as existing contracts renewed.

Operating profit (non-IFRS): We use operating profit (non-IFRS) expressed in both actual currencies and constant currencies to measure our overall operational process efficiency and overall business performance.

Cloud gross margin (non-IFRS): We use our cloud gross margin (non-IFRS) to measure our process efficiency in our cloud business. Cloud gross margin (non-IFRS) is the ratio of our cloud gross profit (non-IFRS) to cloud revenue (non-IFRS), expressed as a percentage.

Operating margin (non-IFRS): We use operating margin to measure our overall operational efficiency. Operating margin (non-IFRS) is the ratio of our operating profit (non-IFRS) to total revenue (non-IFRS), expressed as a percentage.

Measures to Manage Our Non-Operating Financial Performance

We use the following measures to manage our non-operating financial performance:

Financial income, net: This measure provides insight into the return on liquid assets and capital investments and the cost of borrowed funds. To manage our financial income, net, we focus on cash flow, the composition of our liquid assets and capital investment portfolio, and the average rate of interest at which assets are invested. We also monitor average outstanding borrowings and associated finance costs.

Days Sales Outstanding (DSO): We manage working capital by controlling the DSO of trade receivables. DSO measures the average number of days from the raised invoice to cash receipt from the customer. We calculate DSO by dividing the average invoiced trade receivables balance of the last 12 months by the average monthly cash receipt of the last 12 months.

Measures to Manage Overall Financial Performance

We use the following measures to manage our overall financial performance:

Earnings per share (EPS) (IFRS and non-IFRS): EPS measures our overall performance because it captures all operating and non-operating elements of profit as well as income tax expense. It represents the portion of profit after tax allocable to each SAP share outstanding. EPS is influenced not only by our operating and nonoperating business and income taxes but also by the number of shares outstanding.

Effective tax rate (IFRS and non-IFRS): We define our effective tax rate as the ratio of income tax expense to profit before tax, expressed as a percentage.

Operating, investing, and financing cash flows and free cash flow: Our consolidated statement of cash flows provides insight into how we generate and use cash and cash equivalents. When applied in conjunction with the other primary financial statements, it provides information that helps us evaluate the changes in our net assets, our financial structure (including our liquidity and solvency), and our ability to affect the amounts and timing of cash flows to adapt to changing circumstances and opportunities. We use our free cash flow measure to determine the cash flow remaining after all expenditures required to maintain or expand our organic business have been paid off. This measure provides management with supplemental information to assess our liquidity needs. We calculate free cash flow as net cash from operating activities minus purchases (other than purchases made in connection with business combinations) of intangible assets and property, plant, and equipment, as well as payments for lease liabilities.

Measures to Manage Our Non-Financial Performance

In 2020, we used the following key measures to manage our non-financial performance in the areas of customer loyalty, employee engagement, leadership trust, and carbon emissions:

Customer Net Promoter Score (Customer NPS): The annual assessment of customer loyalty is based on a survey that includes the Net Promoter Score (NPS) metric. The Customer NPS score is calculated based on the NPS Likelihood to Recommend question with its proprietary scoring, identified on a scale of 0–10. We introduced this measure in 2012, as we are convinced that we can achieve our financial goals only when our customers are loyal to, and satisfied with, SAP and our solutions. To derive the Customer NPS, we start with the percentage of "promoters" of SAP, that is, those giving us a score of 9 or 10 on a scale of 0–10. We then subtract the percentage of "detractors," that is, those giving us a score of 0–6. The method ignores "passives," that is, those giving us a score of 7 or 8. Consequently, the range of achievable scores is –100 to +100, with the latter being the best achievable score for customer loyalty as measured by the Customer NPS methodology.

Employee Engagement Index: We use this index to measure the motivation and loyalty of our employees, how proud they are of our company, and how strongly they identify with SAP. The index is derived from our global employee survey program. Applying this measure is recognition that our growth strategy depends on engaged employees.

Leadership Trust Score: We use this score to further enhance accountability and to measure our collective effort to foster a work environment based on trust. It is derived from a question in our global employee survey program that gauges employees' trust in our leaders. We measure leadership trust by using the same NPS methodology that we use to compute the Customer NPS.

Starting in 2021, we will determine the Employee Engagement Index and the Leadership Trust Score as the average of the scores retrieved in each of the surveys we run within a fiscal year. Adopting the Experience Management (XM) philosophy of Qualtrics, we changed our engagement survey concept to a continuous listening approach that includes multiple data collections throughout the year. This new average score will provide a more valid evaluation of the full-year engagement level of our employees.

Carbon emissions: We use carbon emissions to manage our non-financial performance. It is used as a metric to strengthen our ambitious short-term and long-term carbon reduction targets. We measure our net carbon emissions according to the Greenhouse Gas (GHG) Protocol. The net carbon emissions are calculated by deducting emission savings such as self-produced renewable energy, renewable energy certificates, and carbon offsets from our gross carbon emissions.

Value-Based Management

Our holistic view of the performance measures described above, together with our associated analyses, comprises the information we use for value-based management. We use planning and control processes to manage the compilation of these key measures and their availability to our decision-makers across various management levels.

SAP's long-term strategic plans are the point of reference for our short-term and mid-term planning and controlling processes. We initially identify future growth and profitability drivers at a highly aggregated level. In a first step, the resulting financial plan is broken down into (i) our deployment models "On Premise," "Software as a Service/Platform as a Service," "Infrastructure as a Service," and "Intelligent Spend Management"; and (ii) functions such as development, sales, and administration. In a second step, the planned total revenues and total expenses are generally allocated to the areas of functional responsibility of the individual members of the Executive Board ("Board area"). If a Board area represents not only a functional department but also has a responsibility for operating segments within this Board area, the allocation is done at the lower segment level. Budget adjustments may be applied during the year to reflect changes in priorities, to achieve efficiency targets, and to reflect endogenous and exogenous factors. Such budget adjustments, as well as the assessment of the Executive Board's performance, are handled at the Board area level if the Board area is part of a segment, or at the segment level if the Board area comprises several segments. It is then the individual Executive Board member's responsibility to break down the allocated budget adjustments within the segment budget boundary. Based on an integrated portfolio process running in parallel to the budgeting process, we ensure aligned investment behavior across Board areas with regards to specific solutions or solution areas. In a final step, customer-facing revenue targets and cost-of-sales and marketing targets are broken down into sales regions.

Based on our detailed annual plans, we determine the budget for the respective year. We also have processes in place to forecast revenue and profit on a quarterly basis, to quantify whether we expect to realize our financial goals, and to identify any deviations from plan. We continuously monitor the affected units in the Group to analyze these developments and define any appropriate actions. Our entire network of planning, control, and reporting processes is implemented in integrated planning and information systems, based on SAP software, across all organizational units so that we can conduct the evaluations and analyses needed to make informed decisions.

Non-IFRS Financial Measures Cited in This Report

Explanation of Non-IFRS Measures

We disclose certain financial measures such as revenue (non-IFRS), expense (non-IFRS), and profit measures (non-IFRS) that are not prepared in accordance with IFRS and are therefore considered non-IFRS financial measures. Our non-IFRS financial measures may not correspond to non-IFRS financial measures that other companies report. The non-IFRS financial measures that we report should only be considered in addition to, and not as substitutes for, or superior to, our IFRS financial measures.

We believe that the disclosed supplemental historical and prospective non-IFRS financial information provides useful information to investors because management uses this information, in addition to financial data prepared in accordance with IFRS, to attain a more transparent understanding of our past performance and our anticipated future results. We use non-IFRS revenue and profit measures consistently in our internal planning and forecasting, reporting, and compensation, as well as in our external communications, as follows:

- Our management primarily uses these non-IFRS measures rather than IFRS measures as the basis for making financial, strategic, and operating decisions.
- The variable components of our Executive Board members' and employees' remuneration are based on revenue (non-IFRS), operating profit (non-IFRS), operating margin (non-IFRS), as well as current cloud backlog (CCB) measures rather than the respective IFRS measures.
- The annual budgeting process for all management units is based on revenue (non-IFRS) and operating profit (non-IFRS) numbers rather than the respective IFRS financial measures.
- All forecast and performance reviews with all senior managers globally are based on these non-IFRS measures, rather than the respective IFRS financial measures.
- Both our internal performance targets and the guidance we provide to the capital markets are based on non-IFRS revenue and profit measures rather than the respective IFRS financial measures.

Our non-IFRS financial measures reflect adjustments based on the items below, as well as adjustments for the related income tax effects.

Revenue (Non-IFRS)

Non-IFRS revenue measures have been adjusted from the respective IFRS financial measures by including the full amount of software support revenue, cloud revenue, and other similarly recurring revenue that we are not permitted to record as revenue under IFRS due to fair value accounting for the contracts in effect at the time of the respective acquisitions.

Under IFRS, we record at fair value the contracts in effect at the time entities were acquired. Consequently, our IFRS software support revenue, IFRS cloud revenue, IFRS cloud and software revenue, and IFRS total revenue for periods subsequent to acquisitions do not reflect the full amount of revenue that would have been recorded by entities acquired by SAP had they remained stand-alone entities. Adjusting revenue numbers for this revenue impact provides additional insight into the comparability of our ongoing performance across periods.

Operating Expense (Non-IFRS)

Operating expense numbers that are identified as operating expenses (non-IFRS) have been adjusted by excluding the following expenses:

- Acquisition-related charges
  - Amortization expense/impairment charges for intangibles acquired in business combinations and certain stand-alone acquisitions of intellectual property (including purchased in-process research and development) as well as sale/disposal gains and losses for these intangibles
  - Settlements of preexisting business relationships in connection with a business combination
  - Acquisition-related third-party expenses
- Share-based payment expenses
- Restructuring expenses, that is, expenses resulting from measures which comply with the definition of restructuring according to IFRS.

We exclude certain acquisition-related expenses for the purpose of calculating operating profit (non-IFRS), operating margin (non-IFRS), and earnings per share (non-IFRS) when evaluating SAP's continuing operational performance because these expenses generally cannot be changed or influenced by management after the relevant acquisition other than by disposing of the acquired assets. Since management at levels below the Executive Board does not influence these expenses, we generally do not consider these expenses for the purpose of evaluating the performance of management units. For similar reasons, we eliminate share-based payment expenses as these costs are impacted by share price developments and other factors outside our control. We also eliminate restructuring expenses because they are volatile and mostly cannot be influenced by management at levels below the Executive Board.

Operating Profit (Non-IFRS), Cloud Gross Margin (Non-IFRS), Operating Margin (Non-IFRS), Effective Tax Rate (Non-IFRS), and Earnings per Share (Non-IFRS)

Operating profit, cloud gross margin, operating margin, effective tax rate, and earnings per share identified as operating profit (non-IFRS), cloud gross margin (non-IFRS), operating margin (non-IFRS), effective tax rate (non-IFRS), and earnings per share (non-IFRS) have been adjusted from the respective IFRS measures by adjusting for the aforementioned revenue (non-IFRS) and operating expenses (non-IFRS) and the income tax effects thereon.

Constant Currencies Information

We believe it is important for investors to have information that provides insight into the development of our sales. Revenue measures determined under IFRS provide information that is useful in this regard. However, both sales volume and currency effects impact period-over-period changes in sales revenue. We do not sell standardized units of products and services, so we cannot provide relevant information on sales volume by providing data on the changes in product and service units sold. To provide additional information that may be useful to investors in breaking down and evaluating changes in sales volume, we present information about our revenue and various values and components relating to operating profit that are adjusted for foreign currency effects. We calculate constant currencies measures by translating foreign

currencies using the average exchange rates from the comparative period instead of the current period. Constant currency measures on revenue backlog use the closing exchange rate from the previous year's corresponding key date instead of the average exchange rate.

Free Cash Flow

Among other measures, we use free cash flow to manage our overall financial performance.

€ millions	2020	2019	Δ in %
Net cash flows from operating activities	7,194	3,496	>100%
Purchase of intangible assets and property, plant, and equipment (without acquisitions)	–816	–817	0
Payments of lease liabilities	–378	–403	–6
Free cash flow	**6,000**	**2,276**	**164**

Usefulness of Non-IFRS Measures

We believe that our non-IFRS measures are useful to investors for the following reasons:

- Our revenue (non-IFRS), expense (non-IFRS), and profit (non-IFRS) measures, along with the "current cloud backlog (CCB)" measure (see above), provide investors with insight into management's decision-making because management uses these measures to run our business and make financial, strategic, and operating decisions. We include the revenue adjustments outlined above and exclude the expense adjustments outlined above when making decisions to allocate resources. In addition, we use these non-IFRS measures to facilitate comparisons of SAP's operating performance from period to period.
- The non-IFRS measures provide investors with additional information that enables a comparison of year-over-year operating performance by eliminating certain direct effects of acquisitions, share-based compensation plans, and restructuring plans.
- Non-IFRS and non-GAAP measures are widely used in the software industry. In many cases, inclusion of our non-IFRS measures may facilitate comparison with our competitors' corresponding non-IFRS and non-GAAP measures.

Limitations of Non-IFRS Measures

Without being analyzed in conjunction with the corresponding IFRS measures, the non-IFRS measures are not indicative of our present and future performance, foremost, but not limited, for the following reasons:

- While our profit (non-IFRS) numbers reflect the elimination of certain acquisition-related expenses, no eliminations are made for the additional revenue or other income that results from the acquisitions.
- While we adjust for the fair value accounting of the acquired entities' recurring revenue contracts, we do not adjust for the fair value accounting of deferred compensation items that result from commissions paid to the acquired company's sales force and third parties for closing the respective customer contracts.
- The acquisition-related amortization expense that we eliminate in deriving our profit (non-IFRS) numbers is a recurring expense that will impact our financial performance in future years.
- The remaining acquisition-related charges that we eliminate in deriving our profit (non-IFRS) numbers are likely to recur should SAP enter into material business combinations in the future. Similarly, the restructuring expenses that we eliminate in deriving our profit (non-IFRS) numbers are likely to recur should SAP perform restructurings in the future.
- The revenue adjustment for the fair value accounting of the acquired entities' contracts and the expense adjustment for acquisition-related charges do not arise from a common conceptual basis. This is because the revenue adjustment aims to improve the comparability of the initial post-acquisition period with future post-acquisition periods, while the expense adjustment aims to improve the comparability between post-acquisition periods and pre-acquisition periods. This should particularly be considered when evaluating our operating profit (non-IFRS) and operating margin (non-IFRS) numbers, as these combine our revenue (non-IFRS) and expenses (non-IFRS) despite the absence of a common conceptual basis.
- Our restructuring charges resulted in significant cash outflows in the past and could do so in the future. The same applies to our share-based payment expense because most of our share-based payments are settled in cash rather than shares.
- The valuation of our cash-settled share-based payments could vary significantly from period to period due to the fluctuation of our share price and other parameters used in the valuation of these plans.
- In the past, we have issued share-based payment awards to our employees every year and we intend to continue doing so in the future. Thus, our share-based payment expenses are recurring, although the amounts usually change from period to period.

We believe that constant currencies measures have limitations, particularly as the currency effects that are eliminated constitute a significant element of our revenue and expenses and could materially impact our performance. Therefore, we limit our use of constant currencies measures to the analysis of changes in volume as one element of the full change in a financial measure. We do not evaluate our results and performance without considering both constant currencies and nominal measures of revenue (non-IFRS) and operating profit (non-IFRS) measures on the one hand, and changes in revenue, operating expenses, operating profit, or other measures of financial performance prepared in accordance with IFRS on the other. We caution the readers of our financial reports to follow a similar approach by considering nominal and constant currencies non-IFRS measures only in addition to, and not as a substitute for or superior to, changes in revenue, operating expenses, operating profit, or other measures of financial performance prepared in accordance with IFRS.

Despite these limitations, we believe that the presentation of our non-IFRS measures and the corresponding IFRS measures, together with the relevant reconciliations, provide useful information to management and investors regarding present and future business trends relating to our financial condition and results of operations.

Reconciliations of IFRS to Non-IFRS Financial Measures for the Years 2020 and 2019

€ millions, unless otherwise stated	2020					2019		
	IFRS	**Adj.**	**Non-IFRS**	**Currency Impact**	**Non-IFRS Constant Currency**	IFRS	Adj.	Non-IFRS
Revenue measures								
Cloud	8,080	5	8,085	155	8,241	6,933	81	7,013
Software licenses	3,642	0	3,642	128	3,770	4,533	0	4,533
Software support	11,506	0	11,506	206	11,712	11,547	0	11,548
Software licenses and support	15,148	0	15,148	334	15,482	16,080	0	16,080
Cloud and software	**23,228**	**5**	**23,233**	**490**	**23,722**	**23,012**	**81**	**23,093**
Services	**4,110**	**0**	**4,110**	**65**	**4,174**	**4,541**	**0**	**4,541**
Total revenue	**27,338**	**5**	**27,343**	**554**	**27,897**	**27,553**	**81**	**27,634**
Operating expense measures								
Cost of cloud	–2,699	248	–2,451			–2,534	305	–2,228
Cost of software licenses and support	–2,008	97	–1,911			–2,159	141	–2,018
Cost of cloud and software	–4,707	345	–4,362			–4,692	446	–4,247
Cost of services	–3,178	178	–3,000			–3,662	254	–3,408
Total cost of revenue	**–7,886**	**523**	**–7,362**			**–8,355**	**700**	**–7,655**
Gross profit	**19,453**	**528**	**19,981**			**19,199**	**781**	**19,979**
Research and development	–4,454	303	–4,151			–4,292	438	–3,854
Sales and marketing	–7,106	735	–6,371			–7,693	909	–6,784
General and administration	–1,356	166	–1,190			–1,629	477	–1,152
Restructuring	3	–3	0			–1,130	1,130	0
Other operating income/expense, net	84	–66	18			18	0	18
Total operating expenses	**–20,715**	**1,659**	**–19,056**	**–338**	**–19,394**	**–23,081**	**3,654**	**–19,426**
Profit numbers								
Operating profit	**6,623**	**1,664**	**8,287**	**216**	**8,503**	**4,473**	**3,735**	**8,208**
Other non-operating income/expense, net	**–179**	**0**	**–179**			**–74**	**0**	**–74**
Finance income	1,473	0	1,473			787	0	787
Finance costs	–697	0	–697			–589	0	–589
Financial income, net	**776**	**0**	**776**			**198**	**0**	**198**
Profit before tax	**7,220**	**1,664**	**8,884**			**4,596**	**3,735**	**8,331**
Income tax expense	–1,938	–413	–2,350			–1,226	–954	–2,180
Profit after tax	**5,283**	**1,251**	**6,534**			**3,370**	**2,781**	**6,152**
Attributable to owners of parent	5,145	1,251	6,396			3,321	2,781	6,102
Attributable to non-controlling interests	138	0	138			50	0	50
Key ratios								
Operating margin (in %)	**24.2**		**30.3**		**30.5**	**16.2**		**29.7**
Effective tax rate (in %)	**26.8**		**26.5**			**26.7**		**26.2**
Earnings per share, basic (in €)	**4.35**		**5.41**			**2.78**		**5.11**

Due to rounding, the sum of the numbers presented in the table above might not precisely equal the totals we provide.

Non-IFRS Adjustments by Functional Areas

€ millions	2020					2019				
	IFRS	**Acquisition-Related**	**SBP[1]**	**Restructuring**	**Non-IFRS**	IFRS	Acquisition-Related	SBP[1]	Restructuring	Non-IFRS
Cost of cloud	–2,699	208	40	0	–2,451	–2,534	249	56	0	–2,228
Cost of software licenses and support	–2,008	42	55	0	–1,911	–2,159	59	82	0	–2,018
Cost of services	–3,178	3	175	0	–3,000	–3,662	9	246	0	–3,408
Research and development	–4,454	7	296	0	–4,151	–4,292	9	429	0	–3,854
Sales and marketing	–7,106	375	360	0	–6,371	–7,693	348	562	0	–6,784
General and administration	–1,356	9	157	0	–1,190	–1,629	16	461	0	–1,152
Restructuring	3	0	0	–3	0	–1,130	0	0	1,130	0
Other operating income/expense, net	84	–66	0	0	18	18	0	0	0	18
Total operating expenses	**–20,715**	**577**	**1,084**	**–3**	**–19,056**	**–23,081**	**689**	**1,835**	**1,130**	**–19,426**

[1] Share-based payments

Products, Research & Development, and Services

Reinventing How Businesses Run

Our customers tell us that they want to be able to adapt to changing markets and business models; to increase profitability and aim to drive sustainable growth; and to innovate to stay ahead. Our customers want to succeed, and, even in a crisis, to be resilient, adaptable, and a best-run business.

To fulfill our purpose and respond to changing market conditions, SAP has evolved our strategy to support our customers in their transformation to intelligent enterprises, with a clear focus on driving innovation, integration, agility, and speed. Our product portfolio aims to deliver on this strategy. For a visual overview, see the *Strategy and Business Model* section.

Business Network

Interconnected value chains and business networks incorporate customers, suppliers, distributors, and other key stakeholders across businesses and beyond company and country borders. By sharing data and information in a global network, enterprises can gain real-time visibility to sense demand, anticipate risks, and manage business processes along the supply chain. In addition, adaptable networks aim to help companies adjust quickly and responsibly to meet changing market demands, and a flexible ecosystem of suppliers and partners can handle sudden shortfalls, or even produce new products that aim to help companies react quickly to change and disruption. **SAP Business Network** aims to bring end-to-end visibility, increased efficiency, and improved collaboration across supply chain processes – from design, planning, sourcing, and procurement, to manufacturing, logistics, and asset operations. The technology behind our network offering is designed to use insights from real-time ERP, advanced analytics, and existing network solutions – including **Ariba Network**, **SAP Asset Intelligence Network**, **SAP Logistics Business Network**, and **SAP Fieldglass** solutions – to deliver collective intelligence through an open, interoperable, and extensible business network. By creating a network of intelligent enterprises, we aim to help companies digitalize multi-enterprise business processes for insight and collaboration across the supply chain ecosystem.

Business Process Intelligence

Adjusting and redesigning business processes is key to any successful digital transformation. With **business process intelligence (BPI)**, we help ensure customers get the value out of their business processes in a data-driven and intelligent way, thanks to process and data mining. BPI describes a range of SAP offerings that help customers identify, analyze, and rectify business process events. Our software includes functionality for process discovery and recommendation and user behavior mining, along with services and support offerings. In addition, BPI is integrated in **SAP Intelligent Robotic Process Automation (SAP Intelligent RPA)** technology that aims to help customers get the most out of their business processes in cloud, on-premise, and hybrid environments.

Experience Management

Experience Management (XM) refers to both the technology and the discipline of seeking out and closing the experience gaps found in the four core areas of businesses – customer, product, employee, and brand. With **Qualtrics XM** technology integrated into our intelligent suite and industry cloud solutions – spanning customer experience and human resources (HR), to procurement and supply chain – customers can bring real-time sentiment into decisions and actions.

Industry Cloud

Expanding our reach and expertise in more than 25 industries, SAP introduced new modular cloud solutions as part of our **industry cloud** strategy in the first half of 2020. Industry cloud solutions aim to digitalize and differentiate industry-specific processes, with a faster time to value for our customers. These cloud-native industry applications are built by SAP and our partners using technologies in **SAP Business Technology Platform**.

While we co-innovate with customers and partners to help meet the needs of an intelligent enterprise, system integration also remains a focus area for our teams. In 2020, we published SAP's integration plan in the cloud and made significant progress implementing planned integration qualities across organic and acquired cloud offerings.

Intelligent Suite

Customer

Our **SAP Customer Experience** solutions – integrated with XM capabilities from Qualtrics – bring together customer data, machine learning technology, and microservices to support real-time customer engagements across sales, service, marketing, and commerce.

With the recent acquisition of leading omnichannel customer engagement platform provider **Emarsys**, SAP aims to enhance our SAP Customer Experience portfolio and provide customers with a "commerce anywhere" strategy. More information on this acquisition can be found in the *Strategy and Business Model* section.

Also released in 2020, **SAP Customer Data Platform** equips companies with 360-degree customer profiles that will help them to know more about their customers – wherever they are in the customer lifecycle. Insights include real-time data from sources inside and outside the company, including online content and social channels. Combined with Emarsys technology, the solution aims to help customers collect and manage real-time customer data,

translate these insights into tangible actions, and engage with customers in new ways – thanks to embedded capabilities for consent and identity management.

SAP S/4HANA

SAP S/4HANA is our next-generation ERP suite with intelligent technologies such as artificial intelligence (AI), machine learning, and advanced analytics. Running on **SAP HANA**, the suite combines automation and integrated business processes with real-time analytics to support rapid decision-making. The suite also provides software capabilities for HR, sales, service, procurement, manufacturing, asset management, as well as research and development.

SAP offers a choice of SAP S/4HANA deployments – software as a service (SaaS), on premise, in a private cloud, or as a hybrid deployment. **SAP S/4HANA Cloud** offers the advantages of SaaS such as scalability and innovation updates quarterly, while on-premise SAP S/4HANA customers receive updates on an annual cycle.

In addition, in February 2020, SAP committed to the maintenance of SAP S/4HANA until the end of 2040. About 2,200 SAP S/4HANA customers were added in the year 2020, bringing the number of customers to approximately 16,000 and increasing total adoption 16% year over year.

Supply Chain

The **SAP Digital Supply Chain** portfolio offers an integrated suite of solutions that aim to help customers plan, design, manufacture, deliver, and operate products. These solutions address the following business functions:

Integrated Business Planning

SAP Integrated Business Planning for Supply Chain is a cloud-based solution powered by SAP HANA that aims to deliver real-time supply chain planning capabilities for sales and operations; demand, response, and supply planning; and inventory optimization.

Manufacturing

SAP Intelligent Asset Management solutions are designed to help define, plan, and monitor a service and maintenance strategy for physical products and assets along the manufacturing lifecycle.

Human Resources (HR)

SAP SuccessFactors

SAP SuccessFactors Human Experience Management (HXM) Suite is our cloud software that aims to help develop, manage, and engage people. **HXM solutions from SAP** provide offerings for core HR and payroll, talent management, employee experience, HR analytics, and workforce planning. Integrated functionality from Qualtrics solutions is featured in experience management bundles for HR as well.

Procurement

Our **Intelligent Spend Management** portfolio brings together **SAP Ariba**, **SAP Concur**, and **SAP Fieldglass** solutions. Integrated with SAP S/4HANA, these solutions aim to help customers manage the three primary categories of supplier spending: procurement of indirect and direct goods; travel and expense; and external workforce management.

SAP Ariba

SAP Ariba solutions offer a digital business-to-business marketplace that aims to help users collaborate on transactions and to enable customers to manage procurement processes.

SAP Concur

SAP Concur solutions for travel and expense spend management are cloud offerings designed to deliver a connected spend management system, which encompasses travel, expense, invoice, compliance, and risk.

SAP Fieldglass

SAP Fieldglass solutions are cloud applications for services procurement and contingent workforce management designed to help organizations optimize their use of external talent resources. These solutions aim to increase our customers' operational agility and accelerate business outcomes.

Sustainability Management

SAP has an opportunity and responsibility to use our position to create a lasting positive impact for future generations. By integrating sustainability data with business processes across industries and value chains to drive performance, new products, and new markets, we can have a significant impact in this area against a fragmented competition.

Embedding sustainability as a new dimension of success into analytical and transactional applications will help optimize resources across value chains. Our focus is on climate and natural capital accounting; resource efficiency, tracking, and reuse; protecting and developing people and communities; and next-generation sustainability steering and reporting.

Released in the first half of 2020, our **Climate 21** program focuses on software solutions for emissions management, carbon accounting, and the Greenhouse Gas Protocol (GHG). The program aims to define and develop business and solution capabilities to help our customers manage their "**green line**" for sustainable competitive performance.

Enterprise Information Management

SAP solutions for enterprise information management (EIM) provide capabilities to understand, integrate, cleanse, manage, associate, and archive data. This includes **SAP Data Intelligence** (available as a cloud service and on-premise software), technology that is designed to help businesses connect their siloed data assets and manage the discovery, refinement, governance, and orchestration of all data across a distributed landscape. The data landscape can include SAP software such as SAP S/4HANA, SAP Customer Experience solutions, and the **SAP BW/4HANA** solution, as well as third-party systems.

Business Technology Platform

SAP Business Technology Platform (SAP BTP) provides solutions across four key technology areas – database and data management, analytics, application development and integration, and intelligent technologies – on an open cloud platform running in SAP data centers and on selected public cloud providers (often

called **hyperscalers**). The business-centric technologies that power SAP BTP aim to enable integration, extensibility, and innovation across the entire intelligent suite.

Database and Data Management

SAP HANA and SAP HANA Cloud

The architecture in SAP HANA allows both transactional processing for data capture and retrieval and analytical processing for business intelligence and reporting. It enables businesses to process and analyze live data and make business decisions based on the most up-to-date information. SAP HANA is available both on premise and through the new **SAP HANA Cloud** data platform, which was released in March 2020.

Analytics

Business analytics tools from SAP are designed to help customers gain insights that will enable them to adapt their businesses in real time.

SAP Analytics Cloud

SAP Analytics Cloud is a cloud analytics solution running on SAP HANA that brings together the domains of business intelligence, predictive capabilities, and enterprise planning. Customers can discover, analyze, plan, and predict in one solution. It provides a single user experience across all devices to help customers make business decisions.

SAP BusinessObjects

SAP BusinessObjects Business Intelligence (SAP BusinessObjects BI) is a suite of flexible and scalable self-service BI tools designed to give customers discovery and insights in real time.

SAP Data Warehouse Cloud

SAP Data Warehouse Cloud is a cloud data warehouse solution for business and IT users with capabilities for data integration, database, data warehousing, and analytics. As an open product, SAP Data Warehouse Cloud can be integrated into an existing customer landscape, while giving customers the ability to connect to SAP, third-party, cloud, and on-premise data sources. In addition, besides SAP Analytics Cloud, other consumption tools such as Microsoft Power BI, can also leverage the benefits of SAP Data Warehouse Cloud by connecting via SQL and APIs.

SAP BW/4HANA

SAP BW/4HANA is our on-premise data warehouse solution built entirely on SAP HANA. It includes an analytics layer that processes data directly in-memory in the database instead of the application layer, as is the case with traditional analytical engines.

Application Development and Integration

Our open SAP BTP extends and integrates SAP applications with third-party solutions and allows us and our partners to build new business applications with intelligent capabilities at scale. Going forward, SAP BTP will be our one technology platform to empower customers to become intelligent enterprises through integration, data to value, and extensibility. To that end, we have begun to sunset the SAP Cloud Platform brand in January 2021 with the proven capabilities from SAP Cloud Platform now available as products and services in the renamed SAP Integration Suite and SAP Extension Suite.

SAP Integration Suite

SAP Integration Suite is an enterprise integration suite for hybrid and heterogenous environments that aims to help customers with holistic integration across different integration styles, such as process integration and data integration, as well as API-based and event-based integrations.

SAP Extension Suite

SAP Extension Suite is the extension layer for SAP BTP. The suite aims to help realize faster time to value by providing ready-to-use business services designed to accelerate and simplify the development of application extensions.

Intelligent Technologies

SAP uses the term "intelligent technologies" to describe tools and technology meant to turn intelligence into business outcomes. Examples include AI, the Internet of Things (IoT), blockchain, and robotic process automation (RPA). Intelligent technologies are embedded in many of our software offerings and applied to processes that integrate both SAP and third-party data and applications.

SAP Internet of Things

SAP Internet of Things (SAP IoT) offers a managed cloud solution that aims to generate business outcomes by combining real-world usage data from sensors and devices with business semantics, such as master and transactional data. SAP IoT enriches our offerings that address Industry 4.0 – SAP S/4HANA software, our **SAP solutions for digital manufacturing**, SAP Digital Supply Chain solutions, and the SAP Customer Experience portfolio – with real-world IoT context to assist decision-making and help customers respond to critical events. In addition, **SAP Edge Services** is customized technology that allows customers to deploy selected microservices at the edge of their networks and thereby help them execute IoT-enabled enterprise business processes locally.

Artificial Intelligence (AI)

AI functionality has been integrated into some of our product portfolio to provide intelligent capabilities in SAP S/4HANA as well as SAP Customer Experience, SAP Concur, SAP Fieldglass, and SAP SuccessFactors solutions, among others. We have continued to broaden AI integration throughout our software portfolio.

SAP Intelligent Robotic Process Automation

SAP Intelligent RPA technology refers to an automation suite in which software robots are designed to mimic human actions and responses, and where manual steps are replaced by automated, definable, and repeatable business processes across lines of business. Integrated with **SAP Intelligent Business Process Management** services and the **SAP Ruum** solution, SAP Intelligent RPA is intended to automate both SAP and third-party applications and provide prebuilt bots to automate tasks around SAP S/4HANA.

Offering Freedom of Choice Through Hyperscalers

As cloud adoption grows, so does the need for cloud services. We are working to meet this growing need through a multi-cloud strategy to give our customers the freedom to choose the cloud services they need, either within SAP's own cloud infrastructure, or from the hyperscalers that offer cloud infrastructure as a service. SAP maintains strategic relationships with major hyperscalers so that we can offer customers this flexibility and freedom of choice.

Ecosystem

Extending Our Reach Through a Broad Ecosystem

SAP's ecosystem consists of more than 22,000 partners worldwide that build, sell, service, and run SAP solutions and technology. Our partner ecosystem drives the bulk of our business presence among small and midsize enterprise (SME) customers. During 2020, we continued to build on the **Next-Generation Partnering** initiative started last year to make partnerships simpler and more profitable for the ecosystem. The initiative aims to meet customers' specific needs by focusing on partner innovation that extends SAP technology and solutions. As SAP increases investments in the cloud, strategic partnerships with hyperscalers and others will help maximize innovation opportunities. One such opportunity was the expansion of SAP's partnership with Microsoft through the integration of Microsoft Teams across the portfolio, in SAP S/4HANA, SAP SuccessFactors, and SAP Customer Experience solutions, for example.

SAP Services and Support

Complementing our software and technology offerings, SAP provides services and support to help customers realize business outcomes and experiences. We provide proactive, predictive, and preventive support across cloud, on-premise, and hybrid landscapes to support customers' move to the cloud and business transformation into an intelligent enterprise.

Essential Business Services

To help customers maintain business continuity, we released a portfolio of **essential business services from SAP** in 2020 to help deliver business outcomes faster. The scenarios contained within this portfolio, created in collaboration with customers, are intended to help companies address business challenges and opportunities caused by the pandemic. Examples include scenarios designed to assess e-commerce performance, optimize inventory, and build technology-based solutions, such as applications for emergency aid.

Continuous Success Programs

We expanded SAP Enterprise Support offerings in 2020 with the release of the following:

- New **SAP Enterprise Support guides** provide a structured support approach for SAP S/4HANA deployments.
- **SAP Cloud ALM** is an application lifecycle management tool that aims to help enable cloud-centric customers to efficiently implement and operate cloud solutions from SAP. This was released and included in **SAP Enterprise Support, cloud editions**.
- Our **Next-Generation Support** approach has an expanded self-service digital support experience that now includes a support assistant that helps categorize a customer issue, an incident solution-matching service driven by AI and machine learning capabilities that automatically proposes solutions based on incident data, and automatic translation for **Expert Chat** and last incident interaction.
- **Service bundles** were released to help customers address new challenges such as those posed by the pandemic. One example is that of services that aim to enable business continuity when companies experience spikes in sales and production.

Also, in 2020, we continued a multiyear expansion of the **SAP Preferred Success** offering with the following products, services and assets:

- We extended the coverage of the offering to more cloud solutions and technologies from SAP, including SAP S/4HANA Cloud, extended edition; SAP Ariba solutions; and SAP Integrated Business Planning for Supply Chain.
- We added new services and assets that aim to help with the adoption of cloud-based solutions and support the enablement of better user experiences. These include success checks, online knowledge sessions, expert advisory services, release guidance, adoption journeys, value scorecards, and tools such as a usage analyzer for SAP S/4HANA.

Continued Focus on Security

SAP is committed to keeping customers' data safe, to processing it in compliance with local legislation, and to protecting it from malicious use.

During a routine cybersecurity review in the first half of 2020, we identified that some of our cloud products did not meet one or more contractually agreed or statutory IT security standards. All identified gaps were resolved by July 2020.

For more information on our strategy for the security and integrity of our customers' data, see the *Security, Data Protection, and Privacy* section. For more information on how SAP evaluates and handles risk, see the *Risk Management and Risks* section.

COVID-19 Response

Supporting Customers and the Community Through Challenging Times and Beyond

SAP has been taking action to help customers adapt their businesses and prepare their organizations for the new and unexpected challenges that the coronavirus (COVID-19) pandemic presents. Our goal was to provide solutions that aim to help companies mitigate risks, ensure business continuity, and manage the needs brought on by a rapidly changing business and health environment. All these changes are intended to have a positive impact beyond 2020.

Working with Partners and the Public Sector to Disrupt the Spread

SAP, in close collaboration with Deutsche Telekom and other partners, developed the **Corona-Warn-App**. The app was designed to track COVID-19 infections and break transmission chains in

Germany. Since its launch by the German government mid-2020, the app has been downloaded over 25 million times. The app is also connected to COVID-19 contact tracing apps in Croatia, Denmark, Italy, Latvia, Spain, Poland, and the Republic of Ireland, all enabled through a system called the European Union (EU) interoperability gateway – an intergovernmental and cross-border initiative set up in October 2020.

Helping Companies Run Safely and Efficiently

Solutions such as **Qualtrics Return to Work Pulse**, **Qualtrics Workforce Contact Tracing**, and **Qualtrics Digital XM for Telehealth** help companies address the types of challenges that have arisen in 2020. In addition, the **SAP Ariba Discovery** solution was offered free of charge to help buyers source suppliers, goods, and services globally, while SAP Concur solutions were made available to help curb the impact of global travel disruptions. Software updates were also delivered to help meet compliance with legal, tax, and payroll obligations brought about by the pandemic. With regards to support, new assets were added to SAP Preferred Success such as best practice guides, live and recorded enablement sessions, and adoption journey maps, with a number of assets aiming to help address cash flow management as well as supply chain challenges that have come about during the COVID-19 pandemic.

Making Education Available and Attainable

SAP also views learning as crucially important. To underline this, we launched a digital learning initiative in 2020 that provides virtual education-related offerings and certifications for university students, professionals, subject-matter experts, or anyone wishing to continue their education during this critical time. These learning opportunities were made accessible through the **openSAP** platform.

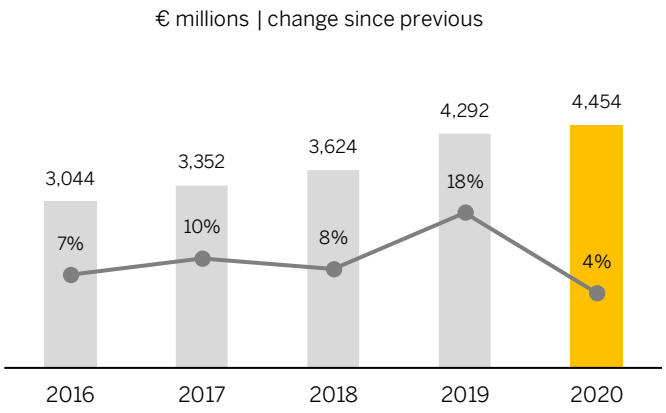
Additionally, customers, partners, and consultants can access live instructor-led training events in virtual **SAP Live Class** sessions; while **SAP Live Access** gives users a place to practice their skills and build experience in a live and fully supported SAP environment for free.

Ensuring Service and Support Continuity

We extended our off-site service delivery framework to provide services and the ability to run systems remotely at scale, and thereby eliminate the need for travel. Additionally, we activated business continuity plans so that we could deliver support from our home offices.

Investment in R&D

SAP's strong commitment to R&D is reflected in our expenditures (see graphic below).



In 2020, our IFRS R&D ratio, reflecting R&D expenses as a portion of total operating expenses, increased by 2.9 percentage points (pp) to 21.5% (2019: 18.6%). Our non-IFRS R&D ratio increased by 2.0pp to 21.8% year over year (2019: 19.8%). At the end of 2020, our total full-time equivalent (FTE) headcount in development work was 29,580 (2019: 27,634). Measured in FTEs, our R&D headcount was 29% of total headcount (2019: 28%).

Total R&D expense not only includes our own personnel costs but also the external costs of work and services from the providers and cooperation partners we work with to deliver and enhance our products. We also incur external costs for the following:

- Translating, localizing, and testing products
- Obtaining certification for products in different markets
- Patent attorney services and fees
- Consulting related to our product strategy
- Professional development of our R&D workforce

Patents

SAP actively seeks intellectual property protection for innovations and proprietary information. Our software innovations continue to strengthen our market position as a leader in business solutions and services. Our investment in R&D has resulted in numerous patents. As at December 31, 2020, SAP held a total of more than 10,931 validated patents worldwide. Of these, 897 were granted and validated in 2020.

While our intellectual property is important to our success, we believe our business as a whole is not dependent on any particular patent or a combination of patents.

Security, Data Protection, and Privacy

Vision and Strategy

Every day, organizations around the world trust SAP with their data – either on premise at their physical locations, in the cloud, or when using mobile devices while on the move. Our customers need to know that our goal is to keep their data safe, process it in a manner that complies with local legislation, and protect it from malicious use. For this reason, cybersecurity and security, as well as data protection and privacy, are of paramount importance to us.

SAP Global Security

Cloud solutions and services are increasingly important to many companies' daily operations. The COVID-19 pandemic has shown that digital solutions are critical to business resilience and accordingly, it is accelerating digital transformation. Cybersecurity today is even more critical to IT security professionals and business leaders, particularly for those enterprises that have moved their core processes to the cloud.

The SAP strategy is based on helping customers transform into intelligent enterprises. Our **SAP Global Security** (SGS) organization supports this journey by aligning people, procedures, and technology to protect business processes and data, limiting risk and promoting regulatory compliance. The security team embraces and promotes a security-minded culture that embeds security in our development and deployment processes and to help secure digital transformation.

SGS supports key stakeholders in our lines of business (LoBs), IT, and the presales organization in securing solutions and driving operational excellence for security across the enterprise. To protect the organization's data and assets, SGS regularly reviews and adapts our security policies, standards, and frameworks to ensure high-quality risk management and reporting.

Data Protection

As part of our global product and services portfolio, SAP aims to protect the rights of individuals involved and meet relevant local requirements when processing personal data. In addition, we strive to strengthen SAP's reputation in the long term as a sustainable and trustworthy partner in the market. We have implemented safeguards to help protect the fundamental rights of everyone whose data is processed by SAP, whether they are customers, suppliers, partners, prospects, employees, or applicants.

We develop and pursue our global data protection and privacy strategy in accordance with our business strategy. The global data protection and privacy strategy is to constantly monitor the global regulatory data protection compliance landscape, identify relevant stakeholders, and enable them to take necessary measures for their adoption. It is also designed to safeguard the processing of personal data. The strategy consists of four pillars to help meet compliance with applicable data protection laws and regulations. These pillars comprise the global data protection and privacy policy; mandatory global data protection and privacy training for employees; global data protection and privacy coordinator network; and the global data protection management system – and are all designed to ensure that we comply with applicable data protection laws.

Due Diligence for Security Topics

Governance

SGS is led by a chief security officer who reports directly to the SAP CEO. SGS divisions are responsible for areas such as product and application security, cyberdefense, operational security risk management, executive protection, physical security, and a **Trust Office** that supports customers and partners with security-related issues.

The **SAP Security Governance Model** ensures executive engagement and facilitates shared responsibility in semiannual SAP Security Advisory Board and monthly Security Council meetings, as well as in biweekly updates to the Executive Board.

Our commitment to customers is to be open and transparent about security vulnerabilities. To ensure this, we work with several external stakeholder groups including SAP user groups for the Americas and German-speaking countries.

Guidelines and Policies

The purpose of the **SAP Global Security Policy** is to provide governance and structure for an appropriate and effective level of information security within SAP and its affiliated businesses. Aligned with the overall SAP corporate strategy and vision, it sets the strategic goals and objectives for SAP security.

This policy, under the responsibility of the chief security officer, provides high-level requirements for numerous security domains including, but not limited to, access control, physical security, network security management, incident response, and acceptable use, while elaborating management intent, expectations, and strategic goals for maintaining high levels of security. It is applicable to, and mandatory for, all SAP employees and our contractors and consultants, as well as external parties that are granted access to SAP information and information assets. SAP reviews the SAP Global Security Policy annually and enacts modifications as deemed appropriate and required to protect SAP, our own, and our customers' data and assets, as new threats, vulnerabilities, or changes to the risk profile are identified.

All SAP employees are required to make themselves familiar with and apply this internal policy. The **SAP Security Policy Framework** consists of several levels of security documents supporting the requirements set forth in the policy. In addition, the different LoBs at SAP may have supporting policies, standards, procedures, and practices.

Due Diligence for Data Protection Topics

Governance

Within the scope of his responsibilities, our global data protection officer (DPO) monitors the compliance of all activities involving the processing of personal data. The DPO reports to the SAP CFO. Within the Executive Board, the SAP CFO is responsible for compliance and enforcement of data protection and privacy. The DPO owns the **SAP Global Data Protection and Privacy Policy** that addresses SAP's data protection governance, and regularly informs the SAP CFO about the status of data protection compliance in the SAP Group.

To meet and ensure consistent security and data protection compliance, SAP has implemented a formal governance model that assigns clear responsibilities across the SAP Group. Upon request, the DPO attends steering committee meetings and reports on matters relevant to data protection to the Audit Committee of the Supervisory Board of SAP.

SAP has established a global network of data protection and privacy coordinators (DPPCs) across all SAP Group entities that process personal data ("DPPC network"). This **DPPC network** is designed to ensure data protection and privacy compliance on a local level. Local data protection and privacy coordinators increase awareness by conducting local training. Where new data protection laws evolve, they help the Data Protection and Privacy team (DPP) acting on behalf of the DPO identify and analyze them. If this requires compliance activities, they align with the affected LoBs of businesses and help drive the relevant implementation. Additional regional DPPCs further support and monitor changes to applicable laws. The DPPC network regularly engages with SAP's government relations team to represent SAP's interests in the legislative process. In this regard, SAP is participating in external working groups to help align industry-specific interests with respective governments.

Global data protection and privacy training is conducted globally every two years and mandatory for all SAP employees. This training helps our workforce handle personal data with due care and in accordance with the law and to maintain compliance with data protection requirements during their work.

SAP has implemented a data protection management system (DPMS) over our entire organization. The DPMS is set according to the generally recognized standard for data protection management systems as defined in the British Standard BS 10012, which comprises the data protection requirements of the European Union (EU) General Data Protection Regulation (GDPR) since version 10012:2017. It covers almost all LoBs (excluding Qualtrics) and is planned to be implemented in all acquired companies as well. The DPMS is designed as a framework covering all aspects of data protection compliance of SAP organizations and employees. It is used as SAP standard methodology to ensure compliance with data protection legislation. The maintenance of the framework is subject to a certification from the British Standards Institution that confirms data protection compliance annually.

Guidelines and Policies

The **SAP Global Data Protection and Privacy Policy** outlines a group-wide minimum standard for data protection–compliant processing of personal data. It defines requirements for business processes that involve personal data and assigns clear responsibilities. The principles established by this policy take into account the requirements of the EU GDPR. They apply generally and globally to all SAP Group affiliates. Additional data protection and privacy requirements, if applicable, are adopted on a local level as necessary. We actively monitor changes to applicable laws and regulations so that we can update our standards on an ongoing basis as necessary to meet data protection compliance. The policy was last updated in 2019.

How We Measure and Manage Our Performance

Security

Compliance processes at SAP adhere to trust-service criteria established by the American Institute of Certified Public Accountants (AICPA). Security compliance audits are conducted by independent, external auditing body partners. Our security, availability, privacy, confidentiality, and processing integrity controls are designed to achieve these control objectives.

SAP discloses vulnerabilities on the second Tuesday of every month ("Patch Day"). This disclosure mechanism provides customers with authoritative, public information about SAP software vulnerabilities from SAP that can be integrated with their existing risk management processes and tools.

SAP strives to reduce risk by continuously improving our processes for detecting and remediating attacks and vulnerabilities. To improve our processes, we:

- Engage in approximately 130 internal and external audits across SAP globally
- Monitor and support our cloud and IT units with 1,700 controls that are audited and tested for design and operating effectiveness
- Offer service organization control (SOC) reports – such as SOC 1 Type II/ISAE 3402 and SOC 2 Type II/ISAE 3000 – to provide insights into the design and operating effectiveness of internal control systems implemented within cloud delivery units
- Let external, internationally accredited auditors assess and certify our cloud services according to various reporting standards and ISO certifications, such as 9001, 27001, 27017, 27018, and 22301, in addition to BS 10012
- In the first half of 2020, we identified that some of our cloud products did not meet one or more contractually agreed or statutory IT security standards. All identified gaps were resolved by July 2020. For more information, see the *Risk Management and Risks* section, specifically the *Operational Business Risks* subsection.
- In addition, some SAP cloud services also comply with regional or industry-specific standards, for example:
  - Cloud Computing Compliance Controls Catalogue (C5) from the German Federal Office for Information Security (BSI); BSI C5
  - Trusted Information Security Assessment Exchange (TISAX)
  - GxP Compliance (via SOC2 Plus)
  - Payment Card Industry Data Security Standard (PCI DSS)
  - Federal Service for Technical and Export Control – FSTEC (Russia); Cybersecurity Criteria Protection Scheme – CCPS (China)

Data Protection

To help ensure necessary knowledge about data protection, the global data protection and privacy training is mandatory for all SAP employees globally. The latest training was rolled out in 2019.

We monitor compliance of data protection–relevant procedures across SAP. We maintain a record of processing activities ("procedure enrollment tool"), in which procedures that process personal data must be documented. The record entries contain general information about the procedure according to defined criteria necessary to meet proper documentation. The record entries are reportable and regularly reviewed.

We also track the quality of our data protection compliance level based on the annual recertification of our DPMS by the British Standards Institution. SAP has been audited by the BSI annually and rewarded with certifications according to BS 10012 since 2011. The recent certification is valid until 2022.

SAP's own quality standards and international regulations require careful selection and monitoring of subprocessors processing personal data on behalf of SAP and SAP customers. With the goal that all subprocessors meet protection and security requirements for the processing of personal data, SAP has implemented a subprocessor verification process. All of SAP's subprocessors (for example, suppliers, vendors, and partners) are subject to this process. The process comprises of three main compliance criteria for data protection-relevant subprocessors: (i) contractual compliance; (ii) self-assessments based on questionnaire; and (iii) remote and/or on-site audits.

SAP respects the rights of the data subjects to obtain information as to whether or not personal data concerning them is being processed. All necessary information is made available to the data subjects within the framework of the privacy statements on the respective SAP Web sites.

In 2020, SAP experienced no significant incidents in processing personal data – on our own behalf or on behalf of our customers – that were subject to GDPR only and were reported to the competent authorities.

Related Risks for SAP

For related risks, see the *Risk Management and Risks* section, specifically the *Cybersecurity and Security* and *Data Protection and Privacy* subsections.

Audit Scope

The content of this section was not subject to the statutory audit of our combined group management report. However, our external auditor KPMG performed an independent limited assurance engagement on the contents of this section.

Customers

Focusing on Customer Success

In early 2020, SAP brought together customer-facing teams into one organization known as **Customer Success**. This move enables customer-facing groups to work more closely in unison, providing the foundation for SAP to deliver on the value and experience customers require to be successful. Additionally, we have introduced our new **operating model**, which aligns sales, services, and customer engagement activities for a seamless experience across customer interactions. Over the next three years, we will roll out this operating model with the aim of improving customers' adoption and consumption of our solutions and ultimately their business outcomes.

The year 2020 also brought a new challenge, with the world facing the COVID-19 pandemic that continues to strain the global economy. Throughout this unprecedented situation, SAP continues to provide our customers with support, reviewing their requirements and providing solutions where appropriate. Further, SAP has expanded our use of virtual customer-engagement tools to adapt to the impact of pandemic-related lockdowns and travel restrictions. To provide our customers with quick time-to-value, we rolled out **Project Amplify**, with over 30 solutions that aim to more quickly solve specific business challenges and to help ensure business continuity. These solutions enable customers to leverage existing SAP investments or get started quickly using SAP solutions with minimal upfront commitments.

Building Programs to Facilitate Customer Feedback

SAP has implemented numerous global initiatives to ensure our focus on customers remains paramount. This includes improvements in the way we work with and care for our customers, taking measures to provide a consistent, end-to-end experience.

SAP implements improvements based on the feedback we get from customer surveys, which we conduct using Qualtrics solutions. We have also launched a number of new tools to support the customer journey, including **SAP Road Map Explorer**, an interactive tool outlining SAP's future product portfolio. Additionally, we created a digital portal **SAP for Me** as a single source of information for interactions with SAP.

Our **Insights to Action** program continues to look in detail at customers' sentiment and informs how we can improve both account management, as well as our solutions and services. We have extended this program by launching an engagement process spanning regions, solutions, and services, enabling a holistic approach to how we operate as an organization, develop solutions, and support our customers. In this way, we can measure, manage, and improve the value and experience our customers – across regions and industries, and regardless of company size – derive from their relationship with SAP.

Through a focus on empathy, we aim to be a company that listens and responds to its customers. We want customers to experience an SAP that is continuously improving. Through this approach, we aim to improve customer loyalty, as measured by the **Customer Net Promoter Score** (Customer NPS).

How We Measure and Manage Our Performance

We use the Customer NPS as one feedback mechanism to measure customer loyalty. This allows us to directly understand what our customers are thinking and identify key pain points for action. Because of the importance of customers to SAP, Customer NPS is one of our main KPIs.

In 2020, our Customer NPS increased 10 points year over year to 4 (2019: –6), strongly exceeding our target of –3 to –1. Using Qualtrics technology has enabled us to listen more closely to our customers and take action on the things that matter to them.

We aim to continue to increase our Customer NPS to a range of 5 to 10 points in 2021. Further, we aim to increase the score steadily in the medium term.

Beginning in 2020, Customer NPS has been included as a KPI in Executive Board remuneration as part of the short-term incentive component. For more information about executive compensation, see the *Compensation Report* section. For more information about the Customer NPS, see the *Performance Management System* section.

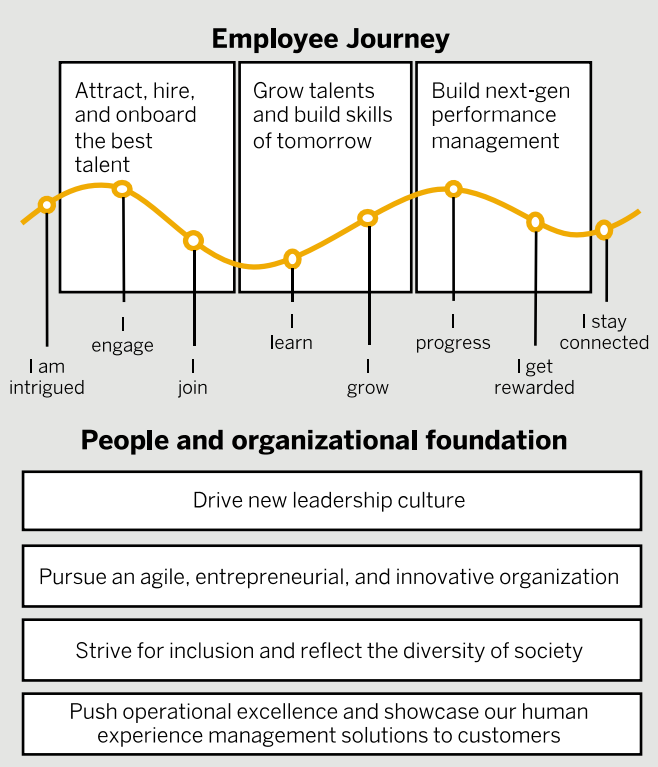
Employees and Social Investments

Vision and Strategy

People are at the heart of our organization. By ensuring a highly engaged, diverse workforce equipped with the right skills, SAP aims at attracting the best talent, building great products, and winning the hearts of our customers.

Interlocked with our product and customer-related strategies, our **people strategy** is centered along the employee journey and lived experience. It introduces seven strategic pillars, three of them covering the employee journey and experience of each individual, the other four building the people and organizational foundation. The strategy describes how we build the cultural elements across our organization with all seven pillars contributing to our business strategy and value generation.

Our People Strategy with Seven Strategic Pillars



Due Diligence

Governance

Until the end of May 2020, our Human Resources (HR) Board area was led by Stefan Ries, Chief Human Resources Officer (CHRO) and member of the Executive Board of SAP. After his departure, SAP CEO Christian Klein assumed responsibility as interim CHRO. Since January 1, 2021, Sabine Bendiek has served as Chief People Officer and Labor Relations Director and has led the HR organization.

Our HR organization comprises HR Business Partner organizations for each Board area and region as well as the following functional areas: COO HR, HR Global Service Delivery, People Sustainability (including Diversity & Inclusion as well as Global Health and Well-Being Management teams), Talent Attraction, ONE SAP Learning, and Total Rewards.

Guidelines and Policies

SAP is committed to ensuring a fair and equal treatment of all employees in a sustainable manner. For that reason, we established comprehensive policies that guide us in our daily business. Examples are our **Global Anti-Discrimination Policy** and **Global Health & Safety Policy**.

How We Measure and Manage Our Performance

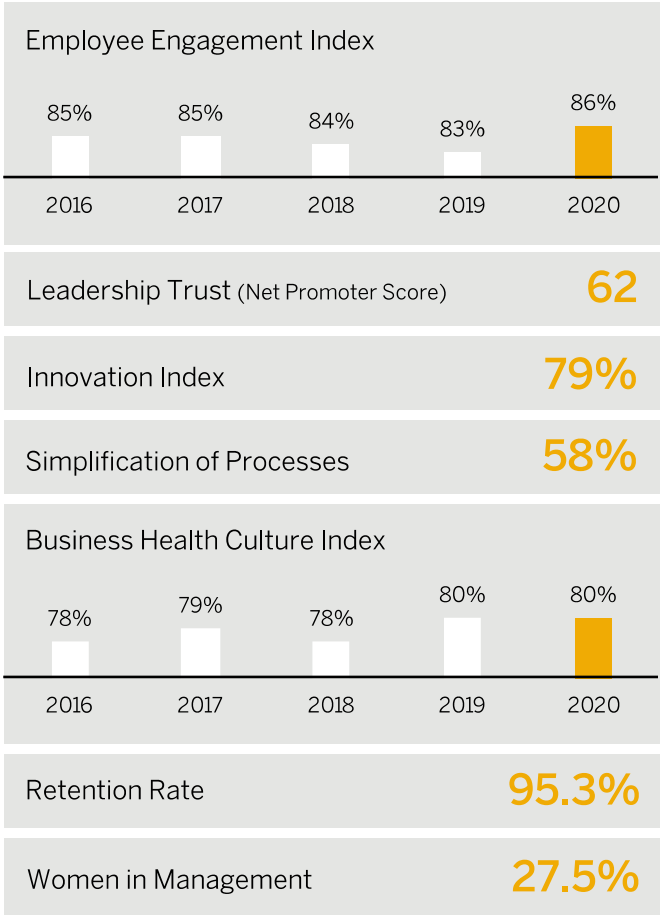
The success of our people strategy is measured by seven KPIs. Five out of the seven KPIs are from our redesigned engagement survey program **"#Unfiltered**." With #Unfiltered, we strengthen our approach to continuously listen, understand, and act on the feedback of our employees. In 2020, we switched from an annual engagement measurement to gauging engagement multiple times throughout the year. The last data collection was in September 2020.

The **Employee Engagement Index** increased to 86% (+3pp compared to 2019) and reached the upper end of our target range. For 2020 through 2023, our ambition is to keep the Employee Engagement score between 84% and 86%. **Leadership Trust Net Promoter Score** increased to 62 in 2020 (2019: 59). For more information about the measurement of leadership trust, see the *Performance Management System* section. During 2020, we focused again on innovation and process simplification. Our **Innovation Index** was last measured in the annual employee survey in 2019 and thus remains at 79%. **Simplification of Processes** decreased by 6pp compared to 2019 to 58%. We also measure the progress of the individual and organizational health through the **Business Health Culture Index** (BHCI). In 2020, the BHCI was 80% (2019: 80%) and remains at the upper end of our target range. For 2020 through 2023, our ambition is a BHCI between 78% and 80%.

In addition, we measured a **Retention Rate** of 95.3% (2019: 93.3%). We define retention as the ratio of the average number of employees minus employees who voluntarily departed

(excluding restructuring-related terminations) to the average number of employees (in full-time equivalents or FTEs). T he rate of **Women in Management** increased to 27.5% compared to 26.4% in 2019. For 2020 through 2022, our ambition remains to increase the rate of women in management to 30%.

Our Key People-Related KPIs at a Glance



Below is an overview of how we put the seven pillars of our people strategy and overall KPIs into practice.

Attracting, Hiring, and Onboarding the Best Talent

Talent is becoming increasingly scarce. Our unique employer value proposition is key for us to attract people with the right fit.

Due to the COVID-19 pandemic, our hiring activities have been impacted, resulting in a lower number of hirings. While 2020 remained a unique year, we were still able to build a highly inclusive workforce across various demographic aspects (generations, gender, and so on). Overall, we externally hired 8,486 (2019: 12,833) employees, thereof 29.4% (2019: 21.4%) are considered "**Early Talents**" (defined as new hires with 0–2 years of post-graduate non-professional experience) and 35.5% (2019: 37.5%) are women.

We continue to be successful in positioning SAP as a talent magnet. SAP has earned 125 employer awards, notably the **100 Best Companies by Fortune** and **Forbes Best Workplaces for Women** for SAP America.

To position SAP for future talent, we work closely with approximately 3,200 universities on events, executive lectures, office visits, competitions, student club sponsorships, and workshops to recruit top students and graduates. In 2020, more than 1,000 students were enrolled in SAP's vocational training program (in Australia, Brazil, China, Germany, Hungary, India, Ireland, Japan, New Zealand, Singapore, Switzerland, and the United States). The conversion rate (number of students who stayed with SAP after completing their dual studies) for vocational training students was 67% in 2020 (2019: 71%).

We are passionate about developing deep and lasting relationships with all our employees. The average tenure with SAP remains at the same high level (2020: 7.6 years; 2019: 7.3 years).

Even when employees leave SAP, it is important that we stay connected. Our **SAP Alumni Network** offers a program to reconnect with former colleagues and to unleash the power of a trusted network for the benefit of SAP and our ecosystem. In 2020, our alumni community included 9,096 former and 4,082 current SAP employees.

Growing Talent and Building Skills of Tomorrow

SAP expects a shift from skills that will cease to exist and new capabilities that will be needed in the future. This requires that we establish an adaptive workforce management approach that focuses on continuous skill transformation to ensure our people become equipped for future work requirements. Our career and growth framework helps employees discover who they are, identify the areas where they want to grow, and develop an action plan to get there.

At SAP, learning mainly happens on the job – through interactions with colleagues and formal learning activities. Self-paced online programs, plus training courses for technical and soft skills, are open to all employees. Our peer-to-peer learning portfolio encompasses coaching, mentoring, job shadowing, and facilitation opportunities. In 2020, we provided 1,007,464 courses (excluding compliance training) to 81% of our employees.

Building Next-Generation Performance Management

Our next-generation performance management establishes a high-performance culture, linking business goals to impact of individuals and teams with development opportunities and meaningful reward packages. Smart and transparent goal-setting approaches and continuous review processes, as well as equitable, competitive, and differentiated compensation structures, are a necessary foundation to drive high performance.

During 2020, we continued with our performance appraisal approach called **SAP Talk** – a continuous, needs-driven, and flexible dialogue between employees and managers.

Move SAP and Own SAP are exemplary components of our reward offerings: **Move SAP** is our long-term incentive plan that rewards employees who provide a significant impact to business success. In addition, 76% of our employees overall participated in our global share purchase plan **Own SAP**, with an investment of 5,451,242 shares in 2020. For more information, see the Notes to the Consolidated Financial Statements, *Note (B.3).*

Driving New Leadership Culture

Strong, future-oriented leadership is key for us to successfully execute our strategy and become more adaptive, innovative, and collaborative as One SAP.

To guide our leaders, develop them, and hold them accountable, we began the rollout of an extended value framework, building on our "**How We Run**" behaviors. We added three **new leadership behaviors** to the established five behaviors: Unlock potential, explore possibilities, and make it happen together. These relaunched "**How We Run and Lead**" behaviors ensure cultural consistency and clarity for leaders and employees.

We offer a career path for experts in parallel to our management development track. Due to COVID-19 restrictions, we provided a virtual version of our **flagship leadership program**, enabling our leaders to achieve better results and foster innovation. By the end of 2020, 5,170 SAP people managers (51%) and 4,283 SAP experts (17.4%) had completed it.

Pursuing an Agile, Entrepreneurial, and Innovative Organization

Our environment is changing at an increasing pace and the needs of our customers are shifting quickly. To deliver our business ambitions in this environment, SAP needs to evolve into a self-organized, agile organization fostering a culture of innovation. One initiative to achieve this is called "**Unlearning Hierarchy**." We support our teams and organizations in experimenting with self-organization including different pioneers across all Board areas at SAP. Furthermore, our "**New Work Movement**" community has over 2,400 members.

In addition, and in support of our entrepreneurial journey, **SAP.iO Venture Studio** helps us identify high-potential entrepreneurial employees at SAP and develop them into successful leaders, with the objective of building new ventures that will have a positive impact on business and society. In 2020, SAP.iO Venture Studio engaged more than 5,566 employees and was able to jump-start close to 535 venture ideas.

Another initiative to foster innovation is the prestigious **Hasso Plattner Founders' Award**. It provides the highest internal employee recognition at SAP, based on the three categories Customer Success (CS), Operational Excellence (OE), and Products and Technology (P&T). For 2020, the awards went to "Intelligent Case Routing" (CS), "Monitor of Monitors" (OE), and "Hidden Champion" (P&T). Winners were chosen from 220 nominations and with a total of 1,339 employees participating from 37 countries.

Striving for Inclusion and Reflecting the Diversity of Society

As a global organization with employees from over 150 nationalities, our aspiration is that SAP's workforce mirrors the diversity in society that includes gender parity and demographics of all of the regions where we have employees. In 2020, we focused on inclusive career journeys to attract and retain the best diverse talent, as well as inclusive culture to build inclusive processes and encourage inclusive behaviors.

Gender inclusion, advancement, and equality: Currently, SAP's representation of women in the overall workforce is 33.6%, with the representation of women in management roles at 27.5%. One example confirming our ambition of gender inclusion and equality was the selection of SAP for the first time in the Bloomberg Gender-Equality Index in 2019 and again in 2020.

Autism inclusion: The **Autism at Work Program** and **Autism Inclusion Network** support and engage with a workforce that includes over 180 autistic colleagues across 34 locations in 16 countries. The **SAP Autism Inclusion Pledge** extends SAP's autism inclusion endeavors by sharing what we have learned with our customer and partner ecosystem.

Race and ethnicity: Back in 2016, SAP identified challenges with underrepresentation of Black, African American, Latinx, and Native American employees in the workforce. We created reporting to track progress toward better representation in accordance with required regulations in different countries and in line with our diversity and inclusion objectives. In 2020, SAP took a stand against racism to drive change inside and outside of our organization to promote social justice and equality. Among many efforts across the globe, this included the establishment of a new goal to double the share of Black and African American employees in the workforce in the United States within the next three years.

LGBTQ+ inclusion: SAP was among the first supporters of the United Nations Global LGBTI Standards of Conduct for Business and has been recognized by organizations including Human Rights Campaign, Stonewall, and Workplace Pride for our inclusion efforts.

In addition, SAP supports numerous global **Employee Network Groups** that offer activities and events from which SAP can help attract and retain people from diverse backgrounds.

Caring for the Health and Well-Being of Our People

SAP fosters a culture that empowers people to run at their best supported by providing innovative health and well-being programs and solutions. When people are healthy, respected, and cared for, it results in higher productivity, engagement, innovation, and customer satisfaction.

In 2020, COVID-19 was the dominant topic. As early as January 2020, SAP installed a cross-Board area **Global Pandemic Taskforce** to establish and coordinate countermeasures around the globe. Frequent pulse checks help us understand how employees experience their individual situation and allow us to adjust our crisis management accordingly.

Furthermore, SAP is committed to a no stigma, inclusive culture that supports maintaining the mental health of our employees by prevention, early detection, case management support, and reintegration. The "**Are You OK? Mental Health Initiative**" helps counteract the increase of mental distress due to pandemic-related life challenges. It supports employees in fostering good mental health and in tackling mental health issues by supporting open dialogue inside and outside of SAP.

Pushing Operational Excellence and Showcasing Human Experience Management to Customers

Delivering engaging experiences for SAP's customers starts with our own workforce. A continued emphasis on operational excellence and experience management are key for delivering on our human experience management (HXM) solutions and services efficiently, with both empathy and compliance.

SAP runs SAP SuccessFactors solutions as the global software to manage our people data. Additionally, the adoption of Qualtrics solutions enables us to understand ways to improve the experience

of our candidates and employees along the employee journey. Such data insights are the fuel to leverage intelligent technologies such as **SAP Conversational AI** services in our **SAP Careers** site and in our internal HR chatbot to provide instant responses to HR-related questions around the clock.

Related Risks for SAP

For more information on employee-related risks, see the *Risk Management and Risks* section in the *Human Capital Risks* subsection.

Headcount and Personnel Expense

The year 2020 was overshadowed by COVID-19 and the pandemic has affected our headcount development as well, resulting in a lower number of hirings. As at December 31, 2020, we employed 102,430 full-time equivalent (FTE) employees worldwide (2019: 100,330). This represents an increase in headcount of 2,100 FTEs (781 thereof from acquisitions) in comparison to 2019. The average number of employees in 2020 was 101,476 (2019: 99,157).

We define headcount in FTE as the number of people on permanent employment contracts considering their staffing percentage. Students, individuals employed by SAP currently not working for reasons such as maternity leave, and temporary employees on limited contracts of less than six months, are excluded from our figures. The number of temporary employees is not material.

Our average personnel expense for each employee decreased to approximately €132,000 in 2020 (2019:approximately €150,000). This reduction is primarily attributable to a decrease of restructuring expenses and share-based payment expenses. The personnel expense for each employee is defined as the overall personnel expense divided by the average number of employees. In 2020, we had 1,037 restructuring-related terminations (1%) compared to 2,859 in 2019 (2.9%).

For more information about employee compensation and a breakdown of the components of personnel expense, see the Notes to the Consolidated Financial Statements, *Note (B.1)* and *Note (B.2)*.

Social Investments

Vision and Strategy

Technology and innovation continue to rapidly change the competencies needed to succeed in today's digital world. Our global corporate social responsibility (CSR) strategy is tackling this skills gap head on, putting SAP's purpose to help the world run better and improve people's lives into action through our mission: "**Powering Opportunity Through Digital Inclusion**." As such, our initiatives consider issues including access, adoption, and application of skills to ensure everyone can benefit from and participate in the digital economy. To achieve SAP's CSR mission, we focus on three strategic areas that foster socioeconomic stability and create opportunity for all people by:

- Building digital skills
- Accelerating best-run nonprofit organizations and social enterprises
- Connecting employees with purpose

For our CSR work to be both sustainable and successful, it is crucial to closely link the strategy that drives that work with our business strategy. SAP's social engagement and philanthropic investment are understood and perceived as an essential part of our company success. In this way, we can ensure ongoing, long-term support and funding from executive management – particularly in times of economic downturn.

COVID-19 Response

In March 2020, SAP acted quickly to help combat the negative global impact of the COVID-19 pandemic while also remaining committed to the CSR mission and strategic partners and programs. SAP established a COVID-19 emergency fund, managed by the SAP CSR team, totaling €3 million. As part of that response, €1 million were donated to the World Health Organization's COVID-19 Solidarity Response Fund. SAP also supported local responses to urgent infrastructure requests and provided funding to our CSR partners that are smaller nonprofit organizations and social enterprises that experienced difficulties in serving their communities due to the pandemic and may struggle to survive financially. Therefore, it is important we continue offering support to our partners and to allow them to shift restricted funding for unrestricted use. We also offered support to help ensure the world's most vulnerable people, enterprises, and communities received the necessary resources to withstand the long-term impact of COVID-19. This support included a donation to Acumen's Emergency Facility, which helped, in part, to fund 96 enterprises across 16 countries, serving low-income communities whose customers live on less than U.S.$6 a day.

Taking Action Towards Social Justice

SAP is also doubling down on our commitment to serving those who are underrepresented in technology. Our nonprofit partners have always operated in this space. More than ever, we believe that quality education and economic opportunity are integral parts of an equal society. As an example, we are currently developing a pro bono offering in North America to specifically foster economic equity by supporting Black-owned businesses as well as creating a longer-term, digital skills-focused program with a focus on lifting up Black youth. Both projects will be launched in 2021. Due to COVID-19 and racial unrest, SAP joined Global Citizen's Unite for Our Future campaign, which called on citizens, businesses, government, and the social sector to tackle the enormous injustices the world is facing. SAP has pledged our financial support alongside other global corporations to help end the pandemic, eliminate injustice, and fight for the world we want. Further examples of how we serve underrepresented communities can be found below at *Pillar 1 – Building Digital Skills*.

Due Diligence

Governance

Our head of global CSR leads the global SAP CSR team that is part of the Global Corporate Affairs organization in the Office of the CEO Board area. In addition, SAP has established a **Global CSR Governance Committee** and additional Regional CSR Governance Committees to advise and supervise the work of the Company's global and regional SAP CSR teams. Our Global CSR Governance Committee, consisting of executive-level representatives from different Board areas at SAP, advises and approves the strategic direction of our overall CSR mission. In addition, Regional CSR Governance Committees advise and approve all major CSR

partnerships and efforts with a regional SAP CSR lead in each of our major SAP regions.

Guidelines and Policies

The guidelines in our internal CSR policy describe the role of SAP as a corporate citizen. They articulate our strategic areas of focus, set the standards and policies under which we operate, and explain the different roles and responsibilities between global CSR, regional CSR, and line-of-business activities ("field donations"). The policy ensures lawful, compliant donations and good stewardship of SAP's social investment budget to create positive sustainable impact.

How We Measure and Manage Our Performance

We measure the performance and impact of our CSR engagements and investments on a regular basis and report the following indicators for all our initiatives and regions. Every signature initiative also follows a logic model and develops a clear impact measurement framework as part of the initiative that includes:

- Number of employees engaged
- Number of (virtual) volunteering projects delivered
- Number of lives impacted
- Number of engagements with customers and partners
- Number of nonprofits and social enterprises enabled
- Number of employees on our engagement and donation platform **SAP Together**

COVID-19 created both significant challenges and opportunities for our CSR programs and partnerships, which led to signature initiatives transforming into virtual delivery models to reach partners and beneficiaries. At the same time, we significantly expanded cross-border virtual volunteering opportunities for employees. In 2020, SAP donated €24 million, impacting eight million lives.

Pillar 1 – Building Digital Skills

In 2020, digital skill-building and coding programs trained 117,000 teachers and engaged 2.3 million underserved people and youth, of which 53% were girls. **SAP and UNICEF launched a three-year partnership** at the UN General Assembly week in 2019, aimed at bringing together businesses, governments, civil society, and young people to develop scalable education models that will equip and empower young people with the 21st-century digital and life skills they need to find suitable work. Year one of the partnership was dedicated to curriculum development and digitalization of solutions, laying the groundwork for a scaled rollout that could impact 1.5 million young people across India, Turkey, and Vietnam. **Africa Code Week** was transformed into a completely virtual experience expanding our reach from 37 countries to 44 countries and focusing our efforts on enabling teachers using the Africa Code Week mobile app.

Pillar 2 – Accelerating Best-Run Nonprofit Organizations and Social Enterprises

In 2020, SAP built capacity for over 1,500 innovative nonprofit organizations and social enterprises through in-kind contributions of €0.9 million. Due to the COVID-19 pandemic, we have temporarily paused the **SAP Social Sabbatical** for global, regional, and executive engagement programs. In its place, we successfully pivoted our SAP Social Sabbatical for local engagement programs planned in Manila, Philippines, and Vancouver, Canada, to a virtual engagement model. In the **Reimagining Health Systems Challenge**, 12 SAP employees worked together with employees from three other companies to help digitalize Community Health Centers (CHCs) serving Medically Underserved Areas across the United States. In support of SAP's **5 & 5 by '25** initiative for social procurement, SAP CSR launched new partnerships with Social Traders (Australia) and Buy Social Canada (Canada), as well as a capacity-building partnership with MovingWorlds called the S-GRID (Sustainable Growth of Revenues for International Development) program, aiming to accelerate access for social enterprises to enter global value chains. SAP joined the COVID-19 Response Alliance for Social Entrepreneurs and supported the digital transformation for the inaugural Social Enterprise World Forum Digital event reaching 2,600 participants across 102 countries as its strategic global technology partner.

Pillar 3 – Connecting Employees with Purpose

SAP Together, our new global employee engagement and donation platform provided by Benevity, Inc. has 34,155 employees registered. In 2020, the platform offered employees 246 virtual volunteering projects and nine missions with 73% of SAP's corporate volunteer hours globally skills-based. The virtual offerings allowed us to engage employees in a truly cross-border manner, for example, due to the virtual nature of Africa Code Week, for the first time in three years, 72 SAP employees from nine countries were able to engage directly by leading virtual sessions. This year's **Month of Service** has engaged 10,000 employees in over 50 virtual, live education, enablement, and awareness-building sessions focusing on four high-level purpose themes: Equality for All; Building a Digitally Inclusive Workforce; Cultivating Climate Action; and Promoting Inclusive, Diverse, and Social Entrepreneurship.

Related Risks for SAP

No relevant risks were identified through our framework which is detailed in the *Risk Management Methodology and Reporting* section.

Audit Scope

Not all information in this section was part of the statuatory audit of our combined group management report by our external auditor KPMG. The quantitative indicators Business Health Culture Index, Employee Engagement Index, Employee Retention, Women in Management, as well as Headcount and Personnel Expense are audited at a reasonable assurance level. For the remaining qualitative and quantitative disclosures in this section, KPMG performed a limited assurance engagement.

Energy and Emissions

Vision and Strategy

To bring SAP's purpose of "helping the world run better and improving people's lives" to life, our sustainability activities and programs are aimed at creating positive economic, environmental, and social impact within planetary boundaries. In light of the aggravating climate change impacts and other intensifying global challenges, climate action has been put at the top of SAP's corporate sustainability agenda – which was also reconfirmed by the latest conducted materiality analysis.

Our strategy to create positive impact and to address climate action is implemented through a dual approach: (1) **SAP as enabler**: We aim to provide products and services to our customers to reduce their carbon emissions and pave the way towards a low-carbon future together; and (2) **SAP as exemplar**: To live up to our corporate responsibility and to build climate resilience, we strive towards leading by example in SAP's business operations and practices by running our own operations more sustainably.

Due Diligence

Governance

The Executive Board sponsor for sustainability, including climate action, is the SAP CFO. Led by the chief sustainability officer, a dedicated sustainability team coordinates SAP's response to climate change (including assessing and managing climate-related risks through a quarterly risk review, setting reduction targets, quarterly measuring and monitoring of carbon emissions, and embedding sustainability-related initiatives across SAP). This happens in close cooperation with various other departments such as the global procurement organization that ensures purchasing energy-efficient, sustainable products and services. Global facility management designs and operates our facilities based on robust environmental standards such as ISO 14001. Global cloud services optimize the energy consumption in our data centers, while SAP's IT operations personnel is committed to responsible usage of IT equipment and business software.

To be able to innovate and embed sustainability further, we regularly engage internally with our sustainability council and externally with various stakeholder groups such as nongovernmental organizations (NGOs), nonprofit organizations (NPOs), and academia. This notably includes an external sustainability advisory panel comprised of expert representatives from our customers, investors, partners, NGOs, and academia.

Guidelines and Policies

Our global environmental policy provides the core framework for how we manage our environmental impact – in our own operations and with our customers. Last updated in May 2019 and approved by the CFO, this policy guides our efforts to reduce our ecological footprint, provide environmental performance transparency, and demonstrate sustainable leadership through transformational strategies. In addition, it helps us to comply with internationally recognized sustainability standards as well as stakeholder expectations, primarily those of customers, investor, and employees.

How We Measure and Manage Our Performance

Our Targets

In 2017, we set our leading environmental target of making our operations carbon neutral by 2025. This target refers to our total net carbon emissions, which are calculated by deducting purchased renewable energy certificates, self-generated renewable energy, and carbon offsets from our gross carbon emissions in the respective reporting period. Our carbon neutral target includes all direct and indirect emissions from running our business (Scope 1 and Scope 2)[3] as well as a selected subset of indirect emissions from our value chain (Scope 3).[4] This objective is key to reducing SAP's own environmental footprint and to combatting climate change – one important step towards contributing to SAP's overarching purpose.

To achieve our carbon neutral target and to track its progress, we have derived annual targets for our internal operational steering. Since the beginning of 2020, these annual targets have been firmly integrated in the Executive Board's short-term performance-based compensation.

Since 2017, we have complied with the requirements of the Science Based Targets initiative (SBTi) and are committed to reducing emissions by 85% by 2050 compared to the base-year level 2016, including emissions of our products in use at our customers. This target reflects the level of decarbonization required to keep the global temperature increase below 1.5°C compared to preindustrial temperatures. This has been confirmed by the SBTi in a target reassessment in 2019.

Performance and Measures to Progress

As a result of the COVID-19 pandemic, we have experienced a significant decrease in our 2020 carbon emissions due to a reduction in carbon-intensive business activities, in particular, business flights. Even though our employee headcount increased by 2.1%, our carbon emissions dropped to 135 kilotons (kt) (2019: 300 kt). That remains 10% below our latest target of 150 kt as updated in October 2020 to reflect the expected impact of the COVID-19 pandemic on SAP's business results (original target for 2020: 238 kt).

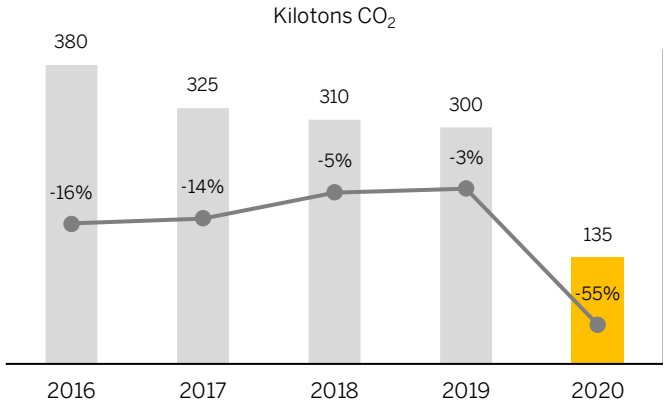
To consider the impact of COVID-19 on our carbon emissions, to uphold our role model position in sustainability, and to maintain our ambition level, we decided to revise and accelerate our carbon

[3] Scope 1 includes: Stationary Combustion and Refrigerants in Facilities, Mobile Combustion and Refrigerants in Corporate Cars, Mobile Combustion in Corporate Jets. Scope 2 includes: Electricity in Offices, Electricity in Data Centers, Purchases of Chilled and Hot Water, Steam

[4] Scope 3 includes: Rental Cars, Business Flights, Train Travel, Business Trips with Private Cars, Employee Commuting, Electricity External Data Centers, Electricity Used by Hyperscale Services, Logistics, Paper Consumption, Data Download.

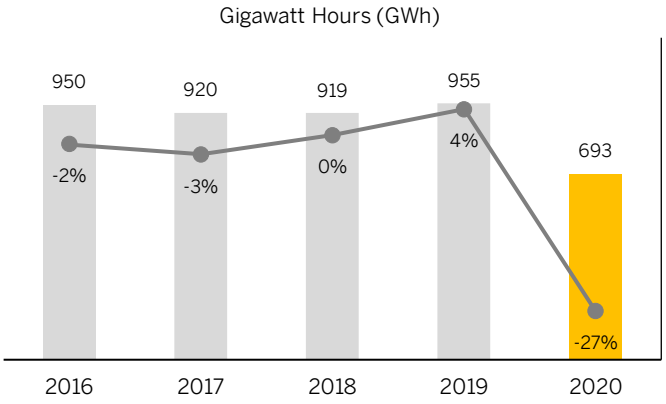
neutral target: we now aim to become carbon neutral in our own operations by 2023 – two years earlier than what we aimed for thus far.

Total Net Carbon Emissions



Due to COVID-19, electricity consumption in our offices also dropped as the majority of employees moved to a remote working model.

Total Energy Consumption



In 2020, we conducted a "re-baselining" for our cumulative cost avoidance calculation with 2016 as the new base year for the business-as-usual scenario. As a result, our focus on climate action has contributed to a cumulative cost avoidance of €354.3 million in the past three years. We achieved 92% of this cost avoidance in 2020.

To become carbon neutral even in times of ongoing growth in our business, we continue to drive our three-pillar strategy of "avoid – reduce – compensate." In 2020, key initiatives following this approach included:

Facilities, Data Centers and Renewable Electricity

To help reach SAP's ambition to continuously increase sustainability in its own operations, we implemented an environmental management system (EMS) at 55 sites in 30 countries worldwide. The EMS is certified by the renowned ISO 14001:2015 standard and was successfully recertified in 2020. Its scope will be gradually increased from currently 75% to 100% of SAP's major company-owned sites in 2025. SAP's headquarters in Germany also implemented an effective energy management system. This system is ISO 50001:2018-certified and enables us to continuously improve our energy performance.

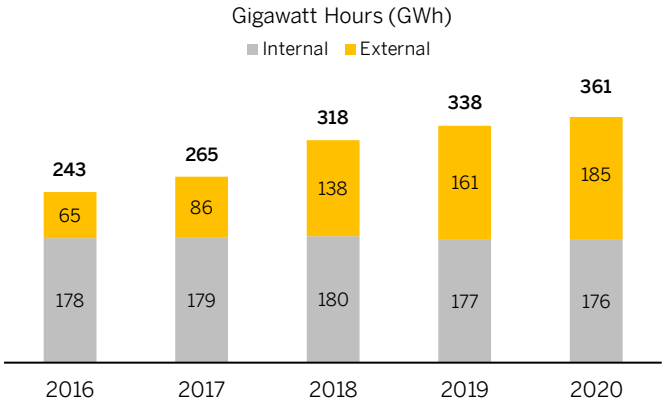
As more business moves to the cloud, data centers play an increasing key role in SAP providing solutions to our customers. Running solutions on SAP data centers and using hundreds of cloud solution transactions per day requires CPUs, memory, storage, and cooling, and therefore electricity – which ultimately results in carbon emissions. This is why our internal data centers have become a primary focus of our carbon reduction efforts. The term "data center" refers to both SAP-owned and external data centers (co-location data centers and hyperscalers).

We have introduced initiatives to drive efficiency and innovation with respect to our buildings, data center operations, and infrastructure (such as replacement of the old, uninterruptible power supply system in the data centers in St. Leon-Rot, Germany). At our SAP headquarters in Germany and North America, we operate our own data centers with an efficient power usage effectiveness (PUE) of 1.41. The PUE is a ratio that describes the efficiency of a data center, with 1.0 being the ideal.

In 2014, SAP strengthened the integration of our environmental strategy into our business strategy by creating a "**green cloud**" powered by 100% renewable electricity – one major step towards achieving carbon neutrality and upholding our commitment towards the RE100 initiative.

We realize our green cloud by using two strategic levers: On the one hand, by investing in very high-quality, EKOenergy-certified renewable energy certificates (RECs) to foster renewable energy generation; and on the other hand, by producing renewable electricity in selective SAP locations worldwide through solar panels (in Palo Alto, CA, in the United States, and in Bangalore, India). This allows us to compensate all of our facility and data center emissions (2020: 198 kt). This is why customers can significantly reduce their carbon emissions (Scope 3) by using our green cloud solutions and services.

Total Data Center Electricity



Sustainable Solutions and Products in Use

The vast majority of our overall carbon emissions result from the use of our software. To address this, we have developed a downstream emissions strategy to help our customers, hardware providers, and others run greener operations. One of the most important ways we help our customers reduce their energy usage and emissions is by managing their SAP systems through cloud services provided by our carbon-neutral green cloud offerings. In addition, the solutions in our portfolio, such as **SAP Environment, Health, and Safety Management** or **SAP Product Carbon Footprint Analytics**, the first application in the **Climate 21** program, enable our customers to manage their greenhouse gas footprint and resources, such as electricity, more efficiently.

SAP also works with customers to optimize their on-premise landscapes so that they consume less energy. We achieve this by helping them decommission legacy systems, archive unused data, consolidate business applications, and virtualize their system landscape.

Corporate Cars and Commuting

Consumption of fuel for our company cars remains the single greatest contributor to our direct emissions (Scope 1). To counteract this emission source, we continue to power all electric company cars with 100% renewable electricity, and we set the objective to have one-third of our car fleet consist of ecofriendly company cars, such as electric or fuel cell cars, by 2025. Our target to increase the number of electric vehicles (battery electric vehicles and plug-in hybrid electric vehicles) to 20% by the end of 2020 was not achieved (2020: 16%) due to the lagging appeal of electric vehicles in light of an insufficient public charging infrastructure, long delivery times, and a lack of models. To reach our 2025 e-mobility target, we aim to continue and strengthen our incentive offers for our employees such as:

- In Germany, we offer employees a battery subsidy that partially offsets the higher costs of an electric vehicle, and a subsidy to install a charging point at home (outlook 2021: SAP plans to set up a program to reimburse electricity for charging at home).
- Continuous expansion of the SAP charging infrastructure (2020: over 900 charging stations; 2019: 750 charging stations).

To generate a shift in alternative commuting habits, we continue to offer a company bike program in Germany, where employees can lease bicycles with the option of purchasing them after three years. In 2020, we piloted a mobility budget approach in Berlin to foster inter-/multimodal mobility. A pilot group of employees received a monthly fixed mobility budget at their free disposal to use any mode of transport to commute to work or in their leisure time (bike, e-scooter, rental car, train, bus, and so on).

Carbon Offsets

To offset a share of our Scope 1 and Scope 3 emissions that cannot yet be avoided, we invest in different offset schemes to compensate for these emissions (2020: 79 kt):

- A key part of SAP's compensation strategy is the long-term investment in the **Livelihoods Carbon Funds** (LCF) and their high-quality carbon credits. The funds have financed much-needed climate action and sustainable development in developing countries through ecosystem restoration, agroforestry, biodiversity preservation, and clean energy projects. This has generated high-quality carbon offsets certified by the most trusted and demanding standards (such as the Gold Standard) and improved people's lives. SAP recently committed €3 million to the third LFC and will invest an additional €632,000 in the first LCF. In 2020, the carbon credits we received for our financial contribution to the LCF helped us offset 41.5 kt of our emissions, the majority of which was used to compensate for our business flights.
- In addition to avoiding business flights by investing in virtual collaboration and communication technologies, we charge an **internal carbon price for business flights** in the majority of countries we travel from, to counterbalance the carbon emissions caused. Since 2015, we invest the collected internal air travel fees in high-quality carbon offsets (such as the Gold Standard) to support climate projects worldwide and compensate the adverse impact of necessary business flights. As a result, this measure has tangibly impacted our progress towards achieving our emission goals.
- For employees who own a so-called **climate neutral fuel card** for their company car, SAP pays an additional fee per liter fuel purchased, which is then invested in Gold Standard-certified compensation projects or equivalent high quality standards (2020: 2.4 kt).

The investments in sustainable projects are equivalent to a certain amount of carbon reductions.

Furthermore, SAP pledged in 2018 to plant five million trees by 2025, as forests and their natural ability to capture and store carbon emissions play an important role in mitigating climate change. In 2020, we enabled the planting of almost 1.7 million trees worldwide as part of our carbon offsetting and donation initiatives (including SAP's holiday-related donation to three projects in the Eden Reforestation Projects program).

Related Risks for SAP

We have analyzed climate change risks and their potential impact on our largest office buildings, major data centers, and SAP's workforce. Risk drivers were chosen based on the Intergovernmental Panel on Climate Change (IPCC) reports AR5 and SR15 (that is, rising sea levels, temperature extremes, and tropical storms). The risk assessment was performed in accordance with the SAP Global Risk Management Policy as outlined in the *Risk Management and Risks* section. As part of our last analysis in 2019, no relevant risks have been identified potentially impacting our business operations, revenue, or expenditure.

Audit Scope

The content of this section was not subject to the statutory audit of our combined group management report. However, our auditor KPMG has performed an independent assurance engagement on the contents of this section. Under this engagement, the quantitative indicators Carbon Emissions (Scope 1 and 2 as well as selected Scope 3 emissions including business flights and employee commuting), Renewable Energy, and Total Energy Consumed were audited at a reasonable assurance level. For the remaining qualitative and quantitative disclosures in this section, KPMG performed a limited assurance engagement.

Financial Performance: Review and Analysis

Economy and the Market

Worldwide economic activity showed a sharp decline in the first half of 2020 due to the COVID-19 pandemic. It then rebounded strongly in the third quarter and continued growth in the fourth. That is how the European Central Bank (ECB) summarizes the year in its December 2020 Economic Bulletin.[1] Advanced economies in particular deployed generous policy support at the peak of the pandemic to prop up private consumption, which allowed for the economic recovery in the third quarter. Emerging market economies, on the other hand, benefited from the resulting recovery in external demand, says the ECB.

The EMEA region suffered an unprecedented economic contraction in the second quarter, but the rebound in economic activity in the third quarter was stronger than expected, reports the ECB. This was the case particularly in the euro area, even though economic activity there remained well below pre-pandemic levels. However, the increase in infection rates and the new restrictions on social interaction and mobility significantly constrained the euro area economy again in the fourth quarter of 2020. Throughout the year, sectors performed unevenly, with the services sector more adversely affected than the industrial sector. In central and eastern Europe and Russia, real GDP rebounded in the third quarter when production normalized amid the easing of containment measures. Towards the end of the year, the ECB's indicators for those countries tightened and economic growth slowed again.

In the Americas region, reports the ECB, real GDP in the United States increased in the third quarter as well, driven by a strong recovery in consumption and investment, but did not reach pre-pandemic levels. However, the resurgence of COVID-19 infections and fading fiscal stimulus curbed development of the U.S. economy afterwards. Brazil opted to limit containment measures and instead featured strong monetary and fiscal support measures that were among the largest in Latin America. Thus, the economy rebounded from around the middle of the year, but the severity of the pandemic itself intensified further.

As for the Asia Pacific Japan (APJ) region, domestic and external demand temporarily supported economic recovery in Japan in the third quarter of 2020, yet the pace of expansion decelerated overall, says the ECB. The economic recovery in China, on the other hand, was swift and even broadened to the service sector. After a sharp rebound in the second quarter, China's GDP expanded at a moderate pace in the third and fourth quarter, driven by private investment and consumption. According to the ECB, China was the only large economy to record economic growth in 2020.

The IT Market

In 2020, the COVID-19 pandemic fundamentally changed the business landscape worldwide and accelerated the shift to digital, says International Data Corporation (IDC), a U.S.-based market research firm.[2] It was crucial for enterprises to drastically increase their resilience to overcome the disruptions. For this, it turned out to be vital that enterprises broaden their digital capabilities, innovate, and adjust operations and processes.[3] That is why, according to IDC, global spending on digital transformation technologies and services grew 10.4% in 2020 to $1.3 trillion, while overall IT spending declined 5.1% to $2.25 trillion.[3]

Faced with the need to accelerate their transformation, many enterprises had to shortcut their IT protocols to get digital solutions into place during the pandemic, reports IDC.[2] At the same time, this rapid innovation had to happen without incurring overall incremental costs. Therefore, while solving immediate problems, this approach created technical debt: infrastructure and systems became less robust, flexible, and scalable than IT solutions would be otherwise. At the end of 2020, it was already foreseeable that these interim solutions would need to be improved when the current pandemic situation had passed.

However, it became abundantly clear in 2020 that developing a digital business at record speed does not work with traditional, linear processes starting and ending in an organization. Instead – and especially in the long run – according to IDC[2], digital businesses require a shift toward platform-based, data driven value chains. Applications and data stretching from edge to network and core, the Internet of Things (IoT), mobile devices, artificial intelligence (AI), and machine learning turned out to be crucial elements of digital transformation. For sustained success in these outstanding circumstances, enterprises need to combine historical data with data from enterprise systems and with global information, and connect that data with external partner ecosystems, describes IDC.

In this context, cloud turned out to be much more than an alternative IT purchasing model which buyers had all too often regarded it as before. Instead, in 2020, it was adopted by more and more businesses as both a technology platform and an operational model, reports IDC.[4] Cloud-centric operating models became integral components of many enterprises' IT environments: They facilitated flexibility and resilience in the face of the pandemic, delivered infrastructure, application, and data resources to edge locations, and allowed enterprises to react rapidly to customer and end-user demands.

Furthermore, companies increasingly used their cloud settings to develop new apps in-house (over 42% of all new apps developed in 2020, according to IDC).[3] Many even found new business opportunities by commercializing the software they had developed internally to address problems resulting from the pandemic.

Sources:

[1] European Central Bank, Economic Bulletin, Issue 8/2020, Publication Date: January 7, 2021 (https://www.ecb.europa.eu/pub/pdf/ecbu/eb202008.en.pdf)
[2] IDC FutureScape: Worldwide IT Industry 2021 Predictions, Doc #US46942020, October 2020
[3] IDC FutureScape: Worldwide Future of Digital Transformation 2021 Predictions, Doc #US46417320, October 2020
[4] IDC FutureScape: Worldwide Cloud 2021 Predictions, Doc #US46420120, October 2020

Impact on SAP

The COVID-19 pandemic was an accelerator for transformation. Customers were looking to move to the cloud faster, for greater resiliency and agility, and SAP responded, providing the technology and expertise to help its customers migrate their existing IT environments to the cloud and truly transform their businesses end-to-end. A promising development in the first and second quarter was overshadowed by the first noticeable impact of the pandemic on SAP's business performance in the third quarter. Yet performance sequentially improved in the fourth quarter even as the COVID-19 situation persisted and lockdowns were reintroduced in many regions – with continued high demand for e-commerce, SAP Business Technology Platform, and Qualtrics solutions producing a strong finish to the year for SAP's cloud business. SAP also saw strong early acceptance of its new holistic business transformation offering RISE with SAP among pilot customers, contributing to the cloud performance in the fourth quarter.

Throughout the COVID-19 pandemic, SAP continued to serve its customers with an embedded virtual sales and remote implementation strategy. The Company continued with a disciplined approach to hiring and discretionary spend while capturing natural savings such as from lower travel, facility-related costs, and virtual instead of physical events. In combination with the strong topline performance, these actions drove higher operating profit (IFRS and non-IFRS at constant currencies) and operating margin despite the challenging macro environment.

Overall Financial Position

Executive Board's Assessment

2020 was a uniquely challenging year for SAP. As a result of the COVID-19 pandemic, SAP had to revise its outlook during the year. However, the financial performance of the Company developed better than expected. SAP exceeded its revised 2020 revenue targets and hit the high end of its operating profit target in its revised outlook.

SAP also showed strong performance in non-financial metrics. Both the Customer Net Promoter Score and the Employee Engagement Index increased. At the same time, greenhouse gas emissions decreased year over year.

Assuming the COVID-19 pandemic will begin to recede as vaccine programs roll out globally, leading to a gradually improving demand environment in the second half of 2021, we are confident that we will deliver on both our financial and non-financial outlook for 2021 and on our 2025 mid-term ambitions. SAP's expedited shift to the cloud will drive long-term, sustainable growth while significantly increasing the resiliency and predictability of our business.

Performance Against Our Outlook for 2020 (Non-IFRS)

As in previous years, our 2020 operating profit-related goals and published outlook were based on our non-IFRS financial measures at constant currencies. For this reason, in the following section we discuss performance against our outlook only in terms of non-IFRS numbers (at constant currencies) derived from IFRS measures. The subsequent section about IFRS operating results discusses numbers only in terms of the International Financial Reporting Standards (IFRS), so the numbers in that section are not expressly identified as IFRS numbers.

Outlook for 2020 (Non-IFRS)

The initial outlook for 2020, updated on April 21, 2020 (for more information, see the table "Comparison of Outlook and Results for 2020"), is based on the assumption that the difficult market environment, characterized by weak demand due to the COVID-19 pandemic, would deteriorate into the second quarter before gradually improving in the third and fourth quarters as countries reopened their economies and lockdowns ended. In this context, we anticipated non-IFRS cloud revenue in a range of €8.3 billion to €8.7 billion, and cloud and software revenue in a range of €23.4 billion to €24.0 billion. We expected total revenue to range between €27.8 billion and €28.5 billion, with more predictable revenue anticipated to make up 72% of this result. Furthermore, we projected our full-year 2020 operating profit (non-IFRS) would end between €8.1 billion and €8.7 billion.

In July 2020, we adjusted our outlook for the effective tax rate (IFRS) to between 28.5% and 29.5% and for the effective tax rate (non-IFRS) to between 27.5% and 28.5%. The increase in comparison to the previous outlook mainly resulted from changes in taxes for prior years.

In our quarterly statement published on October 25, 2020, we revised our outlook again to reflect the restrictions that had been placed on public and economic life during the ongoing pandemic. Further, and for the same reasons, we no longer expected to see a significant recovery in SAP Concur revenues in the remaining months of the year.

In October 2020, we therefore adjusted our projection for cloud revenue downward to range between €8.0 billion and €8.2 billion, which represented a growth rate of 14% to 17% at constant currencies. In addition, the Company then anticipated cloud and software revenue of between €23.1 billion and €23.6 billion. This range represented a growth rate of 0% to 2%. We also expected total revenue of between €27.2 billion to €27.8 billion, which represented a growth rate of –2% to 1% at constant currencies and assumed a share of more predictable revenue of 72%. We also set a target range of €8.1 billion to €8.5 billion for our operating profit, which represented a growth rate of –1% to 4% at constant currencies. We expected a full-year 2020 effective tax rate (IFRS) of 27.0% to 28.0% and an effective tax rate (non-IFRS) of 26.5% to 27.5%.

2020 Actual Revenue and Profit Performance Compared to Outlook (Non-IFRS)

On the revenue side, we exceeded the outlook adjusted in October 2020, and on the operating profit side, we reached the upper end of the guidance.

Comparison of Outlook and Results for 2020

	Results for 2019	Outlook for 2020 (Integrated Report 2019)	Revised Outlook for 2020 (Q1 Quarterly Statement)	Revised Outlook for 2020 (Half-Year Report)	Revised Outlook for 2020 (Q3 Quarterly Statement)	**Results for 2020**
Cloud revenue (non-IFRS, at constant currencies)	€7.01 billion	€8.7 billion to €9.0 billion	€8.3 billion to €8.7 billion	€8.3 billion to €8.7 billion	€8.0 billion to €8.2 billion	€8.24 billion
Cloud and software revenue (non-IFRS, at constant currencies)	€23.09 billion	€24.7 billion to €25.1 billion	€23.4 billion to €24.0 billion	€23.4 billion to €24.0 billion	€23.1 billion to €23.6 billion	€23.72 billion
Total revenue (non-IFRS, at constant currencies)	€27.63 billion	€29.2 billion to €29.7 billion	€27.8 billion to €28.5 billion	€27.8 billion to €28.5 billion	€27.2 billion to €27.8 billion	€27.90 billion
Operating profit (non-IFRS, at constant currencies)	€8.21 billion	€8.9 billion to €9.3 billion	€8.1 billion to €8.7 billion	€8.1 billion to €8.7 billion	€8.1 billion to €8.5 billion	€8.50 billion
Share of predictable revenue	67%	70%	72%	72%	72%	72%
Effective tax rate (IFRS)	26.7%	27.0% to 28.0%	27.0% to 28.0%	28.5% to 29.5%	27.0% to 28.0%	26.8%
Effective tax rate (non-IFRS)	26.2%	26.5% to 27.5%	26.5% to 27.5%	27.5% to 28.5%	26.5% to 27.5%	26.5%

In a global economic situation severely shaken by the COVID-19 pandemic, demand for our solutions and services was lower than expected in 2020. New and existing customers nevertheless continued to show a strong willingness to digitally transform their business processes with SAP and thus emerge from the situation with success.

Our current cloud backlog (contractually committed cloud revenue we expect to recognize over the upcoming 12 months) reached €7.61 billion at constant currencies (€7.15 billion at actual currencies; 2019: €6.68 billion). This was an increase of 14% on a constant currency basis.

At constant currencies, the resulting non-IFRS cloud revenue grew from €7.01 billion in 2019 to €8.24 billion in 2020 and therefore ended above our guidance range of €8.0 billion to €8.2 billion. That represented an increase of 18% at constant currencies.

Cloud and software revenue (non-IFRS) grew 3% at constant currencies to €23.72 billion (2019: €23.09 billion), and thus ended above our range forecasted for 2020 of €23.1 billion to €23.6 billion.

Thanks to the strong increase in cloud business described above, we were able to increase the share of more predictable revenue by 4.4pp to 72% (2019: 67%). As such, our total revenue (non-IFRS) increased slightly despite a decline in software license business as a result of the COVID-19 pandemic.

Total revenue (non-IFRS) on a constant currency basis rose 1% in 2020 to €27.90 billion (2019: €27.63 billion), thus exceeding the guidance for 2020 that had been amended in October (€27.2 billion to €27.8 billion).

Operating expenses (non-IFRS) in 2020 on a constant currency basis remained constant at €19.39 billion (2019: €19.43 billion). Not only did we demonstrate cost discipline in 2020 when it came to discretionary spend and employee hiring, we cut costs naturally through less travel, lower facility-related costs, and virtual rather than physical events. This enabled us to keep our 2020 operating expenses at the previous year's level.

Our expense base in 2020 was impacted by our transformation to a fast-growing cloud business. In our outlook for 2020, we expected to see an increasing cloud gross margin. The cloud gross margin for 2020 was 70%, an increase of 1.4pp on a constant currency basis year over year. The gross margin improvement was due to the increasing efficiency in the operation of our offerings as we continued to invest in the cloud.

All cloud gross margins on our various cloud offerings developed positively in 2020:

The cloud gross margin (non-IFRS) on our "Intelligent Spend" offerings improved slightly by 0.8pp (on a constant currency basis), resulting in 79% for 2020 (2019: 78%).

The cloud gross margin (non-IFRS) on our "infrastructure as a service" (IaaS) cloud offering continued to develop well in 2020, improving 4.9pp on a constant currency basis to achieve a cloud gross margin (non-IFRS) of 34% for the full year.

Profitability in our "software as a service/platform as a service" (SaaS/PaaS) cloud offerings was 71% at constant currencies (non-IFRS) for 2020. Despite ongoing investments in the further development and harmonization in the operation of our various SaaS/PaaS offerings on a single platform, we were able to increase the gross margin by 2.3pp.

We saw efficiency improvements in both our cloud and traditional on-premise business, which drove continued operating profit expansion.

Non-IFRS operating profit in 2020 was €8.50 billion on a constant currency basis (2019: €8.21 billion), reflecting an increase of 4%. As a result, we were able to surpass our excellent results from 2018 and 2019, despite our continued investment in our business transformation during the reporting year. The positive development of our operating profit was largely influenced by investment decisions focused on customers and products which,

among other things, resulted in an increase in our overall headcount by 2,100 full-time equivalents or FTEs (1,319 thereof organic), primarily in research and development. With these additional resources, we made targeted investments in our innovation areas and growth markets. Thus, constant currency non-IFRS operating profit amounting to €8.50 billion was at the top end of the target range adjusted in October (€8.1 billion to €8.5 billion).

We achieved an effective tax rate (IFRS) of 26.8% and an effective tax rate (non-IFRS) of 26.5%, which is slightly below the adjusted outlook of 27.0% to 28.0% (IFRS) and at the lower end of the range of 26.5% to 27.5% (non-IFRS).

Operating Results (IFRS)

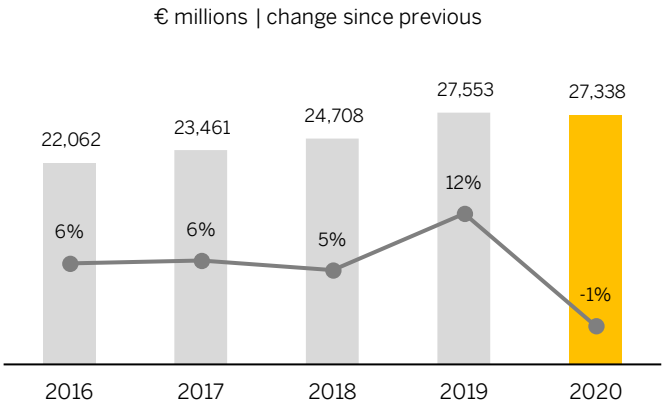
This section on operating results (IFRS) discusses results only in terms of IFRS measures, so the IFRS numbers are not expressly identified as such.

We break our operations down into three regions: the Europe, Middle East, and Africa (EMEA) region, the Americas region, and the Asia Pacific Japan (APJ) region. We allocate revenue amounts to each region based on where the customer is located. For more information about revenue by geographic region, see the Notes to the Consolidated Financial Statements, *Note (A.1).*

Revenue

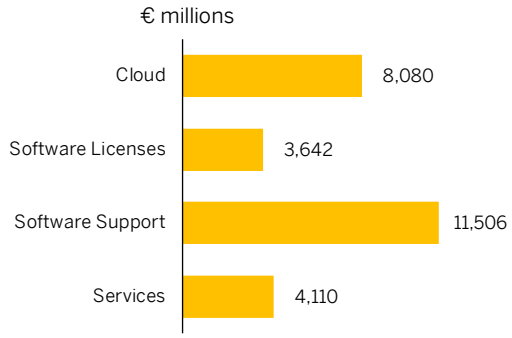
Total Revenue

Total revenue decreased from €27,553 million in 2019 to €27,338 million in 2020, representing a decrease of €215 million, or 1%.



Cloud and software revenue represented 85% of total revenue in 2020 (2019: 84%). Service revenue decreased 9% from €4,541 million in 2019 to €4,110 million in 2020, which was 15% of total revenue (2019: 16%).

Revenue by Revenue Type



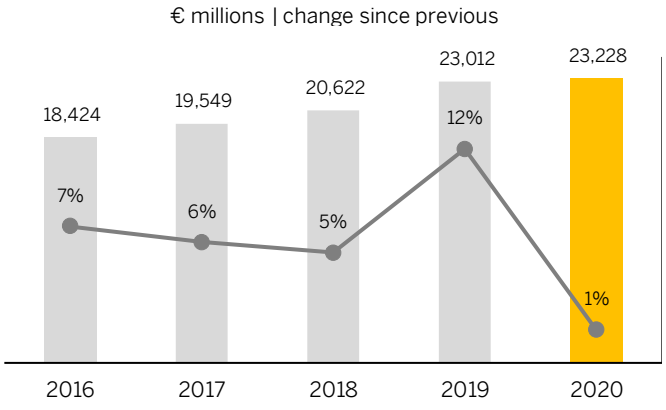
For more information about our regional performance, see the *Revenue by Region* section.

Cloud and Software Revenue

Cloud revenue refers to the income earned from contracts that permit the customer to access specific software solutions hosted by SAP during the term of its contract with SAP. Software licenses revenue results from the fees earned from selling or licensing software to customers. Support revenue represents fees earned from providing customers with technical support services and unspecified software upgrades, updates, and enhancements. For more information about our revenue types, see the Notes to the Consolidated Financial Statements, *Note (A.1).*

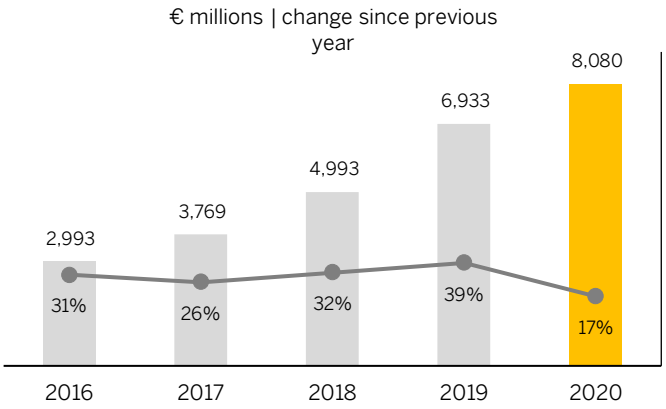
Cloud and software revenue grew from €23,012 million in 2019 to €23,228 million in 2020, an increase of 1%.

Cloud and Software



Cloud revenue increased by €1,148 million, or 17%, from €6,933 million in 2019 to €8,080 million in 2020. Continued lower transactional revenues, particularly in SAP Concur business, negatively impacted cloud growth.

Cloud Revenue



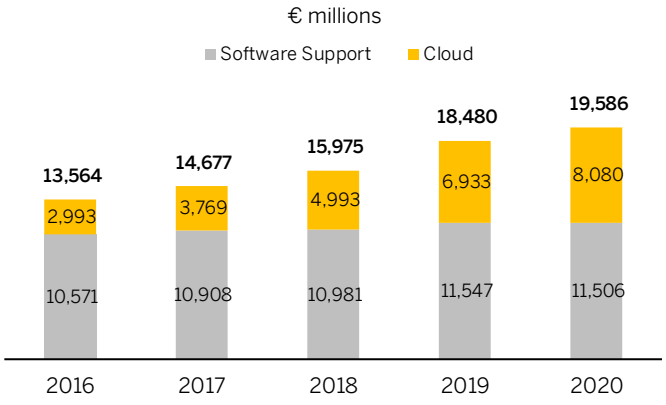
Our software licenses revenue declined by €891 million from €4,533 million in 2019 to €3,642 million in 2020. Our customer base continued to expand in 2020. Based on the number of contracts concluded, 11% of the orders we received for software licenses in 2020 were from new customers (2019: 13%). The total value of software licenses orders received decreased 20% year over year. The total number of contracts signed for new software licenses decreased by 13% to 45,616 (2019: 52,584), with an average order value of €82 thousand in 2020 (2019: €87 thousand). Of all our software licenses orders received in 2020, 30% were attributable to deals worth more than €5 million (2019: 32%), while 36% were attributable to deals worth less than €1 million (2019: 35%).

Our stable customer base, demand for our software throughout 2020 and the previous years, the accelerated cloud transition of our customers, and unfavorable changes in currency exchange rates resulted in support revenue of €11,506 million in 2020 (2019: €11,547 million). The SAP Enterprise Support offering was the largest contributor to our software support revenue.

Software licenses and software support revenue decreased by €932 million, or 6%, from €16,080 million in 2019 to €15,148 million in 2020.

We define more predictable revenue as the sum of our cloud revenue and our software support revenue. Compared to the previous year, our more predictable revenue increased from €18,480 million in 2019 to €19,586 million in 2020. This reflects a rise of 6%. More predictable revenue accounted for 72% of our total revenue in 2020 (2019: 67%).

More Predictable Revenue



Services Revenue

Services revenue combines revenue from consulting services, premium support services, and other services such as training services. Consulting services primarily relate to the implementation of our cloud and on-premise software products. Our premium support offering consists of high-end support services tailored to customer requirements.

Services revenue decreased €431 million, or 9%, from €4,541 million in 2019 to €4,110 million in 2020. The revenue decrease was caused mainly by the investment decisions on some major customer projects and COVID-19-related limitations in personal contacts.

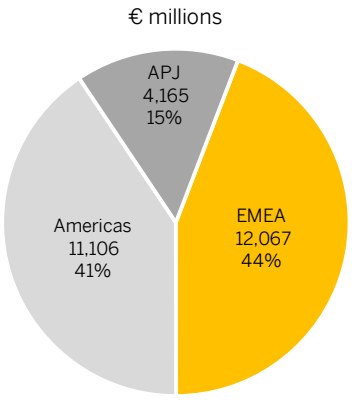
Consulting revenue and premium support revenue decreased by €288 million, or 8%, from €3,696 million in 2019 to €3,408 million in 2020. In 2020, consulting and premium support revenue contributed 83% of the total services revenue (2019: 81%) and 12% of total revenue (2019: 13%).

Revenue from other services decreased by €143 million, or 17%, to €702 million in 2020 (2019: €845 million).

For more information about the development of our Services segment, see the *Segment Information* section.

Revenue by Region

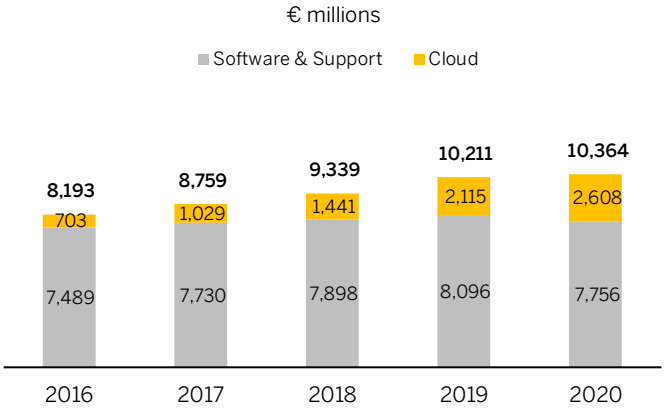
(based on customer location)



EMEA Region

In 2020, the EMEA region generated €12,067 million in revenue (2019: €12,105 million), which was 44% of total revenue (2019 44%). Revenue in Germany increased 2% to €4,015 million (2019: €3,948 million). Germany contributed 33% (2019: 33%) of all EMEA region revenue. The remaining revenue in the EMEA region was primarily generated in France, Italy, the Netherlands, Switzerland, and United Kingdom. Cloud and software revenue generated in the EMEA region totaled €10,364 million (2019: €10,211 million). That was 86% of all revenue from the region (2019: 84%).

EMEA: Cloud and Software Revenue

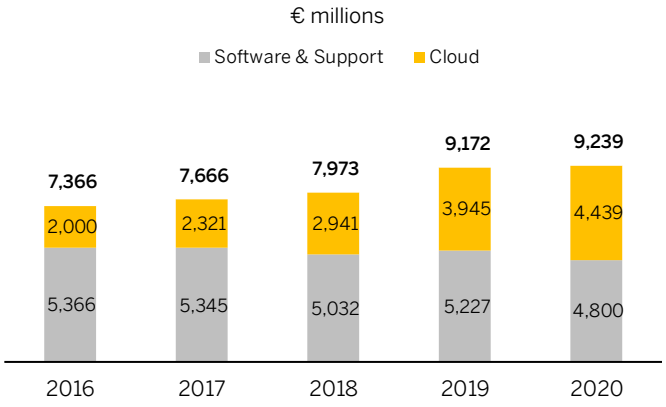


Cloud revenue in the EMEA region rose 23% to €2,608 million in 2020 (2019: €2,115 million). Software licenses and software support revenue decreased 4% to €7,756 million in 2020 (2019: €8,096 million).

Americas Region

In 2020, 41% of our total revenue was generated in the Americas region (2019: 41%). Total revenue in the Americas region decreased 1% to €11,106 million; revenue generated in the United States increased to €9,110 million. The United States contributed 82% (2019: 81%) of all revenue generated in the Americas region. In the remaining countries of the Americas region, revenue decreased 5% to €1,996 million. Revenue in the remaining countries of the Americas region was generated primarily in Brazil, Canada, and Mexico. Cloud and software revenue generated in the Americas region totaled €9,239 million (2019: €9,172 million). That was 83% of all revenue from the region (2019: 82%).

Americas: Cloud and Software Revenue

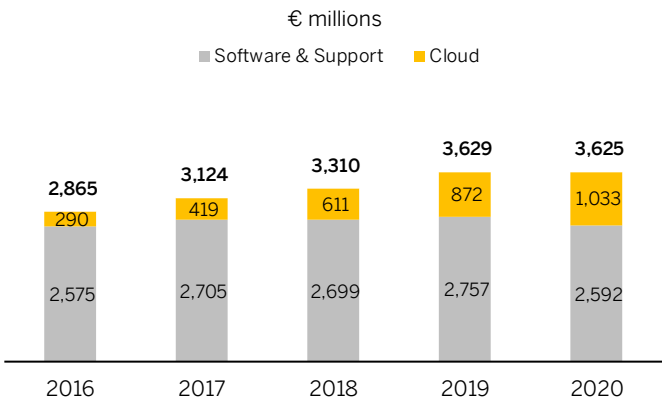


Cloud revenue in the Americas region rose 13% to €4,439 million in 2020 (2019: €3,945 million). Software licenses and software support revenue amounted to €4,800 million in 2020 (2019: €5,227 million).

APJ Region

In 2020, 15% of our total revenue was generated in the APJ region (2019: 15%). Total revenue in the APJ region decreased 2% to €4,165 million. In Japan, revenue increased 11% to €1,305 million. Revenue from Japan accounted for 31% of all revenue generated in the APJ region (2019: 28%). In the remaining countries of the APJ region, revenue declined 7%. Revenue in the remaining countries of the APJ region was generated primarily in Australia, China, and India. Cloud and software revenue in the APJ region totaled €3,625 million (2019: €3,629 million). That was 87% of all revenue from the region (2019: 85%).

APJ: Cloud and Software Revenue



Cloud revenue in the APJ region rose 18% to €1,033 million in 2020 (2019: €872 million). Software licenses and software support revenue decreased from €2,757 million in 2019 to €2,592 million in 2020. This reflects a decline of 6%.

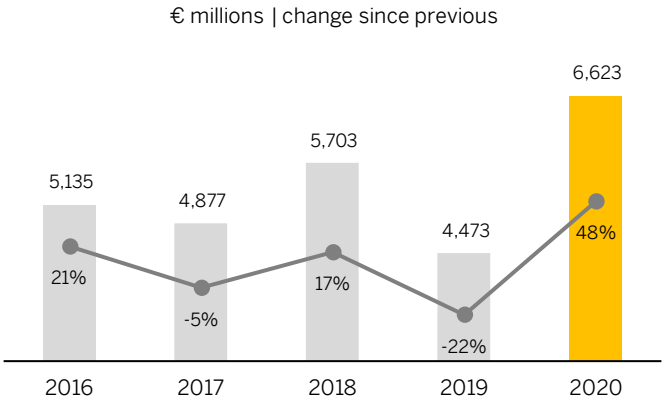
Operating Profit and Operating Margin

SAP continued to increase its cloud revenue in 2020, despite the challenging economic conditions. Total revenue decreased slightly by 1% to €27,338 million (2019: €27,553 million), representing a decrease of €215 million.

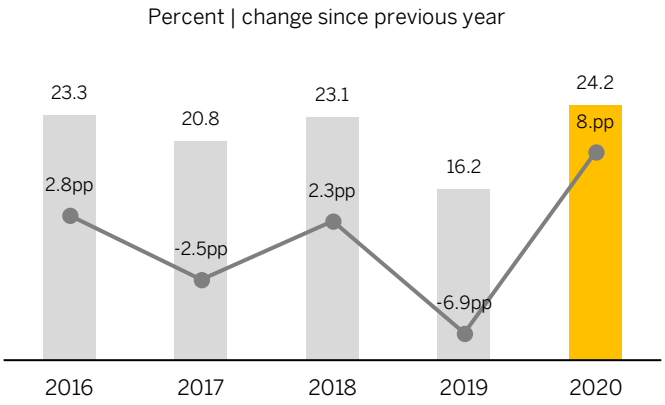
On the other hand, our operating expenses decreased €2,366 million, or 10%, to €20,715 million (2019: €23,081 million). The main contributors to that decrease were COVID-19-related travel restrictions and the change to virtual hosting of marketing events. Our employee headcount (measured in full-time equivalents, or FTEs) grew by 2,100 FTEs year over year to 102,430.

As a result of these effects, our operating profit increased by 48% to €6,623 million (2019: €4,473 million) and our operating margin increased by 8.0pp to 24.2% (2019: 16.2 %).

Operating Profit



Operating Margin



Changes to the individual elements in our cost of revenue were as follows:

Cost of Cloud and Software

Cost of cloud and software consists primarily of costs for deploying and operating cloud solutions, the cost of developing custom solutions that address customers' specific business requirements, and customer support costs.

In 2020, the cost of cloud and software increased slightly to €4,707 million (2019: €4,692 million) and our cloud margin widened by 3.1pp from 63.5% in 2019 to 66.6% in 2020.

A 6% decrease in software licenses and software support revenue to €15,148 million (2019: €16,080 million), primarily arising from a 20% decline in software revenue, and a corresponding decrease of 7% in the software licenses and software support costs to €2,008 million (2019: €2,159 million), saw our software licenses and software support margin at 86.7% (2019: 86.6%), slightly above the prior-year level. The gross margin on cloud and software, defined as cloud and software profit as a percentage of cloud and software revenue, increased by 0.1pp in 2020 to 79.7% (2019: 79.6%).

Cost of Services

Cost of services consists primarily of the cost of consulting, premium services and training courses, and the cost of bought-in consulting and training resources.

The services revenue decreased by 9% year over year to €4,110 million in 2020 (2019: €4,541 million). The cost of services declined 13% to €3,178 million (2019: €3,662 million). Our gross margin on services, defined as services profit as a percentage of services revenue, increased to 22.7% (2019: 19.4%). These developments are primarily due to COVID-19-related limitations in personal customer contacts and a correspondingly high remote delivery share of the consulting services. The current challenging economic environment influenced the investment decisions on some big customer projects. As our service business trends away from traditional software licensing and consulting revenue toward more subscription revenue from cloud solutions, we continue to invest by expanding capacities to meet the higher demand.

Research and Development

Our research and development (R&D) expense consists primarily of the personnel cost of our R&D employees, costs incurred for independent contractors whom we retain to assist in our R&D activities, and amortization of the computer hardware and software we use for our R&D activities.

Due to growing personnel costs driven by a 7% year-over-year increase in our R&D headcount, and due to continued strategic investments, our R&D expense rose by 4% to €4,454 million in 2020 from €4,292 million in 2019. R&D expense as a percentage of total revenue thus increased to 16.3% in 2020 (2019: 15.6%). For more information, see the *Products, Research & Development, and Services* section.

Sales and Marketing Expense

Sales and marketing expense consists mainly of personnel costs, direct sales costs, and the cost of marketing our products and services.

Our sales and marketing expense declined 8% from €7,693 million in 2019 to €7,106 million in 2020. This decline is primarily attributable to cancelation of in-person marketing events such as SAPPHIRE NOW and lower sales-related expenses.

Accordingly, the ratio of sales and marketing expense to total revenue, expressed as a percentage, decreased by 1.9pp in 2020 to 26.0% (2019: 27.9%).

General and Administration Expense

Our general and administration expense consists mainly of personnel costs to support our finance and administration, human resource, and corporate functions.

General and administration expense declined 17% from €1,629 million in 2019 to €1,356 million in 2020. This decline is primarily the result of careful cost management combined with lower infrastructure costs. The ratio of general and administration expense to total revenue declined by 1.0pp year over year to 5.0% (2019: 5.9%).

Segment Information

At the end of 2020, SAP had four reportable segments: Applications, Technology & Support; Concur; Qualtrics; and Services. For more information about our segment reporting and the changes in the composition of our reportable segments in 2020, see the Notes to the Consolidated Financial Statements, *Notes (C.1)* and *(C.2)*, and the *Performance Management System* section.

Applications, Technology & Support

€ millions, unless otherwise stated (Non-IFRS)	**2020**		2019	Δ in %	Δ in %
	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency
Cloud revenue	6,254	6,379	5,259	19	21
Cloud gross margin (in %)	65.4	65.2	62.5	2.9pp	2.7pp
Segment revenue	21,680	22,144	21,664	0	2
Segment gross margin (in %)	80.5	80.5	80.5	–0.1pp	–0.1pp
Segment profit	9,423	9,633	9,454	0	2
Segment margin (in %)	43.5	43.5	43.6	–0.2pp	–0.1pp

The Applications, Technology & Support segment recorded a strong increase in cloud revenue of 19% in 2020 (21% at constant currencies). This led to an increase of the cloud gross margin of 2.9pp (2.7pp at constant currencies) to 65.4%. Software support revenue, ending 2020 with €11,502 million, remained flat and rose slightly by 1% at constant currencies. Including software licenses revenue, which decreased by 20% (17% at constant currencies) due to the impact of the COVID-19 pandemic and the shift toward cloud revenue, the segment achieved a total software licenses and support revenue of €15,138 million. Total segment revenue, however, stayed on prior year level ending 2020 with €21,680 million and increased by 2% at constant currencies.

Overall, the share of more predictable revenue in this segment increased by 4.4pp from 77.5% in 2019 to 81.9% in 2020.

The segment's cost of revenue remained flat compared to the prior year, ending 2020 with €4,230 million, and increased by 3% at constant currencies due to increasing efficiency in cloud operations.

Segment profit increased by 2% at constant currencies. Both, the segment gross margin as well as the segment margin decreased slightly by 0.1pp at constant currencies.

Concur

€ millions, unless otherwise stated (Non-IFRS)	**2020**		2019	Δ in %	Δ in %
	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency
Cloud revenue	1,288	1,306	1,373	–6	–5
Cloud gross margin (in %)	88.0	87.9	86.8	1.2pp	1.1pp
Segment revenue	1,505	1,526	1,609	–6	–5
Segment gross margin (in %)	78.8	78.7	78.3	0.5pp	0.4pp
Segment profit	564	569	620	–9	–8
Segment margin (in %)	37.5	37.3	38.5	–1.0pp	–1.2pp

The Concur segment, which comprises SAP's travel management solutions, suffered from the COVID-19 pandemic and related travel restrictions in 2020. Nevertheless, the segment was able to improve its cloud gross margin by 1.2pp (1.1pp at constant currencies) to 88.0%. While total segment revenue decreased by 6% (5% at constant currencies) to €1,505 million (2019: €1,609 million), the segment's cost of revenue decreased by 9% in 2020 (7% at constant currencies) to €319 million. As a result, the Concur segment achieved a segment gross margin of 78.8% (78.7% at constant currencies), reflecting an increase of 0.5pp (0.4pp at constant currencies).

Qualtrics

€ millions, unless otherwise stated (Non-IFRS)	2020		2019	Δ in %	Δ in %
	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency
Cloud revenue	518	529	371	40	42
Cloud gross margin (in %)	91.8	91.9	91.1	0.6pp	0.7pp
Segment revenue	681	696	508	34	37
Segment gross margin (in %)	77.6	77.7	78.3	–0.6pp	–0.6pp
Segment profit	19	20	8	>100	>100
Segment margin (in %)	2.8	2.8	1.6	1.2pp	1.2pp

The Qualtrics segment, which comprises SAP's experience management solutions, closed 2020 with a strong cloud revenue growth of 40% (42% at constant currencies). The cloud gross margin improved slightly by 0.6pp (0.7pp at constant currencies) to 91.8%. Including services revenue, the total segment revenue increased by 34% (37% at constant currencies) to €681 million.

Overall, the Qualtrics segment profit was €19 million in 2020, more than double compared to the prior year (2019: €8 million). This resulted in a segment margin increase of 1.2pp.

For more information about the initial public offering of Qualtrics International Inc., see the Notes to the Consolidated Financial Statements, *Note (G.8)*.

Services

€ millions, unless otherwise stated (Non-IFRS)	2020		2019	Δ in %	Δ in %
	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency
Services revenue	3,153	3,203	3,442	–8	–7
Services gross margin (in %)	32.2	32.0	27.2	5.0pp	4.7pp
Segment revenue	3,157	3,208	3,447	–8	–7
Segment gross margin (in %)	29.1	28.8	24.1	5.0pp	4.7pp
Segment profit	499	494	362	38	37
Segment margin (in %)	15.8	15.4	10.5	5.3pp	4.9pp

The Services segment was introduced in 2020, comprising major parts of SAP's services business. In 2020, the segment recorded services revenue of €3,153 million, representing a decline of 8% (7% at constant currencies). The respective cost of services, however, decreased by 15% (13% at constant currencies) to €2,136 million. As a result, the services gross margin increased by 5.0pp (4.7pp at constant currencies) to 32.2% in 2020. This margin improvement was primarily attributable to the positive development of SAP's consulting and premium engagement business due to COVID-19-related travel restrictions, the inability to visit the customers, and a correspondingly higher remote delivery share of the consulting services.

Overall, the segment profit and the segment margin benefitted from this development as well, ending the year with a segment profit of €499 million and a segment margin of 15.8%.

Reconciliation of Cloud Revenues and Margins

€ millions, unless otherwise stated (Non-IFRS)		2020		2019	Δ in %	Δ in %
		Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency
Cloud revenue – SaaS/PaaS[1]	Intelligent Spend[3]	2,722	2,772	2,692	1	3
	Thereof Concur segment	1,288	1,306	1,373	–6	–5
	Other[4]	4,522	4,611	3,625	25	27
	Total	7,244	7,383	6,317	15	17
Cloud revenue – IaaS[2]		841	857	695	21	23
Cloud revenue		**8,085**	**8,241**	**7,013**	**15**	**18**
Cloud gross margin – SaaS/PaaS[1] (in %)	Intelligent Spend[3]	78.9	78.9	78.1	0.9pp	0.8pp
	Thereof Concur segment	78.8	78.7	78.3	0.5pp	0.4pp
	Other[4]	70.7	70.7	68.5	2.2pp	2.3pp
	Total	73.8	73.8	72.6	1.2pp	1.2pp
Cloud gross margin – IaaS[2] (in %)		34.3	33.8	28.9	5.4pp	4.9pp
Cloud gross margin (in %)		**69.7**	**69.6**	**68.2**	**1.5pp**	**1.4pp**

[1] Software as a service/platform as a service
[2] Infrastructure as a service; completely included in the Applications, Technology & Support segment
[3] "Intelligent Spend" includes the Concur segment and further Intelligent Spend offerings mainly in the Applications, Technology & Support segment.
[4] Other includes all other SaaS/PaaS offerings that do not belong to Intelligent Spend.

Note: The individual revenue and margin numbers for segments are disclosed on the previous pages.

Financial Income, Net

Financial income, net, changed to €776 million (2019: €198 million). Our finance income was €1,473 million (2019: €787 million) and our finance costs were €697 million (2019: €589 million).

Finance income mainly consists of gains from disposal of equity securities and IFRS 9-related fair value adjustments, mainly of Sapphire Ventures investments, totaling €1,360 million (2019: €596 million).

Finance costs mainly consist of interest expense on financial liabilities amounting to €179 million (2019: €207 million), negative effects from derivatives amounting to €76 million (2019: €155 million), and losses from disposal or IFRS 9-related fair value adjustments of Sapphire Ventures investments totaling €345 million (2019: €152 million). For more information about financing instruments, see the Notes to the Consolidated Financial Statements, *Note (E.3).*

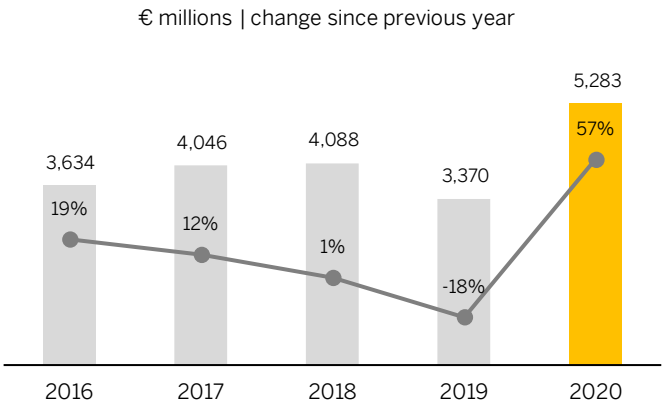
Income Taxes

The effective tax rate in 2020 was 26.8% (2019: 26.7%). For more information about income taxes, see the Notes to the Consolidated Financial Statements, *Note (C.5)*.

Profit After Tax and Earnings per Share

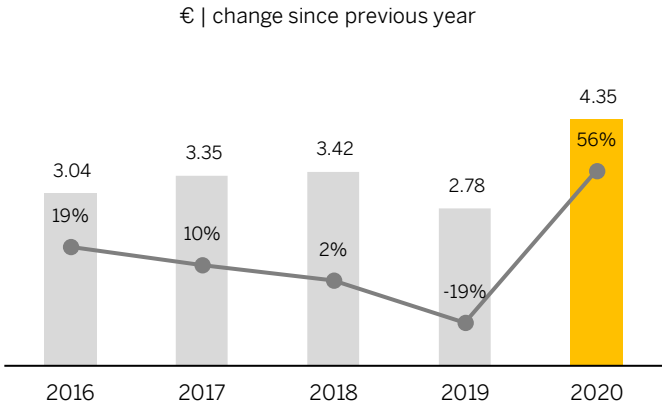
Profit after tax increased to €5,283 million in 2020 (2019: €3,370 million).

Profit After Tax



Basic earnings per share increased to €4.35 (2019: €2.78). The number of shares outstanding remainded constant at 1,194 million in 2020 (2019: 1,194 million).

Earnings per Share



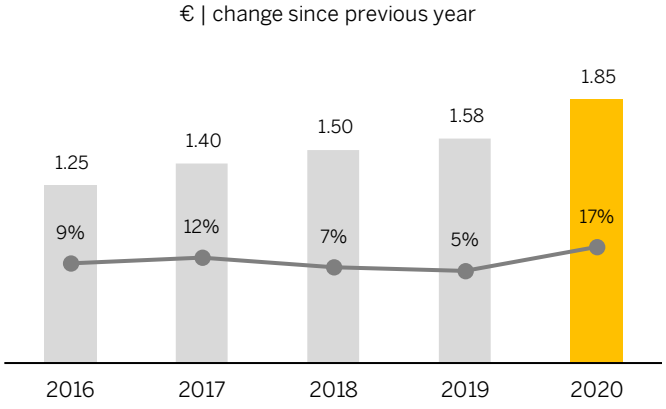
Dividend

We believe our shareholders should benefit appropriately from the profit the Company made in 2020. Our dividend policy is to pay a dividend totaling 40% or more of profit after tax.

The Executive Board and the Supervisory Board of SAP SE will recommend to the Annual General Meeting of Shareholders in May 2021 that the total dividend be increased by 17% to €1.85 per share (2019: €1.58). Based on this recommendation, the overall dividend payout ratio (which means the total distributed dividend as a percentage of profit) would be 41% (2019: 55%).

If the shareholders approve this recommendation and if treasury shares remain at the 2020 closing level, the total amount distributed in dividends would be €2,182 million. The actual amount distributed may be different from this total because the number of shares held in treasury may change before the Annual General Meeting of Shareholders. In 2020, we distributed €1,864 million in dividends from our 2019 profit after tax. We also completed the buyback of treasury shares with a volume of €1.5 billion in 2020. These shares are not eligible for dividends.

Dividend per Share



Finances (IFRS)

Overview

Global Financial Management

We use global centralized financial management to control liquid assets and monitor exposure to interest rates and currencies. The primary aim of our financial management is to maintain liquidity in the Group at a level that is adequate to meet our financial obligations at all times. Most SAP entities have their liquidity managed centrally by the Group, so that liquid assets across the Group can be consolidated, monitored, and invested in accordance with Group policy. High levels of liquid assets help keep SAP flexible, sound, and independent. In addition, various credit facilities are currently available for additional liquidity, if required. For more information about these facilities, see the *Credit Facilities* section.

We manage credit, liquidity, interest rate, equity price, and foreign exchange rate risks on a Group-wide basis. We use selected derivatives exclusively for this purpose and not for speculation, which is defined as entering into a derivative instrument for which we do not have corresponding underlying transactions. The rules for the use of derivatives and other rules and processes concerning the management of financial risks are documented in our treasury guideline, which applies globally to all companies in the Group. For more information about the management of each financial risk and about our risk exposure, see the Notes to the Consolidated Financial Statements, *Notes (F.1)* and *(F.2)*.

Liquidity Management

Our primary source of cash, cash equivalents, and current investments is funds generated from our business operations. Over the past several years, our principal use of cash has been to support operations and our capital expenditure requirements resulting from our growth, to quickly repay financial debt, to acquire businesses, to pay dividends on our shares, and to buy back SAP shares on the open market. On December 31, 2020, our cash, cash equivalents, and current investments were primarily held in euros and U.S. dollars. We generally invest only in the financial assets of issuers or funds with a minimum credit rating of BBB, and pursue a policy of cautious investment characterized by wide portfolio diversification with a variety of counterparties, predominantly short-term investments, and standard investment instruments. Our investments in financial assets of issuers with a credit rating lower than BBB were not material in 2020.

We believe that our liquid assets combined with our undrawn credit facilities are sufficient to meet our operating financing needs in 2021 and, together with expected cash flows from operations, will support debt repayments, currently planned capital expenditure requirements, and capital returns to our shareholders over the near term and medium term. It may also be necessary to enter into financing transactions when additional funds are required that cannot be wholly sourced from free cash flow, to maintain flexibility, and/or limit repayment risk.

Therefore, we continuously monitor funding options available in the capital markets and trends in the availability of funds, as well as the cost of such funding. In recent years, we were able to repay additional debt within a short period of time due to our persistently strong free cash flow. For more information about the financial debt, see the *Cash Flows and Liquidity* section.

Capital Structure Management

The primary objective of our capital structure management is to maintain a strong financial profile for investor, creditor, and customer confidence, and to support the growth of our business. We seek to maintain a capital structure that will allow us to cover our funding requirements through the capital markets at reasonable conditions, and in so doing, ensure a high level of independence, confidence, and financial flexibility.

For more information about the capital structure and its analysis, see the *Analysis of Consolidated Statement of Financial Position* section and the Notes to the Consolidated Financial Statements, *Note (E.1)*.

The long-term credit rating for SAP SE is "A2" by Moody's and "A" by Standard & Poor's, both with a stable outlook.

Capital returns in addition to SAP's regular dividend policy will be decided on an annual basis in line with SAP's capital allocation priorities, market conditions, company performance, and other factors.

Credit Facilities

Other sources of capital are available to us through various credit facilities, if required.

To retain high financial flexibility, we have available a €2.5 billion syndicated revolving credit facility with an end date in November 2024. A possible future utilization is not subject to any financial covenants. Borrowings under the facility bear interest of EURIBOR or LIBOR for the respective currency plus a margin of 0.17%. We are also required to pay a commitment fee of 0.0595% per annum on the unused available credit. So far, we have not used, and do not currently foresee any need to use, this credit facility.

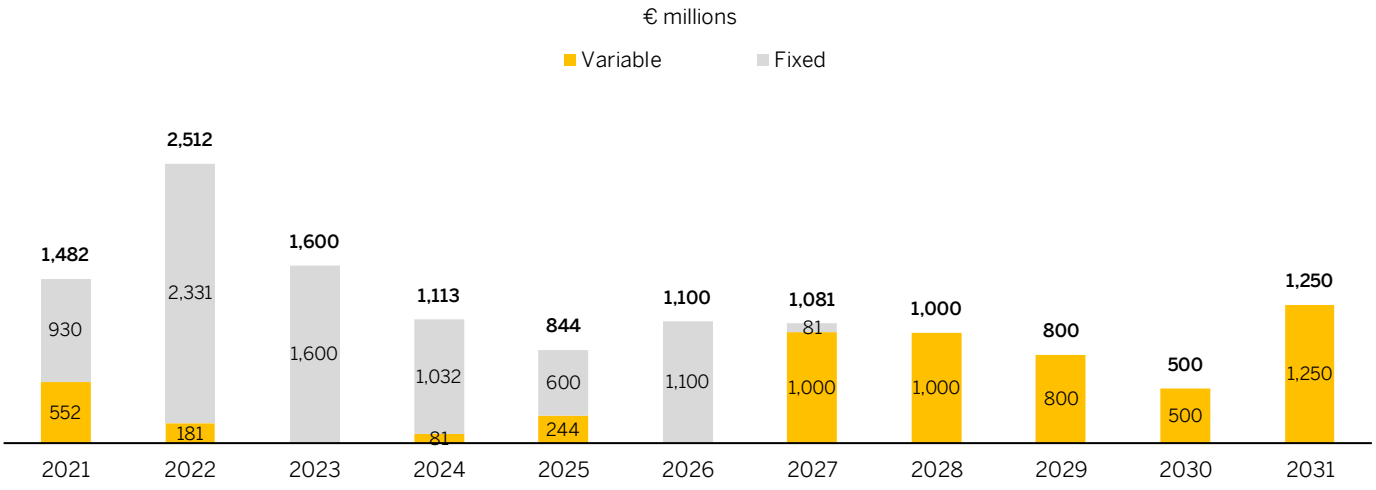
As at December 31, 2020, SAP SE had additional available credit facilities totaling €433 million. Several other SAP entities have credit facilities available that allow them to borrow funds at prevailing interest rates.

Resulting from the acquisition of Qualtrics, a term loan of €1.25 billion was still outstanding on December 31, 2020. The amount can be flexibly repaid until maturity of the loan on January 23, 2022.

Financial Debts

Financial debt is defined as the nominal volume of bank loans, commercial papers, private placements, and bonds.

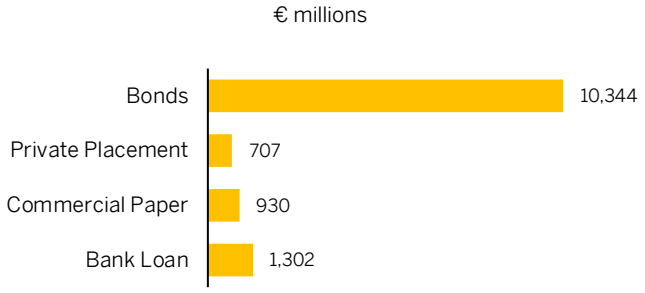
Maturity Profile of Financial Debts



Nominal volume of financial debt on December 31, 2020, included amounts in euros (€12,329 million) and U.S. dollars (€955 million). On December 31, 2020, approximately 58% of the financial debt was held at variable interest rates, partially swapped from fixed into variable using interest rate swaps.

For information about the intended repayments, see the goals for liquidity and finance in the *Financial Targets and Prospects* section.

Financial Debt by Instrument



For more information about our financial debt, see the Notes to the Consolidated Financial Statements, *Note (E.3)*.

Cash Flows and Liquidity

2020 Actual Cash Flow and Liquidity Performance Compared to Outlook

We met or exceeded the revised outlook for 2020 that we published in October 2020.

€ billions	Results 2019	Outlook (Integrated Report 2019)	Revised Outlook (Quarterly Statement)			**Results 2020**
			Q1	Q2	Q3	
Operating cash flows	3.5	Around 6	Around 5	Above 5.0	Around 6.0	7.2
Free cash flow	2.3	Around 4.5	Around 3.5	Around 4.0	Above 4.5	6.0
Restructuring payouts	–0.9	Lower				–0.2
Income taxes payouts	–2.3	Lower extraordinary				–1.2
Net debt (–)	–8.3	Around –7				–6.5
Ratio of net debt divided by operating profit plus depreciation and amortization	1.3	< 0.9				0.8

Group Liquidity and Net Debt

€ millions	2020	2019	Δ
Cash and cash equivalents	5,311	5,314	–4
Current time deposits and debt securities	1,470	67	1,402
Group liquidity	**6,781**	**5,382**	**1,399**
Current financial debt	–1,482	–2,529	1,046
Non-current financial debt	–11,801	–11,139	–662
Financial debt	**–13,283**	**–13,668**	**384**
Net debt (–)	**–6,503**	**–8,286**	**1,783**
Lease liability	–2,120	–2,203	83
Net debt including lease liability	–8,623	–10,489	1,866

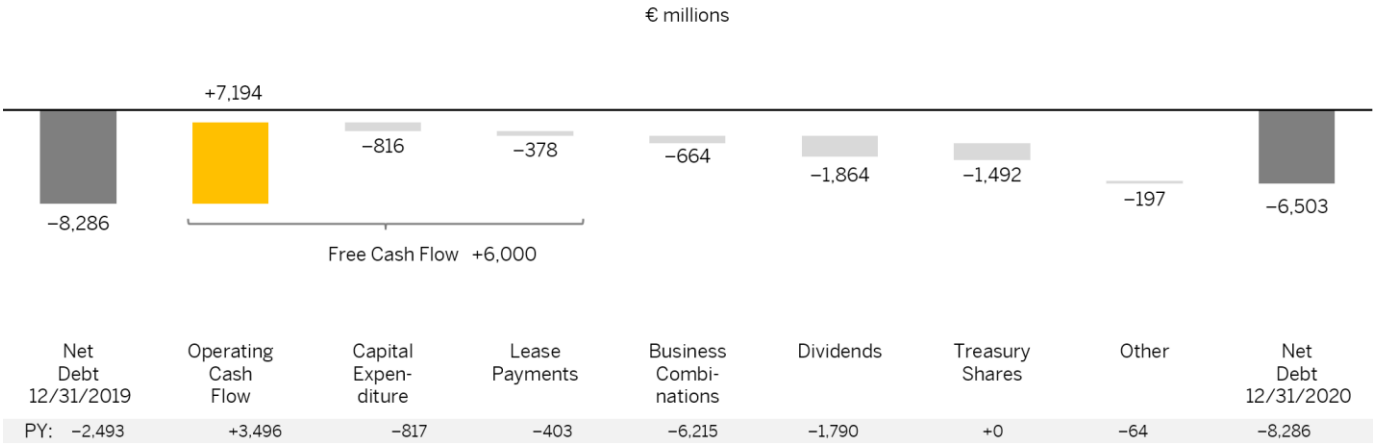
Group liquidity consists of cash and cash equivalents (for example, cash at banks, money market funds, and time deposits with original maturity of three months or less) and current investments (for example, time deposits and debt securities with original maturities of greater than three months, and remaining maturities of less than one year included in other financial assets) as reported in our Consolidated Financial Statements. Group liquidity on December 31, 2020, primarily comprised amounts in euros and U.S. dollars.

The increase in group liquidity compared to 2019 was mainly due to the cash inflows from our operations.

Net debt is financial debt less group liquidity. For more information about our liquidity, see the Notes to the Consolidated Financial Statements, *Note (E.3)*.

For information about the impact of cash, cash equivalents, current investments, and our financial liabilities on our income statements, see the analysis of our financial income, net, in the *Operating Results (IFRS)* section.

Development of Net Debt



Analysis of Consolidated Statements of Cash Flow

€ millions	2020	2019	Δ in %
Net cash flows from operating activities	7,194	3,496	>100
Net cash flows from investing activities	–2,986	–7,021	–57
Net cash flows from financing activities	–3,997	102	<-100

In 2020, cash inflows from operating activities increased by €3,699 million to €7,194 million (2019: €3,496 million). This is particularly due to an increase in cash collected from customer contracts, lower income tax payments (€1.2 billion in 2020 compared to €2.3 billion in 2019), lower payments related to restructuring (€0.2 billion in 2020 versus €0.9 billion in 2019), and lower interest paid, net payments (€0.1 billion in 2020 compared to €0.2 billion in 2019). Our DSO for receivables, defined as the average number of days from the raised invoice to cash receipt from the customer, increased in 2020 to 78 days (2019: 71 days).

Cash outflows from investing activities were €2,986 million in 2020 (2019: €7,021 million). We paid, net of cash received, a total of €0.6 billion mainly for the Emarsys acquisition in 2020, compared to €6.1 billion mainly for the Qualtrics acquisition in 2019. Capital expenditure on intangible assets and property, plant, and equipment remained at a comparable level. For more information about current and planned capital expenditures, see the *Assets section* and *the Investment Goals* section.

In 2020, free cash flow more than doubled to €6,000 million (2019: €2,276 million). The free cash flow conversion rate, defined as free cash flow as a percentage of profit after tax, increased to 114% compared to 68% in 2019.

Net cash outflows from financing activities were €3,997 million in 2020, compared to €102 million in cash inflows in 2019. The buyback of treasury shares with a volume of €1.5 billion in 2020 is included herein. Apart from the buyback of treasury shares, cash outflows in 2020 resulted from repayments of €1.15 billion in Eurobonds, the repayment of €0.75 billion in the acquisition term loan for Qualtrics, which was drawn in 2019, and US$0.29 billion in U.S. private placements when they matured. Further, we repaid

€0.17 billion of a commercial paper program (Commercial Paper) that we launched in 2019. In 2020, we issued €2.0 billion in Eurobonds. The cash outflows in 2019 resulted from repayments of €0.75 billion in Eurobonds when they matured.

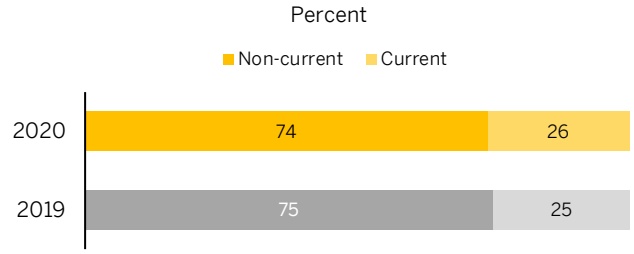
The dividend payment of €1,864 million made in 2020 exceeded the respective amount of €1,790 million paid in the prior year, while the dividend paid per share increased from €1.50 to €1.58.

Assets (IFRS)

Analysis of Consolidated Statements of Financial Position

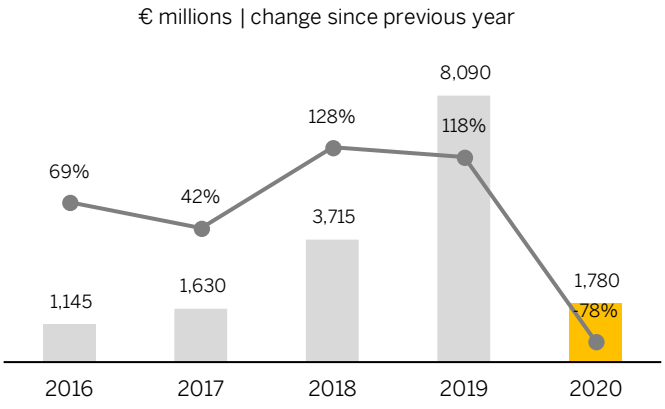
Total assets decreased by 3% year over year to €58,472 million.

Assets



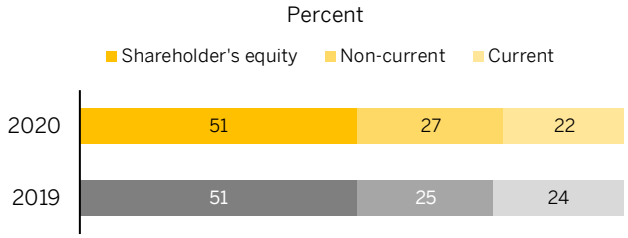
Total current assets decreased slightly by 1% in 2020 from €15,213 million to €15,069 million.

Investment in Goodwill, Intangible Assets, and Property, Plant, and Equipment



Total non-current assets decreased by 4% in 2020 to €43,402 million compared to the previous year's figure of €44,999 million. This change was mainly due to foreign-exchange-related revaluations countered by additions, primarily the Emarsys additions of approximately €700 million related to goodwill and intangible assets.

Liabilities

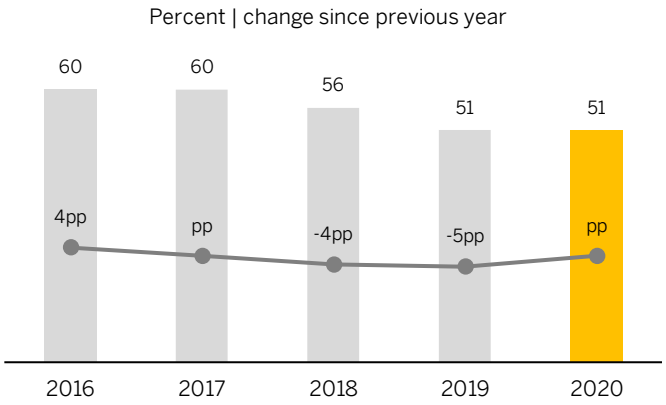


Current liabilities decreased by 11% to €12,842 million in 2020 (2019: €14,462 million). This was mainly due to a decrease in liabilities for share-based payments, restructuring obligations, and a reduction in current financial liabilities. For more information about our financing activities in 2020, see the *Finances (IFRS)* section.

Total non-current liabilities increased by 5% to €15,702 million in 2020 compared to the previous year's figure of €14,929 million. This was mainly due to an increase in non-current financial liabilities. For more information about our financing activities in 2020, see the *Finances (IFRS)* section.

The equity ratio (that is, the ratio of shareholders' equity to total assets) remained stable at 51% (prior year: 51%).

Equity Ratio



Principal Investments and Divestitures Currently in Progress

In 2020, we finalized various construction projects and continued and started new construction activities in several locations. We plan to finance all of these projects from operating cash flow. Our most important projects are listed below.

Construction Projects

€ millions

Country	Location of Facility	Short Description	Estimated Total Cost	Costs Incurred as at 12/31/2020	Estimated Completion Date
Germany	Berlin	New office building for approx. 1,000 employees	40	2	December 2022
Germany	Munich	New office building for approx. 600 employees	91	3	June 2023
Brazil	São Leopoldo	New office building for approx. 700 employees	33	6	September 2021
Bulgaria	Sofia	New office building for approx. 1,200 employees	54	0	May 2022
India	Bangalore	New office building for approx. 4,000 employees	84	0	December 2024
Japan	Tokyo	New office building for approx. 1,500 employees	29	0	August 2022
United States	Seattle	New office building for approx. 1,850 employees	52	37	January 2021

For more information about planned investment expenditures, see the *Investment Goals* section. There were no material divestitures of facilities within the reporting period.

Competitive Intangibles

The (intangible) resources that are the basis for our current as well as future success do not appear in the Consolidated Financial Statements. This is apparent from a comparison of the market capitalization of SAP SE (based on all issued shares), which was €131.7 billion at the end of 2020 (2019: €147.8 billion), with the book value of our equity in the Consolidated Financial Statements, which was €29.9 billion (2019: €30.8 billion). This means that the market capitalization of our equity is more than four times higher than the book value. The difference is mainly due to certain internally generated intangible resources that the applicable accounting standards do not allow to be recorded (at all or at fair value) in the Consolidated Financial Statements. These resources include customer capital (our customer base and customer relations); employees and their knowledge and skills; our ecosystem of partners; internally developed software; our ability to innovate; the brands we have built up, in particular, the SAP brand itself; and our organization.

On December 31, 2020, SAP was the most valuable company in Germany in terms of market capitalization based on all issued shares.

In 2020, SAP's brand value increased compared to 2019. According to the Interbrand "Best Global Brands" annual survey, SAP ranked as the 18th most valued brand in the world (2019: 20th). Against other German brands, the SAP brand ranks third behind Mercedes-Benz and BMW, and third globally against other brands in the business services sector. Interbrand determined our brand value to be US$28.0 billion, an increase of 12% compared to the previous year (2019: US$25.1 billion). BrandZ recognized SAP as the world's 17th most valuable brand in the 2020 BrandZ Top 100 Most Valuable Global Brands ranking. The ranking estimates SAP's brand value at US$58 billion (2019: US$58 billion).

Report on the Economic Position of SAP SE

SAP SE is headquartered in Walldorf, Germany, and is the parent company of the SAP Group, which comprises 269 companies. SAP SE is the Group holding company and employs most of the Group's Germany-based development and service and support personnel.

As the owner of the intellectual property in most SAP software, SAP SE derives its revenue mainly from software license fees and bears the Group-wide research and development expenses for the most part.

The SAP SE annual financial statements are prepared in accordance with the reporting standards in the German Commercial Code and the German Stock Corporation Act. The full SAP SE annual financial report and unqualified audit report are submitted to the operator of the *Elektronischer Bundesanzeiger* (Online German Federal Gazette) for publication and inclusion in the *Unternehmensregister* (German Business Register). It is available from SAP SE on request.

Income

SAP SE's income statement is classified following the nature of expense method and presents amounts in millions of euros.

SAP SE Income Statement – German Commercial Code (Short Version)

€ millions	2020	2019
Total revenue	**14,669**	**15,220**
Other operating income	1,385	1,028
Cost of services and materials	–9,112	–9,328
Personnel expenses	–2,362	–2,463
Depreciation and amortization	–606	–596
Other operating expenses	–2,573	–2,755
Operating profit	**1,401**	**1,107**
Finance income	**1,724**	**729**
Income before taxes	**3,125**	**1,836**
Income taxes	–626	–492
Income after taxes	**2,500**	**1,343**
Other taxes	–15	–12
Net income	**2,485**	**1,332**

The total revenue of SAP SE in 2020 was €14,669 million (2019: €15,220 million), an decrease of 4%. Product revenue decreased 6% to €11,943 million (2019: €12,715 million). As in previous years, product revenue was primarily generated from license fees paid by subsidiaries of SAP SE.

Service revenue decreased 2% to €453 million in 2020 (2019: €462 million), other revenue increased by 11% to €2,273 million (2019: €2,043 million).

SAP SE operating profit increased 27% to €1,401 million (2019: €1,107 million). Other operating income increased €358 million to €1,385 million (2019: €1,028 million). The year-over-year increase is primarily due to an increase in gains from currency effects and write-ups on receivables from affiliated companies.

SAP SE cost of services and materials decreased 2% to €9,112 million (2019: €9,328 million). Services received decreased by €219 million to €6,991 million (2019: €7,210 million), mainly due to decreased services received in the context of intra-Group cost allocations. The costs for licenses and provisions increased by €4 million to €2,094 million (2019: €2,090 million).

SAP SE personnel expenses, mainly the labor cost of software developers, service and support employees, and administration staff employed by SAP SE, decreased 4% to €2,362 million (2019: €2,463 million) primarily due to lower shared-based compensation expenses.

Other operating expenses decreased by €182 million to €2,573 million (2019: €2,755 million). This decrease is mainly attributable to a €598 million decrease in restructuring costs and a €51 million decrease in travel costs. The decrease in other operating expenses was partly offset by a €281 million increase in exchange rate losses and a €168 million increase in other services expense.

Finance income was €1,724 million (2019: €729 million), representing a year-over-year increase of €995 million. This increase is primarily due to a €662 million increase in income from investments, a €150 million increase in results from profit and loss transfer agreements, a €133 million decrease in write-downs on financial assets, and a €58 million increase in net interest income.

SAP SE income before taxes increased €1,289 million to €3,125 million (2019: €1,836 million). Income taxes increased by €134 million to €626 million (2019: €492 million). After deducting taxes, the resulting net income was €2,485 million (2019: €1,332 million), an increase of €1,153 million year over year.

Assets and Financial Position

In 2020, SAP SE total assets closed at €44,922 million (2019: €45,043 million).

SAP SE Balance Sheet as at December 31 – German Commercial Code (Short Version)

€ millions	2020	2019
Assets		
Intangible assets	1,398	1,751
Property, plant, and equipment	1,417	1,512
Financial assets	34,857	33,874
Fixed assets	**37,672**	**37,136**
Inventories	1	1
Accounts receivable and other assets	4,544	4,913
Marketable securities and liquid assets	703	465
Short-term assets	**5,248**	**5,379**
Prepaid expenses and deferred charges	**1,487**	**2,157**
Deferred taxes	**514**	**369**
Surplus arising from offsetting	**1**	**2**
Total assets	**44,922**	**45,043**
Equity and liabilities		
Shareholders' equity	**15,122**	**15,993**
Provisions	**2,046**	**1,968**
Liabilities	**27,740**	**27,068**
Deferred income	**13**	**14**
Total shareholders' equity and liabilities	**44,922**	**45,043**

Financial assets increased by €983 million year over year to €34,857 million (2019: €33,874 million), mainly due to the acquisition of Emarsys eMarketing Systems AG, Austria, and capital contributions to subsidiaries,

The decrease of €369 million in accounts receivable and other assets was primarily the result of a €241 million decrease in tax assets and a €109 million decrease in receivables from affiliated companies.

Marketable securities and liquid assets increased by €238 million to €703 million (2019: €465 million).

SAP SE shareholders' equity decreased 5% to €15,122 million (2019: €15,993 million). Against outflows of €1,864 million associated with the payment of the dividend and €1,492 million for the repurchase of stock in treasury, there was a €2,485 million increase due to net income for 2020. The equity ratio (that is, the ratio of shareholders' equity to total assets) is 34% (2019: 36%).

Provisions increased by €78 million to €2,046 million (2019: €1,968 million).

Other provisions decreased by €159 million to €1,294 million (2019: €1,453 million), primarily as a result of a decrease in other obligations toward employees. In contrast, provisions for tax increased by €235 million to €739 million (2019: €504 million).

Liabilities increased by €673 million to €27,740 million (2019: €27,068 million). This increase mainly resulted from a €797 million increase in liabilities to affiliated companies, primarily due to higher cash contributions by subsidiaries through SAP SE's centralized management of finance and liquidity.

Opportunities and Risks

SAP SE is subject to essentially the same opportunities and risks as the SAP Group. For more information, see the *Risk Management and Risks* section and the *Expected Developments and Opportunities* section.

Corporate Governance Fundamentals

Corporate Governance Statement

The German Commercial Code, section 315d in connection with section 289f, requires that, as a listed company, SAP SE publishes a corporate governance statement either as part of our management report or on our public Web site. The Executive Board and the Supervisory Board of SAP SE issued the Corporate Governance Statement on February 23, 2021, and published it on our public Web site at *http://www.sap.com/corporate-en/investors/governance.*

Changes in Management

In February 2020, Executive Board members Michael Kleinemeier and Stefan Ries agreed with the Supervisory Board to leave the Company. Michael Kleinemeier's last day was April 30, 2020, and Stefan Ries departed on May 31, 2020.

After the departure of Michael Kleinemeier, most of the former SAP Digital Business Services organization teams were fully integrated into the Board areas Customer Success, led by Adaire Fox-Martin, and SAP Product Engineering, led by Thomas Saueressig.

On April 20, 2020, Co-Chief Executive Officer (Co-CEO) Christian Klein became sole chief executive officer. Co-CEO Jennifer Morgan mutually agreed with the Supervisory Board to depart the Company effective April 30, 2020.

In September 2020, SAP announced that Sabine Bendiek had been appointed to the Executive Board. Since January 1, 2021, she has served as chief people officer and labor relations director and has led the Human Resources organization. In mid-2021, Sabine Bendiek will assume additional responsibility and become SAP's first chief people and operating officer.

In January 2021, SAP announced that Julia White and Scott Russell had been appointed to the Executive Board. On February 1, 2021, Scott Russell took over the Customer Success organization from Adaire Fox-Martin, who departed the Executive Board at the end of January 2021 and will leave the Company at the end of June 2021. Julia White will join the Executive Board effective March 1, 2021, and take up the newly created Board role of chief marketing and solutions officer.

Information Concerning Takeovers

Information required under the German Commercial Code, sections 289a (1) and 315a (1), with an explanatory report:

Composition of share capital: For information about the composition of SAP SE's share capital as at December 31, 2020, see the Notes to the Consolidated Financial Statements, *Note (E.2)*. Each share entitles the bearer to one vote. American depositary receipts (ADRs) representing our shares are listed on the New York Stock Exchange (NYSE) in the United States. ADRs are certificates representing non-U.S. shares and are traded on U.S. stock exchanges instead of the underlying shares. One SAP ADR corresponds to one SAP share.

Restrictions applying to share voting rights or transfers: SAP shares are not subject to transfer restrictions. SAP held 48,924,892 treasury shares as at December 31, 2020 (see the Notes to the Consolidated Financial Statements, *Note (E.2)*). Treasury shares do not carry voting rights or dividend rights or other rights. We are not aware of any other restrictions applying to share voting rights or to share transfers.

Shareholdings that exceed 10% of the voting rights: We are not aware of any direct or indirect SAP SE shareholdings that exceed 10% of the voting rights.

Shares with special rights conferring powers of control: No SAP shareholder has special rights conferring powers of control.

Type of control over voting rights applying to employee shareholders who do not directly exercise their control rights: As with other shareholders, employee holders of SAP shares exercise their control rights in accordance with the law and the Articles of Incorporation. In votes on the formal approval of their acts at the Annual General Meeting of Shareholders, employee representatives on the Supervisory Board, as all other members of the Supervisory Board, are prohibited from exercising the voting rights associated with their shares.

Requirements concerning appointments and dismissals of members of the Executive Board and amendments to the Articles of Incorporation: Conditions for the appointment and dismissal of members of the Executive Board and amendments to the Articles of Incorporation reflect the relevant provisions of applicable European and German law, including Council Regulation (EC) No. 2157/2001 on the Statute for a European Company ("SE Regulation") and the German Stock Corporation Act. Under the Articles of Incorporation, the Executive Board consists of at least two members, who are appointed for a period of not more than five years by the Supervisory Board in accordance with the SE Regulation, articles 39 and 46. The number of members of the Executive Board is decided by the Supervisory Board. Executive Board members may be reappointed for, or their term of office extended by, a maximum of five years. A simple majority of the Supervisory Board membership is required for Executive Board appointments. In the event of a tie, the chairperson of the Supervisory Board has the deciding vote. The Supervisory Board can appoint a chairperson of the Executive Board and one or more deputy chairpersons from among the members of the Executive Board. The Supervisory Board can revoke appointments to the Executive Board in accordance with the SE Regulation, article 9, and the German Stock Corporation Act, section 84, if compelling reasons exist, such as gross negligence on the part of the Executive Board member. If the Executive Board is short of a required member, one may be appointed in urgent cases by a court in accordance with the SE Regulation, article 9, and the German Stock Corporation Act, section 85. In accordance with the SE Regulation, article 59, and the German Stock Corporation Act, section 179, an amendment of the Articles of Incorporation requires a resolution of the General Meeting of Shareholders with a majority of at least three-quarters of the valid votes cast. For any amendments of the Articles of Incorporation that require a simple majority for stock corporations established under German law, however, the simple

majority of the valid votes cast is sufficient if at least half of the subscribed capital is represented or, in the absence of such quorum, the majority prescribed by law (that is, two-thirds of the votes cast, pursuant to article 59 of the SE Regulation) is sufficient. Section 11 (2) of the Articles of Incorporation authorizes the Supervisory Board to amend the Articles of Incorporation where such amendments only concern the wording.

Power to issue and repurchase shares: The Annual General Meeting of Shareholders on May 12, 2016, granted powers to the Executive Board, subject to the consent of the Supervisory Board, to issue convertible and/or warrant-linked bonds, profit-sharing rights and/or income bonds (or combinations of these instruments), and to grant conversion or option rights in respect of SAP SE shares representing a total attributable portion of the share capital of not more than €100 million secured by a corresponding amount of contingent capital. These powers will expire on May 11, 2021. The Executive Board is also authorized until May 19, 2025, to increase the share capital by not more than €250 million by issuing new shares against contributions in cash and to increase the share capital by not more than €250 million by issuing new shares against contributions in cash or in kind. For more information about the different tranches of authorized capital and the aforementioned contingent capital, see the Articles of Incorporation, section 4.

The Annual General Meeting of Shareholders on May 17, 2018, granted a power to the Executive Board in accordance with the German Stock Corporation Act, section 71 (1)(8), to buy back for treasury on or before May 16, 2023, SAP SE shares attributable in total to not more than €120 million of the share capital. This power is subject to the proviso that the shares repurchased, together with any shares that were previously acquired and are still held by SAP in treasury and any other shares controlled by SAP, must not in total exceed 10% of SAP's share capital. Executive Board powers, such as those described to issue and repurchase stock and to grant rights of conversion and subscription to shares of SAP, are widely followed common practice among German companies such as SAP. These powers give the Executive Board the flexibility it needs, in particular, the option to use SAP shares as consideration in equity investments, raise funds on the financial markets at short notice on favorable terms, or return value to shareholders during the course of the year.

Material agreements with change-of control-provisions: SAP SE has concluded the following material agreements with provisions that take effect in the event of a change of control, whether following a takeover bid or otherwise:

The terms of SAP's syndicated €2.5 billion revolving credit facility include a change-of-control clause. For more information about this syndicated credit facility, see the Notes to the Consolidated Financial Statements, *Note (F.1)*. This clause obliges SAP SE to notify the banks in case of a change of control. If, on receiving the notification, banks that represent at least two-thirds of the credit volume so require, the banks have the right to cancel the credit facility and demand complete repayment of the outstanding debt. If no continuation agreement is reached, the credit facility would end and the obligation to repay would become effective at an ascertainable time.

To finance the acquisition of Qualtrics International Inc., SAP took out a loan of €2.5 billion, of which €1.25 billion were outstanding as at December 31, 2020. The loan agreement contains a change-of-control clause which obliges SAP SE to notify the banks in case of a change of control. If, on receiving the notification, banks that represent at least two-thirds of the credit volume so require, the banks have the right to terminate the loan and demand complete repayment of the outstanding debt. If no continuation agreement is reached, the termination of the loan and the obligation to repay would become effective at an ascertainable time.

SAP had bonds totaling €10.1 billion and US$0.3 billion outstanding as at December 31, 2020. For more information about SAP's bonds, see the Notes to the Consolidated Financial Statements, *Note (E.3)*. Under the terms agreed with the buyers, we are required to notify the buyers, without delay, of any change of control. If there is a change of control and SAP is consequently assigned a lower credit rating within a defined period, buyers are entitled to demand repayment.

Under the terms of our U.S. private placements totaling approximately US$0.87 billion as at December 31, 2020, we are required to offer lenders repayment of outstanding debt if there is a change of control and SAP is consequently assigned a lower credit rating within a defined period. For more information about these private placements, see the Notes to the Consolidated Financial Statements, *Note (E.3)*. Lenders would have at least 30 days to accept the offer.

We have entered into relationships with other companies to jointly develop and market new software products. These relationships are governed by development and marketing agreements with the respective companies. Some of the agreements include provisions that, in the event of a change of control over one of the parties, give the other party a right to consent to the assignment of the agreement or to terminate it.

Change-of-control provisions in Executive Board compensation agreements: Agreements have been concluded with the members of the Executive Board of SAP SE concerning compensation in the event of a change of control. These agreements, which are customary internationally, are described in the compensation report, which is an integral part of this management report. We have no analogous compensation agreements with our other employees.

Business Conduct

Vision and Strategy

In an increasingly complex business environment, making the right decisions and abiding by ethical choices has never been more challenging. As a company operating in numerous countries across the globe, SAP is required to adhere to strict international legislation that defines acceptable business conduct and practices.

At SAP, we also expect our business practices to not only meet international rules and legal requirements, but to adhere to high standards of ethics and integrity. We understand that our customers expect this as well. SAP's reputation for doing business the right way is one of our most important assets. By making ethical choices and staying within high bounds of compliance, we continue to grow SAP in a way that encourages and is conducive to compliant and ethical behavior.

Due Diligence

Governance

The **Office of Ethics and Compliance** (OEC) contributes to the Company's success by providing trusted advice to SAP managers, leaders, and employees across the entire business. The OEC strives to advance SAP's business goals by promoting a strong culture of integrity and helping SAP to "Win the Right Way" by providing guidance and training that enables employees to make ethical and compliant choices.

In 2020, our aim to maintain a robust compliance program, based on our corporate values and voluntary commitments as well as international standards, had an even greater focus. The OEC team grew for the third consecutive year, from 113 employees in 2019 to 123 employees in 2020. Additionally, at the beginning of 2020, the group chief compliance officer's (GCCO) reporting line changed from the group chief financial officer (CFO) to the group chief executive officer (CEO).

This change, along with the increase in the size of the OEC teams, reflects the importance that SAP places on integrity and on the function of compliance at the Company.

At SAP, ethical behavior is an intrinsic part of our culture and an indispensable part of our daily decision-making at every level of the business. To help nurture this environment, the OEC's various teams continually address compliance issues and improve policies, guidelines, systems, and measures related to their implementation.

The OEC has field compliance officers based all around the world, in high-risk and low-risk jurisdictions, and especially in markets where there are local language needs. They are often the first point of contact for the business regarding compliance matters. In those high-risk countries in which the OEC is not physically represented, the OEC operates a network of compliance stewards drawn largely from either our legal, finance, or human resources (HR) departments. They are equipped to offer straightforward advice on specific compliance questions, as well as to amplify compliance messages and provide a link for local employees to the relevant field compliance officer.

Compliance matters are discussed as required with senior leadership within SAP at quarterly Audit Committee meetings as well as at more frequent regular touchpoints with Executive Board and Supervisory Board members. Compliance matters are also discussed by the GCCO in quarterly Global Compliance Governance Committee meetings.

Where appropriate and in response to identified compliance concerns, the OEC engages external counsel and forensic consulting resources to perform corruption risk assessments of high-risk market units. This process also includes a comprehensive root cause analysis for identified risks.

Outside SAP, the OEC regularly exchanges ideas and best practices for compliance processes with relevant peers in the software industry and beyond. In Germany, where SAP is headquartered, the OEC participates regularly in the DAX 30 Chief Compliance Officer Round Table. SAP is also a Corporate Member of the Association of Certified Fraud Examiners (ACFE), and the OEC participates in the ACFE's executive roundtable in the United States.

Guidelines and Policies

Our **Code of Business Conduct** (CoBC) provides the primary ethical and legal framework within which we conduct business and remain on course for success. It is adapted locally and translated into local languages where required.

We also expect our partners and suppliers to commit to meeting our high standards of integrity and sustainability. For this reason, we have the SAP Partner Code of Conduct and the SAP Supplier Code of Conduct in place so that partners and suppliers understand what is expected of them.

How We Measure and Manage Our Performance

The OEC is committed to countering, preventing, and reducing violations from the outset, although we acknowledge that it is not possible to eliminate the potential for non-compliant behavior entirely.

In 2020, we set out to further improve access and availability of compliance **policies and guidelines**, channels of **communication** on compliance, employee participation in compliance **training**, and **compliance processes**.

Enforcing Policies and Guidelines

The CoBC is communicated to employees globally and contains a fundamental set of rules that define how we conduct our business. It sets SAP's standard for our dealings with each other and with customers, partners, competitors, and vendors, and each of our employees is bound by it.

In 2020, the Company implemented an additional policy management procedure, containing fundamental requirements and parameters related to content, creation, and maintenance of governance documents. It also provides a detailed and comprehensive step-by-step explanation of the policy lifecycle.

Stakeholders from across the business are involved in developing content for new and updated policies, to ensure that all relevant business units are consulted.

Communication

We firmly believe that for SAP to succeed, there must be an intrinsic culture of compliant behavior across the Company. In 2020, the OEC established a dedicated communications team to promote consistent distribution of integrity-related communications, at all levels of the Company – from senior leaders, managers, and front-line employees. Executive Board members and senior leaders regularly host all-hands meetings as well as leadership team meetings and smaller gatherings, which include integrity-focused topics, demonstrating their dedication to ethical business.

The OEC also participates in information sessions, leadership meetings and all-hands meetings with Executive Board members and senior leaders to share with employees their insight into OEC's work and mission.

All Board areas have re-committed their support for OEC's **Compliance Ambassador Program** and have nominated employees to participate in the program. In 2020, a third cohort was introduced, bringing the number of participants from 119 in 2019 to over 177 in 2020. The program is designed to give employees a further point of contact in the business when compliance matters arise. Ambassadors participate in an extensive curriculum of monthly on-boarding sessions over a two-year period and are expected to cascade and transfer information on the importance of compliance and ethics throughout their teams and lines of business.

Quarterly OEC newsletters provide all employees with information on a range of compliance-related topics. We also include at least one business ethics and compliance-related question in our annual engagement survey and in company-wide polls throughout the year. Employees can use the SAP Corporate Portal at any time to access all global policies, guidelines, and additional information. The SAP Compliance mobile app also provides convenient, ongoing access to compliance-related information.

Training Offerings

Our training programs cover, for example, guidelines on anticorruption, competition law, and governance for customer commitments, intellectual property, and information security.

Our "Five Pillars of Compliance" online training is mandatory for all employees wherever legally permissible. The training includes modules on bribery and corruption, conflict of interest, competition, channel and fair business conduct, partner engagement, and hospitality.

Employee certification on the CoBC for employees worldwide continued in 2020. We recorded that more than 78,000 employees received this certification during the certification cycle. This number includes 30,168 employees in the Americas region, 27,244 employees in the APJ region, and 21,351 employees in the EMEA region. Where legally permissible to make this certification mandatory, a 99.9% completion rate was recorded.

Despite restrictions caused by the COVID-19 pandemic, field compliance officers continued to hold training sessions – albeit virtually – for employees across the organization, from customer-facing staff to individuals in supporting roles, such as corporate affairs and marketing.

Compliance Processes

The OEC also evaluates SAP's third-party service providers to ensure that SAP's compliance standards are met. New suppliers and third parties seeking a partnership with SAP are scrutinized according to a risk-based compliance due diligence process, which is repeated every two years thereafter. Supplier and partner relationships are formally defined in contracts that outline their obligation to abide by SAP's compliance requirements and a "right to audit" clause. The OEC also has a team dedicated to conducting audits of partners and suppliers to assess compliance with SAP's requirements and to identify and address compliance risks. The OEC's Compliance Monitoring & Analysis (CMA) team was created in 2020. The team analyzes findings from investigations and partner audit reports to identify potential enterprise-wide process deficiencies and patterns of misconduct that indicate a compliance risk. The CMA team then conducts root cause analyses on the highest-risk topics and recommends remediation actions to mitigate the risks.

Whistleblower Reporting Tool

SAP has a **whistleblower reporting tool** primarily intended for employees to anonymously report matters or concerns regarding accounting, auditing, or bribery and corruption. SAP employees can use the tool confidentially, anonymously and without fear of retaliation.

SAP external stakeholders can report concerns through the OEC mailbox or hotline, and SAP suppliers can use the supplier-related fraud Inbox to submit concerns.

In 2020, changes were made to the whistleblower reporting and review process to improve the timeliness of decisions taken to determine how allegations should be managed, either through investigation or otherwise.

SAP will be introducing an independently managed ethics hotline to emphasize to employees that they can report concerns anonymously and without fear of retaliation. This hotline will be rolled out in 2021 to all SAP employees and launched with an accompanying campaign to raise its profile.

Investigating Misconduct

The OEC engages the assistance of an external law firm when conducting investigations on conduct that may violate antibribery and anticorruption laws.

For more information about the allegations, see Notes to the Consolidated Financial Statements, *Note (G.3)*.

Related Risks for SAP

For more information on related risks, see *Ethical Behavior* in the *Risk Management and Risks* section.

Audit Scope

The content of this section was not subject to the statutory audit of the combined group management report. However, our external auditor KPMG carried out an independent limited assurance engagement on the contents of this section.

Human Rights and Labor Standards

Vision and Strategy

SAP is committed to respecting and promoting human rights across our operations, extended supply chain, and product lifecycle. We set high standards of fairness, diversity, and inclusion for ourselves, and expect all of our business partners to respect human rights and avoid complicity in any abuse.

Respect for human rights is central to our long-term commitment to sustainability and is fundamental to our purpose of helping the world run better and improving people's lives. This is why we have embedded human rights across our business activities.

Due Diligence

Governance

Our cross-company agenda on human rights is driven by the Sustainability team and our **Human Rights Steering Committee**. The committee comprises executives from various Board areas and is responsible for maintaining human rights standards, including topics identified as salient issues during the risk and capacity assessment in 2017. We regularly consult experts from academia, civil society, and industry in our external **Sustainability Panel** on how SAP can generate the greatest positive social impact.

The **Artificial Intelligence (AI) Ethics Steering Committee** guides our internal efforts to implement and enforce AI Ethics operations and policies. It comprises SAP executives from all Board areas with supervision of topics relevant to guiding and implementing AI ethics. Also made up of experts from academia, industry, and public policy, our external **AI Ethics Advisory Panel** advises us on how to further develop and operationalize our guiding principles for AI.

Guidelines

We support the Universal Declaration of Human Rights; the Organization for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises; and the International Labor Organization Declaration on Fundamental Principles and Rights at Work. A signatory of the United Nations (UN) Global Compact initiative, we are also guided by the UN Guiding Principles for Business and Human Rights. The **SAP Global Human Rights Commitment Statement** is our public commitment to respecting and promoting human rights across our value chain.

Overseen by our chief sustainability officer and approved by our Executive Board, the Human Rights Commitment Statement applies to our employees, business activities, solutions, and worldwide ecosystem. Reviewed every two years and enforced and communicated by the Human Rights Steering Committee together with the Sustainability team, the current version is available at *www.sap.com/corporate-sustainability*.

How We Measure and Manage Our Performance

Commitment Statement

The SAP Global Human Rights Commitment Statement addresses the human rights issues most relevant to SAP. For example, it refers to our policies on discrimination, health and safety management, and data protection and privacy – all topics that all employees receive training.

Assessment

To assess our human rights measures, we consider external benchmarks, performance ratings, audit results, and stakeholder feedback. We have been working on the findings of our 2017 risk and capacity assessment to improve due diligence processes and, since 2012, we have conducted regular internal audits to check policy compliance. This helps us verify that subsidiaries are adhering to human rights standards, and check whether employees feel empowered to raise concerns.

In 2020, we conducted a labor audit at SAP Argentina, whereby we reviewed labor conditions, wages and hours, health and safety, environmental management system, and business practices. We did not encounter any abuses in these areas. We plan to continue our global internal audit program in 2021 in other locations.

Employees

We encourage all employees, including groups at heightened risk of becoming disadvantaged or marginalized (also called "vulnerable groups") such as temporary external staff, to report conduct that violates our policies. Employees can reach out confidentially to their managers, HR officers, compliance officers, or colleagues who are trained to be part of our internal mediation pool. Our **global ombudsperson** also receives employee complaints and mediates fair settlements as well as helping our Executive Board analyze HR-related complaints and issues. Our grievance mechanisms (for example, **HR Compliance Office**) are also accessible to external groups. For more information, see the *Employees and Social Investments* section.

Suppliers and Partners

We expect suppliers and partners to respect human rights, and our codes of conduct require them to uphold labor rights and provide a safe and healthy work environment for all employees. For more information, see the *Sustainable Procurement* section.

Product Development

We seek to respect human rights throughout the product lifecycle – from design through development to use. Protection of personal information and accessibility are key areas of focus. We follow Web content guidelines such as Section 508 to help ensure inclusive design. For more information, see the *Security, Data Protection, and Privacy* section.

Our innovative solutions also help customers embed human rights standards into their own business. For example, they can use the **SAP Ariba Supplier Risk** solution to gain the intelligence and transparency to understand human rights risks within their supply chains.

AI Ethics

To steer the ethical development and deployment of our AI solutions, we have created **SAP's Guiding Principles for Artificial Intelligence** that we continue to evaluate and update in conjunction with an external advisory panel. Our guiding principles are an evolving reflection on the challenges of AI in an everchanging technological landscape. In 2020, we drafted a **Global AI Ethics Policy** to help ensure that our AI systems are developed, deployed, and sold in line with the ethical standards laid out in our guiding principles.

Related Risks

For related risks, see the *Risk Management and Risks* section.

Audit Scope

The content of this section was not subject to the statutory audit of the combined group management report. However, our external auditor KPMG carried out an independent limited assurance engagement on the contents of this section.

Risk Management and Risks

Our Risk Management

Internal Control and Risk Management Systems

As a global company, SAP is exposed to a broad range of risks across our business operations. Consequently, our Executive Board has established comprehensive internal control and risk management structures that enable us to identify and analyze risks early and take appropriate action. Our internal control and risk management systems are designed to identify potential events that could negatively impact the Company and to provide reasonable assurance regarding the operating effectiveness of our internal controls over our financial reporting.

These systems comprise numerous control mechanisms and are an important element of our corporate decision-making process; they are therefore implemented across the entire Group as an integral part of SAP's business processes. We have adopted an integrated internal control and risk management approach to help maintain effective global risk management while also enabling us to aggregate risks and report on them transparently.

In addition, we have a governance model in place across the internal control and risk management systems to ensure both are effective, as well as a central software solution to store, maintain, and report all risk-relevant information.

Legal and Regulatory Requirements

Due to our public listings in both Germany and the United States, we are subject to both German and U.S. regulatory requirements that relate to internal controls and risk management over financial reporting, such as provisions in the German Stock Corporation Act, section 91 (2), and the U.S. Sarbanes-Oxley Act (SOX) of 2002, specifically sections 302 and 404. Hence, our Executive Board has established an early warning system (risk management system) to enable compliance with applicable regulations.

Risk Management Policy and Framework

The risk management policy issued by our Executive Board governs how we handle risk in line with the Company's risk appetite and defines a methodology that is applied uniformly across all parts of the Group.

Risk Management Pillars

Our risk management system is based on the framework published by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) entitled "Enterprise Risk Management – Integrating with Strategy and Performance." Updated in 2017, this framework is built on four pillars, which include a global risk management governance framework, a dedicated risk management policy, a global risk management organization, and a standardized risk management methodology.

In accordance with the COSO framework, SAP's enterprise risk management covers risks in the areas of strategy, operations, finance, and compliance.

Our Global Risk Management Governance Framework

The risk management governance framework at SAP represents a comprehensive system of approaches and processes to ensure control through a clearly structured risk management system and a supporting risk culture. The risk culture is considered the basis of SAP's risk management system. Risk culture at SAP comprises a system of values, beliefs, knowledge, attitudes, and understanding concerning risks and risk management as part of our corporate culture. To support and continuously foster SAP's risk culture, our Global Risk and Assurance Services (GR&AS) organization conducts comprehensive risk awareness activities for the organization.

Our Executive Board is responsible for ensuring the effectiveness of the internal control system and the risk management system. The effectiveness of both systems and their implementation in the different Board areas is monitored by each Executive Board member. The Audit Committee of the Supervisory Board regularly monitors the effectiveness of SAP's internal control and risk management systems. GR&AS regularly provides a status update on the internal control and the risk management systems to the Audit Committee of the Supervisory Board. Every year, SAP's external auditors assess as to whether the SAP SE early-warning system for risk detection is adequate to identify risks that might endanger our ability to continue as a going concern. Additional assurance is obtained through the external audit of the effectiveness of our system of internal controls over financial reporting.

Our Global Risk Management Policy

The risk management policy, updated in 2020, stipulates responsibilities for conducting risk management activities and defines reporting and monitoring structures. Our global SAP risk management policy clearly states that each employee is responsible for active engagement in the risk management process as well as for the continuous identification of risks, based upon clear rules of engagement in adherence to the policy. Along with the policy, we maintain a system-based Risk Management Policy Cockpit that describes all business process specifics associated with the risk management lifecycle. The risk management system primarily analyzes risks. Opportunities are only assessed or analyzed where it is deemed appropriate.

Our Global Risk Management Organization

Our global risk management organization is responsible for the implementation of a Group-wide effective risk management system. Furthermore, GR&AS is responsible for the regular maintenance and implementation of our risk management policy as well as the standardized internal and external risk reporting.

All GR&AS risk managers, working with assigned risk contacts in the relevant business units, identify and assess risks associated with material business operations using a uniform approach and monitor the implementation and effectiveness of the measures chosen to mitigate risks.

Further financial risk management activities are performed by our Global Treasury and Global Tax departments. General legal risks are managed by Global Legal. Sanction and embargo-related risks are managed by the Export Control team, harassment and other HR-related issues by our Global Labor & Employee Relations Office, security-related risks by our SAP Global Security Office, and IP risks by our Global IP Office.

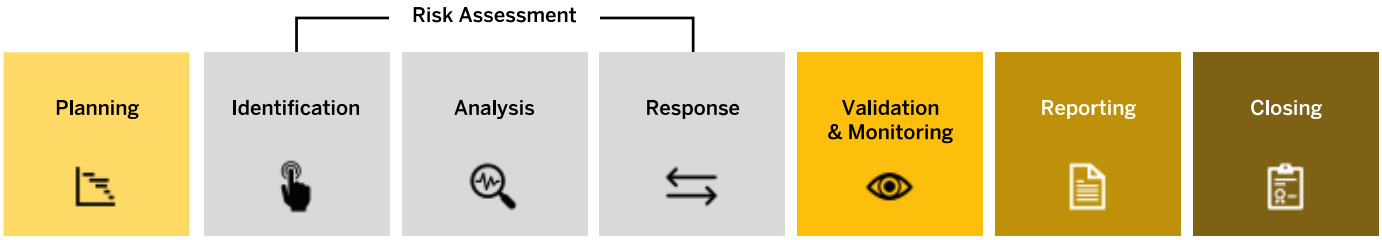
During the merger and acquisition and post-merger integration phase, newly acquired companies are subject to risk management performed by our Corporate Development M&A function. Furthermore, for as long as the newly acquired companies are not integrated, existing risk management structures are maintained or enhanced within the acquired companies for the purposes of compliance with legal requirements.

The exposure of SAP business units to potential compliance risks is reviewed on a regular basis. Quantitative and qualitative internal data as well as external information, such as the Transparency International Corruption Perceptions Index, are considered in our wider compliance risk analysis. Based on this information, we performed a detailed assessment for all SAP-relevant high-risk countries and derived local as well as global mitigations.

On January 1, 2020, the new GR&AS function combined corporate audit, SOX, internal controls and global governance, risk, and compliance into one function, led by the chief risk officer, also acting as chief audit executive. The chief risk officer reports to our Group CFO and is responsible for SAP's internal control and risk management programs.

Risk Management Methodology and Reporting

The illustration below describes the key elements of the risk management process under SAP's risk management policy.



Risk Planning

Based on SAP's risk management policy and framework, the risk planning phase serves to align on the definition and assignment of roles and responsibilities, the definition of risk-relevant business activities (such as processes, projects or other aspects affecting Company assets), the determination of objectives and value drivers, the planning of risk assessments, and the determination of adequate information flow.

Risk planning and risk identification for internal and external risks are conducted jointly by GR&AS risk managers and the relevant business units or SAP entities.

Risk Assessment

A risk assessment covers the identification and analysis of a risk, as well as the determination of a response to that risk. We use various approaches to identify risks. For example, we have identified risk indicators and have developed a comprehensive risk catalog that includes risk mitigation strategies. Risk identification takes place at various levels of our organization to ensure that common risk trends are identified and end-to-end risk management across organizational borders is enabled. We apply both qualitative and quantitative risk analyses and other risk analysis methods such as sensitivity analyses and simulation techniques.

To determine which risks pose the greatest threat to the viability of the SAP Group, we classify them as "high," "medium," or "low" based on the likelihood that a risk will occur within the assessment

horizon and the impact the risk would have on SAP's business objectives if it were to occur.

The scales for measuring these two indicators are given in the following tables.

Probability/Likelihood of Occurrence	Description
1% to 19%	Remote
20% to 39%	Unlikely
40% to 59%	Likely
60% to 79%	Highly Likely
80% to 99%	Near Certainty

In this framework, we define a remote risk as one that will occur only under exceptional circumstances, and a near certain risk as one that can be expected to occur within the specified time horizon. The period for analyzing our risks correlates with that of the respective associated business activities, considering a relevant forecast horizon of up to one year, and up to 2025 where applicable. The period for analyzing risks that could be possible threats to the Group's ability to continue as a going concern is eight rolling quarters.

Impact Level	Impact Definition
Insignificant	Negligible negative impact on business, financial position, profit, and/or cash flows
Minor	Limited negative impact on business, financial position, profit, and/or cash flows
Moderate	Some potential negative impact on business, financial position, profit, and/or cash flows
Major	Considerable negative impact on business, financial position, profit, and/or cash flows
Business-Critical	Detrimental negative impact on business, financial position, profit, and/or cash flows

The combination of the likelihood that a risk will occur and its impact on SAP's reputation, business, financial position, profit, and/or cash flows leads to a subsequent classification of the risk as either "high," "medium," or "low."

Probability	Insignificant	Minor	Moderate	Major	Business-Critical
80% to 99%	L	M	H	H	H
60% to 79%	L	M	M	H	H
40% to 59%	L	L	M	M	H
20% to 39%	L	L	L	M	M
1% to 19%	L	L	L	L	M

Impact

L = Low Risk M = Medium Risk H = High Risk

In the final stage of the risk assessment, after identifying and analyzing the risk, we determine a response for each identified risk. We have different response categories such as mitigating, retaining for research, transferring, delegating, accepting, or avoiding, for example, by deciding not to start or not to continue the activity that may lead to a risk.

Risk Validation and Monitoring

Risk assessment is followed by risk validation and risk monitoring. The risk exposure and the risk description, as well as the appropriateness of agreed responses, are validated by the accountable management. Our GR&AS risk managers work in close cooperation with the relevant business owners, ensuring that strategies are implemented to address identified risks. Business owners are responsible for continuously monitoring the risks and associated mitigation strategies, with support from the respective GR&AS risk managers. To ensure greater risk transparency and enable appropriate decision-making for business owners, we have established a risk delegation of authority (RDOA) for relevant parts of the organization as deemed appropriate. RDOA is a risk management decision-making hierarchy that helps business owners gain timely insight into business transactions that pose the greatest risk, so that they are better able to review the relevant information, understand the risk profile and associated mitigation strategies, and determine whether their approval is warranted. Depending on the exposure, approval is required at different levels of the Company, up to and including the Executive Board.

Risk Reporting

All identified and relevant risks are reported at local, regional and global levels in accordance with our risk management policy and the global risk reporting standard. At these levels, we have established executive risk councils that regularly discuss risks and responses and that monitor the success of risk mitigation. In addition, the Executive Board is informed regularly and quarterly about individual risks based on clearly defined qualitative reporting criteria. Newly identified or existing significant risks that are above a defined threshold, meet a qualitative criterion, or have a potential significant impact are also reported to the Audit Committee and the chairperson of the Supervisory Board on a quarterly basis. This includes risks along our strategic portfolio for services and solutions as well as any risks to our ability to continue as a going concern, the latter supported by a process that analyzes those risks with respect to potential effects on liquidity, excessive indebtedness and insolvency.

Risk Closure

Risks are closed once a reassessment concludes that a risk is no longer existent or does not require continued monitoring. Risk closure criteria include the risk event occurring, the risk no longer being considered a risk, or the risk having been successfully mitigated.

Internal Control and Risk Management System for Financial Reporting

The purpose of our system of internal control over financial reporting is to provide reasonable assurance that our financial reporting is reliable and compliant with generally accepted accounting principles. Because of the inherent limitations of internal control over financial reporting, it might not prevent or bring to light all potential misstatements in our financial statements.

Our internal control system consists of the internal control and risk management system for financial reporting (ICRMSFR), which also covers the broader business environment. In 2020, we adjusted existing control designs to adequately address evolving risks and we continued to automate our internal control landscape. Using the current COSO Internal Control – Integrated Framework of 2013, we have defined and implemented internal controls along the value chain on a process and subprocess level to ensure that sound business objectives are set in line with the organization's strategic, operational, financial, and compliance goals.

SAP's ICRMSFR is based on our Group-wide risk management methodology. It includes organizational, control, and monitoring structures designed to ensure that data and information concerning our business is collected, compiled, and analyzed in accordance with applicable laws and properly reflected in our IFRS Consolidated Financial Statements.

Our ICRMSFR also includes policies, procedures and measures designed to ensure compliance of SAP's financial reports with applicable laws and standards. We analyze new statutes, standards, and other pronouncements concerning IFRS accounting and its impact on our financial statements and the ICRMSFR. Failure to adhere to these would present a substantial risk to the compliance of our financial reporting. Finally, the ICRMSFR has both preventive and detective controls, including, for example, automated and non-automated reconciliations, segregated duties with two-person responsibility, authorization concepts in our software systems, and corresponding monitoring measures.

Our Corporate Financial Reporting (CFR) department codifies all accounting policies in our Group accounting and global revenue recognition guidelines. These policies and the corporate closing schedule, together with our process descriptions, define the closing process. Under this closing process, we prepare, predominately through centralized or external services, the financial statements of all SAP entities for consolidation by CFR. CFR and other corporate departments are responsible for ensuring compliance with Group accounting policies and monitor the accounting work. CFR also conducts reviews of our accounting processes and books. The employees who work on SAP's financial reporting receive training in the respective policies and processes.

We have outsourced some tasks, such as valuing projected benefit obligations and share-based payouts, quarterly tax calculations for most entities, and purchase price allocations in the context of asset acquisitions and business combinations. We have also outsourced the preparation of the local statutory financial statements for a few of our subsidiaries.

Based on an analysis of the design and operating effectiveness of our respective internal controls over financial reporting, a committee presents the results of the assessment on the ICRMSFR effectiveness with respect to our IFRS consolidated financial statements as at December 31 each year to our Group CFO. The committee meets regularly to set the annual scope for the test of effectiveness, to assess and evaluate any possible weaknesses in the controls, and to determine measures to address them timely and adequately. During its own meetings, the Audit Committee of the Supervisory Board regularly scrutinizes the resulting assessments of the effectiveness of the internal controls over financial reporting with respect to the IFRS consolidated financial statements.

The assessment, conducted by SAP and external audit, of the effectiveness of the ICRMSFR related to our IFRS consolidated financial statements concluded that, on December 31, 2020, the Group had an effective internal control system over financial reporting in place.

Additionally, and in compliance with German commercial law requirements, SAP maintains an internal control system beyond financial reporting. This is supported through automated controls (continuous control monitoring) as part of our business processes.

Supporting Software Solution

We use our own risk management software, SAP governance, risk, and compliance (GRC) solutions powered by SAP HANA, to support the governance process. GR&AS risk managers record and track identified risks using our risk management software online and in real time to help create transparency across all known risks that exist in the Group, as well as to facilitate risk management and the associated risk reporting. This GRC solution also supports the risk-based approach of the ICRMSFR. Our continuous control monitoring activities are performed utilizing our GRC software as well. This information is available to managers through direct access to our SAP Fiori application for enterprise risk reporting, and in regularly issued reports, and is consolidated and aggregated for the quarterly risk report to the Executive Board.

Risk Factors

The following sections outline our risk categories and risk factors that we have identified and continuously track. To further streamline our integrated report, we have decided to disclose only material/relevant risks henceforth and focus on "medium" and "high" risk factors as per our assessment. Thus, the following risk factors are not included in the Integrated Report 2020: Environment and Sustainability; Sales and Revenue Conditions; Liquidity; Use of Accounting Policies and Judgment; Currency, Interest Rate, and Share Price Fluctuation; Insurance; and Venture Capital.

An overview of the risk categories and the corresponding risk factors is outlined in the table below. Therein, risk factors are categorized according to our framework that is detailed in the *Risk Management Methodology and Reporting* section.

Overview of Risk Factors (Aggregated Statement for 2020)

	Probability	Impact	Risk Level	Trend[1]
Economic, Political, Social, and Regulatory Risks				
Global Economic and Political Environment	*Likely*	*Business-Critical*	*High*	→
COVID-19 Pandemic	*Likely*	*Business-Critical*	*High*	*New*
International Laws and Regulations	*Likely*	*Business-Critical*	*High*	→
Legal and IP	*Likely*	*Business-Critical*	*High*	→
Data Protection and Privacy	*Likely*	*Business-Critical*	*High*	→
Corporate Governance and Compliance Risks				
Unauthorized Disclosure of Information	*Remote*	*Business-Critical*	*Medium*	→
Ethical Behavior	*Likely*	*Business-Critical*	*High*	→
Human Capital Risks				
Human Workforce	*Unlikely*	*Major*	*Medium*	→
Operational Business Risks				
Sales and Services	*Unlikely*	*Major*	*Medium*	→
Partner Ecosystem	*Unlikely*	*Major*	*Medium*	→
Cloud Operations	*Likely*	*Business-Critical*	*High*	↗
Cybersecurity and Security	*Highly Likely*	*Business-Critical*	*High*	→
Technology and Products	*Unlikely*	*Business-Critical*	*Medium*	→
Strategic Risks				
Market Share and Profit	*Unlikely*	*Business-Critical*	*Medium*	→
Mergers and Acquisitions	*Likely*	*Major*	*Medium*	→
Innovation	*Remote*	*Business-Critical*	*Medium*	→
		Icon:	decreased	↘
			unchanged	→
			increased	↗

[1] Trend: Risk level compared with previous year.

Economic, Political, Social, and Regulatory Risks

Global Economic and Political Environment: Uncertainty in the global economy, financial markets, and social and political instability caused by state-based conflicts, terrorist attacks, civil unrest, war, or international hostilities could lead to disruptions in our business.

As a global company, we are influenced by multiple external factors that are difficult to predict and beyond our influence and control. Any of these factors could have a significant adverse effect on the global economy as well as on our business.

We are subject to risks and associated consequences in the following areas, among others:

- General economic, political, social, environmental, public health, and market developments, and general unrest (for example, United States-China security-based supply chain restrictions; United States-North Korea tensions; Western sanctions pressure on Russia; a UK/Brexit "no deal" scenario; political and social unrest in the United States)
- Prolonged deterioration of global economic conditions (impact on accurate forecast) or budgetary constraints of national governments
- Diplomatic confrontations, frictions, trade or tariff conflicts such as those between the United States and China, with potential global implications as indicated by a prolonged and widespread economic slowdown
- Financial market volatility episodes, global economic crises and chronic fiscal imbalances, slowing economic conditions, or disruptions in emerging markets
- Higher credit barriers for customers, reducing their ability to finance software purchases

- Increased number of foreclosures and bankruptcies among customers, business partners, and key suppliers
- Terrorist attacks or other acts of violence, civil unrest, pandemics, or natural disasters, impacting our business
- Regional conflicts, which may affect data centers as critical infrastructure assets

Any of these events could limit our ability to reach our targets, as they could have a material adverse effect on our business operations, our business in general, our financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- Further efforts to achieve our vision of a purpose-led company by supporting us and our customers in their business transformation to intelligent enterprises, with a clear focus on integrating our applications and delivering innovation supported by advanced technologies (such as SAP Intelligent Robotic Process Automation, the Internet of Things, artificial intelligence (AI), and machine learning)
- Ongoing shift to a higher share of cloud subscriptions and software support revenue streams, which will lead to more predictable revenue streams over time, providing increased stability against financial volatility
- Internal cost discipline and a conservative financial planning
- Reshaping of our organizational structure and processes to increase flexibility and efficiency
- Monitoring and evaluation of global and political developments, supported by our global government affairs unit, to share insights and provide guidance to allow for proactive preparation and timely mitigation

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be likely. This could exacerbate the other risks we describe in this report or cause a negative deviation from our revenue and operating profit target. We classify this risk factor as high.

COVID-19 Pandemic: A novel strain of coronavirus (COVID-19) was first identified in Wuhan, China, in December 2019, and spread across the globe, subsequently being classified as a pandemic by the World Health Organization (WHO). While surfacing in almost all regions around the world, this outbreak prompted governments and businesses to introduce preventative measures intended to contain or mitigate further spreading, negatively impacting the global economy with immediate and prolonged effect.

Repercussions include supply chain interruptions and an impact on production manufacturing and the borrowing of money, and have been observed across most industries, from tourism and leisure to the luxury goods industry. In addition, uncertainty and travel restrictions have impacted businesses, jobs, and consumer confidence, which in turn has led to a reduction in consumer spending. At the same time, businesses were confronted with higher costs resulting from measures intended to mitigate the spread of infection, such as the extension of holiday periods, lengthy workforce absences due to sick leave, delays in people returning to work in the office, and additional health screenings; public sector investments, meanwhile, were redirected to health-related expenditures. Individual economies were the first to raise concerns related to observed recession indicators.

We cannot predict the degree to which or over which period of time this pandemic and associated measures will impact our customers, our business, and our business operations with effects that could be material, leading to the following risks, among others:

- Global recession, economic downturns, increased unemployment rates, or customers reevaluating their business plans, priorities, and IT needs, with subsequent delays, shifts, or reductions in IT investments
- Financially impacted customers struggling to meet contractual obligations
- Increasingly complex digitalization requirements that challenge uninterrupted customer interaction and subsequent customer satisfaction
- Limited availability of qualified implementation partners that are largely unaffected
- Workforce mobility limitations resulting from government- or SAP-imposed travel restrictions
- Workforce productivity impacts resulting from adaptation to new working models
- Business continuity challenges in our business-critical data centers and in our mission-critical support activities if sites or the workforce were to be contaminated or the workforce were not available due to travel limitations
- Interruption in the maintenance of our cloud services infrastructure or reduced reliability and adequacy of cloud service capacity
- Decrease in software sales with subsequent impact on growth of our maintenance and services business
- Delays in cash collection due to interrupted invoice processing and delayed execution of financial transactions
- Increased costs in effectively managing the ramp-up of onsite operations

Any of these events could have a material adverse effect on our business, business operations, financial position, profit, and cash flows.

SAP has established a global pandemic taskforce and is closely monitoring the situation as well as developing and implementing necessary measures and actions intended to address and mitigate the described risks and adverse effects, such as:

- Active and collaborative dialogue with our customers to jointly evaluate options and opportunities
- Ongoing review of payment models to address our customers' current need for payment flexibility while ensuring our liquidity, leveraging finance partners as applicable
- Strict adherence to applicable governmental advisories to foster compliance and health safeguarding
- Alignment with governmental authorities to enable accessibility to our workforce during times of restricted citizen movement, and alignment with service providers to ensure consistent application of standards at co-location sites
- Information, training courses, and guidance for our workforce as elements of our comprehensive transitional approach in an already digitalized technology landscape, with the majority of our workforce accustomed to remote working models
- Expansion of health and well-being initiatives and offerings, including an emergency helpline

- Switch to remote working protocols leveraging virtualized communication technologies, and the continued enhancement of working models that protect our customers, partners, and workforce
- Introduction of remote customer support models enabling administration via remote access for critical situations
- Establishment of clear physical distancing and workspace conduct protocols for remaining on-site activities
- Implementation of formal sanitization protocols at our premises
- Implementation of enhanced methodologies for virtual sales and remote implementation
- Creation and implementation of virtual event and conference experiences
- Establishment of a COVID-19 pandemic ecosystem taskforce to focus on revising mission-critical partnering policies, and making those policies available to all partners through a dedicated resource center
- Monitoring of cash collection rates along with the application of appropriate measures and subsequent adaptation of financial planning
- Strict internal cost discipline and conscious adaptation of workforce planning

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be likely. This could exacerbate the other risks we describe in this report or cause a negative deviation from our revenue and operating profit target. We classify this risk factor as high.

International Laws and Regulations: Laws, regulatory requirements and standards in Germany, the United States, and elsewhere continue to be very stringent. Our international business activities and processes expose us to numerous and often conflicting laws and regulations, policies, standards, or other requirements and sometimes even conflicting regulatory requirements.

The SAP Group has a global presence. As a European company domiciled in Germany with securities listed in Germany and the United States, we are subject to European, German, U.S., and other governance-related regulatory requirements.

Our business is subject to numerous risks inherent to international business operations. We are subject to risks and associated consequences in the following areas, among others:

- Possible tax constraints impeding business operations in certain countries
- Changes in external reporting standards and tax laws including, but not limited to, conflict and overlap among tax regimes as well as the introduction of new tax concepts that harm digitized business models
- Discriminatory, protectionist, or conflicting fiscal policies and tax laws, such as certain protectionist measures included in the U.S. Tax Reform, which was enacted at the end of 2017, with some provisions still awaiting final regulations to provide guidance on compliance
- Workforce restrictions and travel bans resulting from changing laws and regulations, from political decisions (such as Brexit, government elections), or through required works council involvements, labor union approvals, and immigration laws in different countries
- Protectionist trade policies, import and export regulations, and trade sanctions (such as in Russia or China), counter or even conflicting sanctions (such as in the United States and Russia), and embargoes (such as in Iran) including, but not limited to, country-specific software certification requirements
- Violations of country-specific sanctions (such as the UN sanction against North Korea or the United States' sanction requirements against Iran and certain other countries)
- Compliance with and stringent enforcement of laws, as for example the EU GDPR or China's Cyber Security Law, and regulations (including interpretations), implications of government elections, lack of reforms, data protection and privacy rules, regulatory requirements and standards (such as the Payment Card Industry Data Security Standard [PCI DSS]), other compliance requirements (such as Service Organization Controls [SOC]), or sometimes even country-specific certifications or requirements in particular for cloud service provider or data center operations (such as the Threat and Vulnerability Risk Assessment issued by the Monetary Authority of Singapore)
- Expenses associated with the localization of our products and compliance with local regulatory requirements
- Difficulties enforcing intellectual property and contractual rights in certain jurisdictions

In 2017, an investigation was initiated and is ongoing with regards to potential sanctions violations. For more information relating to the potential sanctions' violations noted above, see the Notes to the Consolidated Financial Statements, *Note (G.3)*.

As we expand into new countries and markets or extend our business activities in these markets, including emerging and high-risk markets, these risks could intensify. The application of the respective local laws and regulations to our business is sometimes unclear, subject to change over time, and often conflicting among jurisdictions. Additionally, these laws and government approaches to enforcement continue to change and evolve, just as our products and services continually evolve. Compliance with these varying laws and regulations could involve significant costs or require changes in products or business practices. Non-compliance could result in the imposition of penalties or cessation of orders due to alleged non-compliant activity. Governmental authorities could use considerable discretion in applying these statutes and any imposition of sanctions against us could be material.

Any of these events could have a material adverse effect on our operations globally or in one or more countries or regions, which could have a material adverse effect on our business, financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- We continuously monitor new and increased regulatory requirements, updated or new enforcement trends, and publicly available information on compliance issues in the computer software industry, in the emerging markets where we invest our resources, and in the business environment in general to cope with an increase in regulation enforcement efforts of certain countries or state-driven protectionism.
- We continuously invest and strive to improve, harmonize, and standardize our global processes, procedures, and solutions to increase our efficiency and effectivity in meeting the various

legal requirements to ensure compliance, while also utilizing scenario impact analyses.
- We have established a dedicated unit within our Global Legal organization that proactively assesses newly emerging regulatory initiatives, advises internal departments on these initiatives, and supports their swift adherence thereto.
- We have taken actions to terminate access to SAP products and services for certain users and to block additional business activities with these users through SAP or SAP partners to address export restriction requirements.
- We receive guidance from external economic consultants, law firms, tax advisors, and authorities in the concerned countries, and take legal actions when necessary.
- We engage with authorities on public policy issues, including the creation of reasonable framework conditions for new technologies such as cloud computing, Big Data, the Internet of Things, and for international trade.
- We conduct audits based on various audit standards on a regular basis to identify and remediate issues early on.
- We have a legal and compliance office presence in various countries, with compliance safeguards supported and monitored by our Office of Ethics & Compliance (OEC).
- We maintain a data protection and privacy office and associated policy.
- We continue efforts to strengthen the Export Control team and continue with our cross-Board project to overhaul SAP's export control and trade sanctions policies, operations, and controls, to safeguard compliance with applicable EU and U.S. laws in all delivery channels both on premise and in the cloud.
- We regularly update and enhance our compliance programs to improve our effectiveness and to ensure that our employees understand and comply with the SAP Code of Business Conduct (CoBC). This process is coordinated by the OEC, a team of dedicated resources who are tasked with managing our policy-related compliance measures.
- OEC coordinates and provides guidance on implementation, training and enforcement efforts with respect to compliance-related policies throughout SAP, including but not limited to the Third-Party Sales Commission Policy and accompanying training.

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be likely. We classify this risk factor as high.

Legal and IP: Claims and lawsuits against us, such as for IP infringements, or our inability to obtain or maintain adequate licenses for third-party technology, or if we are unable to adequately protect or enforce our own intellectual property, may result in adverse outcomes.

We have in the past and believe that we will continue to be subject to claims and lawsuits, including intellectual property infringement claims, as our solution portfolio grows; as we acquire companies with increased use of third-party code including open source code; as we expand into new industries with our offerings, resulting in greater overlap in the functional scope of offerings; and as non-practicing entities that do not design, manufacture, or distribute products assert intellectual property infringement claims. Moreover, protecting and defending our intellectual property is crucial to our success.

The outcome of litigation and other claims or lawsuits is intrinsically uncertain.

We are subject to risks and associated consequences in the following areas, among others:
- Claims and lawsuits might be brought against us, including claims and lawsuits involving customers or businesses we have acquired.
- We might be dependent in the aggregate on third-party technology, including cloud and Web services, that we embed in our products or that we resell to our customers.
- Third parties have claimed, and might claim in the future, that we infringe their intellectual property rights or that we are overusing or misusing licenses to these technologies.
- We integrate certain open source software components from third parties into our software. Open source licenses might require that the software code in those components or the software into which they are integrated be freely accessible under open source terms.
- Despite our efforts, we might not be able to prevent third parties from obtaining, using, or selling without authorization what we regard as our proprietary technology and information. In addition, proprietary rights could be challenged, invalidated, held unenforceable, or otherwise affected. Moreover, the laws and courts of certain countries might not offer effective means to enforce our legal or intellectual property rights. Finally, SAP may not be able to collect all judgments awarded to it in legal proceedings.
- Some intellectual property might be vulnerable to disclosure or misappropriation by employees, partners or other third parties.

Third parties might reverse-engineer or otherwise obtain and use technology and information that we regard as proprietary. Accordingly, we might not be able to protect our proprietary rights against unauthorized third-party copying or utilization. Adverse outcomes to some or all of the claims and lawsuits pending against us might result in the award of significant damages or injunctive relief against us or brought against us in the future that could hinder our ability to conduct our business and could have a material adverse effect on our reputation, brand, business, competitive or financial position, financial performance, profit, and cash flows. Third parties could require us to enter into royalty and licensing arrangements on terms that are not favorable to us, cause product shipment delays, subject our products to injunctions, require a complete or partial redesign of products, result in delays to our customers' investment decisions, and damage our reputation. Third-party claims might require us to make freely accessible under open source terms one of our products or third-party (non-SAP) software upon which we depend.

Any legal action we bring to enforce our proprietary rights could also involve enforcement against a partner or other third party, which might have an adverse effect on our ability, and our customers' ability, to use that partner's or other third parties' products.

The outcome of litigation and other claims or lawsuits is intrinsically uncertain. Management's view of the litigation might also change in the future. Actual outcomes of litigation and other claims or lawsuits could differ from the assessments made by

management in prior periods, which are the basis for our accounting for these litigations and claims under IFRS.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- Our OEC sets and manages internal policies related to our CoBC.
- Our GR&AS organization works closely with the OEC and Global Legal and is jointly responsible for the management and reporting of potential risks associated with third-party intellectual property.
- We have established various internal programs, such as internal policies, processes, and monitoring, to assess and manage the risks associated with open source, and third-party intellectual property.
- We endeavor to protect ourselves in the respective third-party software agreements by obtaining certain rights in case such agreements are terminated.
- We are party to certain patent cross-license agreements with third parties, which removes the risk of litigation with respect to the involved patents.
- We rely on a combination of the protections provided by applicable statutory and common law rights, including trade secret, copyright, patent, and trademark laws, license and non-disclosure agreements, and technical measures to establish and protect our proprietary rights in our products and customer projects.

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be likely. We classify this risk factor as high.

We are named as a defendant in various legal proceedings for alleged intellectual property infringements. For more information and a more detailed report relating to certain of these legal proceedings, see the Notes to the Consolidated Financial Statements, *Notes (A.4)*, *(C.5)*, and *(G.3)*.

Data Protection and Privacy: Non-compliance with increasingly complex and stringent, sometimes even conflicting, applicable data protection and privacy laws or failure to adequately meet the contractual requirements of SAP's customers with respect to our products and services could lead to civil liabilities and fines, as well as loss of customers.

As a global software and service provider, SAP is required to comply with local laws wherever SAP does business. One of the relevant European data protection laws is the GDPR. International data transfers to third countries that do not provide for an adequate level of data protection require additional safeguards to justify a transfer from the EU to a third country based on the standard contractual clauses.

Furthermore, evolving regulations and laws globally (such as the California Consumer Privacy Act, Brazilian General Data Protection Law, and the EU's proposed e-Privacy Regulation including data localization requirements) regarding data protection and privacy or other standards increasingly aimed at the use of personal data, such as for marketing purposes and the tracking of individuals' online activities, may impose additional burdens for SAP due to increasing compliance standards that could restrict the use and adoption of SAP's products and services (in particular cloud services) and make it more challenging and complex to meet customer expectations. This refers in particular to a compliant use of new technology, such as machine learning and AI for product development and deployment of intelligent applications.

This could lead to increased risks for SAP, which could harm SAP's business and limit SAP's growth.

Non-compliance with applicable data protection and privacy laws by SAP or any of the subprocessors engaged by SAP within the processing of personal data could lead to risks. We are subject to risks and associated consequences in the following areas, among others:

- Mandatory disclosures of breaches to affected individuals, customers, and data protection supervisory authorities
- Investigations and administrative measures by data protection supervisory authorities, such as the instruction to alter or stop non-compliant data processing activities, including the instruction to stop using non-compliant subprocessors
- Fines of up to 4% of SAP's annual Group turnover, or unlimited fines
- Damage claims by customers and individuals or contract terminations
- Harm to SAP's reputation
- Increased complexity in times of digitalization with regards to legal requirements in the context of cross-border data transfer and data localization requirements
- Lack of digital frameworks such as in the context of machine learning or AI, which could lead to distortion of individual data or information

In addition, the German Federal Office for the Protection of the Constitution and security industry experts continue to warn of risks related to a globally growing number of cybersecurity attacks aimed at obtaining or violating company data including personal data. We anticipate cyberattack techniques to continue to evolve and increase in sophistication, which could make it difficult to anticipate, prevent, detect, and mitigate attacks and intrusions, thus leading to, for example, risks described in the *Cybersecurity and Security* section, including risks in the following area, among others:

- A globally increasing number of threat actor attacks aimed at obtaining or violating Company data including personal data as observed in recent prominent cases of cyberattacks where the use of ransomware was the preferred method of threat actors

Any of these events could have a material adverse effect on our reputation, business, financial performance, competitive or financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- We have implemented internal processes and measures in an effort to enable SAP to successfully and sufficiently comply with applicable data protection requirements.
- Data protection and privacy is reflected in the mandatory product standards of SAP's product development lifecycle.
- We continuously review SAP's existing standards and policies to address changes to applicable laws and regulations.
- We continuously enhance our data center operations worldwide, also considering local and sector-specific market and legal requirements. For compliance with local legal requirements, we have established a network of local and regional data protection and privacy coordinators.
- We have a data protection management system in place in all our Board areas. Furthermore, this data protection management system will be continuously enhanced and extended to apply to

newly acquired companies within the SAP Group. SAP has been awarded the British Standards Institution (BSI) certification for the implementation and operation of SAP's data protection management system, which underlines SAP's compliance with data protection laws, including GDPR.
- We actively monitor legal developments and engage with political stakeholders and government authorities, directly or through industry associations, to clarify questions relevant to SAP and SAP's business.
- We strive to provide clear governance and guidance on data handling, processing standards, and external communication as part of our data management framework, specifically incorporating aspects of new technologies such as those represented in embedded intelligence applications.
- We increase the automation of security processes and secure product development in order to reduce human error and ensure consistency and dependability of security outcomes.

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be likely. We classify this risk factor as high.

Corporate Governance and Compliance Risks

Unauthorized Disclosure of Information: Our controls and efforts to prevent the unauthorized disclosure of confidential information might not be effective.

Confidential information and internal information related to topics such as our strategy, new technologies, mergers and acquisitions, unpublished financial results, customer data, or personal data, could be disclosed prematurely or inadvertently and subsequently lead to market misperception and volatility.

We are subject to risks and associated consequences in the following areas, among others:
- Disclosure of confidential information and intellectual property, defective products, production downtimes, supply shortages, and compromised data (including personal data) through, for example, inappropriate usage of social media by employees
- Requirement to notify multiple regulatory agencies and comply with applicable regulatory requirements and, where appropriate, the data owner

Any of these events could have an adverse effect on our market position and lead to fines and penalties or shareholder lawsuits, including securities class action litigation.

In addition, this could have an adverse effect on our business, reputation, share price, financial position, profit, and cash flows.

Any such lawsuits against us, with or without merit, could result in substantial costs and the diversion of management's attention and resources, resulting in a decline in our results of operations and our stock price.

SAP has established measures to address and mitigate the described risks and adverse effects, such as:
- Mandatory compliance baseline training for all employees (for example, security awareness, data privacy and data protection, compliance, and communication)
- Social engineering tests to check employees' adherence to security policies
- Standards, governance, and controls for safe internal and external communication to ensure consistency
- Technical security features in our IT hardware and communication channels, such as mandatory encryption of sensitive data
- Organizational grouping of all security divisions into one global security unit to strengthen the security capabilities
- Continuous adoption of internal security measures

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be remote. We classify this risk factor as medium.

Ethical Behavior: Our global business exposes us to risks related to unethical behavior and noncompliance with policies by employees, other individuals, partners, or entities associated with SAP.

SAP's leadership position in the global market is founded on the long-term and sustainable trust of our stakeholders worldwide. Our overarching approach is one of corporate transparency, open communication with financial markets, regulators, and authorities, as well as adherence to recognized standards of business integrity. This commitment to recognized standards of business integrity is formalized in SAP's CoBC and supporting guidelines.

We are subject to risks and associated consequences in the following areas, among others:
- Non-compliance with our policies and violation of compliance related rules, regulations, and legal requirements including, but not limited to, anticorruption and antibribery legislation in Germany, the U.S. Foreign Corrupt Practices Act, the UK Bribery Act, and other local laws prohibiting corrupt conduct
- Unethical and fraudulent behavior by individual employees, other individuals, partners, or entities associated with SAP leading to criminal charges, fines, and claims by affected parties
- Collusion with external third parties, for example, by aiding in securing business
- Fraud and corruption, especially in countries with a low Transparency International Corruption Perceptions Index score and particularly in emerging markets
- Public sector transactions in territories exposed to a high risk of corruption
- Increased exposure and impact on business activities in highly regulated industries such as public sector, healthcare, banking, or insurance

Any of these events could have a material adverse effect on our business, reputation, brand, competitive or financial position, share price, profit, and cash flows.

SAP has encountered situations that required clear messaging and strong action on non-compliance in the context of corrupt behavior that has the potential to harm our business and reputation. SAP is continuing to investigate its dealings with the public sector. For more information relating to alleged violations, see the Notes to the Consolidated Financial Statements, *Note (G.3)*.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:
- Continuous development of our comprehensive compliance program based on the three pillars of prevention, detection, and response
- Expansion of the OEC's bandwidth through additional staffing

- Root cause analysis related to corrupt or fraudulent behavior to improve associated business processes and prevent further and future violations
- Refraining from engaging sales agents and paying third-party sales commissions on public sector deals in high-risk countries
- Review of partner models to mitigate risks of corruption while meeting agility requirements
- Internal audit of our compliance program as it relates to bribery, corruption, and substantial fraud
- Several educational, counseling, control, and investigative instruments
- Requirement for mandatory CoBC training applicable to every SAP employee, providing practical guidance on how to avoid corrupt behavior and approach dilemma situations
- Annual reconfirmation of commitment to the CoBC by SAP's workforce (except where disallowed by local legal regulations)
- Implementation of compliance policies and processes aimed at managing third parties and preventing misuse of third-party payments for illegal purposes, including the performance of compliance due diligence activities prior to the engagement of third parties
- Guidance in our travel, entertainment, gift, and expense policies
- Termination of partners that do not pass our partner compliance audit process, or remediation of their deficiencies
- Establishment of a Partner Integrity Initiative aiming to examine the compliance programs of partners in SAP's ecosystem and to review the SAP-related deals closed by them
- In response to preliminary findings of alleged anti-corruption law violations, we continue to implement enhancements to our anti-corruption compliance program, including guidance and policy changes as well as additional internal controls, and intend to pursue these enhancements further.

Despite our comprehensive and continuously evolving compliance program and established internal controls, intentional efforts of individuals to circumvent controls or engage in corruption, especially by way of collusion with other involved parties, cannot always be prevented.

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be likely. We classify this risk factor as high.

Human Capital Risks

Human Workforce: If we are unable to attract, develop, retain, and effectively manage our geographically dispersed workforce, we might not be able to run our business and operations efficiently and successfully, or develop successful new solutions and services.

Our success is dependent on appropriate alignment of our planning processes for our highly skilled and specialized workforce and leaders, adequate resource allocation, and our location strategy with our corporate strategy. In certain regions and specific technology and solution areas, we continue to set very high growth targets, depending on short-term and long-term skill requirements, taking infrastructure needs as well as local legal or tax regulations into consideration. Successful retention and expansion of our workforce in identified strategic areas are key success factors for our Intelligent Enterprise strategy. The availability of such personnel as well as business experts is limited and, as a result, competition in our industry is intense.

We are subject to risks and associated consequences in the following areas, among others:

- Failure to apply workforce planning processes, adequate resource allocation, and location strategy in alignment with our corporate strategy
- Failure to identify, attract, develop, motivate, adequately compensate, and retain well-qualified and engaged personnel to scale to targeted markets
- Failure to successfully maintain, upskill, and expand our highly skilled and specialized workforce
- Poor succession management or failure to find adequate replacements
- Loss of key personnel of acquired business
- Failure to meet short-term and long-term workforce and skill requirements including achievement of internal gender diversity objectives
- Lack of appropriate or inadequately executed benefit programs
- Lack of availability and scalability of business experts and consultants
- Mismatch of expenses and revenue due to changes in headcount and infrastructure needs, as well as local legal or tax regulations
- Challenges with effectively managing a large distribution network of third-party companies

Any of these events could reduce our ability to attract, develop, retain, and effectively manage our geographically dispersed workforce, which in turn could have an adverse effect on our business, competitive or financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- Workforce planning (aiming to achieve diversity and the right mix of talent while considering demographic changes) and legally compliant mobility planning, utilizing the integration of our SAP Concur travel and expense solutions to support the challenges of a global workforce
- Utilization of external advisory services to address complexity in legal requirements while ensuring adequate resource allocation
- Utilization of SAP solutions to support compliance and streamline processes
- Career management (including, but not limited to, opportunity offerings for short-term assignments as well as skill, competency, and qualification advancements)
- Building employee and leadership strengths through a range of targeted professional development, learning, mentoring, coaching, together with a diversity program to take the changes in a global workforce into consideration
- Recommendations around succession planning for leadership and key positions to ensure sustainable leadership and safeguard the business from impacts through staff turnover
- Strong focus on expanding our talent landscape and reach through our diversity and inclusion efforts, including but not limited to neurodiverse talent, which provides a vibrant channel of talent with relevant skill sets required to compete successfully
- Extended benefit and long-term incentive programs, which will enable us to hire and retain talents internationally
- Utilization of outsourcing or external short-term staffing

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be major. We estimate the probability of occurrence to be unlikely. We classify this risk factor as medium.

Operational Business Risks

Sales and Services: Sales and implementation of SAP software and services, including cloud, are subject to a number of significant risks sometimes beyond our direct control.

A core element of our business is the successful implementation of software and service solutions. The implementation of SAP software and cloud-based service deliveries is led by SAP, by partners, by customers, or by a combination thereof.

We are subject to risks and associated consequences in the following areas, among others:

- Implementation risks, if, for example, implementations take longer than planned, or fail to generate the profit originally expected, scope deviations, solution complexity, high pace of engineering innovation, individual integration and migration needs or functional requirement changes, or insufficient milestone management and tracking leading to delays in timeline, maybe even exceeding maintenance cycles of solutions in scope
- Insufficient or incorrect information provided by customers, subsequently leading to mismatches in contractual commitments, requirements, solution definition, architectures, or technologies
- Insufficient customer expectation management, including scope, integration capabilities and aspects, as well as lack of purposeful selection, implementation, and utilization of SAP solutions
- Lack of customer commitments and respective engagements, including insufficient commitment of resources or lack of solution migrations to latest offerings, leading to delays or deviations from recommended best practices
- Challenges to effectively implement acquired technologies
- Challenges to achieve a seamlessly integrated, sufficiently automated and aligned service delivery in complex deliveries or implementations, for example due to lack of insights especially in the event of limited project involvement of SAP
- Protracted installation or significant third-party consulting costs
- Improper calculations or estimates leading to costs exceeding the fees agreed in fixed-price contracts
- Unrenderable services committed during the sales stage
- Delayed customer payments due to differing perception on project outcome/results or customer solvency challenges
- Inadequate contracting and consumption models based on subscription models for services, support, and application management
- Deviations from standard terms and conditions, which may lead to an increased risk exposure
- Statements on solution developments might be misperceived by customers as commitments on future software functionalities

Any of these events could have an adverse effect on our business, financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- Projects include risk management processes as part of SAP's project management methods intended to safeguard implementations with coordinated risk and quality management programs
- Scope reviews and monitoring are conducted with required adaptations through a clearly defined change request process to support successful implementations together with respective project governance and steering
- Recommended project approaches, guidance, and best practices for customers to optimize their IT solutions in a non-disruptive manner
- Adequate financial planning provisions for the remaining risks
- Continuous project monitoring and controlling activities
- Established escalation management process
- Adjustment of delivery models to support customers
- Ongoing development of new commercial models to address customer flexibility needs
- Simplification, review, alignment, approval, and enforcement of contractual standard terms and conditions while conducting legal and operational assessments in case deviations are required
- A policy that clearly outlines communication rules on future functionalities as well as legal requirements for commitments to customers

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be major. We estimate the probability of occurrence to be unlikely. We classify this risk factor as medium.

Partner Ecosystem: If we are unable to scale, maintain, and enhance an effective partner ecosystem, revenue might not increase as expected.

An open and vibrant partner ecosystem is a fundamental pillar of our success and growth strategy. We have entered into partnership agreements that drive co-innovation on our platforms, profitably expand our routes to market to optimize market coverage, optimize cloud delivery, and provide high-quality services capacity in all market segments. Partners play a key role in driving market adoption of our entire solutions portfolio, by co-innovating on our platforms, embedding our technology, and reselling or implementing our software.

We are subject to risks and associated consequences in the following areas, among others:

- Failure to establish and enable a network of qualified partners supporting our scalability needs
- Failure to get the full commitment of our partners, which might reduce speed and impact in market reach
- Products or services model being less strategic or attractive compared to our competition
- Partners not renewing agreements with us, not entering into new agreements on terms acceptable to us or at all, or starting to compete with SAP
- Failure to enable or train sufficient partner resources to promote, sell, and support to scale to targeted markets
- Failure of partners to develop a sufficient number of new solutions and content on our platforms or to provide high-quality products or services to meet customer expectations
- Failure of partners to embed our solutions sufficiently enough to profitably drive product adoption, especially with innovations in

SAP S/4HANA, the SAP Customer Experience portfolio, business process intelligence, and SAP Business Technology Platform (SAP BTP).
- Failure of partners to adhere to applicable legal and compliance regulations
- Failure of partners and their products to meet quality requirements expected by our customers or SAP
- Failure of partners to transform their business model in accordance with the transformation of SAP's business model in a timely manner
- Partners not being able or not having capacity to meet customer expectations in terms of service provisioning
- Failure of partners to comply with contract terms in embargoed or high-risk countries

If any of these risks materialize, this might have an adverse effect on the demand for our products and services as well as the partner's loyalty and ability to deliver. As a result, we might not be able to scale our business to compete successfully with other vendors, which could have an adverse effect on our reputation, business, financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:
- Invest in long-term, mutually beneficial relationships and agreements with partners
- Continue to develop and enhance a wide range of partner programs to retain existing and attract new partners of all types
- Enable and encourage partners to leverage SAP technology, by providing guidance about business opportunities, architecture, and technology, such as through demo solutions, to enable partners to lead business value discussions on cloud and on-premise solutions with customers
- Offer training opportunities on a wide range of resources for our partners and provide safeguarding services to customers and partners
- Introduction of the Partner Delivery Quality Framework to monitor and safeguard the success of partner-led projects while ensuring that SAP quality criteria are met
- Maintain certification process for third-party solutions to ensure consistent high-quality and seamless integration
- Provide customer guidance and support as required during partner dissolutions

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be major. We estimate the probability of occurrence to be unlikely. We classify this risk factor as medium.

Cloud Operations: We may not be able to properly protect and safeguard our critical information and assets, business operations, cloud offerings and portfolio presentation, and related infrastructure against disruption or poor performance.

SAP is highly dependent on the availability of our infrastructure and the software used in our cloud portfolio is inherently complex.

We are subject to risks and associated consequences in the following areas, among others:
- Capacity shortages and SAP's inability to deliver and operate cloud services in a timely and efficient manner as expected by or committed to our customers
- Customer concerns about the ability to scale operations for large enterprise customers
- Incomplete cloud portfolio representation or strategic directions of cloud operations that may not fully meet customer demands and potentially lead to a disconnected customer orientation
- Lack of hyperscaler or infrastructure stability and availability or comprehensive contractual agreements, which may lead to challenges in meeting service level agreement (SLA) commitments
- Lack of sufficient "future skills" for delivering and operating hybrid environments
- Lack of automation, standardization, and tools to manage and optimize operations and infrastructure while providing a seamless, impeccable, and transparent end-to-end experience to customers
- Local legal requirements or changes to data sovereignty, which may lead to customers considering a relocation of their primary or disaster recovery landscapes to a different data center
- Defects or disruptions to data center operations or system stability and availability
- Interruptions in the availability of SAP's cloud applications portfolio, which could potentially impact customer service level agreements
- System outages or downtimes, SAP network failure due to human or other errors, security breaches, or variability in user traffic for cloud applications
- Hardware failures or system errors resulting in data loss, corruption, or incompletion of the collected information
- Loss of the right to use hardware purchased or leased from third parties, which could result in delays in our ability to provide our cloud applications
- Scalability demands on infrastructure and operation, which could lead to cost increases and margin impacts
- Non-adherence to our quality standards in the context of partner co-location of data centers
- Increased TCO for SAP
- Customers' cloud service demands not matching our data center capacity or control investments
- Non-compliance with applicable certification requirements, such as the Payment Card Industry Data Security Standard (PCI DSS)

Any of these events could have a material adverse effect on our reputation, business, competitive or financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:
- Consolidation and harmonization of our data centers and our data protection measures, including implementation of security information and event management solutions as well as network access control enforcement
- Significant investment in infrastructure and processes in an effort to ensure consistently secure operations of our cloud solutions while continuously improving resistance, resilience, reusability, and scalability towards a standardized and harmonized portfolio
- Continuous enhancement of infrastructure landscape capabilities and deployment options, including harmonized, efficient, and highly repetitive migration services
- Adherence to stringent SLAs with hyperscalers to ensure a high-quality customer experience
- Increased transparency through our continuously enhanced and expanded SAP Trust Center, ensuring appropriate level of

information, for example, with regard to planned patching activities and associated downtimes
- Monitoring and investment to continuously enhance our disaster recovery and business continuity capabilities
- Continuous aim for a homogeneous landscape that supports the complex infrastructure, application, and security requirements so that we can deliver the required service level for cloud services in a cost-effective manner
- Physical access control systems at facilities, multilevel access controls, closed-circuit television surveillance, security personnel in all critical areas, and recurring social engineering tests for SAP premises and data centers
- Access to information and information systems is controlled using authorization concepts. Managers and employees are regularly sensitized to the issues and given mandatory security and compliance training.
- Adaptation of our cloud service delivery to local or specific market requirements (such as local or regional data centers) and compliance with all local legal regulations regarding data protection and privacy as well as data security
- Contracts that require third-party data centers to have appropriate security and data protection and privacy terms in place. We establish contracts and SLA with our public cloud partners to ensure that data security and privacy measures meet local regulatory and compliance standards and SAP's own standards for data security and privacy.
- Strict internal policies and controls concerning utilization of our partner's cloud infrastructure, including people, process, and technology standards required to ensure compliance and cyberresilience
- Close monitoring of data center utilization, capacity, and pipeline for subsequent investment planning
- Regular risks reviews, disclosure requests, and audits to ensure public cloud providers meet SAP's data privacy and security standards
- PCI validated compliance by successful PCI DSS audits
- Investment in training and certifications concerning hyperscalers and related next-generation technologies
- Implementation of best-of-breed tools for IT operations management and automation

In the course of 2020, as part of our regular cybersecurity reviews, we identified that some of our cloud products did not meet one or more contractually agreed or statutory IT security standards. These findings were not identified in response to a security incident. Furthermore, we do not believe that any customer data was compromised as a result of these issues. We refer to our May 4, 2020, ad hoc notification for further details. In an effort to ensure that the affected products meet relevant terms and conditions, we updated the corresponding security-related terms and conditions. All identified gaps were resolved at the time of issuance of our half-year report in July 2020.

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. In consideration of the above-mentioned ad hoc notification, we have raised our estimate of the probability of occurrence to be likely. We now classify this risk factor as high.

Cybersecurity and Security: A cybersecurity attack or breach, or cybersecurity vulnerabilities in our products, infrastructure, or services, or economic espionage could result in significant legal and financial exposure.

As we continue to grow organically and through acquisitions, deliver a full portfolio of solutions via the cloud, host or manage elements of our customers' businesses in the cloud, process large amounts of data, and offer more mobile solutions to users, in each case either directly or through partners and other third parties, we face a progressively more complex and threatening cybersecurity environment. The severity of the challenges posed by this cybersecurity environment is amplified due to the increasingly sophisticated and malicious global cybersecurity threat landscape in which we operate, including third-party data, products, and services that we incorporate into SAP products and services, and the continually evolving and increasingly advanced techniques employed by threat actors targeting IT products and businesses in general. Such threat actors include, but are not limited to, highly sophisticated parties such as nation-states and organized criminal syndicates. As a leading cloud company and service provider to some of the largest and best-known customers in the world, we are naturally a prominent target for cybersecurity attacks. We have observed increased threat activity to our products and systems, and we experience cybersecurity attacks of varying types and degrees on a regular basis. When we become aware of unauthorized access to our systems, we take steps intended to identify and remediate the source and impact of the incursions, and steps to comply with related necessary notification and disclosure obligations. To date, none of the incursions identified have had a material adverse effect on our business. However, we do not have visibility into all unauthorized incursions and our systems may be experiencing ongoing incursions of which we are not aware. In addition, while we are continually taking steps to enhance our cybersecurity defenses, increased investments, coordination, and resources are required to achieve our objective of ensuring over time that our cybersecurity infrastructure meets or exceeds evolving industry standards. Achieving this objective will require continued effort and vigilance, including sustained investment of money and management resources in order to support the ongoing development and maintenance of systems that meet these standards. As a result, we are subject to risks and associated consequences in the following areas, among others:
- Identified or undetected cybersecurity defects and vulnerabilities
- Increased complexity, risk of exploitation, and potential vulnerabilities due to utilization of open-source software components
- Exposure of our business operations and service delivery due to a number of threats, including virtual attack, disruption, damage, unauthorized access, theft, destruction, industrial or economic espionage, serious or organized crime, and other illegal activities, as well as violent extremism and terrorism
- Misuse of data, social engineering or trespassers in our facilities, or systems being rendered unusable
- State-driven economic espionage or competitor-driven industrial espionage, and criminal activities including, but not limited to, cyberattacks and breaches against cloud services and hosted on-premise software, whether managed by us or our customers, partners, or other third parties

- Disruptions to back-up, disaster recovery or business continuity management processes
- Disruptions due to exposure of our network systems to cybersecurity attacks via defects and vulnerabilities in the IT systems of our customers, or in the systems of third parties that facilitate our business activities such as cloud service providers, including those that are beyond SAP's cybersecurity infrastructure and protocols
- Failure to securely and successfully deliver cloud services by any cloud service provider could have a negative impact on customer trust in cloud solutions
- Cybersecurity threats for SAP and customers due to delayed or insufficient responses to identified cybersecurity issues attributable to complexity, interdependencies, or other factors
- Challenges in effectively synchronizing cybersecurity processes across our various lines of business in a heterogeneous environment
- Insufficient or ineffective asset management potentially endangering secure operations
- Customer systems or systems operated by SAP being compromised by vulnerabilities due to threat actor exploitation
- Operational disruptions due to an increasing number of destructive malwares, ransomware, or other cybersecurity attacks
- Breach of cybersecurity measures due to, for example but not limited to, error or wrongdoing by employees or affiliated persons, system vulnerabilities, code defects, malfunctions, or attempts of third parties to fraudulently induce employees, users, partners, or customers to gain access to our systems, data, or customers' data
- Failure to maintain a sufficient complement of personnel with sufficient levels of knowledge, experience, and training in cybersecurity matters necessary to support SAP's evolving cybersecurity needs and commensurate with the increasingly complex and sophisticated threat landscape
- Increased challenges due to an expanding and morphing cyber-attack surface attributable to interconnected technologies such as IoT accompanied by an elevation of entry and endpoints
- Expansion of cybersecurity attack surface due to increased connectivity of operational data
- Material recovery costs as well as significant contractual and legal claims by customers, partners, authorities (including state, federal, and national), and third-party service providers which could expose us to significant expense and liability or result in the issuance of orders, judgments, or consent decrees that could require us to modify our business practices
- Material costs to attempt to detect, prevent, and mitigate any successful attacks, including but not limited to the costs of third-party legal and cybersecurity experts and consultants, insurance costs, additional personnel and technologies, organizational changes, and incentives to customers and partners to compensate for any losses or retain their business
- Increasing sophistication, proliferation, and escalation in frequency, severity, and impact of cybersecurity attacks
- Inability to discover a cybersecurity breach or a loss of information either fully, in a timely manner, for a significant amount of time after the breach, or at all
- Inability to anticipate attacks or implement sufficient mitigating measures
- Insufficient investment, coordination, or resources to achieve our objective of ensuring over time that our cybersecurity infrastructure meets or exceeds evolving industry standards, and defending against the ever-evolving and emerging threat landscape
- Material costs and time associated with enhancing our cybersecurity infrastructure, which may impact the ongoing pace of development and delivery of our products and services and our financial performance
- Failure to integrate SAP's cybersecurity infrastructure and protocols with other network systems obtained through acquisition, including addressing cybersecurity defects and vulnerabilities in acquired systems
- Failure to maintain SAP's cybersecurity infrastructure and protocols in connection with the divestiture of businesses and network systems from SAP, or failure to achieve a holistic level of required transparency reflecting current states
- Inaccurate or incomplete third-party or SAP audit results, certifications, or representations concerning the adequacy of our cybersecurity infrastructure and protocols
- Customer concerns and loss of confidence in the current or future security and reliability of our products and services, including cloud solutions and the resulting termination of key contracts by customers and partners

Any of these events could have a material adverse effect on our customers, partners, financial performance, profit, cash flows, operations, brand, reputation, competitive position, the perception of our products and services by current and prospective customers, and our business in general.

In response to the increasing number of cybersecurity attacks, and because we anticipate threat actor techniques to continue to evolve in our complex and threatening cybersecurity landscape, SAP has expended significant resources to enhance its cybersecurity program, has increased the Executive Board and Supervisory Board's governance of and involvement in cybersecurity matters, and continues to investigate and remediate vulnerabilities. In particular, SAP has established measures intended to address the described risks and adverse effects, such as:

- Software security development lifecycle being implemented as a mandatory, integral part of our software development process, including checks on open-source component coverage, enhanced development tools with integrated security features and functionalities
- We strive to align our software security development lifecycle to the recommendations of ISO/IEC 27034, applying methods to develop secure software
- Customers are provided with security certifications (such as ISO/IEC 27001), security white papers, product documentation, and reports from independent auditors and certification bodies
- Review/audit of our certifications and representations to customers concerning our cybersecurity infrastructure and protocols in alignment with contractual agreements
- An SAP Global Security Policy that is mandatory for all employees and supported by documented security standards, procedures, and good practices including specific security training curricula for our developers
- Product standard requirements such as mandatory non-erroneous modeling taking into account software dependencies

- Disaster recovery and business continuity plans to protect our key IT infrastructure (especially our data centers) include implementation of data redundancies and daily data backup strategies
- Corporate headquarters, which houses certain critical business functions, are located in the German state of Baden-Württemberg, an area that is historically free of natural disasters
- Certification of relevant IT-related organizations to the internationally recognized Business Continuity Management standard
- A responsible disclosure process to detect vulnerabilities, as well as security patch days to rapidly respond to customer security needs and provide fixes
- Increased investments, coordination, and resources, including various internal initiatives, to achieve SAP's objective of ensuring over time that our cybersecurity infrastructure meets or exceeds evolving industry standards
- Improved monitoring with respect to implementing enhancements to our cybersecurity infrastructure
- Improved roll-out procedures for security-relevant notes, patches, and service packs to ensure easy and fast consumption on the customer side
- Continuous vigilance, adaptation, standardization, and modification of our security procedures, such as security risk identification, threat modeling, advanced threat defense, a comprehensive security testing strategy, container security enhancements, mandatory security training for all developers, and security validation of our critical components, products, patches, and services before shipment
- Focus on development and implementation of heightened cybersecurity measures designed to further safeguard SAP's most strategic assets
- Monitoring of cybersecurity posture to gain visibility on exposed vulnerabilities of third-party vendors
- Continuous enhancement of holistic assessment methodologies and means in order to keep pace with technology
- Continuous enhancement of cloud-based central Domain Name System (DNS) filtering capabilities, managing endpoints, malware filtering, and data leakage prevention
- Measures such as technical IT security measures, identity and access management, and mandatory security and compliance training
- Investment in data and asset governance of SAP's global asset repository
- Physical security measures such as access control systems and employee identification
- Focus on increased coordination across our various lines of business with respect to our ability to detect, identify, and respond to unauthorized incursions in our systems in a timely manner
- Focus on increased hiring, training, development, and retention of skilled personnel in SAP's cybersecurity and product security workforce
- Increased employee, contractor, third-party, and partner awareness through campaigns and cybersecurity awareness training courses and projects, including execution of security reviews, as required
- Local and regional crisis management teams to respond and minimize possible losses in case of crisis situations
- Engagement of experts to advise on appropriate cybersecurity protocols and to further increase attention and awareness of cybersecurity protocols and protection options
- Integrated security capabilities in our hosting environment, cloud platforms, and cloud deployment tools

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be highly likely. We classify this risk factor as high. For more information, see the *Security, Data Protection, and Privacy* section.

Technology and Products: Our technology and products may experience undetected defects, coding or configuration errors, may not integrate as expected, or may not meet customer expectations.

We are subject to risks and associated consequences in the following areas, among others:

- Failure of software products and services to fully meet market needs or customer expectations
- Failure of software products and services from acquired companies to fully comply with SAP quality standards
- We might not be as fast as expected in integrating our platforms and solutions, enabling the complete product and cloud service portfolio, harmonizing our user interface design and technology, integrating acquired technologies and products, or bringing packages, services, or new solutions based on SAP BTP to the market.
- New products, services, and cloud offerings, including third-party technologies, might not comply with local standards and requirements or might contain defects or might not be mature enough from the customer's point of view for business-critical solutions after shipment despite all the due diligence SAP puts into quality.
- Inability to define and provide adequate solution packages and scope for all customer segments
- Inability of algorithms to correctly adapt to evolving circumstances, which may lead to adverse decision-making processes in the context of AI-related technologies
- Inability to fulfil expectations of customers regarding time and quality in the defect resolution process
- Lack of customer references for new products and solutions

Any of these events could have a material adverse effect on our business, brand, competitive or financial position, profit, and cash flows.

SAP has established measures to address and mitigate the described risks and adverse effects, such as:

- Increased focus on localization needs to further meet customer demands
- A broad range of techniques, including project management, project monitoring, product standards and governance, and rigid and regular quality assurance measures certified to ISO 9001:2015, applicable to SAP's reportable segments
- Threat modelling at the beginning of every development project to identify potential risks including but not limited to using centrally provided tools, also as part of information security measures certified to ISO 27001:2013
- A holistic testing strategy to validate the state of quality and security for every product before market introduction

- Regular, direct customer feedback is considered in the market release decision process
- Ongoing maintenance of the high quality level of our products, (which is made transparent in the defined KPIs for quality transparency and confirmed by our satisfaction ratings as measured by our customer survey)
- Drive the integration and convergence of our offerings such as SAP S/4HANA, the SAP Customer Experience portfolio, SAP BTP, and acquired technologies
- Enable our current product portfolio for SAP HANA, develop new solutions based on SAP HANA, and offer comprehensive cloud-based services, supported by SAP BTP and intelligent technologies
- A comprehensive certification program designed to ensure that relevant third-party solutions are of consistently high quality

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be unlikely. We classify this risk factor as medium.

Strategic Risks

Market Share and Profit: Our market share and profit could decline due to increased competition, market consolidation, technological innovation, and new business models in the software industry.

The market for cloud computing is increasingly competitive and is exhibiting strong growth relative to the market for on-premise solutions. To maintain or improve our operating results in the cloud business, it is important that our customers renew their agreements with us when the initial contract term expires and purchase additional modules or additional capacity, as well as for us to attract new customers. Additionally, we need to bring new solutions to the market in line with demands and ahead of our competitors, for example, SAP BTP, to support new data-driven applications and the extension of the intelligent suite. In particular, innovative applications supporting the Intelligent Enterprise strategy include SAP Customer Experience solutions, as well as technologies such as IoT, machine learning, intelligent robotic process automation (intelligent RPA) (which automates rule-based, repetitive tasks), digital assistants (including voice recognition and interaction), and blockchain.

We are subject to risks and associated consequences in the following areas, among others:

- Inability to successfully engage with on-premise customers on their cloud transformation journey (both in cloud only and hybrid scenarios) with fully suitable solutions and transformation services
- Inability to successfully execute on our multi-hyperscaler strategy
- Adverse, near-term revenue effects due to increasing cloud business and conversions from on-premise licenses to cloud subscriptions from existing SAP customers, which could have an adverse effect on related maintenance and services revenue
- Insufficient solution and service adoption together with increased complexity, as well as failures during the execution of our Intelligent Enterprise strategy in the context of our portfolio for solutions and services, which could lead to a loss of SAP's position as a leading cloud company and subsequently to reduced customer adoption
- Customers and partners reluctant or unwilling to migrate and adapt to the cloud, or customers considering cloud offerings from our competitors
- Existing customers deciding to cancel or not renew their contracts (such as maintenance or cloud subscriptions) or not buy additional products and services
- Strategic alliances among competitors or their growth-related efficiency gains in the cloud business, which could lead to significantly increased competition in the market with regard to pricing and ability to integrate solutions
- Price pressure, cost increases, and loss of market share through traditional, new, and especially cooperating competitors and hyperscalers
- Inability to achieve the planned margin increase in time as planned

Any of these events could have a material adverse effect on our business, brand, competitive or financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- Share our overall long-term cloud strategy and our integration road map with our customers, and continuously implement improvements to enhance our cloud solutions through our Intelligent Enterprise strategy, also covering the integration of experiential and operational data
- Demonstrate the benefits of our solution and services portfolio through end-to-end integration scenarios, consistent and compelling user interfaces, intelligent technologies, customer references, and success stories
- Enable and support our customers in their transition path from on-premise to cloud, for example through the cloud extension policy, our SAP S/4HANA Movement program (a cross-departmental initiative to promote the migration of our existing ERP customers to an intelligent enterprise), and our scalable SAP S/4HANA Cloud, private edition or the SAP HANA Enterprise Cloud customer edition offerings
- Balance the allocation of our strategic investments by evolving and protecting our core businesses and simultaneously developing new solutions, technologies, and business models for markets, such as those in analytics, applications, and database and technology
- Engage with our customers and offer a broader range of services to support and drive the digital transformation for our customers, for example with our premium service offerings
- Place strong focus on providing our cloud services efficiently and to customer expectations, including service provisioning, quality, security, and data protection and privacy
- Continue to drive the solution integration and harmonization of data models to support integrated business processes, applications, and technology while focusing on resilience, profitability, and sustainability
- Enable our portfolio for hyperscalers in order to extend customer reach and further meet customer expectations
- Deliver standard software and product packages that are fast, easy to install, highly automated, and financially attractive financing and subscription models

- Enable and encourage partners to leverage SAP technology by providing guidance about business opportunities, architecture, and technology, as well as a comprehensive certification program designed to ensure that relevant third-party solutions are of consistently high quality
- Continue to move SAP HANA Enterprise Cloud towards a full-stack offering and increase the share of high-value cloud application services to further improve the margin

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be unlikely. We classify this risk factor as medium.

Mergers and Acquisitions: We might not acquire and integrate companies effectively or successfully.

To expand our business, we acquire businesses, products, and technologies, and we expect to continue doing so in the future. Over time, some of these acquisitions have increased in size and in strategic importance for SAP. Management negotiation of potential acquisitions and the integration of acquired businesses, products, or technologies demands time, focus, and resources of both management and the workforce, and exposes us to unpredictable operational difficulties.

We are subject to risks and associated consequences in the following areas, among others:

- Incorrect information or assumptions during the due diligence process for the acquisition (including information or assumptions related to the business environment or business and licensing models)
- Failure to integrate acquired technologies or solutions successfully and profitably into SAP's solution portfolio and strategy
- Failure to successfully integrate acquired entities, operations, cultures, or languages, all within the constraints of applicable local laws
- Unfulfilled needs of the acquired company's customers or partners
- Material unidentified liabilities of acquired companies (including legal, tax, IP)
- Failure in implementing, restoring, or maintaining internal controls, disclosure controls and procedures, and policies within acquired companies
- Incompatible practices or policies (compliance requirements)
- Insufficient integration of the acquired company's accounting, HR, and other administrative systems
- Failure to coordinate or successfully integrate the acquired company's research and development (R&D), sales, marketing activities, and security and cybersecurity protocols
- Debt incurrence or significant unexpected cash expenditures
- Non-compliance with existing SAP standards including applicable product standards such as our open source product standards
- Impairment of goodwill and other intangible assets acquired in business combinations
- Non-compliance of the acquired company with regulatory requirements, for example, accounting standards, export control laws, and trade sanctions, for which SAP, through the acquisition, assumes responsibility and liability, including potential fines and the obligation to remedy the non-compliance

Any of these events could have a material adverse effect on our business, brand, competitive or financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate risks and adverse effects, such as:

- Technical, operational, financial, and legal due diligence on the company or assets to be acquired
- A holistic evaluation of material transaction and integration risks
- Identification, implementation, and tracking of risk mitigation measures for material transactions or integration risks
- A standardized methodology for detailed integration planning, which is carried out by a dedicated integration team
- Process, risk, and control analyses accompanied by subsequent integration into SAP's processes and control framework, and supported by mitigations as required by any specific circumstances to subsequently increase adherence to SAP's standards and policies

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be major. We estimate the probability of occurrence to be likely. We classify this risk factor as medium.

Innovation: We might not be able to compete effectively if we strategize our solution portfolio ineffectively or if we are unable to keep up with rapid technological and product innovations, enhancements, new business models, and changing market expectations.

Our future success depends on our ability to keep pace with technological and process innovations and new business models, as well as on our ability to develop new products and services, enhance and expand our existing products and services portfolio, and integrate products and services we obtain through acquisitions. To be successful, we are required to adapt our products and our go-to-market approach to a cloud-based delivery and consumption model to satisfy increasing customer demand and to ensure an appropriate level of adoption, customer satisfaction, and retention.

We are subject to risks and associated consequences in the following areas, among others:

- Inability to bring new business models, solutions, solution enhancements, intelligent technologies, integrations and interfaces or services to market before our competitors or at equally favorable terms
- Inability to develop and sell new cloud products spanning various organizations on time and in line with market demands due to complexity in heterogeneous technical environments
- Inability to anticipate and develop technological improvements or succeed in adapting SAP products, services, processes, and business models to technological change, changing regulatory requirements, emerging industry standards, and changing requirements of our customers and partners (especially with innovations such as industry cloud, SAP Business Network, and business process intelligence offerings supported by SAP BTP) to strengthen the Intelligent Enterprise strategy
- Uncertainties regarding new SAP solutions, technologies, and business models as well as delivery and consumption models, which might lead customers to wait for proofs of concept or holistic integration scenarios through reference customers or more mature versions

- Lower level of adoption of our new solutions, technologies, business models, and flexible consumption models, or no adoption at all
- Our product and technology strategy might not be successful, or our customers and partners might not adopt our technology platforms, applications, or cloud services quickly enough or they might consider other competing solutions in the market, or our strategy might not match customers' expectations, specifically in the context of expanding the product portfolio into additional markets.
- Increasing competition from open source software initiatives or comparable models in which competitors might provide software and intellectual property free of charge or at terms and conditions unfavorable for SAP
- Inability to drive growth of references through customer use cases and demo systems

Any of these events could have a material adverse effect on our business, financial position, profit, and cash flows.

SAP has established measures intended to address and mitigate the described risks and adverse effects, such as:

- Align our organization, processes, products, delivery, commercial and consumption models, and services to changing markets and customer and partner demands
- Continuously benchmark, match, and challenge the entire portfolio at a corporate, portfolio category, and individual business case level
- Focus all investment decisions related to new technologies and solutions on portfolio compatibility and readiness as well as high customer value
- Develop new technologies and new solutions, such as industry cloud solutions, SAP Business Network, and business process intelligence offerings supported by SAP BTP
- Explore future trends as well as the latest technologies, for example through our network of innovation centers as part of the Technology & Innovation Board area, and adapt these to the market if there is a clear business opportunity for SAP and value to our customers
- Conduct wide-ranging market and technology analyses and research or co-innovation projects, often in close cooperation with our customers and partners, to remain competitive
- Make strategic acquisitions with the potential to drive innovation and contribute to achieving our growth target

We cannot exclude the possibility that if risks of this risk factor were to occur, the impact could be business-critical. We estimate the probability of occurrence to be remote. We classify this risk factor as medium.

Consolidated Risk Profile

We consolidate and aggregate relevant risks identified by the different business units and functions following our risk management policy, monitored by a Group-wide risk management governance function.

Based on our aggregation and previous calculation approach, we recognized only minor changes in 2020 in the percentages of all reported risks categorized as "high" (2020: 35%; 2019: 27%) or "medium" (2020: 39%; 2019: 45%) in our risk level matrix. However, due to the revised approach to risk reporting (for details, see the *Risk Factors* section), the total number of reported risks has concurrently decreased, also affecting the statistics and historical comparison. Consequently, risks with the risk level "high" accounted for 50% and risks with the risk level "medium" accounted for the remaining 50% of all risks reported in the *Risk Factors* section in 2020.

In our view, considering their impact level and likelihood of occurrence, the risks described in our aggregated risk report do not individually or cumulatively threaten our ability to continue as a going concern. Management remains confident that the Group's earnings strength forms a solid basis for our future business development and provides the necessary resource to pursue the opportunities available to the Group. Based on our structured processes for early risk identification, we are confident that we can continue to counter the challenges arising from the risks in our current risk profile in 2021.

Expected Developments and Opportunities

Future Trends in the Global Economy

A number of headwinds cloud the near-term outlook for the global economy, states the European Central Bank (ECB) in its December 2020 Economic Bulletin.[1] The most significant among these are the renewed containment measures in response to rising numbers of COVID-19 infections, although these measures are expected to be more targeted and less disruptive to economic activity than those implemented during earlier stages of the pandemic. Furthermore, the unwinding of government support might negatively affect economic growth in 2021, particularly in advanced economies, the ECB predicts.

On the other hand, effective medical solutions such as vaccines against the coronavirus may become increasingly available, allowing for a gradual relaxation of the containment measures and thus triggering financial market optimism in the latter half of 2021. Overall, the ECB expects global economic growth to rebound in 2021 and achieve moderate growth again in 2022 and 2023. However, the pace of recovery will likely vary across regions, with emerging market economies projected to make the largest contribution in this regard.

Economic developments in the EMEA region will most likely remain uneven across countries and sectors. In the euro area, the ECB forecasts that weaker corporate balance sheets and uncertainty about the economic outlook could weigh on business investment. Nevertheless, over the medium term, containment measures will probably come to an end. Favorable financing conditions and an expansionary fiscal stance might then support the recovery of the euro area economy. In central and eastern Europe, the ECB expects economic recovery to come to a halt until early 2021 due to the worsening pandemic situation. Thereafter, the easing of restrictions together with fiscal and monetary measures could revive growth, which might however remain below its year-end 2019 level until early 2022. In Russia, the pace of recovery in 2021 could slow further amid an ongoing high number of infections and reduced room for fiscal support, says the ECB.

Regarding the Americas region, the resurgence of COVID-19 infections and fading fiscal stimulus impair the near-term outlook in the United States. In Brazil, according to the ECB, elevated infection rates and limited fiscal space might drag on investment and consumption in the short and medium term, ultimately moderating the path of economic recovery.

As for the APJ region, the ECB expects the economic recovery in Japan to continue in 2021, albeit at a moderate pace. A third supplementary budget for the fiscal year 2020 should provide some additional support in the coming months. China, on the other hand, could account for about half of the region's post-pandemic recovery, reflecting the country's role in supplying medical and technology goods worldwide, says the ECB.

With regard to growth rates, the International Monetary Fund (IMF) projects the following economic trends for the mid-term horizon until the end of 2021:

Economic Trends
GDP Growth Year Over Year

%	2019	**2020p**	2021p
World	**2.8**	**–3.5**	**5.5**
Advanced Economies	1.6	–4.9	4.3
Emerging Markets and Developing Economies	3.6	–2.4	6.3
Regions (according to IMF taxonomy)			
Euro Area	1.3	–7.2	4.2
Germany	0.6	–5.4	3.5
Emerging and Developing Europe	2.2	–2.8	4.0
Middle East and Central Asia	1.4	–3.2	3.0
Sub-Saharan Africa	3.2	–2.6	3.2
United States	2.2	–3.4	5.1
Canada	1.9	–5.5	3.6
Latin America and the Caribbean	0.2	–7.4	4.1
Japan	0.3	–5.1	3.1
Emerging and Developing Asia	5.4	–1.1	8.3
China	6.0	2.3	8.1

p = projection

Source: International Monetary Fund (IMF), World Economic Outlook Update January 2021, Policy Support and Vaccines Expected to Lift Activity (https://www.imf.org/-/media/Files/Publications/WEO/2021/Update/January/English/text.ashx), p. 4.

The IT Market: Outlook for 2021 and Beyond

While the ECB's outlook for the global economy in the immediate future is not very optimistic, International Data Corporation (IDC), a U.S.-based market research firm, suggests a more positive outlook for the global IT market. Shaken by the COVID-19 pandemic experience, organizations are rethinking what their future will look like and what it will take for them to thrive in a changed business landscape. In a current IDC study, 60% of organizations report that they are planning to focus on new business and operating models following the pandemic.[2]

With these plans comes a strong focus on digital technologies for remote access and communications. That is because these technologies can lead enterprises safely through lockdowns,

movement restrictions, social distancing, and supply disruptions, should this become necessary again. Fueled by the pandemic, products, services, and relationships might therefore shift from face-to-face to digital permanently. According to IDC, 65% of global GDP will be digitalized by 2022,[2] with enterprises not only introducing new applications but also modernizing over half of their existing installations by then to gain business agility.[4]

This transition will require IT to evolve from a service provider to an element deeply integrated into core processes.[3] To IDC, this means that organizations will use IT to effectively transform data into insight and deliver lessons learned and predictions that improve decision-making and resilience. However, IDC also identifies an ethical dimension in advancing competitiveness through artificial intelligence (AI) and the governance of data.[2]

For the coming years, resulting from these pandemic-driven new realities in a digital economy, IDC describes two main long-term, sustainable trends: platform thinking and the cloud shift. By the end of 2021, therefore, most enterprises (80%) will shift to cloud-centric infrastructures and applications twice as fast as compared to their pre-pandemic strategies. By 2024, the adoption of cloud-native architectures for core business applications might multiply by five.[2]

Over the same period, 25% of organizations will further expand their cloud platforms to improve their business agility,[4] according to IDC, and use cloud applications not only for integrating edge data but also for industry- and ecosystem-wide data sharing, paving the way for commercializing internally developed software.[3] As a result, software co-developed and owned by an industry consortium might displace 15% of the current enterprise application market by 2025, projects IDC.[2]

Sources:

[1] European Central Bank, Economic Bulletin, Issue 8/2020, Publication Date: January 7, 2021 (https://www.ecb.europa.eu/pub/pdf/ecbu/eb202008.en.pdf)
[2] IDC FutureScape: Worldwide IT Industry 2021 Predictions, Doc #US46942020, October 2020
[3] IDC FutureScape: Worldwide Future of Digital Transformation 2021 Predictions, Doc #US46417320, October 2020
[4] IDC FutureScape: Worldwide Cloud 2021 Predictions, Doc #US46420120, October 2020

Impact on SAP

SAP continues to be a key technology partner in helping customers and the broader community address challenges related to the COVID-19 pandemic. Despite the current macroeconomic uncertainties caused by the pandemic, the majority of SAP customers are taking advantage of the digital transformation to transform their business models, increase market share, and increase efficiency.

With our new RISE with SAP offering, we took a strategic step forward to accelerate the business transformation of our customers to the cloud to help make them more successful, become more agile, and improve resiliency. Furthermore, the faster adoption of new technologies and innovations helps enable our customers to differentiate better, increase competitiveness, and develop new business models.

This offering aligns well with the observed market shift to a stronger cloud adoption and platform adoption. In addition, our strategic cooperation projects with technology leaders as well as industry alliances in dedicated verticals aims to strengthen SAP's ecosystem and to create new market opportunities in the future.

Financial Targets and Prospects

Revenue and Operating Profit Targets and Prospects (Non-IFRS)

Outlook 2021

SAP provides the following full-year 2021 outlook reflecting its solid business momentum and best estimates concerning the timing and pace of recovery from the COVID-19 pandemic. This outlook assumes the pandemic will begin to recede as vaccine programs roll out globally, leading to a gradually improving demand environment in the second half of 2021.

- SAP expects non-IFRS cloud revenue of between €9.1 billion and €9.5 billion at constant currencies (2020: €8.09 billion), up 13% to 18% at constant currencies.
- SAP expects non-IFRS cloud and software revenue of between €23.3 billion and €23.8 billion at constant currencies (2020 €23.23 billion), representing a growth rate of flat to 2% at constant currencies.
- SAP expects non-IFRS operating profit of between €7.8 billion and €8.2 billion at constant currencies (2020: €8.28 billion), down 1% to 6% at constant currencies.
- The share of more predictable revenue (defined as the total of cloud revenue and software support revenue) is expected to reach approximately 75% (2020: 72%).

We expect CCB to grow at a moderately higher rate than non-IFRS cloud revenue in 2021 reflecting customers' accelerating transformation into the cloud. Non-IFRS cloud revenue is expected to reach approximately three times the amount of non-IFRS software license revenue.

While SAP's full-year 2021 business outlook is at constant currencies, actual currency reported figures are expected to be impacted by currency exchange rate fluctuations as the Company progresses through the year. See the table below for the full-year 2021 expected currency impacts. These currency expectations for the full-year 2021 are based on the December 2020 level.

In percentage points (pp)	**2021**
Cloud subscriptions and support	–3pp to –5pp
Cloud and software	–2pp to –4pp
Operating profit	–2pp to –4pp

The following table shows the estimates of the items that represent the differences between our non-IFRS financial measures and our IFRS financial measures.

Non-IFRS Measures

€ millions	Estimated Amounts for 2021	**Actual Amounts for 2020**
Revenue adjustments	0–30	5
Share-based payment expenses	2,000–2,500	1,084
Acquisition-related charges	540–640	577
Restructuring	150–200	–3

The Company expects a full-year 2021 effective tax rate (IFRS) of 27.5% to 28.5% (2020: 26.8%) and an effective tax rate (non-IFRS) of 24.5% to 25.5% (2020: 26.5%). The difference between the effective tax rate (IFRS) and the effective tax rate (non-IFRS) results from tax effects on non-deductible expenses for share-based payments, which are only recognized under IFRS.

Proposed Dividend

In line with our dividend policy of distributing at least a dividend totaling 40% or more of the prior year's profit after tax, we intend to pay a dividend of €1.85 per share (subject to shareholder approval at the Annual General Shareholders Meeting in May 2021). For more information, see the *Financial Performance: Review and Analysis* section.

Medium-Term Prospects

In this section, all numbers are based exclusively on non-IFRS measures.

SAP expects to grow its more predictable revenue while steadily increasing operating profit. Our strategic objectives are focused primarily on our main financial and non-financial objectives: growth, profitability, customer loyalty, and employee engagement.

On October 25, 2020, we replaced our previous midterm ambition issued on April 24, 2019, with a new 2025 ambition. The midterm ambition reflects the following factors:

- Changes in currency exchange rates (as at October 2020) which translated to a negative 3% to 4% effect on revenue and operating profit since April 2019
- The COVID-19 pandemic is expected to impact the demand environment, particularly in hard-hit industries, through at least the first half of 2021, pushing out the achievement of key metrics such as non-IFRS cloud revenue, total revenue, and operating profit, by one to two years.
- The acceleration of customers' move to the cloud and subsequent business transformations
- The accelerated harmonization of SAP's cloud delivery infrastructure, which is expected to require an incremental investment of a mid-triple-digit million euro amount over the course of 2021 and 2022

As a consequence of SAP's accelerated cloud transition, the Company expects software licenses revenue to continue to trend lower from 2020 levels. In addition to other margin effects, specifically the accelerated cloud transition and the subsequent business transformations are expected to negatively impact the 2023 operating margin by approximately 4pp to 5pp relative to the previous midterm ambition. Additionally, we expect to modestly increase our non-IFRS cloud gross margins in 2021 and 2022 and expect a significant step-up as of 2023 due to expected efficiency gains.

Also, we expect the RISE with SAP offering to be a material contributor to non-IFRS cloud revenue growth. Through 2025, we estimate an approximately 2pp to 3pp contribution to the non-IFRS cloud revenue growth rate, both from each the conversion of established maintenance and from the conversion of software licenses sales to cloud subscriptions. We expect a non-IFRS cloud revenue growth rate for the rest of our portfolio outside of RISE with SAP in the high teens.

The combined impact of the above factors and the mechanics of the associated business model switch are expected to lead to muted non-IFRS total revenue growth as well as flat or slightly lower non-IFRS operating profit over the next two years, followed by accelerated non-IFRS total revenue and double-digit non-IFRS operating profit growth from 2023 onwards.

By 2025, this trajectory is expected to take SAP to:

- More than €22 billion in non-IFRS cloud revenue
- More than €36 billion in non-IFRS total revenue
- More than €11.5 billion in non-IFRS operating profit
- A non-IFRS cloud gross margin of approximately 80%
- A significant expansion of the Company's more predictable revenue share to approximately 85%

Investment Goals

Our planned investment expenditures for 2020 and 2021, other than for business combinations, consist primarily of the purchase of IT infrastructure and the construction activities described in the *Assets (IFRS)* section. We expect investments in IT infrastructure of approximately €480 million and in construction activities of approximately €240 million in 2021. In 2021, we expect total capital expenditures of approximately €950 million. In 2022, capital expenditures are expected to stay at a similar level as in 2021.

Goals for Liquidity and Finance

As at December 31, 2020, we had a net debt of €6,503 million. We believe that our liquid assets, combined with our undrawn credit facilities, are sufficient to meet our operating financing needs in 2021 as well, and, together with expected cash flows from operations, will support debt repayments and our currently planned capital expenditure requirements over the near and medium term.

In 2021, compared to 2020, we expect a decline of operating cash flow from €7.2 billion to around €6.0 billion due to a moderately lower profit, higher income tax payments, and adverse foreign exchange impacts. Free cash flow is expected to decrease to a level of above €4.5 billion. For 2025, we expect around €8 billion in free cash flow.

We intend to repay €500 million in Eurobonds in 2021. In addition, we plan to repay the full or portions of the currently outstanding €1.25 billion Qualtrics acquisition term loan. The ratio of net debt as at December 31, 2020, of around €6.5 billion divided by the total of operating profit (IFRS) plus depreciation and amortization was below 0.8. For the years beyond 2021, we expect to reduce gross debt in line with our current maturity profile.

Non-Financial Goals 2021 and Ambitions for 2025

In addition to our financial goals, we also focus on three non-financial targets: customer loyalty, employee engagement, and carbon impact.

For 2021 through 2025, we aim to maintain employee engagement, as measured by the Employee Engagement Index, at a high level between 84% and 86% (2020: 86%).

We measure customer loyalty using the Customer Net Promoter Score (Customer NPS). We are targeting to increase the Customer NPS to a score of 5 to 10 in 2021 and to steadily increase the Customer NPS through 2025 (2020: 4).

We aim to reach net greenhouse gas emissions of 145 kilotons (kt) in 2021 (2020: 135 kt) with a steady decrease further on, reaching 0 kt by 2023 and maintaining a net-zero carbon footprint from that point onward.

Premises on Which Our Outlook and Prospects Are Based

In preparing our outlook and prospects, we have taken into account all events known to us at the time we prepared this report that could influence SAP's business going forward.

Outlook for SAP SE

The primary source of revenue for SAP SE is the license fees it charges subsidiaries for the right to market and maintain SAP software solutions. Consequently, the performance of SAP SE in operating terms is closely tied to the cloud and the software revenue of the SAP Group. In particular, the assumptions regarding the development of the COVID-19 pandemic made for the SAP Group outlook therefore apply analogously to the outlook of SAP SE.

Based on the outlook for cloud and software revenue for the SAP Group at constant currency in non-IFRS in 2021, we expect product revenue for SAP SE in 2021 to remain at the level of 2020.

Assuming there are no significant effects from acquisitions or other unforeseeable occurrences in 2021, we also expect the operating profit of SAP SE to be at the level of 2020.

The financial ambitions of the SAP Group for the years 2022 to 2025 provide for future growth of revenue and profit. We expect that such growth will also result in revenue and profit growth for SAP SE to the same degree.

We expect that SAP SE will continue to receive investment income in the form of profit transfers and dividends from its subsidiaries. The growth we expect for the SAP Group should have a positive effect on this investment income.

The outlook for the SAP Group in respect to liquidity, finance, investment, and dividend are equally applicable to SAP SE.

Among the assumptions underlying this outlook are those presented above concerning the economy and our expectations for the performance of the SAP Group.

Opportunities

Our customers choose SAP as a trusted partner for their digital business transformations. We believe in continuous, agile innovation to exceed customer expectations and achieve continuous growth, untapping incremental opportunities for our business. We have established a framework for opportunity management by evaluating and analyzing key areas such as current markets, external scenarios, economic conditions, and technological trends. We have also delved into customer and product segmentation, growth drivers, and industry-specific factors for success. Based on these combined insights, our Executive Board defines our market strategies. Our shareholder value relies heavily upon a fine balance of risk mitigation and value-driven opportunities. Therefore, our strong governance model ensures that decisions are based on return, investment required, and risk mitigation.

As far as opportunities are likely to occur, we have incorporated them into our business plans, our outlook for 2021, and our medium-term prospects outlined in this report. Therefore, the following section focuses on future trends or events that might result in an uplift of our outlook and medium-term prospects, if they develop better than we have anticipated in our forecasts.

SAP SE is the parent company of the SAP Group and earns most of its revenue from subscription fees, software license fees, and dividends paid by affiliates. Consequently, the opportunities described below also apply – directly or indirectly – to SAP SE.

Opportunities from Economic Conditions

Economic conditions have a clear influence on our business, financial position, profit, and cash flows. Should the global economy recover faster than is reflected in our plans today, our revenue and profit may exceed our current outlook and medium-term prospects. Our medium-term planning considers changes in market conditions as a result of the ongoing COVID-19 pandemic. In consideration of the negative effects of disruption, there might also be a positive effect in that the digitalization of business processes may be accelerated faster than beyond what was originally planned. For more information about future trends in the global economy and the IT market outlook, as well as their potential influence on SAP, see the beginning of the *Expected Developments and Opportunities* section.

Opportunities Through Innovation

Our continued growth through innovation is based on our ability to leverage research and development (R&D) resources effectively. We continue to improve our products through design thinking and lean methodologies. We are accelerating innovation cycles, especially in the area of cloud solutions, and engaging more closely with our customers to enable success.

In addition, we continue to expand open innovation initiatives to support long-term innovation in strategic opportunity areas, supporting talented innovators both inside (employees, for example) and outside (startups, for example) of SAP.

Based on our innovation capability, we see opportunities in growing product and market areas, such as in the enhancement of business processes with intelligent technologies, which are key to our Intelligent Enterprise strategy. Capabilities including machine learning and artificial intelligence, predictive analytics, the Internet of Things, and distributed computing, as well as robotic process automation (RPA), are also driving digital transformation.

In addition to the speed of innovation, we also focus on ease of adoption and consumption, so our customers can receive the benefits from our software applications and technologies at reduced time to value, enabling them to adopt our innovations faster. For example, the accelerated adoption of technology, which helps enable companies to transform into sustainable businesses, could result in additional upsell opportunities for customers migrating to the SAP S/4HANA suite.

For more information about future opportunities in research and development for SAP, see the *Products, Research & Development, and Services* section.

Opportunities from Our Strategy for Profitable Growth

SAP strives to generate profitable growth across our portfolio of products, solutions, and services to keep or improve our market position. Our aim is to continue to expand our addressable market through the adjustment of our portfolio and our new technologies and innovations. The COVID-19 pandemic has strengthened the readiness in the market to consume software in the cloud, including core business process platforms. To the extent that this could result in an even faster shift of our core ERP offering adoption in the cloud than anticipated in our medium-term ambition, this may translate

into higher cloud and total revenue growth from 2023 onwards than currently provided for in our midterm ambition. On top of this, higher efficiency in our cloud delivery may positively affect the profitability of our cloud business.

We also see additional opportunities arising through potential future strategic partnerships, such as those for product lifecycle management, supply chain management, and asset management, announced in 2020, enabling a combined customer base to adopt new innovations more rapidly. Furthermore, SAP seeks to establish new business models and leverage our expanding ecosystem of partners to achieve scale and maximize opportunities.

Our strong assets in applications and analytics, as well as database and technology, continue to offer solid multiyear growth opportunities as we bring innovative technologies with simplified consumption to our installed base and continue to acquire new customers.

The focus on greater customer success through our shift to a new operating model, which aligns sales, services, and customer engagement activities, may positively impact our revenue, profit, and cash flows. Together these potentials may result in our stated medium-term prospects being exceeded.

Opportunities from Our Partner Ecosystem

SAP's partner ecosystem is defined by the interdependent relationships of our customers, our employees, our suppliers, our partners, and our competition. SAP has made a decisive shift to the cloud to meet the needs of current and future customers. This move further enriches the value of the SAP ecosystem and will deliver financial opportunity to SAP as we innovate with partners on **industry cloud** solutions and **SAP Business Technology Platform** (SAP BTP) to create products and solutions for customers.

Working with partners allows SAP to expand our presence in existing and new markets and industries, offer a variety of solutions and applications on SAP BTP, and transform our partner ecosystem through **Next-Generation Partnering** initiatives. Partners are responding positively to our next-generation partnering efforts to improve our partner experience, reduce the cost of doing business with SAP, and increase innovation opportunities.

Our ecosystem, which includes more than 22,000 partners with different areas of expertise, allows partners to build innovative extensions for SAP applications on **SAP BTP** so customers can be successful as they embark upon their journeys to become intelligent enterprises. Our partners bring their expertise in specific industries to our portfolio of cloud applications, which are designed to address industry needs. By using these applications as a platform for innovation of their own, our partners help drive adoption of SAP's industry cloud solutions.

We further support partner innovation through the **Partner Solution Progression** framework launched at the beginning of 2020 and help partners scale their solutions with the new revenue-share model **SAP Endorsed Apps** and with the newly enhanced **SAP App Center**.

Even in the challenging business environment caused by the COVID-19 pandemic, partners continue to generate revenue for SAP. Partners support our goals by retaining and increasing sales to existing customers, attracting new customers, and satisfying our joint customers' requirements through innovation. And this, together with the interaction of all the above-mentioned measures may positively impact our revenue, profit, and cash flows, and result in their exceeding our stated medium-term prospects.

Opportunities from Our Employees

Our employees drive innovation, provide value to our customers, and consistently enable our growth and profitability. As described in the *Employees and Social Investments* section, we continuously invest in our people to retain their high level of engagement, further strengthen their skills, foster an agile and innovative organization, ensure a healthy, diverse, and inclusive workforce, and social commitment. By doing so, we anticipate improvements in our employee productivity and innovation capabilities.

Our outlook and medium-term prospects are based on certain assumptions regarding employee retention and our Business Health Culture Index (as defined in the *Employees and Social Investments* section). Should these develop better than expected, there might be a gain in employee productivity and engagement. A stronger-than-expected increase in the Employee Engagement Index can therefore be an opportunity that could positively impact our revenue, profit, and cash flows, and result in their exceeding our stated medium-term prospects.

For more information about future opportunities relating to our employees, see the *Employees and Social Investments* section.

Consolidated Financial Statements IFRS

Primary Financial Statements IFRS

Consolidated Income Statements, Consolidated Statements of Comprehensive Income, Consolidated Statements of Financial Position, Consolidated Statements of Changes in Equity, Consolidated Statements of Cash Flows ..... 130 - 134

Notes **135**

(IN.1) Basis for Preparation 135
(IN.2) Implications of the COVID-19 Pandemic 137

Section A – Customers **138**

(A.1) Revenue 138
(A.2) Trade and Other Receivables 141
(A.3) Capitalized Cost from Contracts with Customers 142
(A.4) Customer-Related Provisions 142

Section B – Employees **144**

(B.1) Employee Headcount 144
(B.2) Employee Benefits Expenses 144
(B.3) Share-Based Payments 144
(B.4) Pension Plans and Similar Obligations 149
(B.5) Other Employee-Related Obligations 151
(B.6) Restructuring 152

Section C – Financial Results **153**

(C.1) Results of Segments 153
(C.2) Reconciliation of Segment Measures to the Consolidated Income Statements 157
(C.3) Other Non-Operating Income/Expense, Net 158
(C.4) Financial Income, Net 158
(C.5) Income Taxes 158
(C.6) Earnings per Share 160

Section D – Invested Capital **161**

(D.1) Business Combinations and Divestitures 161
(D.2) Goodwill 163
(D.3) Intangible Assets 166
(D.4) Property, Plant, and Equipment 168
(D.5) Leases 169
(D.6) Equity Investments 169
(D.7) Non-Current Assets by Region 170
(D.8) Purchase Obligations 170

Section E – Capital Structure, Financing, and Liquidity **171**

(E.1) Capital Structure Management 171
(E.2) Total Equity 171
(E.3) Liquidity 172

Section F – Management of Financial Risk Factors **177**

(F.1) Financial Risk Factors and Risk Management 177
(F.2) Fair Value Disclosures on Financial Instruments 187

Section G – Other Disclosures **193**

(G.1) Prepaid Expenses and Other Tax Assets ... 193
(G.2) Other Tax Liabilities ... 193
(G.3) Other Litigation, Claims, and Legal Contingencies ... 193
(G.4) Board of Directors ... 195
(G.5) Executive and Supervisory Board Compensation ... 196
(G.6) Related Party Transactions Other Than Board Compensation ... 197
(G.7) Principal Accountant Fees and Services ... 198
(G.8) Events After the Reporting Period ... 198
(G.9) Scope of Consolidation, Subsidiaries and Other Equity Investments ... 198
(G.10) German Code of Corporate Governance ... 205

Management's Annual Report on Internal Control over Financial Reporting in the Consolidated Financial Statements **207**

Consolidated Income Statements of SAP Group for the Years Ended December 31

€ millions, unless otherwise stated	Notes	2020	2019	2018
Cloud		8,080	6,933	4,993
Software licenses		3,642	4,533	4,647
Software support		11,506	11,547	10,981
Software licenses and support		15,148	16,080	15,628
Cloud and software		**23,228**	**23,012**	**20,622**
Services		**4,110**	**4,541**	**4,086**
Total revenue	*(A.1), (C.2)*	**27,338**	**27,553**	**24,708**
Cost of cloud		–2,699	–2,534	–2,068
Cost of software licenses and support		–2,008	–2,159	–2,092
Cost of cloud and software		–4,707	–4,692	–4,160
Cost of services		–3,178	–3,662	–3,302
Total cost of revenue		**–7,886**	**–8,355**	**–7,462**
Gross profit		**19,453**	**19,199**	**17,246**
Research and development		–4,454	–4,292	–3,624
Sales and marketing		–7,106	–7,693	–6,781
General and administration		–1,356	–1,629	–1,098
Restructuring	*(B.6)*	3	–1,130	–19
Other operating income/expense, net		84	18	–20
Total operating expenses		**–20,715**	**–23,081**	**–19,005**
Operating profit		**6,623**	**4,473**	**5,703**
Other non-operating income/expense, net	*(C.3)*	**–179**	**–74**	**–56**
Finance income		1,473	787	371
Finance costs		–697	–589	–418
Financial income, net	*(C.4)*	**776**	**198**	**–47**
Profit before tax	*(C.2)*	**7,220**	**4,596**	**5,600**
Income tax expense	*(C.5)*	–1,938	–1,226	–1,511
Profit after tax		**5,283**	**3,370**	**4,088**
Attributable to owners of parent		5,145	3,321	4,083
Attributable to non-controlling interests		138	50	6
Earnings per share, basic (in €)	*(C.6)*	**4.35**	**2.78**	**3.42**
Earnings per share, diluted (in €)	*(C.6)*	**4.35**	**2.78**	**3.42**

The accompanying Notes are an integral part of these Consolidated Financial Statements.
Under the adoption method we chose for IFRS 16, 2018 numbers are not restated to conform to the new accounting policies. For more information, see *Note (IN.1)*.

Consolidated Statements of Comprehensive Income of SAP Group for the Years Ended December 31

€ millions	Notes	2020	2019	2018
Profit after tax		**5,283**	**3,370**	**4,088**
Items that will not be reclassified to profit or loss				
Remeasurements on defined benefit pension plans, before tax		39	–57	12
Income taxes relating to remeasurements on defined benefit pension plans		–9	5	–1
Remeasurements on defined benefit pension plans, net of tax		30	–52	11
Other comprehensive income for items that will not be reclassified to profit or loss, net of tax		**30**	**–52**	**11**
Items that will be reclassified subsequently to profit or loss				
Exchange differences, before tax		–2,792	537	910
Income taxes relating to exchange differences on translation		1	0	0
Exchange differences, net of tax	*(E.2)*	–2,791	537	910
Gains (losses) on cash flow hedges/cost of hedging, before tax		20	–24	–10
Reclassification adjustments on cash flow hedges/cost of hedging, before tax		–6	22	–22
Cash flow hedges/cost of hedging, before tax	*(F.1)*	14	–2	–32
Income taxes relating to cash flow hedges/cost of hedging		–4	0	9
Cash flow hedges/cost of hedging, net of tax	*(E.2)*	10	–1	–23
Other comprehensive income for items that will be reclassified to profit or loss, net of tax		**–2,781**	**536**	**887**
Other comprehensive income, net of tax		**–2,751**	**483**	**898**
Total comprehensive income		**2,532**	**3,854**	**4,986**
Attributable to owners of parent		2,394	3,804	4,980
Attributable to non-controlling interests		138	50	6

The accompanying Notes are an integral part of these Consolidated Financial Statements.
Under the adoption method we chose for IFRS 16, 2018 numbers are not restated to conform to the new accounting policies. For more information, see *Note (IN.1)*

Consolidated Statements of Financial Position of SAP Group as at December 31

€ millions	Notes	2020	2019
Cash and cash equivalents	*(E.3)*	5,311	5,314
Other financial assets	*(D.6), (E.3)*	1,635	297
Trade and other receivables	*(A.2)*	6,593	7,908
Other non-financial assets	*(A.3), (G.1)*	1,321	1,188
Tax assets		210	506
Total current assets		**15,069**	**15,213**
Goodwill	*(D.2)*	27,560	29,159
Intangible assets	*(D.3)*	3,784	4,491
Property, plant, and equipment	*(D.4), (D.8)*	5,041	5,496
Other financial assets	*(D.6), (E.3)*	3,512	2,336
Trade and other receivables	*(A.2)*	137	129
Other non-financial assets	*(A.3), (G.1)*	1,926	1,701
Tax assets		271	435
Deferred tax assets	*(C.5)*	1,173	1,251
Total non-current assets		**43,402**	**44,999**
Total assets		**58,472**	**60,212**
Trade and other payables		1,213	1,581
Tax liabilities		414	255
Financial liabilities	*(E.3), (D.5)*	2,348	3,273
Other non-financial liabilities	*(B.3), (B.5), (G.2)*	4,643	4,839
Provisions	*(A.4), (B.4), (B.5), (B.6)*	73	247
Contract liabilities	*(A.1)*	4,150	4,266
Total current liabilities		**12,842**	**14,462**
Trade and other payables		98	8
Tax liabilities		667	538
Financial liabilities	*(E.3), (D.5)*	13,605	12,923
Other non-financial liabilities	*(B.3), (B.5), (G.2)*	770	957
Provisions	*(A.4), (B.4), (B.5), (B.6)*	368	335
Deferred tax liabilities	*(C.5)*	158	79
Contract liabilities	*(A.1)*	36	89
Total non-current liabilities		**15,702**	**14,929**
Total liabilities		**28,544**	**29,390**
Issued capital		1,229	1,229
Share premium		545	545
Retained earnings		32,026	28,783
Other components of equity		–1,011	1,770
Treasury shares		–3,072	–1,580
Equity attributable to owners of parent		**29,717**	**30,746**
Non-controlling interests		**211**	**76**
Total equity	*(E.2)*	**29,928**	**30,822**
Total equity and liabilities		**58,472**	**60,212**

The accompanying Notes are an integral part of these Consolidated Financial Statements.

Consolidated Statements of Changes in Equity of SAP Group for the Years Ended December 31

€ millions	Equity Attributable to Owners of Parent						Non-Controlling Interests	Total Equity
	Issued Capital	Share Premium	Retained Earnings	Other Components of Equity	Treasury Shares	Total		
Notes	*(E.2)*	*(E.2)*		*(E.2)*	*(E.2)*			
1/1/2018	**1,229**	**570**	**24,987**	**347**	**–1,591**	**25,542**	**31**	**25,573**
Profit after tax			4,083			4,083	6	4,088
Other comprehensive income			11	887		898		898
Comprehensive income			**4,093**	**887**		**4,980**	**6**	**4,986**
Share-based payments		–40				–40		–40
Dividends			–1,671			–1,671	–13	–1,684
Reissuance of treasury shares under share-based payments		13			11	24		24
Shares to be issued			7			7		7
Hyperinflation			–8			–8		–8
Changes in non-controlling interests						0	19	19
Other changes			–2			–2	3	1
12/31/2018	**1,229**	**543**	**27,407**	**1,234**	**–1,580**	**28,832**	**45**	**28,877**
Adoption of IFRS 16			–71			–71		–71
1/1/2019	**1,229**	**543**	**27,336**	**1,234**	**–1,580**	**28,761**	**45**	**28,807**
Profit after tax			3,321			3,321	50	3,370
Other comprehensive income			–52	536		483		483
Comprehensive income			**3,268**	**536**		**3,804**	**50**	**3,854**
Share-based payments		2				2		2
Dividends			–1,790			–1,790	–19	–1,810
Hyperinflation			–29			–29		–29
Other changes			–2			–2	0	–2
12/31/2019	**1,229**	**545**	**28,783**	**1,770**	**–1,580**	**30,746**	**76**	**30,822**
Profit after tax			5,145			5,145	138	5,283
Other comprehensive income			30	–2,781		–2,751		–2,751
Comprehensive income			**5,175**	**–2,781**		**2,394**	**138**	**2,532**
Share-based payments		1				1		1
Dividends			–1,864			–1,864	–2	–1,866
Purchase of treasury shares					–1,492	–1,492		–1,492
Changes in non-controlling interests			–64			–64		–64
Other changes			–4			–4	0	–5
12/31/2020	**1,229**	**545**	**32,026**	**–1,011**	**–3,072**	**29,717**	**211**	**29,928**

The accompanying Notes are an integral part of these Consolidated Financial Statements. Under the adoption method we chose for IFRS 16, 2018 numbers are not restated to conform to the new accounting policies. For more information, see *Note (IN.1)*.

Consolidated Statements of Cash Flows of SAP Group for the Years Ended December 31

€ millions	Notes	2020	2019	2018
Profit after tax		**5,283**	**3,370**	**4,088**
Adjustments to reconcile profit after tax to net cash flow from operating activities:				
Depreciation and amortization	*(D.2)*–*(D.4)*	1,831	1,872	1,362
Share-based payment expenses	*(B.3)*	1,084	1,835	830
Income tax expense	*(C.5)*	1,938	1,226	1,511
Financial income, net	*(C.4)*	–776	–198	47
Decrease/increase in allowances on trade receivables		68	14	–67
Other adjustments for non-cash items		–198	–54	3
Decrease/increase in trade and other receivables		821	–1,469	136
Decrease/increase in other assets		–651	–583	–477
Increase/decrease in trade payables, provisions, and other liabilities		293	328	240
Increase/decrease in contract liabilities		128	984	–561
Share-based payments		–1,310	–1,257	–971
Interest paid		–244	–341	–251
Interest received		122	97	99
Income taxes paid, net of refunds		–1,194	–2,329	–1,687
Net cash flows from operating activities		**7,194**	**3,496**	**4,303**
Cash flows for business combinations, net of cash and cash equivalents acquired	*(D.1)*	–662	–6,215	–2,140
Proceeds from sale of subsidiaries or businesses		203	61	0
Purchase of intangible assets and property, plant, and equipment		–816	–817	–1,458
Proceeds from sales of intangible assets or property, plant, and equipment		88	71	57
Purchase of equity or debt instruments of other entities		–2,535	–900	–1,013
Proceeds from sales of equity or debt instruments of other entities		735	778	1,488
Net cash flows from investing activities		**–2,986**	**–7,021**	**–3,066**
Dividends paid	*(E.2)*	–1,864	–1,790	–1,671
Dividends paid on non-controlling interests		–2	–17	–7
Purchase of treasury shares	*(E.2)*	–1,492	0	0
Proceeds from changes in ownership interests in subsidiaries that do not result in the loss of control		95	0	0
Proceeds from borrowings	*(E.3)*	2,132	3,622	6,368
Repayments of borrowings	*(E.3)*	–2,430	–1,309	–1,407
Payments of lease liabilities		–378	–403	0
Transactions with non-controlling interests		–59	0	0
Net cash flows from financing activities		**–3,997**	**102**	**3,283**
Effect of foreign currency rates on cash and cash equivalents		**–214**	**110**	**97**
Net decrease/increase in cash and cash equivalents		**–4**	**–3,313**	**4,617**
Cash and cash equivalents at the beginning of the period	*(E.3)*	**5,314**	**8,627**	**4,011**
Cash and cash equivalents at the end of the period	*(E.3)*	**5,311**	**5,314**	**8,627**

The accompanying Notes are an integral part of these Consolidated Financial Statements.
Under the adoption method we chose for IFRS 16, 2018 numbers are not restated to conform to the new accounting policies. For more information, see *Note (IN.1)*.

Notes

(IN.1) Basis for Preparation

General Information

The registered seat of SAP SE is in Walldorf, Germany (Commercial Register of the Lower Court of Mannheim HRB 719915). The Consolidated Financial Statements for 2020 of SAP SE and its subsidiaries (collectively, "we," "us," "our," "SAP," "Group," and "Company") have been prepared in accordance with International Financial Reporting Standards (IFRS).

We have applied all IFRS standards and interpretations that were effective on and endorsed by the European Union (EU) as at December 31, 2020. There were no standards or interpretations as at December 31, 2020, impacting our Consolidated Financial Statements for the years ended December 31, 2020, 2019, and 2018, that were effective but not yet endorsed. Therefore, our Consolidated Financial Statements comply with both, IFRS as issued by the International Accounting Standards Board (IASB) and IFRS as endorsed by the EU.

Our Executive Board approved the Consolidated Financial Statements on February 24, 2021, for submission to our Supervisory Board which approved the Consolidated Financial Statements on the same day.

All amounts included in the Consolidated Financial Statements are reported in millions of euros (€ millions) except where otherwise stated. As figures are rounded, numbers presented throughout this document may not add up precisely to the totals we provide and percentages may not precisely reflect the absolute figures.

Amounts disclosed in the Notes that are taken directly from our Consolidated Income Statements or our Consolidated Statements of Financial Position are marked with the symbols and , respectively.

Comparative Figures

Effective January 1, 2019, we started to apply IFRS 16 'Leases' using the modified retrospective transition approach. We recognized the cumulative effect of the initial application of the standard as an adjustment to the opening balance of retained earnings on the date of initial application while the prior year figures for the financial year 2018 were not adjusted.

Accounting Policies, Management Judgments, and Sources of Estimation Uncertainty

How We Present Our Accounting Policies, Judgments, and Estimates

To ease the understanding of our financial statements, we present the accounting policies, management judgments, and sources of estimation uncertainty (hereafter: accounting policies, judgments, and estimates) on a given subject together with other disclosures related to the same subject in the Note that deals with this subject. Accounting policies, judgments, and estimates that do not relate to a specific subject are presented in the following section.

For easier identification of our accounting policies, judgments, and estimates, the respective disclosures are marked with the symbol and highlighted with a light gray box. They focus on the accounting choices made within the framework of the prevailing IFRS and refrain from repeating the underlying promulgated IFRS guidance, unless we consider it particularly important to the understanding of a Note's content.

The following table provides an overview of where our accounting policies, management judgments, and estimates are disclosed:

Note	Accounting Policies, Judgments, and Estimates
(IN.1)	Basis for Preparation
(IN.2)	Implications of the COVID-19 Pandemic
(A.1)	Revenue
(A.2)	Trade and Other Receivables
(A.3)	Capitalized Cost from Contracts with Customers
(A.4)	Customer-Related Provisions
(B.3)	Share-Based Payments
(B.4)	Pension Plans and Similar Obligations
(B.5)	Other Employee-Related Obligations
(B.6)	Restructuring
(C.1)	Results of Segments
(C.5)	Income Taxes
(D.1)	Business Combinations and Divestitures
(D.2)	Goodwill
(D.3)	Intangible Assets
(D.4)	Property, Plant, and Equipment
(D.5)	Leases
(D.6)	Equity Investments
(E.3)	Liquidity
(F.1)	Financial Risk Factors and Risk Management
(F.2)	Fair Value Disclosures on Financial Instruments
(G.1)	Prepaid Expenses and Other Tax Assets
(G.3)	Other Litigation, Claims, and Legal Contingencies
(G.5)	Executive and Supervisory Board Compensation

General Accounting Policies

Bases of Measurement

The Consolidated Financial Statements have been prepared on the historical cost basis except for the following:

- Derivative financial instruments, liabilities for cash-settled share-based payments, and financial assets with cash flows that are not solely payments of principal or interest are measured at fair value.
- Post-employment benefits are measured at the present value of the defined benefit obligations less the fair value of the plan assets.
- Monetary assets and liabilities denominated in foreign currencies are translated at period-end exchange rates.
- The financial statements of our subsidiaries to which hyperinflation accounting applies are restated.

Foreign Currencies

Income and expenses and operating cash flows of our foreign subsidiaries that use a functional currency other than the Euro are translated at average rates of foreign exchange (FX) computed on a monthly basis. Exchange differences resulting from foreign currency transactions are recognized in other non-operating income/expense, net.

The exchange rates of key currencies affecting the Company were as follows:

Exchange Rates

Equivalent to €1		Middle Rate as at 12/31		Annual Average Exchange Rate		
		2020	2019	**2020**	2019	2018
U.S. dollar	USD	1.2271	1.1234	1.1413	1.1196	1.1815
Japanese yen	JPY	126.49	121.94	121.78	122.06	130.41
Pound sterling	GBP	0.8990	0.8508	0.8892	0.8773	0.8847
Swiss franc	CHF	1.0802	1.0854	1.0703	1.1127	1.1549
Canadian dollar	CAD	1.5633	1.4598	1.5294	1.4857	1.5302
Australian dollar	AUD	1.5896	1.5995	1.6554	1.6106	1.5799

Cost Classification

Cost of Cloud and Software

Cost of cloud and software includes the costs incurred in producing the goods and providing the services that generate cloud and software revenue. Consequently, this line item primarily includes employee expenses relating to these services, amortization of acquired intangibles, fees for third-party licenses, depreciation of our property, plant, and equipment (for example, of our data centers in which we host our cloud solutions), and costs for third-party hosting services. For more information about the capitalization of costs from contracts with customers, see *Note (A.3)*.

Cost of Services

Cost of services includes the costs incurred in providing the services that generate service revenue. Consequently, this line item primarily includes employee expenses and related training, system and system administration costs, costs for third-party resources, and costs for enabling mobile information and mobile commerce services.

Research and Development

Research and development includes the costs incurred by activities related to the development of software solutions (new products, updates, and enhancements) including resource and hardware costs for the development systems. For more information about the recognition of internally generated intangible assets from development, see *Note (D.3)*.

Sales and Marketing

Sales and marketing includes the costs incurred for the selling activities (such as sales commissions and amortization of capitalized sales commissions) and marketing activities related to our software and cloud solutions and our service portfolio. For more information about the capitalization of costs from contracts with customers, see *Note (A.3)*.

General and Administration

General and administration includes the costs related to finance and administrative functions, human resources, and general management as long as they are not directly attributable to one of the other operating expense line items.

Management Judgments and Sources of Estimation Uncertainty

The preparation of the Consolidated Financial Statements requires our management to make judgments, estimates, and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, revenues, and expenses, as well as disclosure of contingent liabilities.

We base our judgments, estimates, and assumptions on historical and forecast information, and on regional and industry economic conditions in which we or our customers operate. Changes to these

conditions could adversely affect our estimates. Although we believe we have made reasonable estimates about the ultimate resolution of the underlying uncertainties, no assurance can be given that the final outcome of these matters will be consistent with what is reflected in our recognized assets, liabilities, revenues, and expenses and disclosed contingent liabilities. Actual results could differ from original estimates.

The accounting policies that most frequently or significantly require us to make judgments, estimates, and assumptions, and therefore are critical to understanding our results of operations, include the following:

Note	Significant Accounting Policies
(A.1)	Revenue recognition
(A.2)	Valuation of trade receivables
(A.4), (G.3)	Accounting for legal contingencies
(B.3)	Accounting for share-based payments
(C.5)	Accounting for income taxes
(D.1)	Accounting for business combinations
(D.2)	Accounting for goodwill
(D.3)	Accounting for intangible assets (including recognition of internally generated intangible assets from development)

Our management periodically discusses these significant accounting policies with the Audit Committee of our Supervisory Board.

New Accounting Standards Not Yet Adopted

The IASB has issued various amendments to IFRS standards (such as IAS 1 (Classification of Liabilities as Current or Non-current), IAS 37 (Provisions, Contingent Liabilities and Contingent Assets)) that are relevant for SAP but not yet effective. We are currently in the process of assessing the impact on SAP, but do not expect material effects on our financial position or results of operations.

(IN.1) Basis for Preparation

(IN.2) Implications of the COVID-19 Pandemic

Management Judgments and Estimates Due to the COVID-19 Pandemic

Management judgments and estimates can affect the amounts and reporting of assets and liabilities as at the reporting date, and the amounts of income and expense reported for the period. Due to the currently unforeseeable global consequences of the COVID-19 pandemic, these management judgments and estimates are subject to increased uncertainty. Actual amounts may differ from the management judgments and estimates; changes can have a material impact on the Consolidated Financial Statements. All available information on the expected economic developments and country-specific governmental mitigation measures was included when updating the management judgments and estimates. This information was also included in the analysis of the recoverability and collectability of assets and receivables.

As the pandemic continues to evolve, it is difficult to predict its duration and the magnitude of its impact on assets, liabilities, results of operations, and cash flows. We based our financial-statement-related estimates and assumptions on existing knowledge and best information available, and applied a scenario that assumes the COVID-19 situation will begin to recover as vaccine programs roll out globally, leading to a gradually improving demand environment in the second half of 2021.

For more information about the impact on goodwill, see *Note (D.2)*.

We will continue to analyze possible future effects on the measurement of individual assets and liabilities.

SAP's customers, particularly those in hard-hit industries, continue to be impacted by the economic consequences of the COVID-19 pandemic. Due to lockdowns in certain countries/regions, the level of impact and recovery is diverse and companies continue to face business uncertainty. Software as a service revenues (defined in *Note (A.1)*) were impacted by lower pay-as-you-go transactional revenues, mainly as a result of decreased worldwide travel affecting SAP's Concur business, in 2020.

Section A – Customers

This section discusses disclosures related to contracts with our customers. These include but are not limited to explanations of how we recognize revenue, revenue disaggregation, and information about our trade receivables and customer-related obligations.

(A.1) Revenue

Accounting for Revenue from Contracts with Customers

Classes of Revenue

We derive our revenue from fees charged to our customers for the use of our hosted cloud offerings, for licenses to our on-premise software products, and for standardized and premium support services, consulting, customer-specific software developments, training, and other services.

Cloud and software revenue, as presented in our Consolidated Income Statements, is the sum of our cloud revenue, our software license revenue, and our software support revenue.

- Cloud revenue represents fees earned from providing customers with any of the following:
  - Software as a service (SaaS), that is, a right to use software functionality (including standard functionalities and custom cloud applications and extensions) in a cloud-based infrastructure hosted by SAP or third parties engaged by SAP, where the customer does not have the right to terminate the hosting contract and take possession of the software to either run it on its own IT infrastructure or to engage a third-party provider unrelated to SAP to host and manage the software; SaaS also includes transaction and agent fees for transactions that customers of our network business execute on our cloud-based transaction platforms.
  - Platform as a service (PaaS), that is, access to a cloud-based infrastructure to develop, run, and manage applications
  - Infrastructure as a service (IaaS), that is, hosting and related application management services for software hosted by SAP or third parties engaged by SAP
  - Premium cloud support beyond the regular support that is embedded in the basic cloud subscription fees
- Software license revenue represents fees earned from the sale or license of software to customers for use on the customer's premises, in other words, where the customer has the right to take possession of the software for installation on the customer's premises or on hardware of third-party hosting providers unrelated to SAP (on-premise software). Software license revenue includes revenue from both the sale of our standard software products and customer-specific on-premise-software development agreements.
- Software support revenue represents fees earned from providing customers with standardized support services that comprise unspecified future software updates, upgrades, and enhancements as well as technical product support services for on-premise software products.

Services revenue primarily represents fees earned from professional consulting services, premium support services, training services, and messaging services.

Identification of Contract

We frequently enter into multiple contracts with the same customer. For accounting purposes, we treat these contracts as a single contract if they are entered into at or near the same time and are economically interrelated. We do not combine contracts with closing days more than three months apart because we do not consider them being entered into near the same time. Judgment is required in evaluating whether various contracts are interrelated, which includes considerations as to whether they were negotiated as a package with a single commercial objective, whether the amount of consideration on one contract is dependent on the performance of the other contract, or if some or all goods in the contracts are a single performance obligation.

New arrangements with existing customers can be either a new contract or the modification of prior contracts with the customer. Our judgment in making this determination considers whether there is a connection between the new arrangement and the pre-existing contracts, whether the goods and services under the new arrangement are highly interrelated with the goods and services sold under prior contracts, and how the goods and services under the new arrangement are priced. In determining whether a change in transaction price represents a contract modification or a change in variable consideration, we examine whether the change in price results from changing the contract or from applying unchanged existing contract provisions.

Identification of Performance Obligations

Our customer contracts often include various products and services. Typically, the products and services outlined in the *Classes of Revenue* section qualify as separate performance obligations and the portion of the contractual fee allocated to them is recognized separately. Judgment is required, however, in determining whether a good or service is considered a separate performance obligation. In particular for our professional services and implementation activities, judgment is required to evaluate whether such services significantly integrate, customize, or modify the on-premise software or cloud service to which they relate. In this context, we consider the nature of the services and their volume relative to the volume of the on-premise software or cloud service to which they relate. In general, the implementation services for our cloud services go beyond pure setup activities and qualify as separate performance obligations. Similarly, our on-premise implementation services and our custom development services typically qualify as separate performance obligations. Non-distinct goods and services are combined into one distinct bundle of goods and services (combined performance obligation).

When selling goods or services, we frequently grant customers options to acquire additional goods or services (for example, renewals of renewable offerings, or additional volumes of purchased software). We apply judgment in determining whether such options provide a material right to the customer that the customer would not receive without entering into that contract (material right options). In this judgment, we consider, for example, whether the options entitle the customer to a discount that exceeds the discount granted for the respective goods or services sold together with the option.

Determination of Transaction Price

We apply judgment in determining the amount to which we expect to be entitled in exchange for transferring promised goods or services to a customer. This includes estimates as to whether and to what extent subsequent concessions may be granted to customers and whether the customer is expected to pay the contractual fees. In this judgment, we consider our history with the respective customer or on a portfolio basis.

Our typical cloud services do not provide the customer with a software license because the customer does not have the right to terminate the hosting contract and take possession of the software. Consequently, cloud fees that are based on transaction volumes are considered in the transaction price based on estimates rather than being accounted for as sales-based license royalties.

Only very rarely do our contracts include significant financing components. We do not account for financing components if the period between when SAP transfers the promised goods or services to the customer and when the customer pays for those goods or services is one year or less.

Allocation of Transaction Price

We have established a hierarchy to identify the standalone selling prices (SSPs) that we use to allocate the transaction price of a customer contract to the performance obligations in the contract.

- Where standalone selling prices for an offering are observable and reasonably consistent across customers (that is, not highly variable), our SSP estimates are derived from our respective pricing history. Typically, our standardized support offerings and our professional service offerings follow this approach.
- Where sales prices for an offering are not directly observable or highly variable across customers, we use estimation techniques. For renewable offerings with highly variable pricing across customers, these techniques consider the individual contract's expected renewal price as far as this price is substantive. Typically, our cloud offerings follow this approach. For non-renewable offerings, these estimations follow a cost-plus-margin approach.
- For offerings that lack renewals, have highly variable pricing, and lack substantial direct costs to estimate based on a cost-plus-margin approach, we allocate the transaction price by applying a residual approach. We use this technique in particular for our standard on-premise software offerings.

Judgment is required when estimating SSPs. To judge whether the historical pricing of our goods and services is highly variable, we have established thresholds of pricing variability. For judging whether contractual renewal prices are substantive, we have established floor prices that we use as SSPs whenever the contractual renewal prices are below these floor prices. In judging whether contracts are expected to renew at their contractual renewal prices, we rely on our respective renewal history. The SSPs of material right options depend on the probability of option exercise. In estimating these probabilities, we apply judgment considering historical exercise patterns.

We review the SSPs periodically or whenever facts and circumstances change to ensure the most objective input parameters available are used.

Recognition of Revenue

Cloud revenue is recognized over time as the services are performed. Where our performance obligation is the grant of a right to continuously access and use a cloud offering for a certain term, revenue is recognized based on time elapsed and thus ratably over this term.

Software revenue is recognized at a point in time or over time depending on whether we deliver standard software, customer-specific software, or software subscription contracts that combine the delivery of software and the obligation to deliver, in the future, unspecified software products:

- Licenses for our standard on-premise software products are typically delivered by providing the customer with access to download the software. The license period starts when such access is granted. We recognize revenue for these on-premise licenses at the point in time when the customer has access to and thus control over the software. In judging whether our on-premise software offerings grant customers a right to use, rather than a right to access, our intellectual property, we have considered the usefulness of our software without subsequent updates to it.
- Typically, our customer-specific on-premise software development agreements:
  - Are for software developed for specific needs of individual customers and therefore it does not have any alternative use for us
  - Provide us with an enforceable right to payment for performance completed to date

  For such development agreements, we recognize revenue over time as the software development progresses. Judgment is required in identifying an appropriate method to measure the progress toward complete satisfaction of such performance obligations. We typically measure progress of our development agreements based on the direct costs incurred to date in developing the software as a percentage of the total reasonably estimated direct costs to fully complete the development work (percentage-of-completion method). This method of measuring progress faithfully depicts the transfer of the development services to the customer, as substantially all of these costs are cost of the staff or third parties performing the development work. In estimating the total cost to fully complete the development work, we consider our history with similar projects.
- For agreements that combine the delivery of software and the obligation to deliver, in the future, unspecific software products,

we recognize revenue at a point in time for licenses that are made immediately accessible to the customer. We recognize revenue ratably over the term of the software subscription contract for the unspecified software products, as our performance obligation is to stand ready to deliver such products on a when-and-if-available basis.

Software support revenue is typically recognized based on time elapsed and thus ratably over the term of the support arrangement. Under our standardized support services, our performance obligation is to stand ready to provide technical product support and unspecified updates, upgrades, and enhancements on a when-and-if-available basis. Our customers simultaneously receive and consume the benefits of these support services as we perform.

Service revenue is typically recognized over time. Where we stand ready to provide the service (such as access to learning content), we recognize revenue based on time elapsed and thus ratably over the service period. Consumption-based services (such as separately identifiable consulting services and premium support services, messaging services, and classroom training services) are recognized over time as the services are utilized, typically following the percentage-of-completion method or ratably. When using the percentage-of-completion method, we typically measure the progress toward complete satisfaction of the performance obligation in the same way and with the same reasoning and judgment as we do for customer-specific on-premise software development agreements. We apply judgment in determining whether a service qualifies as a stand-ready service or as a consumption-based service.

Revenue for combined performance obligations is recognized over the longest period of all promises in the combined performance obligation.

Judgment is also required to determine whether revenue is to be recognized at a point in time or over time. For performance obligations satisfied over time, we need to measure progress using the method that best reflects SAP's performance. When using cost incurred as a measure of progress for recognizing revenue over time, we apply judgment in estimating the total cost to satisfy the performance obligation.

All of the judgments and estimates mentioned above can significantly impact the timing and amount of revenue to be recognized.

Contract Balances

We recognize trade receivables for performance obligations satisfied over time gradually as the performance obligation is satisfied and in full once the invoice is due. Judgment is required in determining whether a right to consideration is unconditional and thus qualifies as a receivable.

Contract liabilities primarily reflect invoices due or payments received in advance of revenue recognition.

Typically, we invoice fees for on-premise standard software on contract closure and software delivery. Periodic fixed fees for cloud subscription services, software support services, and other multi-period agreements are typically invoiced yearly or quarterly in advance. Such fee prepayments account for the majority of our contract liability balance. Fees based on actual transaction volumes for cloud subscriptions and fees charged for non-periodical services are invoiced as the services are delivered. While payment terms and conditions vary by contract type and region, our terms typically require payment within 30 to 60 days.

Geographic Information

The amounts for revenue by region in the following tables are based on the location of customers. The regions in the following table are EMEA (Europe, Middle East, and Africa), Americas (North America and Latin America), and APJ (Asia Pacific Japan).

Total Revenue by Region

€ millions	**2020**	2019	2018
Germany	4,015	3,948	3,658
Rest of EMEA	8,052	8,158	7,446
EMEA	**12,067**	**12,105**	**11,104**
United States	9,110	9,085	7,880
Rest of Americas	1,996	2,109	1,832
Americas	**11,106**	**11,194**	**9,713**
Japan	1,305	1,180	963
Rest of APJ	2,859	3,074	2,928
APJ	**4,165**	**4,254**	**3,891**
SAP Group	**27,338**	**27,553**	**24,708**

Major Revenue Classes by Region

€ millions	Cloud Revenue			Cloud and Software Revenue		
	2020	2019	2018	**2020**	2019	2018
EMEA	2,608	2,115	1,441	10,364	10,211	9,339
Americas	4,439	3,945	2,941	9,239	9,172	7,973
APJ	1,033	872	611	3,625	3,629	3,310
SAP Group	**8,080**	**6,933**	**4,993**	**23,228**	**23,012**	**20,622**

For information about the breakdown of revenue by segment and segment revenue by region, see *Note (C.1)*.

Remaining Performance Obligations

Amounts of a customer contract's transaction price that are allocated to the remaining performance obligations represent contracted revenue that has not yet been recognized. They include amounts recognized as contract liabilities and amounts that are contracted but not yet due.

The transaction price allocated to performance obligations that are unsatisfied or partially unsatisfied as at December 31, 2020, is €33.4 billion (December 31, 2019: €33.3 billion). This amount mostly comprises obligations to provide software support or cloud subscriptions services, as the respective contracts typically have durations of one or multiple years. The portion of remaining performance obligations related to services consists of non-cancelable revenue from contracts for projects with a predefined output.[5]

The majority of this amount is expected to be recognized as revenue over the next 12 months following the respective balance sheet date. This estimate is based on our best judgment, as it needs to consider estimates of possible future contract modifications. The amount of transaction price allocated to the remaining performance obligations, and changes in this amount over time, are impacted by, among others:

- Currency fluctuations
- The contract period of our cloud and software support contracts remaining at the balance sheet date and thus by the timing of contract renewals

Contract Balances

Contract liabilities as at December 31, 2020, were €4.2 billion (December 31, 2019: €4.4 billion).

Increases in contract liabilities mainly result from billing and invoices becoming due (€8.5 billion). Decreases in contract liabilities mainly result from satisfying performance obligations (€8.4 billion).

The amount of revenue recognized in the reporting period that was included in the contract liability balance at the beginning of the reporting period was €3.5 billion (December 31, 2019: €2.6 billion).

(A.2) Trade and Other Receivables

Accounting for Trade and Other Receivables

We measure trade receivables and contract assets from contracts with customers at amortized cost less expected credit losses. We account for expected credit losses by recording an allowance on a portfolio basis. We apply the simplified impairment approach in that, on initial measurement of the receivables, we consider all credit losses that are expected to occur during the lifetime of the receivables. We use a provision matrix to estimate these losses.

Additionally, we recognize allowances for individual receivables if there is objective evidence of credit impairment.

Account balances are written off either partially or in full if we judge that the likelihood of recovery is remote.

For information about how the default risk for trade receivables is analyzed and managed, how the loss rates for the provision matrix are determined, how credit impairment is determined and what our criteria for write-offs are, see the section on credit risk in *Note (F.1)*.

In our Consolidated Income Statements, net gains/losses include income/expenses from expected credit loss allowances from applying the provision matrix, from credit-impaired customer balances, and from write-offs and related reversals which are included in other operating income/expense, net. Gains/losses from foreign currency exchange rate fluctuations are included in Other non-operating income/expense, net.

Determining our expected credit loss allowance involves significant judgment. In this judgment, we primarily consider our historical experience with credit losses in the respective provision matrix risk class and current data on overdue receivables. We expect that our historical default rates represent a reasonable approximation for future expected customer defaults. Besides historical data, our judgment used in developing the provision matrix considers reasonable and supportable forward-looking information (for example, changes in country risk ratings, and fluctuations in credit default swaps of the countries in which our customers are located).

The assessment of whether a receivable is collectible involves the use of judgment and requires us to make assumptions about customer defaults that could change significantly.

In applying this judgment, we evaluate available information about a particular customer's financial situation to determine whether it is probable that a credit loss had occurred and, if so, whether the amount of the loss is reasonably estimable. If it is, an allowance for that specific account is then necessary. Basing the expected credit loss allowance for the remaining receivables primarily on our historical loss experience likewise requires judgment, as history may not be indicative of future development. Also, including reasonable and supportable forward-looking information in the loss rates of the expected credit loss allowance requires judgment, as they may not provide a reliable prognosis for future development.

Trade and Other Receivables

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Trade receivables, net	6,199	33	6,232	7,561	21	7,582
Other receivables	395	103	498	346	108	454
Total	**6,593**	**137**	**6,730**	**7,908**	**129**	**8,037**

Contract assets as at December 31, 2020, were €295 million (December 31, 2019: €234 million).

[5] The prior year number was revised to conform to this definition of remaining performance obligations for services.

For more information about financial risk, how we manage credit risk, and details of our trade receivables and contract assets allowances, see *Note (F.1)*.

(A.3) Capitalized Cost from Contracts with Customers

Costs of Obtaining Customer Contracts

Capitalized costs from customer contracts are classified as Other non-financial assets in our statement of financial position.

The capitalized assets for the incremental costs of obtaining a customer contract primarily consist of sales commissions earned by our sales force. Judgment is required in determining the amounts to be capitalized, particularly where the commissions are based on cumulative targets and where commissions relate to multiple performance obligations in one customer contract. We capitalize such cumulative target commissions for all customer contracts that count towards the cumulative target but only if nothing other than obtaining customer contracts can contribute to achieving the cumulative target. Commissions for contracts with multiple performance obligations or for probable renewals thereof are allocated to these performance obligations and probable renewals relative to the respective standalone selling price.

Typically, we either do not pay sales commissions for customer contract renewals or such commissions are not commensurate with the commissions paid for new contracts. Thus, the commissions paid for renewable new contracts also relate to expected renewals of these contracts. Consequently, we amortize sales commissions paid for new customer contracts on a straight-line basis over the expected contract life including probable contract renewals. Judgment is required in estimating these contract lives. In exercising this judgment, we consider our respective renewal history adjusted for indications that the renewal history is not fully indicative of future renewals. The amortization periods range from 18 months to eight years depending on the type of offering and reflect our strategy as communicated in 2020 to expedite our customers' transition from the on-premise business model of perpetual license and support towards the cloud subscription model. Amortization of the capitalized costs of obtaining customer contracts is classified as sales and marketing expense.

We expense incremental costs of obtaining a customer contract as incurred if we expect an amortization period of one year or less.

Costs to Fulfill Customer Contracts

Capitalized costs incurred to fulfill customer contracts mainly consist of direct costs for set-up and implementation of cloud products and custom cloud development contracts as far as these costs are not in scope of other standards than IFRS 15. These costs are amortized after completion of the setup and implementation or the development, respectively, on a straight-line basis over the expected life of the cloud subscription contract and including expected renewals. Derived from our respective renewal history, and considering indications that the renewal history is not fully indicative of future renewals, the amortization period is typically seven to eight years. In addition, the capitalized costs include third-party license fees which are amortized over the term of the third-party license contract. Judgment is required in evaluating whether costs are direct or indirect and in estimating contract lives.

Amortization of capitalized costs to fulfill contracts for custom cloud applications and extensions is included in the cost of cloud.

Capitalized Cost from Contracts with Customers

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Capitalized cost of obtaining customer contracts	491	1,536	2,028	414	1,318	1,732
Capitalized cost to fulfill customer contracts	91	151	242	66	117	183
Capitalized contract cost	**583**	**1,687**	**2,270**	**480**	**1,435**	**1,915**
Other non-financial assets	1,321	1,926	3,247	1,188	1,701	2,889
Capitalized contract cost as % of other non-financial assets	44	88	70	40	84	66

Amortization Expense

€ millions	2020	2019
Capitalized cost of obtaining customer contracts	450	367
Capitalized cost to fulfill customer contracts	129	81

(A.4) Customer-Related Provisions

Expected Contract Losses

Customer-related provisions mainly include expected contract losses. We adjust these provisions as further information becomes available and as circumstances change. Non-current provisions are measured at the present value of their expected settlement amounts as at the reporting date.

Customer-Related Litigation and Claims

Furthermore, these provisions also include obligations resulting from customer-related litigation and claims. We are currently confronted with various claims and legal proceedings, including claims that relate to customers demanding indemnification for proceedings initiated against them based on their use of SAP software, and occasionally claims that relate to customers being dissatisfied with the products and services that we have delivered to them. The obligations arising from customer-related litigation and claims comprise cases in which we indemnify our customers against liabilities arising from a claim that our products infringe a third party's patent, copyright, trade secret, or other proprietary rights.

Due to uncertainties relating to these matters, provisions are based on the best information available. Significant judgment is required in the determination of whether a provision is to be recorded and what the appropriate amount for such provision should be. Notably, judgment is required in the following:

- Determining whether an obligation exists
- Determining the probability of outflow of economic benefits
- Determining whether the amount of an obligation is reliably estimable
- Estimating the amount of the expenditure required to settle the present obligation

At the end of each reporting period, we reassess the potential obligations related to our pending claims and litigation and adjust our respective provisions to reflect the current best estimate. In addition, we monitor and evaluate new information that we receive after the end of the respective reporting period, but before the Consolidated Financial Statements are authorized for issue, to determine whether this provides additional information regarding conditions that existed at the end of the reporting period. Changes to the estimates and assumptions underlying our accounting for legal contingencies, and outcomes that differ from these estimates and assumptions, could require material adjustments to the carrying amounts of the respective provisions recorded and additional provisions. The expected timing or amounts of any outflows of economic benefits resulting from these lawsuits and claims is uncertain and not estimable, as they generally depend on the duration of the legal proceedings and settlement negotiations required to resolve the litigation and claims and the unpredictability of the outcomes of legal disputes in several jurisdictions.

Contingent liabilities exist in respect of customer-related litigation and claims for which no provision has been recognized. It is not practicable to estimate the financial impact of these contingent liabilities due to the uncertainties around these lawsuits and claims as outlined above.

Section B – Employees

This section provides financial insights into our employee benefit arrangements. It should be read in conjunction with the compensation disclosures for key management personnel in *Note (G.5)* as well as SAP's *Compensation Report*.

(B.1) Employee Headcount

The following table provides an overview of employee headcount, broken down by function and by the regions EMEA (Europe, Middle East, and Africa), Americas (North America and Latin America), and APJ (Asia Pacific Japan).

Employee Headcount by Region and Function

Full-time equivalents	12/31/2020				12/31/2019				12/31/2018			
	EMEA	Americas	APJ	Total	EMEA	Americas	APJ	Total	EMEA	Americas	APJ	Total
Cloud and software	6,278	4,589	5,525	16,392	6,501	4,426	5,361	16,288	6,341	4,268	5,374	15,983
Services	8,175	5,934	5,733	19,842	8,250	6,018	5,971	20,239	8,120	5,736	5,620	19,476
Research and development	13,705	6,094	9,781	29,580	12,710	5,793	9,131	27,634	12,478	5,651	8,930	27,060
Sales and marketing	10,348	10,485	5,000	25,834	10,205	10,368	5,209	25,781	9,843	9,452	4,918	24,213
General and administration	3,285	2,161	1,243	6,689	3,161	2,123	1,246	6,530	2,906	1,970	1,147	6,024
Infrastructure	2,291	1,107	696	4,094	2,220	984	654	3,859	2,160	951	631	3,742
SAP Group (December 31)	**44,082**	**30,369**	**27,979**	**102,430**	**43,048**	**29,712**	**27,571**	**100,330**	**41,848**	**28,029**	**26,620**	**96,498**
Thereof acquisitions	609	97	75	781	338	1,638	137	2,113	657	952	434	2,043
SAP Group (months' end average)	**43,340**	**30,306**	**27,830**	**101,476**	**42,697**	**29,368**	**27,092**	**99,157**	**40,496**	**27,454**	**25,759**	**93,709**

(B.2) Employee Benefits Expenses

Components of Employee Benefits Expenses

€ millions	2020	2019	2018
Salaries	10,413	10,031	9,025
Social security expenses	1,439	1,477	1,339
Share-based payment expenses	1,084	1,835	830
Pension expenses	419	369	330
Employee-related restructuring expenses	–7	1,111	19
Termination benefits outside of restructuring plans	72	47	52
Employee benefits expenses	**13,420**	**14,870**	**11,595**

(B.3) Share-Based Payments

Accounting for Share-Based Payments

Classification in the Income Statement

Share-based payments cover cash-settled and equity-settled awards issued to our employees. The respective expenses are recognized as employee benefits and classified in our Consolidated Income Statements according to the activities that the employees perform. Where we economically hedge our exposure to cash-settled awards, changes in the fair value of the respective hedging instruments are also recognized as employee benefits expenses in profit or loss. The fair values of hedging instruments are based on market data reflecting current market expectations. For more information about the equity price risk, see *Note (F.1)*.

Valuation, Judgment, and Sources of Estimation Uncertainty

We use certain assumptions in estimating the fair values for our share-based payments, including expected share price volatility and expected award life (which represents our estimate of the average remaining life until the awards are exercised or expire unexercised). In addition, the final payout for plans also depends on the achievement of performance indicators and on our share price on the respective exercise dates. Changes to these assumptions and outcomes that differ from these assumptions could require material adjustments to the carrying amount of the liabilities we have recognized for these share-based payments. The fair value of the share units granted under the LTI 2016 Plan are dependent on our performance against a group of peer companies (Peer Group Index), the volatility, and the expected correlation between the price of the index and our share price. The fair value of the share units granted under the LTI 2020 are dependent on our performance against the total shareholder return (TSR) for NASDAQ-100 companies, the volatility, and the expected correlation between the TSR of the NASDAQ-100 companies and our TSR.

We believe that the expected volatility is the most sensitive assumption we use in estimating the fair values of our share options. Regarding future payout under our cash-settled plans, the SAP share price is the most relevant factor. With respect to our LTI 2016 Plan, we believe that future payout will be significantly impacted not only by our share price but also by the relative performance against the Peer Group Index. With respect to our LTI 2020, we believe that future payout will be significantly impacted not only by our share price but also by the relative performance against the NASDAQ-100 companies. Future payouts under our LTI°2020 will also be dependent on meeting non-market-based performance conditions based on SAP's long-term strategy. The latter, however, is not incorporated into our fair value calculation but leads to adjustments of the quantity. Changes in these factors could significantly affect the estimated fair values as calculated by the valuation model, and the future payout.

Under certain programs, we grant our employees discounts on purchases of SAP shares. Since those discounts are not dependent on future services to be provided by our employees, the discount is recognized as an expense when the discounts are granted.

Presentation in the Statements of Cash Flows

We present the payments of our share-based payment plans separately in our Statements of Cash Flows under cash flows from operating activities. As a result, the changes in other assets and in other liabilities presented in the reconciliation of operating cash flow no longer consider share-based payment-related assets or liabilities.

The operating expense line items in our income statement include the following share-based payment expenses:

Share-Based Payment Expenses by Functional Area

€ millions	2020	2019	2018
Cost of cloud	40	56	27
Cost of software	55	82	51
Cost of services	175	246	142
Research and development	296	429	210
Sales and marketing	360	562	312
General and administration	157	461	88
Share-based payment expenses	**1,084**	**1,835**	**830**
Thereof cash-settled share-based payments	893	1,664	674
Thereof equity-settled share-based payments	191	171	156

In 2020, we paid €46°million (2019: €79 million) in share-based payments that became fully vested because of terminations due to operational reasons in connection with our restructuring plan in 2019. These payments as well as the expense portion initially allocated to future services were classified as share-based payments and not as restructuring expenses.

a) Cash-Settled Share-Based Payments

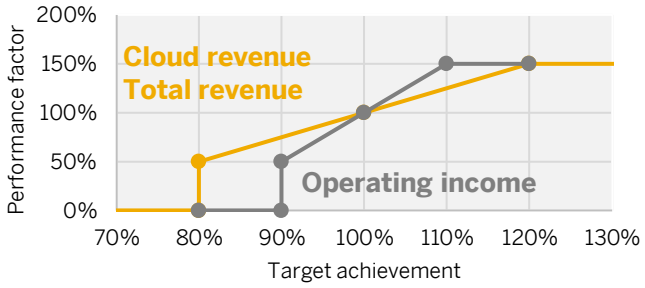
Our major share-based payment plans are described below.

SAP Long-Term Incentive Program 2020 (LTI 2020)

The LTI 2020 is a long-term, multi-year performance-based compensation element that is awarded in annual tranches. The LTI 2020 reflects SAP's long-term strategy and thus sets uniform incentives for the Executive Board members to achieve key targets from the long-term strategic plans. The LTI 2020 also serves to reward the Executive Board members for long-term SAP share price performance as compared to the market, thus ensuring that shareholders' interests are also honored. In addition, the LTI 2020 includes a component designed to ensure long-term retention of our Executive Board members.

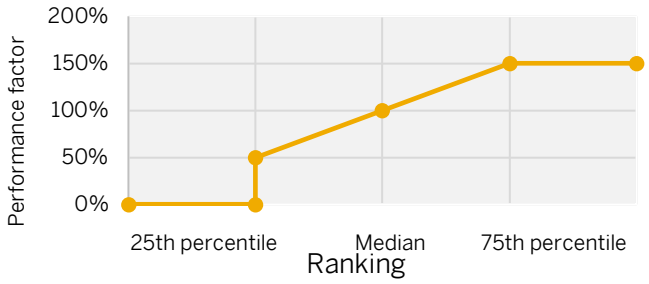
The LTI 2020 is a virtual share program under which annual tranches with a term of approximately four years each are granted. When the individual tranches are awarded, a certain grant amount specified in the Executive Board member's service contract is converted into virtual shares (share units) in each case. For this purpose, the grant amount is divided by the price of the SAP share which corresponds to the arithmetic mean of the SAP share price on the 20 trading days after scheduled publication of the preliminary results for the fourth quarter and the year as a whole (grant price). The share units so allocated are composed of 1/3 financial performance share units (FSUs), 1/3 market performance share units (MSUs), and 1/3 retention share units (RSUs). All three types of share unit have a vesting period of approximately four years. In contrast to RSUs, FSUs and MSUs are subject to changes in quantity. In this context, the following applies:

The number of FSUs initially awarded is multiplied by a performance factor. The performance factor consists of three equally weighted individual factors relating to the three non-IFRS KPIs at constant currencies, namely: total revenue, cloud revenue, and operating income. The performance period throughout which the target achievement for these three KPIs is measured starts at the beginning of the financial year in which the FSUs are awarded and concludes upon the end of the second year following the year in which the share units were awarded. A numerical target value equaling 100% target achievement is set for each KPI. This constitutes, in each case, a cumulative value for the three years of the performance period. The KPIs are derived from SAP's long-term strategy.



The number of MSUs initially awarded is likewise multiplied by a performance factor. The performance factor depends on the amount of the total shareholder return (TSR) on the SAP share, measured for an entire performance period of approximately three years,

compared to the TSR for NASDAQ-100 companies. If the TSR on the SAP share equals the median, the performance factor will be 100%. If the TSR on the SAP share over the performance period is negative, the maximum performance factor will, however, in deviation from the summary above, be 100%.



The performance of the share units is linked to the performance of the SAP share price, including dividend payments. Accordingly, an amount is paid out for each share unit which equals the SAP share price plus those dividends disbursed in respect of an SAP share in the period from the beginning of the year in which the share units were awarded until the end of the third year following the year in which the share units were awarded. The arithmetic mean of the SAP share price on the 20 trading days after scheduled publication of the preliminary results for the fourth quarter and the year as a whole will be used as the SAP share price. The payout amount per share unit, including the dividend amounts due on the share units, is capped at 200% of the grant price. The tranche is cash-settled and paid in euros after the Annual General Meeting of Shareholders of the corresponding year.

If an Executive Board member's service contract is terminated before the end of the third year following the year in which the share units were granted, the RSUs and PSUs are forfeited in whole or in part, depending on the circumstances of the relevant resignation from office or termination of the service contract.

Long-Term Incentive 2016 Plan (LTI 2016 Plan)

The purpose of the LTI 2016 Plan was to reward our Executive Board members for the annual achievement of SAP's operating profit (non-IFRS at constant currencies) targets, to ensure long-term retention of our Executive Board members, and to reward them for the long-term SAP share price performance as compared to its main peer group (Peer Group).

An LTI tranche was granted annually and has a term of four years (2016–2019 tranches). Each grant started with determining a grant amount in euros. The grant amount was based on the Executive Board members' contractual LTI target amount and the operating profit target achievement for the previous year. The Supervisory Board set the grant amount at a level between 80% and 120% of the contractual LTI target amount, taking into account the operating profit target achievement. This grant amount was converted into virtual shares, referred to as share units, by dividing the grant amount by the grant price. The grant price was the arithmetic mean of the XETRA closing prices of the SAP share on the 20 trading days following the publication of SAP's fourth-quarter results.

All share units granted in this way, comprising 60% Performance Share Units (PSUs) and 40% Retention Share Units (RSUs), have a vesting period of approximately four years. At the end of the vesting period, the corresponding share units are non-forfeitable. The payout price used for the settlement is the arithmetic mean of the XETRA closing prices of the SAP share on the 20 trading days following the publication of SAP's fourth-quarter results subsequent to the end of the vesting period. The payout price is capped at 300% of the grant price. The LTI tranche is cash-settled and paid in euros after the Annual General Shareholders' Meeting of the corresponding year.

The number of PSUs ultimately paid out depends on the performance of the SAP share – absolute and relative to the Peer Group Index. In contrast, the final number of RSUs is fixed. SAP's absolute share price performance is measured by comparing the grant price against the payout price. If the SAP share price performance equals the Peer Group Index performance over the same period, the performance factor is set at 100%. If the SAP share price performs better than the Peer Group Index (measured as difference between SAP share price performance and Peer Group Index performance), the performance factor is increased by the percentage point of the outperformance of the SAP share price. The percentage point is doubled if, additionally, the payout price is higher than the grant price. The performance factor is capped at 150%. If the Peer Group Index performs better than the SAP share price, the performance factor is decreased by the percentage point of the outperformance of the Peer Group Index. All PSUs lapse if the performance factor is below 50%.

If an Executive Board member's service contract is terminated before the end of the third year following the year in which the share units were granted, both the RSUs and PSUs are forfeited in whole or in part, depending on the circumstances of the relevant resignation from office or termination of the service contract.

Restricted Stock Unit Plan Including Move SAP Plan and Grow SAP Plan (RSU Plan)

To retain and motivate executives and certain employees, we grant virtual shares representing a contingent right to receive a cash payment determined by the SAP share price and the number of share units that ultimately vest. In June 2020, we granted share units under the new Grow SAP Plan. This fixed term plan has broadly the same terms and conditions as the Move SAP Plan, recognizes all employees' commitment to SAP's success, and deepens their participation in our future company performance.

Granted share units will vest in different tranches, either:

- Over a half-year service period only
- Over a one-to-three-year service period only, or
- Over a three-year service period and upon achieving certain key performance indicators (KPIs)

The number of performance-based share units (PSUs) that will vest under the different tranches were contingent upon achievement of the operating profit (non-IFRS at constant currencies) KPI target in the year of grant. Depending on performance, the number of PSUs vesting ranges between 0% and 200% of the number initially granted. Performance against the KPI target was 100.4% in 2020 (2019: 118.7%, 2018: 106.7%). All share units are paid out in cash upon vesting.

Qualtrics Cash-Settled Awards Replacing Pre-Acquisition Qualtrics Awards (Qualtrics Rights)

In conjunction with the acquisition of Qualtrics in 2019, under the terms of the acquisition agreement, SAP exchanged unvested Restricted Share Awards (RSAs), Restricted Share Units (RSUs), and Performance Share Units (PSUs), and options held by employees of

Qualtrics into cash-settled share-based payment awards of SAP (Qualtrics Rights).

The replacement awards closely mirror the terms of the replaced awards except that:

–The replaced awards were planned to be settled by issuing equity instruments, whereas the replacement awards are settled in cash.

–RSAs, RSUs, PSUs, and options granted before 2018 and unvested as at the closing date of the Qualtrics acquisition were converted into the right to receive, at the originally agreed vesting dates, an amount in cash equal to the number of RSAs and RSUs held as at the vesting date multiplied by US$35.00 per share. The respective amount of options equals the number of options held as at the vesting date multiplied by US$35.00 per share less the originally agreed exercise price.

–RSUs, PSUs, and options granted in 2018 and thereafter and unvested as at the closing date of the Qualtrics acquisition were converted into awards that are indexed to SAP's share price as follows: SAP's consideration per share (US$35.00) was divided by the average closing price of the SAP share over the five trading days on the closing date (€91.28), translated into US$ (US$103.75), and the result (Equity Award Exchange Ratio of 0.3373) was multiplied by the average closing price of the SAP share over the five trading days prior to the exercise or vesting date.

There were 24.7 million unvested RSAs, RSUs, PSUs, and options as at the closing date of the Qualtrics acquisition, representing a fair value of €793 million after considering expected forfeitures dependent on grant dates and remaining vesting periods. Of the total fair value, €237 million was allocated to consideration transferred, while €556 million was allocated to future services to be provided. Post-acquisition compensation expense will be recognized as the awards vest over the remainder of the original vesting terms. The remaining vesting periods for such Qualtrics Rights are in a range of up to five years from closing date.

The unvested RSUs include grants as at the closing date of 6.1 million replacement RSUs. These RSUs have a two-year service period.

The unrecognized expense related to Qualtrics Rights was €60 million as at December 31, 2020 (2019: €225 million), and will be recognized over a remaining vesting period of up to three years (2019: four years).

The valuation of our outstanding cash-settled plans was based on the following parameters and assumptions:

Fair Value and Parameters Used at Year End 2020 for Cash-Settled Plans

€, unless otherwise stated	LTI 2016 Plan (2017–2019 Tranches)	LTI 2020 (2020 Tranche)	RSU Plan (2017–2020 Tranches)	Qualtrics Rights
Weighted average fair value as at 12/31/2020	**72.94**	**94.75**	**105.52**	**33.66**
Information how fair value was measured at measurement date				
Option pricing model used	Monte Carlo	Monte Carlo	Other[1]	Other[1]
Share price	107.22	107.22	107.22	107.22
Risk-free interest rate, depending on maturity (in %)	–0.75 to –0.11	NA	–0.77 to –0.32	–0.77 to –0.37
Expected volatility (in %)	34 to 42	30	NA	NA
Expected dividend yield (in %)	1.54	NA	1.54	1.54
Weighted average remaining life of awards outstanding as at 12/31/2020 (in years)	**1.2**	**3.2**	**1.0**	**1.5**

[1] For these awards, the fair value is calculated by subtracting the net present value of expected future dividend payments, if any, until maturity of the respective award from the prevailing share price as at the valuation date.

Fair Value and Parameters Used at Year End 2019 for Cash-Settled Plans

€, unless otherwise stated	LTI 2016 Plan (2016–2019 Tranches)	SOP 2010 (2014–2015 Tranches)	RSU Plan (2016–2019 Tranches)	Qualtrics Rights
Weighted average fair value as at 12/31/2019	**94.06**	**49.51**	**118.72**	**37.55**
Information how fair value was measured at measurement date				
Option pricing model used	Monte Carlo	Monte Carlo	Other[1]	Other[1]
Share price	120.32	120.32	120.32	120.32
Risk-free interest rate, depending on maturity (in %)	–0.68 to –0.57	–0.25 to –0.08	–0.68 to –0.31	–0.55 to –0.35
Expected volatility (in %)	20 to 25	27 to 36	NA	NA
Expected dividend yield (in %)	1.26	1.26	1.26	1.26
Weighted average remaining life of awards outstanding as at 12/31/2019 (in years)	**1.9**	**0.3**	**1.0**	**1.7**

[1] For these awards, the fair value is calculated by subtracting the net present value of expected future dividend payments, if any, until maturity of the respective award from the prevailing share price as at the valuation date.

For the LTI 2016 Plan valuation, the Peer Group Index price on December 31, 2020, was US$481.65 (2019: US$363.63); the expected dividend yield of the index of 1.14% (2019: 1.17%), the expected volatility of the index of 26% to 31% (2019: 18% to 22%), and the expected correlation of the SAP share price and the index price of 27% to 30% (2019: 38% to 40%) are based on historical data for the SAP share price and index price.

For the LTI 2020 valuation, the NASDAQ-100 Total Return Index on December 31, 2020, was US$15,072.29. The expected volatility of the NASDAQ-100 companies of 36%, and the expected correlation of SAP and the NASDAQ-100 companies of 31% are based on historical TSR data for SAP and the NASDAQ-100 companies.

The risk-free interest rate is derived from German government bonds with a similar duration. The SAP dividend yield is based on expected future dividends.

Changes in Outstanding Awards Under Our Cash-Settled Plans

Thousands, unless otherwise stated	LTI 2016 Plan (2016–2019 Tranches)	LTI 2020 (2020 Tranche)	SOP 2010 (2013–2015 Tranches)	RSU Plan (2016–2020 Tranches)	Qualtrics Rights
12/31/2018	926	NA	7,086	15,264	NA
Granted[1]	344	NA	0	9,339	24,666
Adjustment based upon KPI target achievement	NA	NA	NA	122	NA
Exercised	0	NA	–3,904	–7,540	–7,776
Forfeited	–160	NA	–144	–1,057	–883
12/31/2019	**1,110**	**0**	**3,039**	**16,128**	**16,007**
Granted	0	202	0	9,238	0
Adjustment based upon KPI target achievement	–211	NA	NA	–5	NA
Exercised	–129	0	–1,773	–7,204	–7,791
Forfeited	–3	–30	–66	–1,164	–699
12/31/2020	**767**	**172**	**1,200**	**16,993**	**7,518**
Outstanding awards exercisable as at					
12/31/2019	0	NA	3,039	0	0
12/31/2020	**0**	**0**	**1,200**	**0**	**0**
Total carrying amount (in € millions) of liabilities as at					
12/31/2019	73	NA	150	1,100	377
12/31/2020	**49**	**6**	**42**	**1,027**	**193**
Total intrinsic value of vested awards (in € millions) as at					
12/31/2019	51	NA	155	0	0
12/31/2020	**32**	**3**	**42**	**0**	**0**
Weighted average share price (in €) for awards exercised in					
2019	NA	NA	111.58	98.11	106.15
2020	**124.03**	**NA**	**121.49**	**109.75**	**113.34**
Total expense (in € millions) recognized in					
2018	8	NA	43	611	NA
2019	44	NA	66	1,087	461
2020	**–9**	**6**	**2**	**760**	**132**

[1] Granted includes additions from business combinations

Share-Based Payment Balances

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Share-based payment liabilities	**863**	**454**	**1,317**	**1,130**	**605**	**1,735**
Other non-financial liabilities	4,643	770	5,413	4,839	957	5,796
Share-based payment liabilities as % of other non-financial liabilities	19	59	24	23	63	30

b) Equity-Settled Share-Based Payments

Own SAP Plan (Own)

Under Own, employees have the opportunity to purchase, on a monthly basis, SAP shares without any required holding period. The investment per each eligible employee is limited to a percentage of the respective employee's monthly base salary. SAP matches the employee investment by 40% and adds a subsidy of €20 per month for non-executives. This plan is not open to members of the Executive Board.

Number of Shares Purchased

Millions	2020	2019	2018
Own	5.5	5.2	5.3

As a result of our equity-settled share-based payments transactions, we have commitments to grant SAP shares to employees. We intend to meet these commitments by reissuing treasury shares or through an agent who administers the equity-settled programs and purchases shares on the open market. We have fulfilled the obligations of Own through an agent.

Recognized Expense for Equity-Settled Plans

€ millions	2020	2019	2018
Own	191	171	149

(B.4) Pension Plans and Similar Obligations

Defined Contribution Plans

Amounts for domestic and foreign defined contribution plans are based on a percentage of the employees' salaries or on the amount of contributions made by employees. In Germany and some other countries, we make contributions to public pension schemes that are operated by national or local government or similar institutions. Expenses for such local state pension plans are recognized as short-term employee benefits, that is, social security expenses.

Defined Benefit Pension Plans

The discount rates used in measuring our post-employment benefit assets and liabilities are derived from rates available on high-quality corporate bonds and government bonds for which the timing and amounts of payments match the timing and the amounts of our projected pension payments. Net interest expense and other expenses related to defined benefit plans are recognized as employee benefits expenses and classified in our Consolidated Income Statements according to the activities that the employees owning the awards perform. Since our domestic defined benefit pension plans primarily consist of an employee-financed post-retirement plan that is fully financed with qualifying insurance policies, current service cost may become a credit as a result of adjusting the defined benefit liability's carrying amount to the fair value of the qualifying plan assets. Such adjustments are recorded in service cost. Total expenses on defined benefit pension plans comprise related current and past service costs as well as interest income and expense.

Total Expense of Pension Plans

€ millions	2020	2019	2018
Defined contribution plans	326	314	280
Defined benefit pension plans	93	55	50
Pension expenses	**419**	**369**	**330**

Defined Benefit Plans

Present Value of the Defined Benefit Obligations (DBO) and the Fair Value of the Plan Assets

€ millions	Domestic Plans		Foreign Plans		Other Foreign Post-Employment Plans		Total	
	2020	2019	**2020**	2019	**2020**	2019	**2020**	2019
Present value of the DBO	**1,127**	**1,026**	**616**	**533**	**189**	**156**	**1,932**	**1,715**
Fair value of the plan assets	**1,112**	**1,009**	**506**	**411**	**73**	**65**	**1,691**	**1,485**
Net defined benefit liability (asset)	**15**	**17**	**110**	**122**	**116**	**91**	**241**	**230**
Net defined benefit liability (asset) as % of:								
Non-current other financial assets	0	0	0	0	0	0	0	0
Non-current provisions	4	5	31	37	32	27	66	70

Of the present value of the DBO of our domestic plans, €1,054 million (2019: €951 million) relate to plans that provide for lump-sum payments not based on final salary; of the present value of the DBO of our foreign plans, €479 million (2019: €459 million) relate to plans that provide for annuity payments not based on final salary.

The following significant weighted average assumptions were used for the actuarial valuation of our domestic and foreign pension liabilities as well as other post-employment benefit obligations as at the respective measurement date:

Significant Actuarial Assumptions

Percent	Domestic Plans			Foreign Plans			Other Foreign Post-Employment Plans		
	2020	2019	2018	**2020**	2019	2018	**2020**	2019	2018
Discount rate	0.9	0.8	2.3	0.4	0.3	1.0	3.0	3.7	4.2

The sensitivity analysis table below shows how the present value of all defined benefit obligations would have been influenced by reasonably possible changes to significant actuarial assumptions.

The sensitivity analysis considers change in discount rate assumptions, holding all other actuarial assumptions constant.

Sensitivity Analysis

€ millions	Domestic Plans			Foreign Plans			Other Foreign Post-Employment Plans			Total		
	2020	2019	2018	**2020**	2019	2018	**2020**	2019	2018	**2020**	2019	2018
Present value of all defined benefit obligations if:												
Discount rate was 50 basis points higher	1,066	968	836	573	495	391	185	154	126	1,824	1,617	1,353
Discount rate was 50 basis points lower	1,195	1,090	940	663	576	450	204	159	141	2,062	1,825	1,531

Investments in Plan Assets

Our investment strategy on domestic benefit plans is to invest all contributions in stable insurance policies.

Our investment strategies for foreign benefit plans vary according to the conditions in the country in which the respective benefit plans are situated. We have adopted a long-term investment horizon for all major foreign benefit plans. Although our policy is to invest in a risk-diversified portfolio consisting of a mix of assets, both the defined benefit obligation and plan assets can fluctuate over time, which exposes the Group to actuarial and market (investment) risks. Depending on the statutory requirements in each country, it might be necessary to reduce any underfunding by addition of liquid assets.

Plan Asset Allocation

€ millions	2020		2019	
	Quoted in an Active Market	Not Quoted in an Active Market	Quoted in an Active Market	Not Quoted in an Active Market
Total plan assets	**485**	**1,207**	**445**	**1,040**
Thereof: Asset category				
Equity investments	149	0	137	0
Corporate bonds	151	0	156	0
Insurance policies	7	1,207	6	1,040

Our expected contribution in 2021 to our domestic and foreign defined benefit pension plans is immaterial. The weighted duration of our defined benefit plans amounted to 12 years as at December 31, 2020, and 13 years as at December 31, 2019.

Total future benefit payments from our defined benefit plans as at December 31, 2020, are expected to be €1,969 million (2019: €1,831 million). Of this amount, 77% (2019: 77%) has maturities of over five years, and 64% (2019: 61%) relates to domestic plans.

(B.5) Other Employee-Related Obligations

Accounting Policy

As far as the obligation for long-term employee benefits is secured by pledged reinsurance coverage, it is offset with the relating plan asset.

Other Employee-Related Liabilities

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Other employee-related liabilities	**3,147**	**316**	**3,464**	**3,059**	**352**	**3,411**
Other non-financial liabilities	4,643	770	5,413	4,839	957	5,796
Other employee-related liabilities as % of other non-financial liabilities	68	41	64	63	37	59

Other employee-related liabilities mainly relate to obligations from bonuses and sales commissions, outstanding vacation, time credits accumulated in the working time account, employee-related social security expenses, severance payments outside restructuring programs, and jubilee expenses.

We have reclassified our employee-related provisions mainly consisting of time credits accumulated in the working time account, severance payments outside restructuring programs, and jubilee expenses from other provisions to other non-financial liabilities. Prior-year amounts (December 31, 2019: €21 million (current) and €143 million (non-current)) have been reclassified accordingly. We believe that a classification as Other non-financial liabilities reflects the substance of these liabilities more appropriately than a classification under Other provisions.

(B.6) Restructuring

Recognition of Restructuring Provisions

We only recognize provisions for restructuring if and when the following occurs:

- SAP has designed a program that materially changes the scope of one of our businesses or the manner in which the business is conducted, and
- A detailed and documented restructuring plan has been approved by our Executive Board, a member thereof, or a direct report of an Executive Board member, and
- The program established is planned to start shortly after the program plan is approved and is expected to be completed in a timeframe that makes significant changes to the plan unlikely, and
- The program has been announced to the parties affected or has commenced.

We consider whether a change in business is material based on the business affected rather than for SAP as a whole. In judging whether a unit qualifies as a business for restructuring purposes, we consider if the unit has its own management team, has access to all inputs and processes necessary to provide outputs, and generates or could generate revenues. The materiality of a change to a business is assessed based on both the size and the nature of the change and therefore does not necessarily involve a material quantitative impact on our financial statements.

Restructuring expenses primarily include the following components:

Restructuring Expenses

€ millions	2020	2019	2018
Employee-related restructuring expenses	7	–1,111	–19
Onerous contract-related restructuring expenses and restructuring related impairment losses	–4	–19	0
Restructuring expenses	**3**	**–1,130**	**–19**

Restructuring provisions are predominantly short-term in nature. They primarily include employee termination benefits.

Restructuring Provisions

€ millions	Restructuring Provisions
1/1/2020	208
Addition	8
Utilization	–181
Release	–6
Currency impact	–1
12/31/2020	**28**
Total provisions	441
Restructuring provisions as % of total provisions	6

If not presented separately in our income statement, restructuring expenses would have been classified in the different expense items in our income statement as follows:

Restructuring Expenses by Functional Area

€ millions	2020	2019	2018
Cost of cloud	0	–20	0
Cost of software licenses and support	1	–118	–2
Cost of services	–3	–154	–3
Research and development	1	–467	–3
Sales and marketing	3	–299	–11
General and administration	2	–71	0
Restructuring expenses	**3**	**–1,130**	**–19**

Section C – Financial Results

This section provides insight into the financial results of SAP's reportable segments and of SAP overall as far as not already covered by previous sections. This includes but is not limited to segment results, income taxes, and earnings per share.

(C.1) Results of Segments

General Information

At year end 2020, SAP had five operating segments that are regularly reviewed by the Executive Board, which is responsible for assessing the performance of the Company and for making resource allocation decisions as our chief operating decision maker (CODM). The operating segments are largely organized and managed separately according to their product and service offerings, notably whether the products and services relate to our services activities, travel management offerings or experience management solutions, or cover other activities of our business.

The former Applications, Technology & Services segment was renamed at the beginning of 2020 to Applications, Technology & Support, while the services functions were bundled into the new Services segment. The Applications, Technology & Support segment derives its revenues primarily from the sale of software licenses, support offerings, and cloud subscriptions (as far as not included in one of the other segments).

The new Services segment covers most of SAP's services activities. It was established by bringing together services delivery and services sales functions to a new global services unit. Revenues are mainly generated from the sale of various professional services, premium support services, implementation services for our software products, and education services on the use of our products. However, the services segment does not reflect the full services business, as other segments provide services as well.

In 2020, the former Intelligent Spend Group segment was renamed to the Concur segment. This was the result of the integration of SAP Ariba and SAP Fieldglass offerings as well as major parts of the Concur engineering functions into the Applications, Technology & Support segment and the Services segment. The Concur segment derives its revenues mainly from transaction fees charged for the use of SAP's cloud-based Concur travel management offerings and related services.

The Qualtrics segment derives its revenues mainly from the sale of experience management cloud solutions (offerings of Qualtrics) that run front-office functions across the experience data and from the sale of related services. For more information about the initial public offering of Qualtrics International Inc., see *Note (G.8)*.

On November 4, 2020, we acquired Emarsys eMarketing Systems AG ("Emarsys"), an innovative and easy-to-use cloud-based marketing platform, to complement and enhance our existing SAP Customer Experience solutions. Consequently, this acquisition led to a new operating segment called Emarsys. Due to its size, however, Emarsys is not a reportable segment. The Emarsys segment derives its revenues mainly from the sales of cloud-based customer experience offerings and from the sale of related services.

Further, in the fourth quarter of 2020, we sold our former non-reportable Digital Interconnect segment which derived its revenues from the sale of telephony, video chat, and routing offerings.

The segment information for 2020 and the comparative prior periods were restated to conform with the new segment composition.

Segment Reporting Policies

Our management reporting system, and hence our segment reporting system, reports our intersegment services as cost reductions and does not track them as internal revenue. Intersegment services mainly represent utilization of human resources of one segment by another segment on a project basis. Intersegment services are charged based on internal cost rates including certain indirect overhead costs but excluding a profit margin.

Most of our depreciation and amortization expense affecting segment profits is allocated to the segments as part of broader infrastructure allocations and is thus not tracked separately on the operating segment level. Depreciation and amortization expense that is directly allocated to the operating segments is immaterial in all segments presented.

Our management reporting system produces a variety of reports that differ by the currency exchange rates used in the accounting for foreign-currency transactions and operations, where both actual and constant currency numbers are reported to and used by our CODM. Reports based on actual currencies use the same currency rates as are used in our financial statements. Reports based on constant currencies report revenues and expenses using the average exchange rates from the previous year's corresponding period.

We use an operating profit indicator to measure the performance of our operating segments. However, the accounting policies applied in the measurement of operating segment revenue and profit differ as follows from the IFRS accounting principles used to determine the operating profit measure in our income statement:

- The measurements of segment revenue and results include the recurring revenues that would have been recorded by acquired entities had they remained stand-alone entities but which are not recorded as revenue under IFRS due to fair value accounting for customer contracts in effect at the time of an acquisition.
- The expense measures exclude:
  - Acquisition-related charges such as amortization expense and impairment charges for intangibles acquired in business combinations and certain stand-alone acquisitions of intellectual property (including purchased in-process research and development) as well as sale/disposal gains and losses for these intangibles, settlements of pre-existing business relationships in connection with a business combination, and acquisition-related third-party expenses
  - Share-based payment expenses

- Restructuring expenses

– Certain activities are exclusively managed on corporate level, including finance, accounting, legal, human resources, global business operations, and global marketing. They are not included in the results of our reportable segments.

Revenues and expenses of our operating but non-reportable segment, and the certain activities managed on corporate level, as outlined above, are presented under the Other revenue and Other expenses items in the reconciliation in *Note (C.2)*.

Information about assets and liabilities and additions to non-current assets by segment are not regularly provided to our Executive Board. Goodwill by segment is disclosed in *Note (D.2)*.

Applications, Technology & Support

€ millions	2020		2019		2018
	Actual Currency	Constant Currency[1]	Actual Currency	Constant Currency[1]	Actual Currency
Cloud	6,254	6,379	5,259	5,098	3,905
Software licenses	3,637	3,765	4,523	4,422	4,645
Software support	11,502	11,707	11,542	11,279	10,981
Software licenses and support	15,138	15,472	16,064	15,700	15,626
Cloud and software	21,392	21,852	21,323	20,798	19,531
Services	288	292	341	335	342
Total segment revenue	**21,680**	**22,144**	**21,664**	**21,132**	**19,873**
Cost of cloud	–2,165	–2,218	–1,972	–1,913	–1,620
Cost of software licenses and support	–1,756	–1,790	–1,910	–1,872	–1,835
Cost of cloud and software	–3,922	–4,008	–3,882	–3,784	–3,455
Cost of services	–308	–313	–332	–326	–321
Total cost of revenue	**–4,230**	**–4,321**	**–4,214**	**–4,111**	**–3,776**
Segment gross profit	**17,450**	**17,823**	**17,450**	**17,022**	**16,096**
Other segment expenses	–8,026	–8,190	–7,996	–7,821	–7,513
Segment profit	**9,423**	**9,633**	**9,454**	**9,201**	**8,583**

[1] The 2020 constant currency amounts are only comparable to 2019 actual currency amounts; 2019 constant currency amounts are only comparable to 2018 actual currency amounts.

Concur

€ millions	2020		2019		2018
	Actual Currency	Constant Currency[1]	Actual Currency	Constant Currency[1]	Actual Currency
Cloud	1,288	1,306	1,373	1,313	1,107
Software licenses	0	0	0	0	0
Software support	0	0	0	0	0
Software licenses and support	0	0	0	0	0
Cloud and software	1,288	1,306	1,373	1,313	1,107
Services	217	221	236	226	231
Total segment revenue	**1,505**	**1,526**	**1,609**	**1,539**	**1,338**
Cost of cloud	–154	–158	–181	–173	–160
Cost of software licenses and support	0	0	0	0	0
Cost of cloud and software	–154	–158	–181	–173	–160
Cost of services	–165	–167	–169	–162	–160
Total cost of revenue	**–319**	**–325**	**–350**	**–335**	**–320**
Segment gross profit	**1,186**	**1,201**	**1,260**	**1,204**	**1,019**
Other segment expenses	–622	–632	–640	–614	–537
Segment profit	**564**	**569**	**620**	**590**	**482**

[1] The 2020 constant currency amounts are only comparable to 2019 actual currency amounts; 2019 constant currency amounts are only comparable to 2018 actual currency amounts.

Qualtrics

€ millions	2020		2019		2018[2]
	Actual Currency	Constant Currency[1]	Actual Currency	Constant Currency[1]	Actual Currency
Cloud	518	529	371	353	NA
Software licenses	0	0	0	0	NA
Software support	0	0	0	0	NA
Software licenses and support	0	0	0	0	NA
Cloud and software	518	529	371	353	NA
Services	162	166	137	130	NA
Total segment revenue	**681**	**696**	**508**	**483**	**NA**
Cost of cloud	–43	–43	–33	–31	NA
Cost of software licenses and support	0	0	0	0	NA
Cost of cloud and software	–43	–43	–33	–31	NA
Cost of services	–110	–112	–78	–74	NA
Total cost of revenue	**–152**	**–155**	**–110**	**–106**	**NA**
Segment gross profit	**528**	**541**	**398**	**377**	**NA**
Other segment expenses	–509	–521	–389	–368	NA
Segment profit	**19**	**20**	**8**	**9**	**NA**

[1] The 2020 constant currency amounts are only comparable to 2019 actual currency amounts; 2019 constant currency amounts are only comparable to 2018 actual currency amounts.

[2] There are no prior-period numbers presented for the Qualtrics segment for 2018, since Qualtrics was acquired in 2019.

Services

€ millions	2020		2019		2018
	Actual Currency	Constant Currency[1]	Actual Currency	Constant Currency[1]	Actual Currency
Cloud	0	1	0	0	0
Software licenses	0	0	0	0	0
Software support	4	4	5	5	3
Software licenses and support	4	4	5	5	3
Cloud and software	5	5	5	5	4
Services	3,153	3,203	3,442	3,354	3,161
Total segment revenue	**3,157**	**3,208**	**3,447**	**3,359**	**3,165**
Cost of cloud	–70	–72	–57	–56	–51
Cost of software licenses and support	–33	–34	–55	–54	–77
Cost of cloud and software	–103	–106	–112	–110	–128
Cost of services	–2,136	–2,179	–2,506	–2,453	–2,379
Total cost of revenue	**–2,240**	**–2,285**	**–2,618**	**–2,562**	**–2,507**
Segment gross profit	**918**	**923**	**829**	**796**	**658**
Other segment expenses	–419	–429	–467	–456	–409
Segment profit	**499**	**494**	**362**	**340**	**249**

[1] The 2020 constant currency amounts are only comparable to 2019 actual currency amounts; 2019 constant currency amounts are only comparable to 2018 actual currency amounts.

Segment Revenue by Region

€ millions	EMEA			Americas			APJ			Total Segment Revenue		
	2020		2019	2020		2019	2020		2019	2020		2019
	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency	Actual Currency
Applications, Technology & Support	10,249	10,356	10,083	7,964	8,245	8,056	3,467	3,542	3,525	21,680	22,144	21,664
Concur	228	232	260	1,103	1,117	1,176	175	177	174	1,505	1,526	1,609
Qualtrics	97	99	68	528	540	403	55	56	37	681	696	508
Services	1,432	1,448	1,530	1,340	1,370	1,447	385	391	470	3,157	3,208	3,447
Total reportable segments	**12,006**	**12,136**	**11,941**	**10,935**	**11,272**	**11,081**	**4,082**	**4,166**	**4,207**	**27,023**	**27,574**	**27,229**

€ millions	EMEA			Americas			APJ			Total Segment Revenue		
	2019		2018	2019		2018	2019		2018	2019		2018
	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency	Actual Currency	Actual Currency	Constant Currency	Actual Currency
Applications, Technology & Support	10,083	10,015	9,416	8,056	7,699	7,226	3,525	3,419	3,231	21,664	21,132	19,873
Concur	260	246	152	1,176	1,125	1,061	174	168	125	1,609	1,539	1,338
Qualtrics[1]	68	65	NA	403	383	NA	37	36	NA	508	483	NA
Services	1,530	1,473	1,471	1,447	1,441	1,227	470	444	467	3,447	3,359	3,165
Total reportable segments	**11,941**	**11,798**	**11,038**	**11,081**	**10,648**	**9,515**	**4,207**	**4,067**	**3,823**	**27,229**	**26,513**	**24,376**

[1] There are no prior-period numbers presented for the Qualtrics segment for 2018, since Qualtrics was acquired in 2019.

For a breakdown of revenue by region for the SAP Group, see *Note (A.1)*.

(C.2) Reconciliation of Segment Measures to the Consolidated Income Statements

€ millions	2020		2019		2018
	Actual Currency	Constant Currency[1]	Actual Currency	Constant Currency[1]	Actual Currency
Applications, Technology & Support	21,680	22,144	21,664	21,132	19,873
Services	3,157	3,208	3,447	3,359	3,165
Qualtrics	681	696	508	483	NA
Concur	1,505	1,526	1,609	1,539	1,338
Total segment revenue for reportable segments	**27,023**	**27,574**	**27,229**	**26,513**	**24,376**
Other revenue	320	323	405	393	366
Adjustment for currency impact	0	–554	0	728	0
Adjustment of revenue under fair value accounting	–5	–5	–81	–81	–33
Total revenue	**27,338**	**27,338**	**27,553**	**27,553**	**24,708**
Applications, Technology & Support	9,423	9,633	9,454	9,201	8,583
Services	499	494	362	340	249
Qualtrics	19	20	8	9	NA
Concur	564	569	620	590	482
Total segment profit for reportable segments	**10,506**	**10,716**	**10,444**	**10,141**	**9,314**
Other revenue	320	323	405	393	366
Other expenses	–2,538	–2,536	–2,642	–2,580	–2,517
Adjustment for currency impact	0	–216	0	255	0
Adjustment for					
Revenue under fair value accounting	–5	–5	–81	–81	–33
Acquisition-related charges	–577	–577	–689	–689	–577
Share-based payment expenses	–1,084	–1,084	–1,835	–1,835	–831
Restructuring	3	3	–1,130	–1,130	–19
Operating profit	**6,623**	**6,623**	**4,473**	**4,473**	**5,703**
Other non-operating income/expense, net	–179	–179	–74	–74	–56
Financial income, net	776	776	198	198	–47
Profit before tax	**7,220**	**7,220**	**4,596**	**4,596**	**5,600**

[1] The 2020 constant currency amounts are only comparable to 2019 actual currency amounts; 2019 constant currency amounts are only comparable to 2018 actual currency amounts.

(C.3) Other Non-Operating Income/Expense, Net

€ millions	2020	2019	2018
Foreign currency exchange gain/loss, net	–154	–51	–31
Thereof from financial assets at fair value through profit or loss	601	358	444
Thereof from financial assets at amortized cost	–134	194	148
Thereof from financial liabilities at fair value through profit or loss	–487	–396	–415
Thereof from financial liabilities at amortized cost	–34	–176	–202
Miscellaneous income/expense, net	–25	–23	–25
Other non-operating income/expense, net	**–179**	**–74**	**–56**

(C.4) Financial Income, Net

€ millions	2020	2019	2018
Finance income	**1,473**	**787**	**371**
Thereof gains from financial assets at fair value through profit or loss	1,360	596	227
Finance costs	**–697**	**–589**	**–418**
Thereof interest expense from financial liabilities at amortized cost	–179	–207	–106
Thereof interest expense from financial liabilities at fair value through profit or loss	–76	–155	–206
Financial income, net	**776**	**198**	**–47**

(C.5) Income Taxes

Judgments and Estimates

We are subject to changing tax laws in multiple jurisdictions within the countries in which we operate. Our ordinary business activities also include transactions where the ultimate tax outcome is uncertain due to different interpretations of tax laws, such as those involving transfer pricing and intercompany transactions between SAP Group entities. In addition, the amount of income taxes we pay is generally subject to ongoing audits by domestic and foreign tax authorities. In determining our worldwide income tax provisions, judgment is involved in assessing whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments and whether to reflect the respective effect of uncertainty based on the most likely amount or the expected value. In applying these judgments, we consider the nature and the individual facts and circumstances of each uncertain tax treatment as well as the specifics of the respective jurisdiction, including applicable tax laws and our interpretation thereof.

The assessment whether a deferred tax asset is impaired requires judgment, as we need to estimate future taxable profits to determine whether the utilization of the deferred tax asset is probable. In evaluating our ability to utilize our deferred tax assets, we consider all available positive and negative evidence, including the level of historical taxable income and projections for future taxable income over the periods in which the deferred tax assets are recoverable. Our judgment regarding future taxable income is based on assumptions about future market conditions and future profits of SAP.

Judgment is also required in evaluating whether interest or penalties related to income taxes meet the definition of income taxes, and, if not, whether it is of financial nature. In this judgment, we particularly consider applicable local tax laws and interpretations on IFRS by national standard setters in the area of group financial reporting.

Tax Expense by Geographic Location

€ millions	2020	2019	2018
Current tax expense			
Germany	895	625	733
Foreign	1,001	1,153	1,019
Total current tax expense	**1,896**	**1,778**	**1,752**
Deferred tax expense/income			
Germany	–38	–3	57
Foreign	80	–549	–298
Total deferred tax expense/income	**42**	**–552**	**–241**
Total income tax expense	**1,938**	**1,226**	**1,511**

Major Components of Tax Expense

€ millions	2020	2019	2018
Current tax expense/income			
Tax expense for current year	1,653	1,818	1,665
Taxes for prior years	243	–40	87
Total current tax expense	**1,896**	**1,778**	**1,752**
Deferred tax expense/income			
Origination and reversal of temporary differences	47	–710	–501
Unused tax losses, research and development tax credits, and foreign tax credits	–5	158	260
Total deferred tax expense/income	**42**	**–552**	**–241**
Total income tax expense	**1,938**	**1,226**	**1,511**

Profit Before Tax by Geographic Location

€ millions	2020	2019	2018
Germany	2,481	2,012	3,106
Foreign	4,739	2,584	2,494
Total	**7,220**	**4,596**	**5,600**

The following table reconciles the expected income tax expense, computed by applying our combined German tax rate of 26.3% (2019: 26.4%; 2018: 26.4%), to the actual income tax expense. Our 2020 combined German tax rate includes a corporate income tax rate of 15.0% (2019: 15.0%; 2018: 15.0%), plus a solidarity surcharge of 5.5% (2019: 5.5%; 2018: 5.5%) thereon, and trade taxes of 10.5% (2019: 10.6%; 2018: 10.6%).

Relationship Between Tax Expense and Profit Before Tax

€ millions, unless otherwise stated	2020	2019	2018
Profit before tax	**7,220**	**4,596**	**5,600**
Tax expense at applicable tax rate of 26.3% (2019: 26.4%; 2018: 26.4%)	1,901	1,212	1,478
Tax effect of:			
Foreign tax rates	–166	–171	–131
Non-deductible expenses	254	116	106
Tax-exempt income	–282	–131	–54
Withholding taxes	105	138	91
Research and development and foreign tax credits	–100	–89	–33
Prior-year taxes	128	80	–17
Reassessment of deferred tax assets, research and development tax credits, and foreign tax credits	41	48	58
Other	57	23	13
Total income tax expense	**1,938**	**1,226**	**1,511**
Effective tax rate (in %)	**26.8**	**26.7**	**27.0**

Components of Recognized Deferred Tax Assets and Liabilities

€ millions	2020	2019
Deferred tax assets		
Intangible assets	455	504
Property, plant, and equipment	19	19
Other financial assets	11	11
Trade and other receivables	115	61
Pension provisions	194	135
Share-based payments	197	268
Other provisions and obligations	1,155	1,330
Contract liabilities	631	553
Carryforwards of unused tax losses	108	131
Research and development and foreign tax credits	57	56
Other	108	152
Total deferred tax assets	**3,050**	**3,220**
Deferred tax liabilities		
Intangible assets	854	1,006
Property, plant, and equipment	529	544
Other financial assets	239	221
Trade and other receivables	178	148
Pension provisions	21	13
Share-based payments	0	1
Other provisions and obligations	87	50
Contract liabilities	4	6
Other	123	59
Total deferred tax liabilities	**2,035**	**2,048**
Total deferred tax assets, net	**1,015**	**1,172**

Items Not Resulting in a Deferred Tax Asset

€ millions	2020	2019	2018
Unused tax losses			
Not expiring	572	688	575
Expiring in the following year	25	63	7
Expiring after the following year	481	373	476
Total unused tax losses	**1,078**	**1,124**	**1,058**
Deductible temporary differences	**587**	**538**	**509**
Unused research and development and foreign tax credits			
Not expiring	26	28	54
Expiring after the following year	17	17	18
Total unused tax credits	**43**	**45**	**72**

Of the unused tax losses, €264 million (2019: €187 million; 2018: €213 million) relate to U.S. state tax loss carryforwards.

We have not recognized a deferred tax liability on approximately €18.37 billion (2019: €17.41 billion) for undistributed profits of our subsidiaries, because we are in a position to control the timing of the reversal of the temporary difference and it is probable that such differences will not reverse in the foreseeable future.

Income Tax-Related Litigation

We are subject to ongoing tax audits by domestic and foreign tax authorities. Currently, we are in dispute mainly with the German and only a few foreign tax authorities. The German dispute is in respect of certain secured capital investments, while the few foreign disputes are in respect of the deductibility of intercompany royalty payments and intercompany services. In all cases, we expect that a favorable outcome can only be achieved through litigation. For all of these matters, we have not recorded a provision as we believe that the tax authorities' claims have no merit and that no adjustment is warranted. If, contrary to our view, the tax authorities were to prevail in their arguments before the court, we would expect to have an additional expense of approximately €1,221 million (2019: €2,013 million) in total (including related interest expenses and penalties of €648 million (2019: €982 million)). The contingent liabilities decreased in 2020 mainly due to changes in foreign currency exchange rates for our few foreign disputes and due to a German Federal Fiscal Court decision in a tax dispute involving intercompany financing matters.

(C.6) Earnings per Share

€ millions, unless otherwise stated	**2020**	2019	2018
Profit attributable to equity holders of SAP SE	5,145	3,321	4,083
Issued ordinary shares[1]	1,229	1,229	1,229
Effect of treasury shares[1]	–46	–35	–35
Weighted average shares outstanding, basic[1]	1,182	1,194	1,194
Dilutive effect of share-based payments[1]	0	0	0
Weighted average shares outstanding, diluted[1]	1,182	1,194	1,194
Earnings per share, basic, attributable to equity holders of SAP SE (in €)	**4.35**	**2.78**	**3.42**
Earnings per share, diluted, attributable to equity holders of SAP SE (in €)	**4.35**	**2.78**	**3.42**

[1] Number of shares in millions

Section D – Invested Capital

This section highlights our non-current assets including investments that form the basis of our operating activities. Additions to invested capital include separate asset acquisitions or business combinations. Further, we disclose information about purchase obligations and capital contributions.

(D.1) Business Combinations and Divestitures

Measuring Non-Controlling Interests and Allocation of Consideration Transferred

We decide for each business combination whether to measure the non-controlling interest in the acquiree at fair value or at the proportionate share of the acquiree's identifiable net assets.

We classify costs related to executing business combinations as general and administration expense.

In our accounting for business combinations, judgment is required in determining whether an intangible asset is identifiable, and should be recorded separately from goodwill. Additionally, estimating the acquisition-date fair values of the identifiable assets acquired and liabilities assumed involves considerable judgment. The necessary measurements are based on information available on the acquisition date and are based on expectations and assumptions that have been deemed reasonable by management. These judgments, estimates, and assumptions can materially affect our financial position and profit for several reasons, including the following:

- Fair values assigned to assets subject to depreciation and amortization affect the amounts of depreciation and amortization to be recorded in operating profit in the periods following the acquisition.
- Subsequent negative changes in the estimated fair values of assets may result in additional expense from impairment charges.
- Subsequent changes in the estimated fair values of liabilities and provisions may result in additional expense (if increasing the estimated fair value) or additional income (if decreasing the estimated fair value).

We acquire businesses in specific areas of strategic interest to us, particularly to broaden our product and service portfolio.

2020 Acquisitions

On November 4, 2020, we concluded the acquisition of 100% of the shares of Emarsys eMarketing Systems AG, Vienna, Austria ("Emarsys"), following satisfaction of applicable regulatory and other approvals.

The operating results and assets and liabilities of Emarsys are reflected in our consolidated financial statements from November 4, 2020, onwards.

The initial accounting for the Emarsys business combination is incomplete because the acquisition occurred shortly before the end of the fiscal year and thus, we are still obtaining the information necessary to identify and measure items such as tax-related assets and liabilities, as well as intangible assets of Emarsys. Accordingly, the amounts recognized in our financial statements for these items are regarded provisional as at December 31, 2020.

In general, the goodwill arising from our acquisitions consists largely of the synergies and the know-how and skills of the acquired businesses' workforces.

Emarsys goodwill is attributed to expected synergies from the acquisition, particularly in the following areas:

- Cross-selling opportunities to existing SAP customers across all regions, using SAP's sales organization
- Emarsys offerings complementing the existing SAP Customer Experience solutions
- Improved profitability in Emarsys sales and operations

At the end of 2020, Emarsys was a non-reportable segment and the goodwill arising from the business combination was – on a preliminary basis – allocated to this segment. For more information, see *Note (D.2)*.

For more information about our segments and about the changes in our segment structure, see *Note (C.1)*.

2020 Divestitures

On May 5, 2020, SAP and Sinch AB, Stockholm, Sweden ("Sinch"), announced that they had entered into a definitive agreement for Sinch to acquire the SAP Digital Interconnect group. The business sold (which was a non-reportable segment to SAP) consists of several SAP subsidiaries as well as assets transferred from certain SAP entities. The initial cash purchase price was € 225 million (on a cash-free, debt-free basis). The disposal gain of €194 million (IFRS) and €128 million (non-IFRS) is included in "Other operating income/expense, net".

The transaction closed on November 1, 2020, following satisfaction of applicable regulatory and other approvals.

Due to immateriality, we have not separately presented the business as a discontinued operation.

2019 Acquisitions

On January 23, 2019, we concluded the acquisition of Qualtrics International Inc. ("Qualtrics"), following satisfaction of applicable regulatory and other approvals.

Qualtrics is a leading provider of experience management solutions. By combining Qualtrics products and SAP products, we aim to deliver an end-to-end experience and operational management system to our customers.

We acquired 100% of the Qualtrics shares for approx. US$35 per share, representing consideration transferred in cash of approximately US$7.1 billion. In addition to the cash payments, SAP also incurred liabilities and post-closing expenses relating to assumed share-based payment awards amounting to approximately US$0.9 billion.

The operating results and assets and liabilities of Qualtrics are reflected in our consolidated financial statements from January 23, 2019, onward.

Qualtrics Acquisition: Consideration Transferred

€ millions	
Cash paid	6,212
Liabilities incurred	237
Total consideration transferred	**6,449**

The liabilities incurred related to the earned portion of unvested share-based payment awards. These liabilities were incurred by replacing, upon acquisition, equity-settled share-based payment awards held by employees of Qualtrics with cash-settled share-based payment awards, which are subject to forfeiture. The respective liabilities represent the portion of the replacement awards that relates to pre-acquisition services provided by the acquiree's employees and were measured at the fair value determined under IFRS 2 (also see *Note (B.3)*).

Measurement period adjustments recorded in both 2020 and 2019 were not material.

The following table summarizes the values of identifiable assets acquired and liabilities assumed in connection with the acquisition of Qualtrics, as at the acquisition date.

Qualtrics Acquisition: Recognized Assets and Liabilities

€ millions	
Cash and cash equivalents	138
Other financial assets	1
Trade and other receivables	37
Other non-financial assets	20
Property, plant, and equipment	75
Intangible assets	1,803
Thereof acquired technology	575
Thereof customer relationship and other intangibles	1,226
Thereof software and database licenses	2
Total identifiable assets	**2,074**
Trade and other payables	97
Financial liabilities	53
Current and deferred tax liabilities	317
Provisions and other non-financial liabilities	41
Contract liabilities	129
Total identifiable liabilities	**637**
Total identifiable net assets	**1,437**
Goodwill	**5,012**
Total consideration transferred	**6,449**

In general, the goodwill arising from our acquisitions consists largely of the synergies and the know-how and skills of the acquired businesses' workforces.

Qualtrics goodwill was attributed to expected synergies from the acquisition, particularly in the following areas:

- Cross-selling opportunities to existing SAP customers across all regions, using SAP's sales organization
- Creation of new offerings by combining Qualtrics products and SAP products to deliver an end-to-end experience and operational management system to the customers
- Improved profitability in Qualtrics sales and operations

The allocation of the goodwill resulting from the Qualtrics acquisition to our operating segments was depending on how our operating segments actually benefit from the synergies of the Qualtrics business combination. For more information, see *Note (D.2)*.

Impact of the Business Combination on Our Financial Statements

The amounts of revenue and profit or loss of the Qualtrics business acquired in 2019 since the acquisition date were included in our 2019 consolidated income statements as follows:

Qualtrics Acquisition: Impact on SAP's Financials

€ millions	**2019 as Reported**	Contribution of Qualtrics
Revenue	27,553	429
Profit after tax	**3,370**	–526

Had Qualtrics been consolidated as at January 1, 2019, our 2019 revenue and profit after tax would not have been materially different.

2018 Acquisitions

On April 5, 2018, following satisfaction of applicable regulatory and other approvals, we acquired 100% of the shares of Callidus Software Inc. ("Callidus") (NDSQ: CALD), a leading provider of customer relationship management (CRM) solutions. SAP paid US$36 per share, representing consideration transferred in cash of approximately US$2.4 billion. The acquisition aimed to accelerate and strengthen SAP's position and solution offerings in the sales performance management (SPM) and configure-price-quote (CPQ) spaces.

Callidus Acquisition: Consideration Transferred

€ millions	
Cash paid	1,957
Liabilities incurred	47
Total consideration transferred	**2,004**

The liabilities incurred related to the earned portion of unvested share-based payment awards. These liabilities were incurred by replacing, upon acquisition, equity-settled share-based payment awards held by employees of Callidus with cash-settled share-based payment awards, which are subject to forfeiture. The respective liabilities represented the portion of the replacement awards that relates to pre-acquisition services provided by the acquiree's employees and were measured at the fair value determined under IFRS 2.

Measurement period adjustments recorded in both 2018 and 2019 were not material.

The following table summarizes the values of identifiable assets acquired and liabilities assumed in connection with the acquisition of Callidus, as at the acquisition date:

Callidus Acquisition: Recognized Assets and Liabilities

€ millions	
Cash and cash equivalents	63
Other financial assets	64
Trade and other receivables	32
Other non-financial assets	11
Property, plant, and equipment	26
Intangible assets	515
Thereof acquired technology	121
Thereof customer relationship and other intangibles	390
Thereof software and database licenses	4
Total identifiable assets	711
Trade and other payables	59
Current and deferred tax liabilities	71
Provisions and other non-financial liabilities	15
Contract liabilities/deferred income	55
Total identifiable liabilities	200
Total identifiable net assets	511
Goodwill	1,493
Total consideration transferred	2,004

The goodwill arising from our acquisitions consists largely of synergies and the know-how and skills of the acquired businesses' workforces.

For the Callidus acquisition, synergies particularly relate to the following areas:

- Cross-selling opportunities of Callidus products to existing SAP customers across all regions, using SAP's sales organization
- Integrating Callidus products into SAP Customer Experience portfolio to strengthen SAP's customer experience suite of solutions
- Improved profitability in Callidus sales and operations

After the acquisition, we had allocated the Callidus goodwill and intangibles to the newly established Customer Experience segment. For more information about our segments and about the changes in our segment structure after the allocation, see *Note (C.1)*.

Impact of the Business Combination on Our Financial Statements

The amounts of revenue and profit or loss of the Callidus business acquired in 2018 since the acquisition date are included in the 2018 consolidated income statements as follows:

Callidus Acquisition: Impact on SAP's Financials

€ millions	**2018 as Reported**	Contribution of Callidus
Revenue	24,708	180
Profit after tax	**4,088**	–60

Had Callidus been consolidated as at January 1, 2018, our estimated 2018 pro forma revenue would have been €24,766 million, and pro forma profit after tax would have been €4,071 million.

These amounts were calculated after applying SAP's accounting policies and after adjusting the results for Callidus to reflect significant effects from, for example:

- Additional depreciation and amortization that would have been charged assuming the fair value adjustment to property, plant, and equipment, and to intangible assets had been applied from January 1, 2018
- The impact of fair value adjustments on contract liabilities/deferred income on a cumulative basis
- The borrowing costs on the funding levels and debt/equity position of SAP after the business combination
- Employee benefits, such as share-based compensation
- Transaction expenses incurred as part of the acquisition
- Related income taxes

These pro forma numbers have been prepared for comparative purposes only. The pro forma revenue and profit numbers are not necessarily indicative either of the results of operations that would have actually occurred had the acquisition been in effect at the beginning of the respective period, or of future results.

(D.2) Goodwill

Goodwill and Intangible Asset Impairment Testing

The annual goodwill impairment test is performed at the level of our operating segments, since there are no lower levels in SAP at which goodwill is monitored for internal management purposes.

In general, the test is performed at the same time (at the beginning of the fourth quarter) for all operating segments.

In making impairment assessments for our goodwill and intangible assets, the outcome of these tests is highly dependent on management's assumptions regarding future cash flow projections and economic risks, which require significant judgment and assumptions about future developments. They can be affected by a variety of factors, including:

- Changes in business strategy
- Internal forecasts
- Estimation of weighted-average cost of capital

Changes to the assumptions underlying our goodwill and intangible assets impairment assessments could require material adjustments to the carrying amount of our recognized goodwill and intangible assets as well as the amounts of impairment charges recognized in profit or loss.

The outcome of goodwill impairment tests may also depend on the allocation of goodwill to our operating segments. This allocation involves judgment as it is based on our estimates regarding which

operating segments are expected to benefit from the synergies of business combinations.

Changes in our segment structure result in the reallocation of goodwill with the reallocated goodwill being calculated based on relative values (if a direct allocation is not possible).

Goodwill

€ millions	
Historical cost	
1/1/2019	23,838
Foreign currency exchange differences	417
Additions from business combinations	5,014
Retirements/disposals	–9
12/31/2019	**29,260**
Foreign currency exchange differences	–2,010
Additions from business combinations	417
Retirements/disposals	–9
12/31/2020	**27,658**
Accumulated amortization	
1/1/2019	102
Foreign currency exchange differences	–1
12/31/2019	**101**
Foreign currency exchange differences	–3
12/31/2020	**98**
Carrying amount	
12/31/2019	**29,159**
12/31/2020	**27,560**

For more information about our segments and the changes in 2020, see *Note (C.1)*.

Throughout 2020 (particularly in light of the COVID-19 pandemic and its development), we have – through a qualitative and quantitative analysis – been continuously monitoring the existence of triggering events.

Based on the analysis updated in the fourth quarter, which served as the basis for our regular goodwill impairment test, we assume the economic impact of the current COVID-19 situation will continue through at least the first half of 2021, but that vaccine programs rolled out globally will lead to a gradually improving demand environment. For more information, see *Note (IN.2)*.

For impairment testing purposes, the carrying amount of goodwill is allocated to the operating segments expected to benefit from goodwill as follows:

Goodwill by Operating Segment

€ millions	Applications, Technology & Support (formerly Applications, Technology & Services)	Services	Concur (formerly Intelligent Spend Group)	Qualtrics	Other[1]	**Total**
12/31/2019	18,509	0	7,762	2,879	9	**29,159**
12/31/2020	**20,844**	**355**	**3,307**	**2,637**	**417**	**27,560**

[1] The non-reportable Digital Interconnect segment was sold in 2020 for further information, see *Note (D.1)*. The 2020 balance relates to Emarsys.

Due to the changes in our segments in 2020, a portion (€4,173 million) of the Intelligent Spend Group goodwill was moved to the former Applications, Technology & Services segment. A portion (€368 million) of the goodwill in this segment was then moved to the newly formed Services segment.

Goodwill Impairment Test

The key assumptions on which management based its cash flow projections for the period covered by the underlying business plans are as follows:

Key Assumption	Basis for Determining Values Assigned to Key Assumption
Budgeted revenue growth	Revenue growth rate achieved in the current year, adjusted for an expected increase in SAP's addressable cloud and database markets; expected growth in the established software applications and analytics markets. Values assigned reflect our past experience and our expectations regarding an increase in the addressable markets.
Budgeted operating margin	Operating margin budgeted for a given budget period equals the operating margin achieved in the current year, increased by expected efficiency gains. Values assigned reflect past experience, except for efficiency gains.
Discount rates	Our estimated cash flow projections are discounted to present value using discount rates (after-tax rates). Discount rates are based on the weighted average cost of capital (WACC) approach.
Terminal growth rate	Our estimated cash flow projections for periods beyond the business plan were extrapolated using segment-specific terminal growth rates. These growth rates do not exceed the long-term average growth rates for the markets in which our segments operate.

Key Assumptions and Detailed Planning Period

Percent, unless otherwise stated	Applications, Technology & Support (formerly Applications, Technology & Services)		Services		Concur[1] (formerly Intelligent Spend Group)		Qualtrics	
	2020	2019	**2020**	2019	**2020**	2019	**2020**	2019
Budgeted revenue growth (average of the budgeted period)	**5.4**	3.0	**3.4**	NA	**16.7**	13.3	**20.6**	22.6
After-tax discount rate	**8.8**	9.1	**7.2**	NA	**9.3**	10.4	**9.7**	11.1
Terminal growth rate	**3.0**	3.0	**3.0**	NA	**3.0**	3.0	**3.0**	3.0
Detailed planning period (in years)	**5**	5	**5**	NA	**9**	9	**13**	13

[1] The assumptions represent those used for the former Intelligent Spend Group segment in the 2019 impairment test – given the segment changes, comparability to the previous year is limited.

On October 1, 2020, we performed a goodwill impairment test for the segments mentioned above.

Applications, Technology & Support Segment and Services Segment

For more information about our 2020 segment changes, see *Note (C.1)*.

Given the close proximity to the 2019 test and the significant headroom, no formal impairment test was performed on the carve-out date of the Services segment.

The recoverable amount of these segments was determined based on fair value less costs of disposal calculation. The fair value measurement was categorized as a Level 3 fair value based on the inputs used in the valuation. The cash flow projections were based on actual operating results and specific estimates covering a detailed planning period and the terminal growth rate thereafter. The projected results were determined based on management's estimates and are consistent with the assumptions a market participant would make (target operating margins of 32.4% (Applications, Technology & Support) (2019: 35.9 %) and 2.4% (Services) were used in the valuation).

We believe that no reasonably possible change in any of the above key assumptions would cause the carrying amount of our Applications, Technology & Support segment to exceed the recoverable amount.

For our Services segment, the recoverable amount exceeded the carrying amount by €1,416 million.

The following table shows the amounts by which the key assumptions would need to change individually (that is, without changing the other key assumptions) for the recoverable amount to be equal to the carrying amount. For budgeted revenue growth sensitivity, the cost structure was not adjusted, hence leading to a modified terminal operating margin:

Sensitivity to Change in Assumptions

	Services
	2020
Budgeted revenue growth (change in pp)	–0.6
Target operating margin at the end of the budgeted period (change in pp)	–2

Concur Segment (former Intelligent Spend Group Segment)

For more information about our 2020 segment changes, see *Note (C.1)* (since a major part of the Concur engineering functions was also moved, adjustments were made accordingly for impairment testing purposes). Given the close proximity to the 2019 test and the significant headroom, no formal impairment test was performed on the date of the move.

When performing the impairment test, the recoverable amount was determined based on fair value less costs of disposal calculation. The fair value measurement was categorized as a Level 3 fair value based on the inputs used in the valuation. The cash flow projections were based on actual operating results and specific estimates covering a detailed planning period and the terminal growth rate thereafter. The projected results were determined based on management's estimates and are consistent with the assumptions a market participant would make (a target operating margin of 31.1% (2019: 30.6% – relating to the former Intelligent Spend Group segment) was used in the valuation).

The recoverable amount exceeded the carrying amount by €11,514 million (the 2019 number is not comparable as it had been calculated for the former Intelligent Spend Group segment).

The following table shows the amounts by which the key assumptions could – at the time of the impairment test – have changed individually (that is, without changing the other key assumptions) for the recoverable amount to be at least equal to the carrying amount. For budgeted revenue growth sensitivity, the cost structure was not adjusted, hence leading to a modified terminal operating margin:

Sensitivity to Change in Assumptions

	Concur[1]
	2020
Budgeted revenue growth (change in pp)	–4.1
Target operating margin at the end of the budgeted period (change in pp)	–26

[1] Given the segment changes and the limited comparability to the previous year we only provide sensitivity numbers for 2020 for Concur.

Qualtrics Segment

The recoverable amount was determined based on fair value less costs of disposal calculation. The fair value measurement was categorized as a Level 3 fair value based on the inputs used in the valuation. The cash flow projections were based on actual operating results and specific estimates covering a detailed planning period and the terminal growth rate thereafter. The projected results were determined based on management's estimates and are consistent with the assumptions a market participant would make (a target operating margin of 22.4% (2019: 21.5%) was used in the valuation).

Given the fact that the Qualtrics segment is expected to show disproportionate growth in the coming years and has not yet reached a steady state, we have used a longer and more detailed planning period than one would apply in a more mature segment.

As at October 1, 2020, the calculation of the recoverable amount resulted in an amount that exceeded the carrying amount multiple times. Subsequently, Qualtrics International Inc. completed its initial public offering ("IPO") on January 28, 2021, with an implied market capitalization of more than $20 billion based on shares outstanding of approximately 511 million and the closing share price on the first day of trading.

The following table shows the amounts by which the key assumptions would need to change individually (that is, without changing the other key assumptions) for the recoverable amount to be equal to the carrying amount. For budgeted revenue growth sensitivity, the cost structure was not adjusted, hence leading to a modified terminal operating margin:

Sensitivity to Change in Assumptions

	Qualtrics	
	2020	2019
Budgeted revenue growth (change in pp)	**–2.3**	–1.6

(D.3) Intangible Assets

Recognition of Intangibles

Whereas in general, expenses for internally generated intangibles are expensed as incurred, development expenses incurred on standard-related customer development projects (for which the IAS 38 criteria are met cumulatively) are capitalized on a limited scale with those amounts being amortized over the estimated useful life of up to 12 years.

Determining whether internally generated intangible assets from development qualify for recognition requires significant judgment, particularly in the following areas:

- Determining whether activities should be considered research activities or development activities
- Determining whether the conditions for recognizing an intangible asset are met requires assumptions about future market conditions, customer demand, and other developments.
- The term "technical feasibility" is not defined in IFRS, and therefore determining whether the completion of an asset is technically feasible requires judgment and a company-specific approach.
- Determining the future ability to use or sell the intangible asset arising from the development and the determination of the probability of future benefits from sale or use
- Determining whether a cost is directly or indirectly attributable to an intangible asset and whether a cost is necessary for completing a development

These judgments impact the total amount of intangible assets that we present in our balance sheet as well as the timing of recognizing development expenses in profit or loss.

Measurement of Intangibles

All our purchased intangible assets other than goodwill have finite useful lives. They are initially measured at acquisition cost and subsequently amortized based on the expected consumption of economic benefits over their estimated useful lives ranging from two to 20 years.

Acquired in-process research and development project assets are typically amortized over five to seven years (starting upon completion / marketing of the respective projects).

Judgment is required in determining the following:

- The useful life of an intangible asset, as this is based on our estimates regarding the period over which the intangible asset is expected to produce economic benefits to us
- The amortization method, as IFRS requires the straight-line method to be used unless we can reliably determine the pattern

in which the asset's future economic benefits are expected to be consumed by us

Both the amortization period and the amortization method have an impact on the amortization expense that is recorded in each period.

Classification of Intangibles

We classify intangible assets according to their nature and use in our operations. Software and database licenses consist primarily of technology for internal use, whereas acquired technology consists primarily of purchased software to be incorporated into our product offerings and in-process research and development (IPRD). Customer relationship and other intangibles consist primarily of customer relationships and acquired trademark licenses.

Amortization expenses of intangible assets are classified as cost of cloud, cost of services, research and development, sales and marketing, and general and administration, depending on the use of the respective intangible assets.

Intangible Assets

€ millions	Software and Database Licenses	Acquired Technology/IPRD	Customer Relationship and Other Intangibles	**Total**
Historical cost				
1/1/2019	996	2,178	5,212	8,386
Foreign currency exchange differences	4	48	100	152
Additions from business combinations	2	574	1,226	1,802
Other additions	84	0	68	152
Retirements/disposals	–182	–48	–166	–396
Transfers	25	0	–25	0
12/31/2019	**929**	**2,752**	**6,415**	10,096
Foreign currency exchange differences	–14	–224	–467	–705
Additions from business combinations	1	59	184	244
Other additions	10	0	60	70
Retirements/disposals	–148	–22	–142	–312
Transfers	15	0	–12	3
12/31/2020	**793**	**2,565**	**6,038**	**9,396**
Accumulated amortization				
1/1/2019	679	1,775	2,705	5,159
Foreign currency exchange differences	5	33	39	77
Additions amortization	94	271	395	760
Retirements/disposals	–180	–48	–163	–391
12/31/2019	**598**	**2,031**	**2,976**	**5,605**
Foreign currency exchange differences	–13	–180	–219	–412
Additions amortization	85	214	420	719
Retirements/disposals	–147	–22	–131	–300
12/31/2020	**523**	**2,043**	**3,046**	**5,612**
Carrying amount				
12/31/2019	**331**	**721**	**3,439**	**4,491**
12/31/2020	**270**	**522**	**2,992**	**3,784**

Significant Intangible Assets

€ millions, unless otherwise stated	Carrying Amount		Remaining Useful Life (in years)
	2020	2019	
SuccessFactors – Customer relationships	132	184	5
Ariba – Customer relationships	203	273	5 to 7
Concur – Customer relationships	786	955	10 to 14
Callidus – Customer relationships	262	336	8 to 12
Qualtrics – Acquired technologies	360	495	5
Qualtrics – Customer relationships	991	1,152	12 to 17
Emarsys – Customer relationships	174	NA	7 to 14
Total significant intangible assets	**2,908**	**3,395**	

(D.4) Property, Plant, and Equipment

Depreciation of Property, Plant and Equipment

Property, plant, and equipment are typically depreciated using the straight-line method. Judgment is required in estimating the useful life of the assets. In this assessment we consider, among others, our history with similar assets and current and future changes in technology.

Useful Lives of Property, Plant, and Equipment

Buildings	Predominantly 25 to 50 years
Leased assets and leasehold improvements	Based on the term of the lease contract
Information technology equipment	2 to 6 years
Office furniture	4 to 20 years
Automobiles	2 to 5 years

Property, Plant, and Equipment

€ millions	Land and Buildings	Land and Buildings Leased	Other Property, Plant, and Equipment	Other Property, Plant, and Equipment Leased	Advance Payments and Construction in Progress	**Total**
12/31/2019	1,537	1,929	1,956	38	36	**5,496**
12/31/2020	**1,457**	**1,816**	**1,628**	**41**	**99**	**5,041**
Additions						
2019	**85**	**360**	**586**	**19**	**17**	**1,067**
2020	**66**	**404**	**424**	**25**	**87**	**1,006**

The additions (other than from business combinations) relate primarily to the replacement and purchase of information technology equipment and the construction and leasing of buildings and data centers. For more information about leases, see *Note (D.5)*.

(D.5) Leases

Accounting Policies, Judgments, and Estimates

Under IFRS 16, a contract is or contains a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. As a lessee, SAP recognizes a right-of-use asset representing its right to use the underlying asset and a lease liability representing its obligation to make lease payments. The right-of-use assets are depreciated on a straight-line basis and interest expense is recognized on the lease liabilities. The vast majority of our leases consist of facility and data center leases. Payments for short-term and low-value leases are expensed over the lease term. Extension options are included in the lease term if their exercise is reasonably certain.

Leases in the Balance Sheet

€ millions	12/31/2020	12/31/2019
Right-of-use assets		
Right-of-use assets – land and buildings	1,816	1,929
Right-of-use assets – other property, plant, and equipment	41	38
Total right-of-use assets	**1,857**	**1,967**
Non-current assets	43,402	44,999
Right-of-use assets as % of non-current assets	4	4
Lease liabilities		
Current lease liabilities	**380**	**389**
Current financial liabilities	2,348	3,273
Current lease liabilities as % of current financial liabilities	16	12
Non-current lease liabilities	**1,740**	**1,814**
Non-current financial liabilities	13,605	12,923
Non-current lease liabilities as % of non-current financial liabilities	13	14

SAP is committed to future minimum lease payments in the amount of €161 million for facility leases that had not yet commenced as at December 31, 2020. For data centers, we have future commitments to spend €217 million on services and IFRS 16-related assets. Because this agreement does not specify the required split, the entire amount has been included in the purchase obligations reported in *Note (D.8)*.

Leases in the Income Statement

€ millions	2020	2019
Lease expenses within operating profit		
Depreciation of right-of-use assets	396	396

For more information about right-of-use asset additions, see *Note (D.4)*, and for a maturity analysis of lease liabilities, see *Note (F.1)*. For more information about the cash flow related to lease liabilities, see the "Reconciliation of Liabilities Arising from Financing Activities" table within *Note (E.3)*.

(D.6) Equity Investments

Accounting Policies, Judgments, and Estimates

As we do not designate financial assets as "at fair value through profit or loss," we generally classify financial assets into the following categories: at amortized cost (AC), at fair value through other comprehensive income (FVOCI), and at fair value through profit or loss (FVTPL), depending on the contractual cash flows of and our business model for holding the respective asset.

For equity securities, as the cash flow characteristics are typically other than solely principal and interest, we take an investment-by-investment decision whether to classify as FVTPL or FVOCI. Judgment is required particularly in estimating the fair values of equity securities that are not listed publicly.

Gains/losses on equity securities at FVTPL include gains/losses from fair value fluctuations, from disposals as well as dividends, while gains/losses on equity securities at FVOCI only include dividends, all of which are shown in Financial Income, net. Regular way purchases and sales are recorded as at the trade date.

Equity Investments

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Equity securities	0	3,113	3,113	0	1,996	1,996
Investments in associates	0	14	14	0	16	16
Equity investments	**0**	**3,127**	**3,127**	**0**	**2,012**	**2,012**
Other financial assets	1,635	3,512	5,147	297	2,336	2,633
Equity investments as % of other financial assets	0	89	61	0	86	76

For a list of the names of other equity investments, see *Note (G.9)*.

Financial Commitments in Venture Capital Funds

€ millions	2020	2019
Investments in venture capital funds	237	206

SAP invests and holds interests in unrelated parties that manage investments in venture capital. On December 31, 2020, total commitments to make such investments amounted to €607 million (2019: €517 million), of which €370 million had been drawn (2019: €312 million). By investing in such venture capital funds, we are exposed to the risks inherent in the business areas in which the entities operate. Our maximum exposure to loss is the amount invested plus contractually committed future capital contributions.

Maturities

€ millions	12/31/2020
	Investments in Venture Capital Funds
Due 2021	237
Total	**237**

(D.7) Non-Current Assets by Region

The table below shows non-current assets excluding financial instruments, deferred tax assets, post-employment benefit assets, and rights arising under insurance contracts.

Non-Current Assets by Region

€ millions	2020	2019
Germany	4,350	4,486
Rest of EMEA	5,821	5,386
EMEA	**10,171**	**9,872**
United States	26,829	29,741
Rest of Americas	379	411
Americas	**27,208**	**30,151**
APJ	**1,216**	**1,276**
SAP Group	**38,595**	**41,299**

For a breakdown of our employee headcount by region, see *Note (B.1)*, and for a breakdown of revenue by region, see *Note (A.1)*.

(D.8) Purchase Obligations

€ millions	2020	2019
Contractual obligations for acquisition of property, plant, and equipment and intangible assets	106	342
Other purchase obligations	3,685	2,251
Purchase obligations	**3,791**	**2,592**

The contractual obligations for acquisition of property, plant, and equipment and intangible assets relate primarily to the purchase of hardware, software, patents, office equipment, and vehicles. The remaining obligations relate mainly to marketing, consulting, maintenance, license agreements, cloud services, and other third-party agreements. The increase is mainly due to new purchase obligations related to cloud services. Historically, the majority of such purchase obligations have been realized.

Maturities

€ millions	12/31/2020
	Purchase Obligations
Due 2021	975
Due 2022 to 2025	2,371
Due thereafter	445
Total	**3,791**

Section E – Capital Structure, Financing, and Liquidity

This section describes how SAP manages its capital structure. Our capital management is based on a high equity ratio, modest financial leverage, a well-balanced maturity profile, and deep debt capacity.

(E.1) Capital Structure Management

The primary objective of our capital structure management is to maintain a strong financial profile for investor, creditor, and customer confidence, and to support the growth of our business. We seek to maintain a capital structure that will allow us to cover our funding requirements through the capital markets on reasonable terms and, in so doing, ensure a high level of independence, confidence, and financial flexibility.

SAP SE's long-term credit rating is "A2" by Moody's and "A" by Standard & Poor's, both with stable outlook.

	12/31/2020		12/31/2019		Δ in %
	€ millions	% of Total Equity and Liabilities	€ millions	% of Total Equity and Liabilities	
Equity	29,928	51	30,822	51	–3
Current liabilities	12,842	22	14,462	24	–11
Non-current liabilities	15,702	27	14,929	25	5
Liabilities	28,544	49	29,390	49	–3
Thereof financial debt	13,283	23	13,668	23	–3
Thereof lease liabilities	2,120	4	2,203	4	–4
Total equity and liabilities	**58,472**	**100**	**60,212**	**100**	**–3**

In 2020, we drew €2,000 million of Eurobonds. At maturity, we repaid €1.150 million in Eurobonds and US$290 million in private placements, as well as €750 million in acquisition loan and €170 million in commercial paper (CP). Thus, the ratio of total nominal volume of financial debt to total equity and liabilities remained stable.

(E.2) Total Equity

Issued Capital

SAP SE has issued no-par value bearer shares with a calculated nominal value of €1 per share. All of the shares issued are fully paid.

Number of Shares

Millions	Issued Capital	Treasury Shares
1/1/2018	**1,228.5**	**–35.1**
Reissuance of treasury shares under share-based payments	0	0.2
12/31/2018	**1,228.5**	**–34.9**
12/31/2019	**1,228.5**	**–34.9**
Purchase of treasury shares	0	–14.1
12/31/2020	**1,228.5**	**–48.9**

For information about the share buyback in 2020, see the *Distribution Policy and Dividends* section.

Authorized Shares

The Articles of Incorporation authorize the Executive Board to increase the issued capital as follows:

- By up to a total amount of €250 million by issuing new no-par value bearer shares against contributions in cash until May 19, 2025 (Authorized Capital I). The issuance is subject to the statutory subscription rights of existing shareholders.
- By up to a total amount of €250 million by issuing new no-par value bearer shares against contributions in cash or in kind until May 19, 2025 (Authorized Capital II). Subject to the consent of the Supervisory Board, the Executive Board is authorized to exclude the shareholders' statutory subscription rights in certain cases.

Contingent Shares

SAP SE's share capital is subject to a contingent capital increase, which may be effected only to the extent that the holders or creditors of convertible bonds or stock options issued or guaranteed by SAP SE or any of its directly or indirectly controlled subsidiaries under certain share-based payments exercise their conversion or subscription rights, and no other methods for servicing these rights are used. As at December 31, 2020, €100 million, representing 100 million shares, was still available for issuance (2019: €100 million).

Other Components of Equity

€ millions	Exchange Differences	Cash Flow Hedges/Cost of Hedging	Total
1/1/2018	**330**	**18**	**347**
Other comprehensive income for items that will be reclassified to profit or loss, net of tax	910	–23	887
12/31/2018	**1,239**	**–5**	**1,234**
Other comprehensive income for items that will be reclassified to profit or loss, net of tax	537	–1	536
12/31/2019	**1,776**	**–6**	**1,770**
Other comprehensive income for items that will be reclassified to profit or loss, net of tax	–2,791	10	–2,781
12/31/2020	**–1,015**	**4**	**–1,011**

Treasury Shares

By resolution of SAP SE's Annual General Meeting of Shareholders held on May 17, 2018, the authorization granted by the Annual General Meeting of Shareholders on June 4, 2013, regarding the acquisition of treasury shares was revoked to the extent it had not been exercised at that time, and replaced by a new authorization of the Executive Board of SAP SE to acquire, on or before May 16, 2023, shares of SAP SE representing a pro rata amount of capital stock of up to €120 million in aggregate, provided that the shares purchased under the authorization, together with any other shares in the Company previously acquired and held by, or attributable to, SAP SE do not account for more than 10% of SAP SE's issued share capital. Although treasury shares are legally considered outstanding, there are no dividend or voting rights associated with them. We may redeem or resell shares held in treasury, or we may use treasury shares for the purpose of servicing option or conversion rights under the Company's share-based payment plans. Also, we may use shares held in treasury as consideration in connection with mergers with, or acquisitions of, other companies.

For information about the share buyback in 2020, see the *Distribution Policy and Dividends* section.

Distribution Policy and Dividends

Our general intention is to remain in a position to return liquidity to our shareholders by distributing annual dividends totaling 40% or more of our profit after tax and by potentially repurchasing treasury shares in future.

In 2020, we distributed €1,864 million (€1.58 per share) in dividends for 2019 compared to €1,790 million (€1.50 per share) paid in 2019 for 2018 and €1,671 million (€1.40 per share) paid in 2018 for 2017. Aside from the distributed dividend, in 2020, we also returned €1,492 million to our shareholders by repurchasing treasury shares.

The total dividend available for distribution to SAP SE shareholders is based on the profits of SAP SE as reported in its statutory financial statements prepared under the accounting rules in the German Commercial Code (*Handelsgesetzbuch*). For the year ended December 31, 2020, the Executive Board intends to propose that a dividend of €1.85 per share (that is, an estimated total dividend of €2,182 million), be paid from the profits of SAP SE.

(E.3) Liquidity

Accounting for Non-Derivative Financial Instruments

Classification and Measurement of Non-Derivative Financial Debt Investments

Our non-derivative financial debt investments comprise cash at banks and cash equivalents (highly liquid investments with original maturities of three months or less, such as time deposits and money-market funds), loans and other financial receivables, and acquired debt securities.

As we do not designate financial assets as "at fair value through profit or loss," we generally classify financial assets as: at amortized cost (AC), at fair value through other comprehensive income (FVOCI), or at fair value through profit or loss (FVTPL), depending on the contractual cash flows of, and our business model for, holding the respective asset. Financial assets having cash flow characteristics other than solely principal and interest such as money market and similar funds are generally classified as FVTPL. Generally, all other financial assets with cash flows consisting solely of principal and interest are classified as AC because we follow a conservative investment approach, safeguarding our liquidity by ensuring the safety of principal investment amounts.

Gains/losses on non-derivative financial debt investments at FVTPL are reported in Financial income, net and show interest income/expenses separately from other gains/losses which include gains/losses from fair value fluctuations and disposals. Gains/losses on non-derivative financial debt investments at AC are reported in Financial income, net and show interest income/expenses separately from other gains/losses which include gains/losses disposals and changes in expected and incurred credit losses. Gains/losses from foreign currency exchange rate fluctuations are included in Other non-operating income/expense, net. Regular way purchases and sales are recorded as at the trade date.

Impairment of Non-Derivative Financial Debt Investments

For these financial assets, we apply considerable judgment by employing the general impairment approach as follows:

– For cash at banks, time deposits, and debt securities such as acquired bonds and commercial paper (CP), we apply the low credit risk exception, as it is our policy to invest only in high-quality assets of issuers with a minimum rating of at least investment grade to minimize the risk of credit losses. Thus, these assets are always allocated to stage 1 of the three-stage credit loss model, and we record a loss allowance at an amount

equal to 12-month expected credit losses. This loss allowance is calculated based on our exposure at the respective reporting date, the loss given default for this exposure, and the credit default swap spread as a measure for the probability of default. Even though we invest only in assets of at least investment-grade, we also closely observe the development of credit default swap spreads as a measure of market participants' assessments of the creditworthiness of a debtor to evaluate probable significant increases in credit risk to timely react to changes should these manifest. Among others, we consider cash at banks, time deposits, and debt securities to be in default when the counterparty is unlikely to pay its obligations in full, when there is information about a counterparty's financial difficulties or if there is a drastic increase in a counterparty's credit default swap spread for a prolonged time period while the overall market environment remains generally stable. Such financial assets are written off either partially or in full if the likelihood of recovery is considered remote, which might be evidenced, for example, by the bankruptcy of a counterparty of such financial assets.

– Loans and other financial receivables are monitored based on borrower-specific internal and external information to determine whether there has been a significant increase in credit risk since initial recognition. We consider such assets to be in default if they are significantly beyond their due date or if the borrower is unlikely to pay its obligation. A write-off occurs when the likelihood of recovery is considered remote, for example when bankruptcy proceedings have been finalized or when all enforcement efforts have been exhausted.

Non-Derivative Financial Liabilities

Non-derivative financial liabilities include bank loans, issued bonds, private placements, and other financial liabilities. Included in other financial liabilities are customer funding liabilities which are funds we draw from and make payments on behalf of our customers for customers' employee expense reimbursements, related credit card payments, and vendor payments. We present these funds in cash and cash equivalents and record our obligation to make these expense reimbursements and payments on behalf of our customers as customer funding liabilities.

As we do not designate financial liabilities as FVTPL, we generally classify non-derivative financial liabilities as AC.

Expenses and gains or losses on financial liabilities at AC mainly consist of interest expense which is shown in Financial income, net. Gains/losses from foreign currency exchange rate fluctuations are included in Other non-operating income/expense, net.

Group Liquidity, Financial Debt, and Net Debt

Group liquidity consists of cash at banks, money market and other funds, time deposits, and debt securities (both with remaining maturities of less than one year). Financial debt is defined as the nominal volume of bank loans, CP, private placements, and bonds. Net debt is group liquidity less financial debt.

While we continuously monitor the ratios presented in the capital structure table, we actively manage our liquidity and structure of our financial indebtedness based on the ratios group liquidity and net debt.

Group Liquidity and Net Debt

€ millions	2020	2019	Δ
Cash and cash equivalents	5,311	5,314	–4
Current time deposits and debt securities	1,470	67	1,402
Group liquidity	**6,781**	**5,382**	**1,399**
Current financial debt	–1,482	–2,529	1,046
Non-current financial debt	–11,801	–11,139	–662
Financial debt	**–13,283**	**–13,668**	**384**
Net debt (–)	**–6,503**	**–8,286**	**1,783**

Cash and Cash Equivalents

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Cash at banks	2,732	0	2,732	2,877	0	2,877
Time deposits	927	0	927	1,093	0	1,093
Money market and other funds	1,655	0	1,655	1,347	0	1,347
Expected credit loss allowance	–3	0	–3	–3	0	–3
Cash and cash equivalents	**5,311**	**0**	**5,311**	**5,314**	**0**	**5,314**

Non-Derivative Financial Debt Investments

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Time deposits	1,448	0	1,448	44	0	44
Debt securities	24	0	24	27	0	27
Financial instruments related to employee benefit plans	0	162	162	0	183	183
Loans and other financial receivables	83	107	190	100	117	217
Expected credit loss allowance	–3	0	–3	–3	0	–3
Non-derivative financial debt investments	**1,552**	**269**	**1,822**	**167**	**300**	**467**
⚖ Other financial assets	1,635	3,512	5,147	297	2,336	2,633
Non-derivative financial debt investments as % of ⚖ other financial assets	95	8	35	56	13	18

Time deposits with original maturity of three months or less are presented as cash and cash equivalents, and those with original maturities of greater than three months (investments considered in group liquidity) are presented as other financial assets. Debt securities consist of acquired CP and acquired bonds of mainly financial and non-financial corporations and municipalities.

For more information about financial risk and the nature of risk, see *Note (F.1)*.

Financial Debt

€ millions	2020					2019				
	Nominal Volume		Carrying Amount			Nominal Volume		Carrying Amount		
	Current	Non-Current	Current	Non-Current	Total	Current	Non-Current	Current	Non-Current	Total
Bonds	500	9,844	500	9,868	10,369	1,150	8,367	1,150	8,283	9,433
Private placement transactions	0	707	0	742	742	258	772	259	808	1,067
Commercial Papers	930	0	931	0	931	1,100	0	1,100	0	1,100
Bank loans	52	1,250	52	1,250	1,302	21	2,000	22	1,995	2,017
Financial debt	**1,482**	**11,801**	**1,484**	**11,860**	**13,344**	**2,529**	**11,139**	**2,531**	**11,086**	**13,617**
⚖ Financial liabilities			2,348	13,605	15,953			3,273	12,923	16,196
Financial debt as % of ⚖ financial liabilities			63	87	84			77	86	84

Financial liabilities are unsecured, except for the retention of title and similar rights customary in our industry. Effective interest rates on our financial debt (including the effects from interest rate swaps) were 0.87% in 2020, 1.09% in 2019, and 1.33% in 2018.

For more information about the risk associated with our financial liabilities, see *Note (F.1)*. For more information about fair values, see *Note (F.2)*.

Bonds

						2020	2019
	Maturity	Issue Price	Coupon Rate	Effective Interest Rate	Nominal Volume (in respective currency in millions)	**Carrying Amount (in € millions)**	Carrying Amount (in € millions)
Eurobond 8 – 2014	2023	99.478%	1.125% (fix)	1.24%	€1,000	998	997
Eurobond 9 – 2014	2027	99.284%	1.750% (fix)	1.87%	€1,000	1,006	985
Eurobond 11 – 2015	2020	100.000%	0.000% (var.)	0.07%	€650	0	650
Eurobond 12 – 2015	2025	99.264%	1.000% (fix)	1.13%	€600	597	596
Eurobond 14 – 2018	2021	100.519%	0.000% (var.)	–0.15%	€500	500	501
Eurobond 15 – 2018	2026	99.576%	1.000% (fix)	1.06%	€500	498	498
Eurobond 16 – 2018	2030	98.687%	1.375% (fix)	1.50%	€500	510	491
Eurobond 17 – 2018	2020	100.024%	0.000% (var.)	–0.01%	€500	0	500
Eurobond 18 – 2018	2022	99.654%	0.250% (fix)	0.36%	€900	899	898
Eurobond 19 – 2018	2024	99.227%	0.750% (fix)	0.89%	€850	845	844
Eurobond 20 – 2018	2028	98.871%	1.250% (fix)	1.38%	€1,000	1,009	982
Eurobond 21 – 2018	2031	98.382%	1.625% (fix)	1.78%	€1,250	1,279	1,224
Eurobond 22 – 2020	2023	99.794%	0.000% (fix)	0.07%	€600	599	0
Eurobond 23 – 2020	2026	99.200%	0.125% (fix)	0.26%	€600	596	0
Eurobond 24 – 2020	2029	98.787%	0.375% (fix)	0.51%	€800	789	0
Eurobonds						**10,125**	**9,166**
USD bond – 2018	2025	100.000%	0.721% (var.)	0.83%	US$300	243	267
Bonds						**10,369**	**9,433**

All of our Eurobonds are listed for trading on the Luxembourg Stock Exchange.

Private Placements

					2020	2019
	Maturity	Coupon Rate	Effective Interest Rate	Nominal Volume (in respective currency in millions)	**Carrying Amount (in € millions)**	Carrying Amount (in € millions)
U.S. private placements						
Tranche 6 – 2012	2020	2.82% (fix)	2.86%	US$290	0	259
Tranche 7 – 2012	2022	3.18% (fix)	3.22%	US$444.5	373	406
Tranche 8 – 2012	2024	3.33% (fix)	3.37%	US$323	281	305
Tranche 9 – 2012	2027	3.53% (fix)	3.57%	US$100	88	97
Private placements					**742**	**1,067**

The U.S. private placement notes were issued by one of our subsidiaries that has the U.S. dollar as its functional currency.

Commercial Paper

The net proceeds from our commercial paper program (Commercial Paper, or CP) are being used for general corporate purposes, including dividends and share repurchases. As at December 31, 2020, we had €930 million of CP outstanding with maturities generally less than six months and the carrying amount amounted to €931 million (December 31, 2019: €1,100.5 million). The weighted average interest rate of our CP was –0.40% as at December 31, 2020 (December 31, 2019: –0.38%).

Reconciliation of Liabilities Arising from Financing Activities

The changes in our financial debts are reconciled to the cash flows from borrowings included in the cash flow from financing activities.

€ millions	1/1/2020	Cash Flows	Business Combinations	Foreign Currency	Fair Value Changes	Other	12/31/2020
Current financial debt	2,529	–2,282	2	–17	0	1,251	1,482
Non-current financial debt	11,139	2,000	1	–88	0	–1,251	11,801
Financial debt (nominal volume)	**13,668**	**–282**	**2**	**–105**	**0**	**0**	**13,283**
Basis adjustment	13	0	0	–4	117	0	126
Transaction costs	–64	–16	0	0	0	14	–66
Financial debt (carrying amount)	**13,616**	**–298**	**2**	**–109**	**117**	**14**	**13,344**
Accrued interest	67	0	0	0	0	–6	61
Interest rate swaps	7	0	0	2	–123	0	–114
Lease[1]	2,204	–378	15	–125	0	404	2,120
Total liabilities from financing activities	**15,895**	**–675**	**17**	**–233**	**–5**	**413**	**15,411**

[1] Other includes new lease liabilities

€ millions	1/1/2019	Cash Flows	Business Combinations	Foreign Currency	Fair Value Changes	Other	12/31/2019
Current financial debt	759	–188	0	–6	0	1,963	2,529
Non-current financial debt	10,572	2,500	0	30	0	–1,963	11,139
Financial debt (nominal volume)	**11,331**	**2,312**	**0**	**25**	**0**	**0**	**13,668**
Basis adjustment	42	0	0	1	–30	0	13
Transaction costs	–70	0	0	0	0	5	–64
Financial debt (carrying amount)	**11,303**	**2,312**	**0**	**25**	**–30**	**5**	**13,616**
Accrued interest	47	0	0	1	0	19	67
Interest rate swaps	–7	0	0	0	14	0	7
Lease[1]	2,168	–403	52	38	0	348	2,204
Total liabilities from financing activities	**13,512**	**1,910**	**52**	**64**	**–16**	**373**	**15,895**

[1] Other includes new lease liabilities

Section F – Management of Financial Risk Factors

This section discusses financial risk factors and risk management regarding foreign currency exchange rate risk, interest rate risk, equity price risk, credit risk, and liquidity risk. Further, it contains information about financial instruments.

(F.1) Financial Risk Factors and Risk Management

Accounting for Derivative Financial Instruments

We use derivatives to hedge foreign currency risk or interest rate risk and designate them as cash flow or fair value hedges if they qualify for hedge accounting under IFRS 9, which involves judgment.

Derivatives Not Designated as Hedging Instruments

Many transactions constitute economic hedges, and therefore contribute effectively to the securing of financial risks but do not qualify for hedge accounting under IFRS 9. To hedge currency risks inherent in foreign-currency denominated and recognized monetary assets and liabilities, we do not designate our held-for-trading derivative financial instruments as accounting hedges, because the profits and losses from the underlying transactions are recognized in profit or loss in the same periods as the profits or losses from the derivatives.

In addition, we occasionally have contracts that contain foreign currency embedded derivatives that are required to be accounted for separately.

Fair value fluctuations in the spot component of such derivatives at FVTPL are included in Other non-operating income/expense, net while the forward element is shown in Financial income, net.

Derivatives Designated as Hedging Instruments

a) Cash Flow Hedge

In general, we apply cash flow hedge accounting to the foreign currency risk of highly probable forecasted transactions. With regard to foreign currency risk, hedge accounting relates to the spot price and the intrinsic values of the derivatives designated and qualifying as cash flow hedges. Accordingly, the effective portion of these components determined on a present value basis is recorded in other comprehensive income. The forward element and time element as well as foreign currency basis spreads excluded from the hedging relationship are recorded as cost of hedging in a separate position in other comprehensive income. As the amounts are not material, they are presented together with the effective portion of the cash flow hedges in our consolidated statements of comprehensive income and consolidated statements of changes in equity. All other components including counterparty credit risk adjustments of the derivative and the ineffective portion are immediately recognized in Financial Income, net in profit or loss.

Amounts accumulated in other comprehensive income are reclassified to profit or loss to Other non-operating income/expense, net and Financial income, net in the same period when the hedged item affects profit or loss.

b) Fair Value Hedge

We apply fair value hedge accounting for certain of our fixed-rate financial liabilities and show the fair value fluctuations in Financial income, net.

c) Valuation and Testing of Effectiveness

At inception of a designated hedging relationship, we document our risk management strategy and the economic relationship between hedged item and hedging instrument. The existence of an economic relationship is demonstrated as well as the effectiveness of the hedging relationship tested prospectively by applying the critical terms match for our foreign currency hedges, since currencies, maturities, and the amounts are closely aligned for the forecasted transactions and for the spot element of the forward exchange rate contract or intrinsic value of the currency options, respectively. For interest rate swaps, effectiveness is tested prospectively using statistical methods in the form of a regression analysis, by which the validity and extent of the relationship between the change in value of the hedged items as the independent variable and the fair value change of the derivatives as the dependent variable is determined. The main sources of ineffectiveness are:

- The effect of the counterparty and our own credit risk on the fair value of the forward exchange contracts and interest rate swaps, which is not reflected in the respective hedged item, and
- Differences in the timing of hedged item and hedged transaction in our cash flow hedges.

Amendments to IFRS 9, IAS 39, and IFRS 7 – Interest Rate Benchmark Reform

The IASB issued amendments to IFRS 9, IAS 39, and IFRS 7 on September 26, 2019, completing Phase 1 of the Interest Rate Benchmark Reform project. SAP holds interest rate receiver swaps which are designated in fair value hedging relationships that are directly impacted by the IBOR Reform. The interest rate swaps have floating legs which are indexed to either EONIA or USD Fed Funds Rate which will be amended to Euro Short-Term Rate and Secured Overnight Financing Rate, respectively. We are monitoring the latest developments to manage the transition to the new interest rate benchmarks. We do not expect material impacts from the change of interest rate benchmarks. As at December 31, 2020, SAP's exposure to EONIA designated in hedging relationships was €3.75 billion nominal amount, representing both the nominal amount of the hedging interest rate swap and the principal amount of the hedged Eurobonds maturing between 2027 and 2031. The exposure to USD Fed Funds Rate designated in hedging relationships was

US$322.25 million nominal amount (€262.6 million), representing both the nominal amount of the hedging interest rate swaps and the principal amount of the hedged U.S. private placements maturing between 2022 and 2024.

We are exposed to various financial risks, such as market risks (that is, foreign currency exchange rate risk, interest rate risk, and equity price risk), credit risk, and liquidity risk.

We manage market risks, credit risk, and liquidity risk on a Group-wide basis through our global treasury department, global risk management, and global credit management. Risk management policies are established to identify risks, to set appropriate risk limits, and to monitor risks. Risk management policies and hedging strategies are laid out in our internal guidelines (for example, treasury guideline and other internal guidelines), and are subject to continuous internal review and analysis to reflect changes in market conditions and our business.

We only purchase derivative financial instruments to reduce risks and not for speculation, which is defined as entering into derivative instruments without a corresponding underlying transaction.

Foreign Currency Exchange Rate Risk

Foreign Currency Exchange Rate Risk Factors

As we are active worldwide, our ordinary operations are subject to risks associated with fluctuations in foreign currencies. Since the Group's entities mainly conduct their operating business in their own functional currencies, our risk of exchange rate fluctuations from ongoing ordinary operations is not considered significant. However, SAP occasionally generates foreign-currency-denominated receivables, payables, and other monetary items by transacting in a currency other than the functional currency. To mitigate the extent of the associated foreign currency exchange rate risk, the majority of these transactions are hedged as described below.

In rare circumstances, transacting in a currency other than the functional currency also leads to embedded foreign currency derivatives being separated and measured at fair value through profit or loss.

In addition, the intellectual property (IP) holders in the SAP Group are exposed to risks associated with forecasted intercompany cash flows in foreign currencies. These cash flows arise out of royalty payments from subsidiaries to the respective IP holder. The royalties are linked to the subsidiaries' external revenue. This arrangement leads to a concentration of the foreign currency exchange rate risk with the IP holders, as the royalties are mostly denominated in the subsidiaries' local currencies, while the functional currency of the IP holders with the highest royalty volume is the euro. The highest foreign currency exchange rate exposure of this kind relates to the currencies of subsidiaries with significant operations, for example the U.S. dollar, the pound sterling, the Japanese yen, the Swiss franc, and the Australian dollar.

Generally, we are not exposed to any significant foreign currency exchange rate risk with regard to our investing and financing activities, as such activities are normally conducted in the functional currency of the investing or borrowing entity.

Foreign Currency Exchange Rate Risk Management

We continuously monitor our exposure to currency fluctuation risks based on monetary items and forecasted transactions and pursue a Group-wide strategy to manage foreign currency exchange rate risk, using derivative financial instruments, primarily foreign exchange forward contracts, as appropriate, with the primary aim of reducing profit or loss volatility. Most of the hedging instruments are not designated as being in a hedge accounting relationship.

Currency Hedges Designated as Hedging Instruments (Cash Flow Hedges)

We enter into derivative financial instruments, primarily foreign exchange forward contracts, to hedge significant forecasted cash flows (royalties) from foreign subsidiaries denominated in foreign currencies with a hedge ratio of 1:1 and a hedge horizon of up to 12 months, which is also the maximum maturity of the foreign exchange derivatives we use.

For all years presented, no previously highly-probable transaction designated as a hedged item in a foreign currency cash flow hedge relationship ceased to be probable. Therefore, we did not discontinue any of our cash flow hedge relationships. Also, ineffectiveness was either not material or non-existent in all years reported. Generally, the cash flows of the hedged forecasted transactions are expected to occur and to be recognized in profit or loss monthly within a time frame of 12 months from the date of the statement of financial position.

The amounts as at December 31, 2020, relating to items designated as hedged items were as follows:

Designated Hedged Items in Foreign Currency Exchange Rate Hedges

	Forecasted License Payments
€ millions	**2020**
Change in value used for calculating hedge ineffectiveness	5
Cash flow hedge	5
Cost of hedging	–1
Balances remaining in cash flow hedge reserve for which hedge accounting is no longer applied	0

The amounts as at December 31, 2020, designated as hedging instruments were as follows:

Designated Hedging Instruments in Foreign Currency Exchange Rate Hedges

	Forecasted License Payments
€ millions	**2020**
Nominal amount	436
Carrying amount	
Other financial assets	7
Other financial liabilities	–1
Change in value recognized in OCI	5
Hedge ineffectiveness recognized in finance income, net	0
Cost of hedging recognized in OCI	1
Amount reclassified from cash flow hedge in OCI to other non-operating income, net	6
Amount reclassified from cost of hedging in OCI to finance income, net	–4

On December 31, 2020, we held the following instruments to hedge exposures to changes in foreign currency:

Details on Hedging Instruments in Foreign Currency Exchange Rate Hedges

	Maturity	
	2020	
	1 – 6 months	7 – 12 months
Forward exchange contracts		
Net exposure in € millions	290	146
Average EUR:GBP forward rate	0.90	0.91
Average EUR:JPY forward rate	122.33	125.06
Average EUR:CHF forward rate	1.07	1.07
Average EUR:AUD forward rate	1.69	0

Foreign Currency Exchange Rate Exposure

Our risk exposure is based on the following assumptions:

- The SAP Group's entities generally operate in their functional currencies. In exceptional cases and limited economic environments, operating transactions are denominated in currencies other than the functional currency, leading to a foreign currency exchange rate risk for the related monetary instruments. Where material, this foreign currency exchange rate risk is hedged. Therefore, fluctuations in foreign currency exchange rates do not have a significant impact on either profit or other comprehensive income with regard to our non-derivative monetary financial instruments and related income or expenses.
- Our free-standing derivatives designed for hedging foreign currency exchange rate risks almost completely balance the changes in the fair values of the hedged item attributable to exchange rate movements in the Consolidated Income Statements in the same period. As a consequence, the hedged items and the hedging instruments are not exposed to foreign currency exchange rate risks, and thereby have no effect on profit.

Consequently, we are only exposed to significant foreign currency exchange rate fluctuations with regard to the following:

- The spot component of derivatives held within a designated cash flow hedge relationship affecting other comprehensive income
- Foreign currency embedded derivatives affecting other non-operating expense, net

Thus, our foreign currency exposure (and our average/high/low exposure) as at December 31, 2020, was as follows:

Foreign Currency Exposure

€ billions	**2020**	2019
Year-end exposure toward all our major currencies	0.9	1.0
Average exposure	0.9	0.7
Highest exposure	1.0	1.0
Lowest exposure	0.9	0.6

Foreign Currency Exchange Rate Sensitivity

We calculate our sensitivity on an upward/downward shift of +/–10% of the foreign currency exchange rate between the euro and all major currencies (2019: +/–10% of the foreign currency exchange rate between the euro and all other major currencies; 2018: +/–10% of the foreign currency exchange rate between the euro and all other major currencies). If, on December 31, 2020, 2019, and 2018, the foreign currency exchange rates had been higher/lower as described above, this would have had the following effects on other non-operating expense, net and other comprehensive income:

Foreign Currency Sensitivity

€ millions	Effects on Other Non-Operating Expense, Net			Effects on Other Comprehensive Income		
	2020	2019	2018	**2020**	2019	2018
Derivatives held within a designated cash flow hedge relationship						
All major currencies –10% (2019: all major currencies –10% ;2018: all major currencies –10%)				43	53	62
All major currencies +10% (2019: all major currencies +10% ;2018: all major currencies +10%)				–43	–53	–62
Embedded derivatives						
All currencies –10%	40	53	11			
All currencies +10%	–49	–53	–11			
FX option held in connection with the acquisition of Qualtrics						
USD –10%	0	0	–29			
USD +10%	0	0	559			

Interest Rate Risk

Interest Rate Risk Factors

We are exposed to interest rate risk as a result of our investing and financing activities mainly in euros and U.S. dollars, since a large part of our investments are based on variable rates and/or short maturities (2020: 67%; 2019: 80%) and most of our financing transactions are based on fixed rates and long maturities (2020: 85%; 2019: 69%).

Interest Rate Risk Management

The aim of our interest rate risk management is to reduce profit or loss volatility and optimize our interest result by creating a balanced structure of fixed and variable cash flows. We therefore manage interest rate risks by adding interest-rate-related derivative instruments to a given portfolio of investments and debt financing. The desired fixed-floating mix of our net debt is set by the Treasury Committee.

Derivatives Designated as Hedging Instruments (Fair Value Hedges)

To match the interest rate risk from our financing transactions to our investments, we use receiver interest rate swaps to convert certain fixed-rate financial liabilities to floating, and by this means secure the fair value of the swapped financing transactions on a 1:1 ratio. Including interest rate swaps, 48% (2019: 35%) of our total interest-bearing financial liabilities outstanding as at December 31, 2020, had a fixed interest rate.

The amounts as at December 31, 2020, relating to items designated as hedged items were as follows:

Designated Hedged Items in Interest Rate Hedges

	2020	
€ millions	Fixed-Rate Borrowing in EUR	Fixed-Rate Borrowing in USD
Notional amount	4,550	263
Carrying amount	4,503	262
Accumulated fair value adjustments in Other financial liabilities	–90	–36
Change in fair value used for measuring ineffectiveness	–90	–16
Accumulated amount of fair value hedge adjustments for hedged items ceased to be adjusted for hedging gains/losses	0	–20

The amounts as at December 31, 2020, designated as hedging instruments were as follows:

Designated Hedging Instruments in Interest Rate Hedges

	2020	
€ millions	Interest Rate Swaps for EUR Borrowing	Interest Rate Swaps for USD Borrowing
Notional amount	4,550	263
Carrying amount		
Other financial assets	99	15
Other financial liabilities	0	0
Change in fair value used for measuring ineffectiveness	99	15

As at December 31, 2020, we held the following instruments to hedge exposures to changes in interest rates:

Details on Hedging Instruments in Interest Rate Hedges

€ millions	2020						
	Maturity						
	2022	2024	2027	2028	2029	2030	2031
EUR interest rate swaps							
Nominal amounts			1,000	1,000	800	500	1,250
Average variable interest rate			1.476%	0.900%	0.240%	0.875%	1.038%
USD interest rate swaps							
Nominal amounts	181	81					
Average variable interest rate	1.031%	0.910%					

None of the fair value adjustment from the receiver swaps, the basis adjustment on the underlying hedged items held in fair value hedge relationships, and the difference between the two recognized in financial income, net, is material in any of the years presented.

Interest Rate Exposure

Our interest rate exposure (and our average/high/low exposure) as at December 31 was as follows:

Interest Rate Risk Exposure

€ billions	2020				2019			
	Year-End	Average	High	Low	Year-End	Average	High	Low
Fair value interest rate risk								
From investments	0.02	0.02	0.02	0.02	0.03	0.05	0.07	0.03
Cash flow interest rate risk								
From investments (including cash)	4.58	5.14	5.77	4.58	4.32	4.32	5.04	3.89
From financing	1.99	3.18	3.93	1.99	3.92	4.25	4.43	3.92
From interest rate swaps	4.81	4.78	5.10	4.30	4.29	3.05	5.06	1.28

Interest Rate Sensitivity

A sensitivity analysis is provided to show the impact of our interest rate risk exposure on profit or loss and equity in accordance with IFRS 7, considering the following:

- Changes in interest rates only affect the accounting for non-derivative fixed-rate financial instruments if they are recognized at fair value. Therefore, such interest rate changes do not change the carrying amounts of our non-derivative fixed-rate financial liabilities, as we account for them at amortized cost. Investments in fixed-rate financial assets classified as fair value through profit or loss were not material at each year end reported. Thus, we do not consider any fixed-rate instruments in the equity-related sensitivity calculation.
- Income or expenses recorded in connection with non-derivative financial instruments with variable interest rates are subject to interest rate risk if they are not hedged items in an effective hedge relationship. Thus, we take into consideration interest rate changes relating to our variable-rate financing and our investments in money market instruments in the profit-related sensitivity calculation.
- The designation of interest rate receiver swaps in a fair value hedge relationship leads to interest rate changes affecting financial income, net. The fair value movements related to the interest rate swaps are not reflected in the sensitivity calculation, as they offset the fixed interest rate payments for the bonds and private placements as hedged items. However, changes in market interest rates affect the amount of interest payments from the interest rate swap. As a consequence, we include those effects of market interest rates on interest payments in the profit-related sensitivity calculation.

Due to the different interest rate expectations for the U.S. dollar and the euro area, we base our sensitivity analyses on a yield curve upward shift of +50/+10 basis points (bps) for the U.S. dollar/euro area (2019: +50/+10bps for the U.S. dollar/euro area; 2018: +100/+30bps for the U.S. dollar/euro area), and a yield curve downward shift of –50/–20bps for the U.S. dollar/euro area (2019: –50/–20bps for the U.S. dollar/euro area; 2018: –25/– 10bps for the U.S. dollar/euro area).

If, on December 31, 2020, 2019, and 2018, interest rates had been higher/lower than as described above, this would not have had a material effect on financial income, net, for our variable interest rate investments and would have had the following effects on financial income, net.

Interest Rate Sensitivity

€ millions	Effects on Financial Income, Net		
	2020	2019	2018
Derivatives held within a designated fair value hedge relationship			
Interest rates +50bps for U.S. dollar area/+10bps for euro area (2019: +50/+10bps for U.S. dollar/euro area; 2018: +100/+30bps for U.S. dollar/euro area)	–41	–41	–20
Interest rates –50bps for U.S. dollar/–20bps for euro area (2019: –50 /–20bps for U.S. dollar/euro area; 2018: –25 /–10bps for U.S. dollar/euro area)	79	76	5
Variable-rate financing			
Interest rates +50bps for U.S. dollar area/+10bps for euro area (2019: +50/+10bps for U.S. dollar/euro area; 2018: +100/+30bps for U.S. dollar/euro area)	–6	–8	–24
Interest rates –50bps for U.S. dollar/–20bps for euro area (2019: –50/–20bps for U.S. dollar/euro area; 2018: –25/–10bps for U.S. dollar/euro area)	6	8	4

Equity Price Risk

Equity Price Risk Factors

We are exposed to equity price risk with regard to our investments in equity securities and our share-based payments plans.

Equity Price Risk Management

Our listed equity investments are monitored based on the current market value that is affected by the fluctuations in the volatile stock markets worldwide. Unlisted equity investments are monitored based on detailed financial information provided by the investees. The fair value of our listed equity investments depends on the equity prices, while the fair value of the unlisted equity investments is influenced by various unobservable input factors.

We also monitor the exposure with regard to our share-based payment plans. To reduce resulting profit or loss volatility, we hedge certain cash flow exposures associated with these plans by purchasing derivative instruments, but we do not establish a designated hedge relationship.

Equity Price Exposure

On December 31, 2020, our exposure from our investments in equity securities was €3,113 million (2019: €1,996 million; 2018: €1,248 million).

For information about the exposure from our share-based payments plans, see *Note (B.3)*.

Equity Price Sensitivity

In our sensitivity analysis for our share-based payments plans, we include the hedging instruments and the underlying share-based payments even though the latter are scoped out of IFRS 7, as we believe that taking only the derivative instrument into account would not properly reflect our equity price risk exposure.

Our sensitivity towards a fluctuation in equity prices is as follows:

Equity Price Sensitivity

€ millions	**2020**	2019	2018
Investments in equity securities			
Increase in equity prices and respective unobservable inputs of 10% - increase of financial income, net by	259	156	65
Decrease in equity prices and respective unobservable inputs of 10% - decrease of financial income, net by	–259	–156	–65
Share-based payments			
Increase in equity prices of 20%			
- Increase of share-based payment expenses by	–272	–298	–279
- Increase of offsetting gains from hedging instruments by	24	48	57
Decrease in equity prices of 20%			
- Decrease of share-based payment expenses by	271	307	262
- Decrease of offsetting gains from hedging instruments by	–23	–46	–44

Credit Risk

Credit Risk Factors

To reduce the credit risk in investments, we arrange to receive rights to collateral for certain investing activities in the full amount of the investment volume, which we would be allowed to make use of only in the case of default of the counterparty to the investment. In the absence of other significant agreements to reduce our credit risk exposure, the total amounts recognized as cash and cash equivalents, current investments, loans, and other financial receivables, trade receivables, and derivative financial assets represent our maximum exposure to credit risks, except for the agreements mentioned above.

Credit Risk Management

Cash at Banks, Time Deposits, and Debt Securities

To mitigate the credit risk from our investing activities and derivative financial assets, we conduct all our activities only with approved major financial institutions and issuers that carry high external ratings, as required by our internal treasury guideline. Among its stipulations, the guideline requires that we invest only in

assets from issuers with a minimum rating of at least "BBB flat." We only invest in issuers with a lower rating in exceptional cases. Such investments were not material in 2020 and 2019. The weighted average rating of our financial assets is in the range A to A–. We pursue a policy of cautious investments characterized by predominantly current investments, standard investment instruments, as well as a wide portfolio diversification by doing business with a variety of counterparties.

To further reduce our credit risk, we require collateral for certain investments in the full amount of the investment volume, which we would be allowed to make use of in the case of default of the counterparty to the investment. As such collateral, we only accept bonds with at least investment-grade rating level.

In addition, the concentration of credit risk that exists when counterparties are involved in similar activities by instrument, sector, or geographic area is further mitigated by diversification of counterparties throughout the world and adherence to an internal limit system for each counterparty. This internal limit system stipulates that the business volume with individual counterparties is restricted to a defined limit that depends on the lowest official long-term credit rating available by at least one of the major rating agencies, the Tier 1 capital of the respective financial institution, or participation in the German Depositors' Guarantee Fund or similar protection schemes. We continuously monitor strict compliance with these counterparty limits. As the premium for credit default swaps mainly depends on market participants' assessments of the creditworthiness of a debtor, we also closely observe the development of credit default swap spreads in the market to evaluate probable risk developments and react in a timely manner to changes should these manifest.

For cash at banks, time deposits, and debt securities such as acquired bonds or commercial paper, we apply the general impairment approach. As it is our policy to only invest in high-quality assets of issuers with a minimum rating of at least investment grade so as to minimize the risk of credit losses, we use the low credit risk exception. Thus, these assets are always allocated to stage 1 of the three-stage credit loss model and we record a loss allowance for an amount equal to 12-month expected credit losses. This loss allowance is calculated based on our exposure as at the respective reporting date, the loss given default for this exposure, and the credit default swap spread as a measure for the probability of default. To ensure that during their lifetime our investments always fulfill the requirement of being investment-grade, we monitor changes in credit risk by tracking published external credit ratings. Among other things, we consider cash at banks, time deposits, and debt securities to be in default when the counterparty is unlikely to pay its obligations in full, when there is information about a counterparty's financial difficulties, or in case of a drastic increase in the credit default swap spread of a counterparty for a prolonged time period while the overall market environment remains rather stable. Such financial assets are written off either partially or in full if the likelihood of recovery is considered remote, which might be evidenced, for example, by the bankruptcy of a counterparty of such financial assets.

Trade Receivables

The default risk of our trade receivables is managed separately, mainly based on assessing the creditworthiness of customers through external ratings and on our past experience with the customers concerned. Based on this assessment, individual credit limits are established for each customer and deviations from such credit limits need to be approved by management.

We apply the simplified impairment approach using a provision matrix for all trade receivables and contract assets to take into account any lifetime expected credit losses already at initial recognition. For the purpose of the provision matrix, customers are clustered into different risk classes, mainly based on market information such as the country risk assessment of their country of origin. Loss rates used to reflect lifetime expected credit losses are determined using a roll-rate method based on the probability of a receivable progressing through different stages of being overdue and on our actual credit loss experience over the past years. These loss rates are enhanced by forward-looking information to reflect differences between economic conditions during the period over which the historical data has been collected, current conditions, and the expected changes in the economic conditions over the expected life of the receivables. Forward-looking information is based on changes in country risk ratings, or fluctuations in credit default swaps of countries of the customers we do business with. We continuously monitor outstanding receivables locally to assess whether there is objective evidence that our trade receivables and contract assets are credit-impaired. Evidence that trade receivables and contract assets are credit-impaired include, among the trade receivables being past due, information about significant financial difficulty of the customer or non-adherence to a payment plan. We consider receivables to be in default when the counterparty is unlikely to pay its obligations in full, However, a delay of payments (for example, more than 90 days past due) in the normal course of business alone does not necessarily indicate a customer default. We write off account balances either partially or in full if we judge that the likelihood of recovery is remote, which might be evidenced, for example, when bankruptcy proceedings for a customer are finalized or when all enforcement efforts have been exhausted.

The impact of default on our trade receivables from individual customers is mitigated by our large customer base and its distribution across many different industries, company sizes, and countries worldwide. For more information about our trade receivables, see *Note (A.2.)*.

Credit Risk Exposure

Cash, Time Deposits, and Debt Securities

As at December 31, 2020, our exposure to credit risk from cash, time deposits, and debt securities was as follows:

Credit Risk Exposure from Cash, Time Deposits, and Debt Securities

€ millions, unless otherwise stated					2020
	Equivalent to External Rating	Weighted Average Loss Rate	Gross Carrying Amount Not Credit-Impaired	Gross Carrying Amount Credit-Impaired	ECL Allowance
Risk class 1 - low risk	AAA to BBB–	–0.1%	4,846	0	–3
Risk class 2 - high risk	BB to D	0.0%	29	0	0
Risk class 3 - unrated	NA	–11.3%	23	0	–3
Total		**–0.1%**	**4,898**	**0**	**–6**

€ millions, unless otherwise stated					2019
	Equivalent to External Rating	Weighted Average Loss Rate	Gross Carrying Amount Not Credit-Impaired	Gross Carrying Amount Credit-Impaired	ECL Allowance
Risk class 1 - low risk	AAA to BBB–	–0.1%	3,838	0	–3
Risk class 2 - high risk	BB to D	0.0%	23	0	0
Risk class 3 - unrated	NA	–5.0%	52	0	–3
Total		**–0.2%**	**3,913**	**0**	**–6**

As at December 31, 2020, the major part of our other loans and other financial receivables was concentrated in Germany. There were no loans, or other financial receivables past due but not impaired and we had no indications of impairments of such assets that were not past due and not impaired as at that date.

Trade Receivables and Contract Assets

As at December 31, 2020, our exposure to credit risk from trade receivables was as follows:

Credit Risk Exposure from Trade Receivables and Contract Assets

€ millions, unless otherwise stated				2020
	Weighted Average Loss Rate	Gross Carrying Amount Not Credit-Impaired	Gross Carrying Amount Credit-Impaired	ECL Allowance
AR not due and due	–0.2%	4,426	0	–10
AR overdue 1 to 30 days	–0.9%	511	71	–5
AR overdue 30 to 90 days	–1.8%	380	61	–8
AR overdue more than 90 days	–16.8%	695	273	–163
Total	**–2.9%**	**6,012**	**405**	**–186**

€ millions, unless otherwise stated				2019
	Weighted Average Loss Rate	Gross Carrying Amount Not Credit-Impaired	Gross Carrying Amount Credit-Impaired	ECL Allowance
AR not due and due	–0.2%	5,226	0	–9
AR overdue 1 to 30 days	–0.5%	733	36	–4
AR overdue 30 to 90 days	–0.8%	668	23	–5
AR overdue more than 90 days	–11.1%	869	158	–114
Total	**–1.7%**	**7,496**	**217**	**–131**

For 2020, the movement in the ECL allowance for trade receivables and contract assets is as follows:

Movement in ECL Allowance for Trade Receivables and Contract Assets

	2020	2019
€ millions	ECL Allowance	ECL Allowance
Balance as at 01/01	–131	–107
Net credit losses recognized	–97	–38
Amounts written off	42	13
Balance as at 12/31	–186	–131

Liquidity Risk

Liquidity Risk Factors

We are exposed to liquidity risk from our obligations towards suppliers, employees, and financial institutions.

Liquidity Risk Management

Our liquidity is managed by our global treasury department with the primary aim of maintaining liquidity at a level that is adequate to meet our financial obligations.

Generally, our primary source of liquidity is funds generated from our business operations. Our global treasury department manages liquidity centrally for all subsidiaries. Where possible, we pool their cash surplus so that we can use liquidity centrally for our business operations, for subsidiaries' funding requirements, or to invest any net surplus in the market. With this strategy, we seek to optimize yields, while ensuring liquidity, by investing only with counterparties and issuers of high credit quality, as explained before. Hence, high levels of liquid assets and marketable securities provide a strategic reserve, helping keep SAP flexible, sound, and independent.

Apart from effective working capital and cash management, we have reduced the liquidity risk inherent in managing our day-to-day operations and meeting our financing responsibilities by arranging an adequate volume of available credit facilities with various financial institutions on which we can draw if necessary.

In order to retain high financial flexibility, in 2017, SAP SE entered into a €2.5 billion syndicated credit facility agreement with a term until 2024. The use of the facility is not restricted by any financial covenants. Borrowings under the facility bear interest of EURIBOR or LIBOR for the respective currency plus a margin of 17bps. We are also required to pay a commitment fee of 5.95bps per annum on the unused available credit. We have not drawn on the facility.

In September 2019, we initiated a commercial paper program (Commercial Paper, or CP). As at December 31, 2020, we had €930 million of CP outstanding with maturities generally less than six months (2019: €1,099.5 million).

Additionally, as at December 31, 2020, and 2019, we had available lines of credit totaling €372 million and €430 million, respectively. There were immaterial borrowings outstanding under these lines of credit in all years presented.

Liquidity Risk Exposure

The table below is an analysis of the remaining contractual maturities of all our financial liabilities held as at December 31, 2020. Financial liabilities for which repayment can be requested by the contract partner at any time are assigned to the earliest possible period. Variable interest payments were calculated using the latest relevant interest rate fixed as at December 31, 2020. As we generally settle our derivative contracts gross, we show the pay and receive legs separately for all our currency and interest rate derivatives, whether or not the fair value of the derivative is negative. The cash outflows for the currency derivatives are translated using the applicable spot rate.

Contractual Maturities of Non-Derivative Financial Liabilities

€ millions	Carrying Amount	Contractual Cash Flows					
	12/31/2020	2021	2022	2023	2024	2025	Thereafter
Non-derivative financial liabilities							
Trade payables	–1,014	–1,014	0	0	0	0	0
Lease liabilities	–2,120	–426	–359	–262	–218	–165	–931
Other financial liabilities	–13,770	–1,982	–2,640	–1,700	–1,211	–918	–5,933
Total of non-derivative financial liabilities	**–16,904**	–3,422	–2,999	–1,962	–1,429	–1,083	–6,864

€ millions	Carrying Amount	Contractual Cash Flows					
	12/31/2019	2020	2021	2022	2023	2024	Thereafter
Non-derivative financial liabilities							
Trade payables	–1,283	–1,283	0	0	0	0	0
Lease liabilities	–2,203	–431	–363	–284	–224	–190	–1,019
Other financial liabilities	–13,912	–2,888	–630	–3,414	–1,095	–1,231	–5,467
Total of non-derivative financial liabilities	**–17,398**	–4,602	–993	–3,698	–1,319	–1,421	–6,486

Contractual Maturities of Derivative Financial Liabilities and Financial Assets

€ millions	Carrying Amount	Contractual Cash Flows		Carrying Amount	Contractual Cash Flows	
	12/31/2020	2021	Thereafter	12/31/2019	2020	Thereafter
Derivative financial liabilities and assets						
Derivative financial liabilities						
Currency derivatives not designated as hedging instruments	–61			–55		
Cash outflows		–2,902	–7		–2,865	–3
Cash inflows		2,842	0		2,816	0
Currency derivatives designated as hedging instruments	–1			–11		
Cash outflows		–141			–415	0
Cash inflows		139			401	0
Interest rate derivatives designated as hedging instruments	0			–16		
Cash outflows					–28	–536
Cash inflows					36	515
Total of derivative financial liabilities	**–63**	**–62**	**–7**	**–82**	**–55**	**–24**
Derivative financial assets						
Currency derivatives not designated as hedging instruments	38			33		
Cash outflows		–2,452			–3,442	0
Cash inflows		2,493			3,468	0
Currency derivatives designated as hedging instruments	7			3		
Cash outflows		–291			–114	0
Cash inflows		297			117	0
Interest rate derivatives designated as hedging instruments	114			9		
Cash outflows		–48	–398		–14	–18
Cash inflows		69	495		17	24
Total of derivative financial assets	**158**	**68**	**97**	**44**	**32**	**6**
Total of derivative financial liabilities and assets	**95**	**6**	**90**	**–37**	**–23**	**–18**

(F.2) Fair Value Disclosures on Financial Instruments

Level Transfers

It is our policy that transfers between the different levels of the fair value hierarchy are deemed to have occurred at the beginning of the period of the event or change in circumstances that caused the transfer.

Fair Value of Financial Instruments

We use various types of financial instruments in the ordinary course of business, which are classified as either amortized cost (AC) or fair value through profit or loss (FVTPL). For those financial instruments measured at fair value or for which fair value must be disclosed, we have categorized the financial instruments into a three-level fair value hierarchy depending on the inputs used to determine fair value and their significance for the valuation techniques.

Fair Values of Financial Instruments and Classification Within the Fair Value Hierarchy

€ millions	Category	12/31/2020						
		Carrying Amount	Measurement Categories		Fair Value			
			At Amortized Cost	At Fair Value	Level 1	Level 2	Level 3	Total
Assets								
Cash and cash equivalents		5,311						
Cash at banks[1]	AC	2,732	2,732					
Time deposits[1]	AC	924	924					
Money market and similar funds	FVTPL	1,655		1,655	1,655			1,655
Trade and other receivables		6,730						
Trade receivables[1]	AC	6,232	6,232					
Other receivables[2]	–	498						
Other financial assets		5,147						
Debt securities	AC	24	24		24			24
Equity securities	FVTPL	3,113		3,113	72	536	2,505	3,113
Investments in associates[2]	–	14						
Time deposits	AC	1,445	1,445			1,445		1,445
Financial instruments related to employee benefit plans[2)]	–	162						
Loans and other financial receivables	AC	190	190			190		190
Derivative assets								
Designated as hedging instrument								
FX forward contracts	–	7		7		7		7
Interest rate swaps	–	114		114		114		114
Not designated as hedging instrument								
FX forward contracts	FVTPL	38		38		38		38
Call options for share-based payments	FVTPL	36		36		36		36
Call option on equity shares	FVTPL	4		4			4	4
Liabilities								
Trade and other payables		–1,312						
Trade payables[1]	AC	–1,014	–1,014					
Other payables[2]	–	–298						
Financial liabilities		–15,953						
Non-derivative financial liabilities								
Loans	AC	–1,301	–1,301			–1,301		–1,301
Bonds	AC	–11,300	–11,300		–10,966	–931		–11,897
Private placements	AC	–742	–742			–771		–771
Other non-derivative financial liabilities[3)]	AC	–2,547	–2,547			–427		–427
Derivatives								
Designated as hedging instrument								
FX forward contracts	–	–1		–1		–1		–1
Interest rate swaps	–	0		0		0		0
Not designated as hedging instrument								
FX forward contracts	FVTPL	–61		–61		–61		–61
Total financial instruments, net		**–77**	**–5,357**	**4,904**	**–9,214**	**–1,128**	**2,509**	**–7,833**

Fair Values of Financial Instruments and Classification Within the Fair Value Hierarchy

€ millions	Category	12/31/2019						
		Carrying Amount	Measurement Categories		Fair Value			
			At Amortized Cost	At Fair Value	Level 1	Level 2	Level 3	Total
Assets								
Cash and cash equivalents		5,314						
Cash at banks[1]	AC	2,877	2,877					
Time deposits[1]	AC	1,090	1,090					
Money market and similar funds	FVTPL	1,347		1,347	1,347			1,347
Trade and other receivables		8,037						
Trade receivables[1]	AC	7,582	7,582					
Other receivables[2]	—	454						
Other financial assets		2,633						
Debt securities	AC	27	27		27			27
Equity securities	FVTPL	1,996		1,996	25	89	1,882	1,996
Investments in associates[2]	—	16						
Time deposits	AC	41	41			41		41
Financial instruments related to employee benefit plans[2]	—	183						
Loans and other financial receivables	AC	217	217			217		217
Derivative assets								
Designated as hedging instrument								
FX forward contracts	—	3		3		3		3
Interest rate swaps	—	9		9		9		9
Not designated as hedging instrument								
FX forward contracts	FVTPL	33		33		33		33
Call options for share-based payments	FVTPL	95		95		95		95
Call option on equity shares	FVTPL	15		15			15	15
Liabilities								
Trade and other payables		–1,589						
Trade payables[1]	AC	–1,283	–1,283					
Other payables[2]	—	–306						
Financial liabilities		–16,196						
Non-derivative financial liabilities								
Loans	AC	–2,016	–2,016			–2,016		–2,016
Bonds	AC	–10,533	–10,533		–10,003	–1,100		–11,103
Private placements	AC	–1,067	–1,067			–1,078		–1,078
Other non-derivative financial liabilities[3]	AC	–2,498	–2,498			–296		–296
Derivatives								
Designated as hedging instrument								
FX forward contracts	—	–11		–11		–11		–11
Interest rate swaps	—	–16		–16		–16		–16
Not designated as hedging instrument								
FX forward contracts	FVTPL	–55		–55		–55		–55
Total financial instruments, net		**–1,801**	**–5,564**	**3,416**	**–8,604**	**–4,086**	**1,896**	**–10,794**

[1] We do not separately disclose the fair value for cash and cash equivalents, trade receivables, and accounts payable as their carrying amounts are a reasonable approximation of their fair values.
[2] Since the line items trade receivables, trade payables, and other financial assets contain both financial and non-financial assets or liabilities (such as other taxes or advance payments), the carrying amounts of non-financial assets or liabilities are shown to allow a reconciliation to the corresponding line items in the Consolidated Statements of Financial Position.
[3] For lease liabilities, included in the line item other non-derivative financial liabilities, separate disclosure of fair value is not required.

Fair Values of Financial Instruments by Instrument Classification

€ millions	Category			12/31/2020
		Carrying Amount	At Amortized Cost	At Fair Value
Financial assets				
At fair value through profit or loss	FVTPL	4,846		4,846
At amortized cost	AC	11,547	11,547	
Financial liabilities				
At fair value through profit or loss	FVTPL	–61		–61
At amortized cost	AC	–16,904	–16,904	

Fair Values of Financial Instruments by Instrument Classification

€ millions	Category			12/31/2019
		Carrying Amount	At Amortized Cost	At Fair Value
Financial assets				
At fair value through profit or loss	FVTPL	3,486		3,486
At amortized cost	AC	11,834	11,834	
Financial liabilities				
At fair value through profit or loss	FVTPL	–55		–55
At amortized cost	AC	–17,398	–17,398	

Determination of Fair Values

A description of the valuation techniques and the inputs used in the fair value measurement is given below:

Financial Instruments Measured at Fair Value on a Recurring Basis

Type	Fair Value Hierarchy	Determination of Fair Value/Valuation Technique	Significant Unobservable Inputs	Interrelationship Between Significant Unobservable Inputs and Fair Value Measurement
Other financial assets				
Money-market and similar funds	Level 1	Quoted prices in an active market	NA	NA
Debt securities	Level 1	Quoted prices in an active market	NA	NA
Listed equity securities	Level 1	Quoted prices in an active market	NA	NA
	Level 2	Quoted prices in an active market deducting a discount for the disposal restriction derived from the premium for a respective put option.	NA	NA
Unlisted equity securities	Level 3	Market approach. Comparable company valuation using revenue multiples derived from companies comparable to the investee.	Peer companies used (revenue multiples range from 1.3 to 21.4) Revenues of investees Discounts for lack of marketability (10% to 30%)	The estimated fair value would increase (decrease) if: – The revenue multiples were higher (lower) – The investees' revenues were higher (lower) – The liquidity discounts were lower (higher)
		Market approach. Venture capital method evaluating a variety of quantitative and qualitative factors such as actual and forecasted results, cash position, recent or planned transactions, and market comparable companies.	NA	NA
		Last financing round valuations	NA	NA
		Liquidation preferences	NA	NA
		Net asset value/fair market value as reported by the respective funds	NA	NA
Call options for share-based payment plans	Level 2	Monte Carlo model. Calculated considering risk-free interest rates, the remaining term of the derivatives, the dividend yields, the share price, and the volatility of our share.	NA	NA
Call option on equity shares	Level 3	Market approach. Venture capital method evaluating a variety of quantitative and qualitative factors such as actual and forecasted results, cash position, recent or planned transactions, and market comparable companies.	NA	NA
Other financial assets/ Financial liabilities				
FX forward contracts	Level 2	Discounted cash flow using par method. Expected future cash flows based on forward exchange rates are discounted over the respective remaining term of the contracts using the respective deposit interest rates and spot rates.	NA	NA
Interest rate swaps	Level 2	Discounted cash flow. Expected future cash flows are estimated based on forward interest rates from observable yield curves and contract interest rates, discounted at a rate that reflects the credit risk of the counterparty.	NA	NA

Financial Instruments Not Measured at Fair Value

	Type	Fair Value Hierarchy	Determination of Fair Value/Valuation Technique
Financial liabilities			
	Fixed-rate bonds (financial liabilities)	Level 1	Quoted prices in an active market
	Fixed-rate private placements/ loans (financial liabilities)	Level 2	Discounted cash flows Future cash outflows for fixed interest and principal are discounted over the term of the respective contracts using the market interest rates as at the reporting date.

For other non-derivative financial assets/liabilities and variable rate financial debt, it is assumed that their carrying value reasonably approximates their fair values.

Transfers Between Levels 1 and 2

Transfers of equity securities from Level 2 to Level 1, which occurred because disposal restrictions lapsed and deducting a discount for such restriction was no longer necessary, were €91 million in 2020 (2019: €5 million), while transfers from Level 1 to Level 2 did not occur at all.

Level 3 Fair Value Disclosures

The following table shows the reconciliation of fair values from the opening to the closing balances for our unlisted equity securities and call options on equity shares classified as Level 3 fair values:

Reconciliation of Level 3 Fair Values

€ millions	**2020**	2019
1/1	1,896	1,202
Transfers		
Into Level 3	0	0
Out of Level 3	–201	–39
Purchases	728	487
Sales	–233	–183
Gains/losses		
Included in financial income, net in profit or loss	501	411
Included in exchange differences in other comprehensive income	–183	18
12/31	**2,508**	**1,896**
Change in unrealized gains/losses in profit or loss for equity investments held at the end of the reporting period	376	318

Transfers out of Level 3 are due to initial public offerings of the respective investee. Changing the unobservable inputs to reflect reasonably possible alternative assumptions would not have a material impact on the fair values of our unlisted equity securities held as FVTPL as at the reporting date.

Section G – Other Disclosures

This section provides additional disclosures on miscellaneous topics, including information pertaining to the Executive Board, Supervisory Board, related party transactions, and other corporate governance topics.

(G.1) Prepaid Expenses and Other Tax Assets

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Prepaid expenses	495	187	682	427	179	606
Other tax assets	209	52	261	225	87	312
Total	**704**	**239**	**943**	**652**	**266**	**918**
⚖ Other non-financial assets	1,321	1,926	3,247	1,188	1,701	2,889
Prepaid expenses and other tax assets as % of ⚖ other non-financial assets	53	12	29	55	16	32

Prepaid expenses primarily consist of prepayments for operating leases, support services, and software royalties. Other tax assets primarily consist of VAT.

(G.2) Other Tax Liabilities

€ millions	2020			2019		
	Current	Non-Current	Total	Current	Non-Current	Total
Other tax liabilities	**632**	**0**	**632**	**650**	**0**	**650**
⚖ Other non-financial liabilities	4,643	770	5,413	4,839	957	5,796
Other tax liabilities as % of ⚖ other non-financial liabilities	14	0	12	13	0	11

Other tax liabilities primarily consist of VAT, payroll tax, and sales tax.

(G.3) Other Litigation, Claims, and Legal Contingencies

This Note discloses information about intellectual property-related litigation and claims, tax-related litigation other than income tax-related litigation (see *Note (C.5)*), and anti-bribery and export control matters.

Uncertainty in Context of Legal Matters

The policies outlined in *Note (A.4)* for customer-related provisions, which include provisions for customer-related litigation cases and claims, equally apply to our other litigation, claims, and legal contingencies disclosed in this Note.

The outcome of litigation and claims is intrinsically subject to considerable uncertainty. Management's view of these matters may also change in the future. Actual outcomes of litigation and claims may differ from the assessments made by management in prior periods, which could result in a material impact on our business, financial position, profit, cash flows, or reputation. Most of the lawsuits and claims are of a very individual nature and claims are either not quantified by the claimants or the claim amounts quantified are, based on historical evidence, not expected to be a good proxy for the expenditure that would be required to resolve the case concerned. The specifics of the jurisdictions where most of the claims are located further impair the predictability of the outcome of the cases. Therefore, it is typically not practicable to reliably estimate the financial effect that these lawsuits and claims would have if SAP were to incur expenditure for these cases.

Further, the expected timing of any resulting outflows of economic benefits from these lawsuits and claims is typically uncertain and not estimable, as it depends generally on the duration of the legal proceedings and settlement negotiations required to resolve them.

We are subject to a variety of claims and lawsuits that arise from time to time in the ordinary course of our business, including proceedings and claims that relate to companies we have acquired. We will continue to vigorously defend against all claims and lawsuits against us. The provisions recorded for these claims and lawsuits as at December 31, 2020, are neither individually nor in the aggregate material to SAP.

Among the claims and lawsuits disclosed in this Note are the following classes:

Intellectual Property-Related Litigation and Claims

Intellectual property-related litigation and claims are cases in which third parties have threatened or initiated litigation claiming that SAP violates one or more intellectual property rights that they possess. Such intellectual property rights may include patents, copyrights, and other similar rights.

Contingent liabilities exist from intellectual property-related litigation and claims for which no provision has been recognized. Generally, it is not practicable to estimate the financial impact of these contingent liabilities due to the uncertainties around the litigation and claims, as outlined above. The total amounts claimed by plaintiffs in those intellectual property-related lawsuits or claims in which a claim has been quantified were not material to us as at December 31, 2020 and 2019. Based on our past experience, most of the intellectual property-related litigation and claims tend to be either dismissed in court or settled out of court for amounts significantly below the originally claimed amounts. We currently believe that resolving the intellectual property-related claims and lawsuits pending as at December 31, 2020, will neither individually nor in the aggregate have a material adverse effect on our business, financial position, profit, or cash flows.

Individual cases of intellectual property-related litigation and claims include the following:

In June 2018, Teradata Corporation, Teradata US, Inc. and Teradata Operations, Inc. (collectively "Teradata") filed a civil lawsuit against SAP SE, SAP America, Inc. and SAP Labs, LLC in U.S. federal court in California. Teradata alleges that SAP misappropriated trade secrets of Teradata, infringed Teradata's copyrights (claim now withdrawn), and violated U.S. antitrust laws. Teradata seeks unspecified monetary damages and injunctive relief. In 2019, SAP asserted patent infringement counterclaims against Teradata seeking monetary damages and injunctive relief. Trial is scheduled for late 2021. In 2020, Teradata initiated a second civil lawsuit against SAP asserting patent infringement, seeking monetary damages and injunctive relief. Trial in the second lawsuit is scheduled for late 2022.

The legal proceedings instituted in 2010 by United States-based TecSec, Inc. against SAP (including our subsidiary Sybase) and many other defendants in the United States, in which TecSec sought unspecified monetary damages and permanent injunctive relief, were settled in 2020.

Tax-Related Litigation

We are subject to ongoing audits by domestic and foreign tax authorities. In respect of non-income taxes, we are involved in various proceedings with only a few foreign tax authorities regarding assessments and litigation matters on intercompany royalty payments and intercompany services. The total potential amount in dispute related to these matters for all applicable years is approximately €154 million (2019: €189 million). We have not recorded a provision for these matters, as we believe that we will prevail.

For more information about our income tax-related litigation, see *Note (C.5)*.

Anti-Bribery and Export Control Matters

SAP has received communications and whistleblower information alleging conduct that may violate anti-bribery laws in the United States (including the U.S. Foreign Corrupt Practices Act (FCPA)), and other countries. The Office of Ethics and Compliance (OEC) of SAP is conducting investigations with the assistance of an external law firm and voluntarily advised the U.S. Securities and Exchange Commission (U.S. SEC) and the U.S. Department of Justice (U.S. DOJ), as well as local authorities where potential violations are being investigated. The investigations and dialogue between SAP and the local authorities and the U.S. SEC and U.S. DOJ are ongoing.

The alleged conduct may result in monetary penalties or other sanctions under the FCPA and/or other anti-bribery laws. In addition, SAP's ability to conduct business in certain jurisdictions could be negatively impacted. The comprehensive and exhaustive investigations and the corresponding remediation activities are still ongoing. In South Africa, SAP is seeking resolution of pending civil claims relating to ongoing investigations. Considering the complexity of individual factors and the large number of open questions, it is not entirely possible at this point in time to assess the risk of a financial impact.

Furthermore, we continue to investigate separate allegations regarding conduct that certain SAP partners violated SAP contractual terms and sold SAP products and services in embargoed countries and to sanctioned entities. These SAP partners presumably did not adhere to SAP's strict procedures for indirect business activities. To the extent any company independent from SAP chooses not to follow SAP's licensing procedures, SAP is ultimately limited in its ability to stop their activities. SAP devotes considerable resources to prevent and mitigate such activities should they occur. We are also investigating allegations regarding direct sales from SAP to certain customers, who may have engaged in unauthorized activities in embargoed countries. The investigations are being conducted by SAP's OEC and SAP's Export Control team, with the assistance of an external law firm and forensic advisors.

In this context, SAP voluntarily self-disclosed potential export controls and economic sanctions violations to the U.S. DOJ and the U.S. Department of Treasury's Office of Foreign Assets Control (OFAC) in September 2017. At the same time, SAP provided notification to the U.S. SEC and responded to an SEC comment letter on export restriction matters in October 2017. SAP has also provided disclosure to the U.S. Department of Commerce's Bureau of Industry and Security (BIS) based on the same alleged facts. The alleged conduct may result in monetary penalties or other sanctions under U.S. sanctions and export control laws. SAP is currently engaging with U.S. authorities regarding resolution of these matters.

The comprehensive and exhaustive investigations and the corresponding remediation activities are ongoing, and considering the complexity of individual factors and the large number of open questions, it is not entirely possible at this point in time to comprehensively assess the risks.

For the reasons outlined above, it is impossible at this point in time to determine whether the potential anti-bribery law violations and the potential export restriction violations represent present obligations of SAP and, if so, to reliably estimate the amount of these obligations. We recognized no material provisions for these potential violations in our consolidated financial statements 2020. It is also not practicable to estimate the financial effect of any contingent liabilities that may result from these potential violations.

(G.4) Board of Directors

Executive Board

Memberships on supervisory boards and other comparable governing bodies of enterprises, other than subsidiaries of SAP, on December 31, 2020

Christian Klein

Chief Executive Officer
Corporate Development and Strategy, Security and Secrecy, Compliance, Global Corporate Affairs, Global Marketing

Supervisory Board, adidas AG, Herzogenaurach, Germany (from August 11, 2020)

Sabine Bendiek (from January 1, 2021)

Chief People Officer, Labor Relations Director
HR Strategy, Business Transformation, Leadership Development, Talent Development

Supervisory Board, Schaeffler AG, Herzogenaurach, Germany

Luka Mucic

Chief Financial Officer
Global Finance and Administration including Investor Relations, Internal Audit, Data Protection & Privacy, Business Process Intelligence

Supervisory Board, HeidelbergCement AG, Heidelberg, Germany

Juergen Mueller

Chief Technology Officer
Technology & Innovation
Technology and Innovation Strategy, SAP HANA Database, SAP Business Technology Platform, Analytics, Cloud Infrastructure

Supervisory Board, DFKI GmbH, Kaiserslautern, Germany

Scott Russell (from February 1, 2021)

Customer Success
Global Field Organization including Sales, Services, Partners, and Customer Engagement

Thomas Saueressig

SAP Product Engineering
Global Responsibility for all SAP Applications, Cloud Operations and Product Support, Cross-Development Functions, Enterprise Cloud Services

Executive Board Members Who Left During 2020 and 2021

Michael Kleinemeier (until April 30, 2020)
Jennifer Morgan (until April 30, 2020)
Stefan Ries (until May 31, 2020)
Adaire Fox-Martin (until June 30, 2021, member of the Executive Board until January 31, 2021)

Supervisory Board

Memberships on supervisory boards and other comparable governing bodies of enterprises, other than subsidiaries of SAP, on December 31, 2020

Prof. Dr. h.c. mult. Hasso Plattner[2, 4, 6]

Chairman

Margret Klein-Magar[1, 2, 3]

Deputy Chairperson
Vice President, Head of SAP Alumni Relations
Chairperson of the Spokespersons' Committee of Senior Managers of SAP SE

Dr. h. c. mult. Pekka Ala-Pietilä[2, 6, 7]

Chairman of the Board of Directors, Huhtamäki Oyj, Espoo, Finland

Chairman of the Board of Directors, Sanoma Corporation, Helsinki, Finland

Panagiotis Bissiritsas[1, 2, 3, 5]

Member of the SAP SE Works Council and Member of the SAP SE Works Council (Europe)

Aicha Evans[2, 4, 7]

Chief Executive Officer and Member of the Board of Directors, Zoox, Inc., Foster City, CA, United States

Board of Directors, Joby Aviation LLC, Santa Cruz, CA, United States (from December 23, 2020)

Prof. Dr. Gesche Joost[4, 7]

Professor for Design Research and Head of the Design Research Lab, Berlin University of the Arts, Berlin, Germany

Supervisory Board, Ottobock SE & Co. KGaA, Duderstadt, Germany
Supervisory Board, ING-DiBa AG, Frankfurt, Germany

Monika Kovachka-Dimitrova[1, 4, 7]

Chief Project Expert Development
Member of the SAP SE Works Council (Europe)

Lars Lamadé[1, 2, 4]

Head of Sponsorships Europe and Asia

Supervisory Board, Rhein-Neckar Loewen GmbH, Kronau, Germany

Bernard Liautaud[2, 4, 6]

Managing Partner Balderton Capital, London, United Kingdom
Board of Directors, nlyte Software Ltd., London, United Kingdom
Board of Directors, Vestiaire Collective SA, Levallois-Perret, France
Board of Directors, Dashlane, Inc., New York, NY, United States
Board of Directors, Qubit Digital Ltd., London, United Kingdom
Board of Directors, Aircall.io, New York City, NY, United States
Board of Directors, Virtuo Technologies, Paris, France
Board of Directors, The Hut Group, Manchester, United Kingdom (until August 26, 2020)
Board of Directors, Peakon Aps, Copenhagen, Denmark
Board of Directors, Tim Talent SAS, Paris, France
Board of Directors, Citymapper Ltd., London, United Kingdom
Board of Directors, Toucan Toco SAS, Paris, France
Board of Directors, Traefik Labs SAS, Lyon, France

Dr. Qi Lu (from December 21, 2020)

CEO, MiraclePlus Ltd., Beijing, China

Board of Directors, Pinduoduo Inc., Shanghai, China
Chairman of the Board of Directors, Pine Field Holding Limited, Cayman Islands
Chairman of the Board of Directors, Pine Field Holding Limited, Hong Kong, China
Chairman of the Board of Directors, Pine Field Ltd., Peking, China

Gerhard Oswald[3, 4, 5, 6, 7]

Managing Director of Oswald Consulting GmbH, Walldorf, Germany

Advisory Board, TSG 1899 Hoffenheim Fußball-Spielbetriebs GmbH, Sinsheim, Germany

Christine Regitz[1, 2, 4, 5]

Vice President User Experience
Chief Product Expert

Dr. Friederike Rotsch[2, 3, 5]

Group General Counsel and Head of Group Legal & Compliance, Merck KGaA, Darmstadt, Germany

Heike Steck[1, 4, 7]

Senior Operations Manager
Member of the SAP SE Works Council and Member of the SAP SE Works Council (Europe)

Christa Vergien-Knopf[1, 4, 7]

Member of the SAP SE Works Council and Member of the SAP SE Works Council (Europe)

Dr. Gunnar Wiedenfels[3, 5]

Chief Financial Officer, Discovery, Inc., New York, NY, United States

Board of Directors, Motor Trend Group, LLC, El Segundo, CA, United States
Board of Directors, OWN LLC, West Hollywood, CA, United States
Board of Directors, Magnolia Discovery Ventures, LLC, Waco, Texas, United States

James Wright[1, 3, 4, 5]

Chairman of the SAP SE Works Council (Europe)

Ralf Zeiger[1, 2, 7]

Chairman of the SAP SE Works Council and Member of the SAP SE Works Council (Europe)

Supervisory Board Members Who Left During 2020

Diane Greene (until December 9, 2020)

[1] Appointed by the SAP SE Works Council (Europe)
[2] Member of the Company's General and Compensation Committee
[3] Member of the Company's Audit Committee
[4] Member of the Company's Technology and Strategy Committee
[5] Member of the Company's Finance and Investment Committee
[6] Member of the Company's Nomination Committee
[7] Member of the Company's People and Organization Committee

(G.5) Executive and Supervisory Board Compensation

Accounting Policy

The share-based payment amounts disclosed below in the table "Executive Board Compensation" are based on the grant date fair value of the share units in the respective year. In 2020, share units were issued to the Executive Board members under the LTI 2020 and in 2019 and 2018 under the LTI 2016 Plan.

In the table "Share-Based Payment for Executive Board Members," the share-based payment expense is the amount recorded in profit or loss under IFRS 2 (Share-Based Payment) in the respective period.

The total compensation of the Executive Board members for each of the years 2020, 2019, and 2018 was as follows:

Executive Board Compensation

€ thousands	2020	2019	2018
Short-term employee benefits	5,094	17,378	18,652
Share-based payment[1]	23,095	32,393	23,646
Subtotal[1]	**28,189**	**49,771**	**42,298**
Post-employment benefits	488	2,825	1,106
Thereof defined-benefit	487	2,056	250
Thereof defined-contribution	1	769	856
Total[1]	**28,677**	**52,596**	**43,404**

[1] Portion of total executive compensation allocated to the respective year

Share-Based Payment for Executive Board Members

	2020	2019	2018
Number of share units granted	201,690	344,047	295,178
Total expense in € thousands	11,173	44,447	8,054

The defined benefit obligation (DBO) for pensions to Executive Board members and the annual pension entitlement of the members of the Executive Board on reaching age 62 based on entitlements from performance-based and salary-linked plans were as follows:

Retirement Pension Plan for Executive Board Members

€ thousands	2020	2019	2018
DBO 12/31	3,520	5,497	3,441
Annual pension entitlement	98	215	192

The total annual compensation of the Supervisory Board members is as follows:

Supervisory Board Compensation

€ thousands	2020	2019	2018
Total compensation	3,755	3,770	3,702
Thereof fixed compensation	3,149	3,218	3,162
Thereof committee remuneration	606	553	540

The Supervisory Board members do not receive any share-based payment for their services. As far as members who are employee representatives on the Supervisory Board receive share-based payment, such compensation is for their services as employees only and is unrelated to their status as members of the Supervisory Board.

Payments to/DBO for Former Executive Board Members

€ thousands	2020	2019	2018
Payments	3,010	2,081	2,054
DBO 12/31	44,043	44,306	38,374

SAP did not grant any compensation advance or credit to, or enter into any commitment for the benefit of, any member of the Executive Board or Supervisory Board in 2020, 2019, or 2018.

Detailed information about the different elements of the compensation are disclosed in the Compensation Report, which is part of our Integrated Report and of our Annual Report on Form 20-F, both of which are available on SAP's Web site.

(G.6) Related Party Transactions Other Than Board Compensation

Certain Supervisory Board members of SAP SE currently hold, or held within the last year, positions of significant responsibility with other entities. We have relationships with certain of these entities in the ordinary course of business, whereby we buy and sell products, assets, and services at prices believed to be consistent with those negotiated at arm's length between unrelated parties.

Companies controlled by Hasso Plattner, Chairman of the Supervisory Board of SAP SE and Chief Software Advisor of SAP, engaged in the following transactions with SAP: providing consulting services to SAP, receiving sport sponsoring from SAP, and making purchases of SAP products and services.

Occasionally, members of the Executive Board of SAP SE obtain services from SAP for which they pay a consideration consistent with those negotiated at arm's length between unrelated parties.

All amounts related to the abovementioned transactions were immaterial to SAP in all periods presented.

In total, we sold products and services to companies controlled by members of the Supervisory Board in the amount of €3 million (2019: €9 million), we bought products and services from such companies in the amount of €2 million (2019: €2 million), and we provided sponsoring and other financial support to such companies in the amount of €4 million (2019: €4 million). Outstanding balances at year end from transactions with such companies were €0 million (2019: €0 million) for amounts owed to such companies and €0 million (2019: €0 million) for amounts owed by such companies. All of these balances are unsecured and interest-free and settlement is expected to occur in cash. Commitments (the longest of which is for three years) made by us to purchase further goods or services from these companies and to provide further sponsoring and other financial support amount to €10 million as at December 31, 2020 (2019: €14 million).

In total, we sold services to members of the Executive Board and the Supervisory Board in the amount of €0 million (2019: €0 million), and we received services from members of the Supervisory Board (including services from employee representatives on the Supervisory Board in their capacity as employees of SAP) in the amount of €2 million (2019: €2 million). Amounts owed, but not yet paid, to Supervisory Board members from these transactions were €0 million as at December 31, 2020

(2019: €0 million). All of these balances are unsecured and interest-free and settlement is expected to occur in cash.

For information about the compensation of our Executive Board and Supervisory Board members, see *Note (G.5)*.

(G.7) Principal Accountant Fees and Services

At the Annual General Meeting of Shareholders held on May 20, 2020, our shareholders elected KPMG AG Wirtschaftsprüfungsgesellschaft (KPMG) as SAP's independent auditor for 2020. KPMG has been the Company's principal auditor since the fiscal year 2002. Bodo Rackwitz has signed as auditor responsible for audit of the financial reporting and the group reporting of SAP SE since the fiscal year 2018. KPMG and other firms in the global KPMG network charged the following fees to SAP for audit and other professional services related to 2020 and the previous years:

€ millions	2020			2019			2018		
	KPMG AG (Germany)	Foreign KPMG Firms	Total	KPMG AG (Germany)	Foreign KPMG Firms	Total	KPMG AG (Germany)	Foreign KPMG Firms	Total
Audit fees	3	9	12	3	7	10	3	6	9
Audit-related fees	0	1	2	0	1	1	0	0	0
Tax fees	0	0	0	0	0	0	0	0	0
All other fees	0	0	0	0	0	0	0	0	0
Total	**3**	**10**	**14**	**3**	**8**	**10**	**3**	**6**	**9**

Audit fees are the aggregate fees charged by KPMG for auditing our consolidated financial statements and the statutory financial statements of SAP SE and its subsidiaries, as well as audit fees regarding the initial public offering of Qualtrics. Audit-related fees are fees charged by KPMG for assurance and related services that are reasonably related to the performance of the audit, for service organization attestation procedures, and fees charged by KPMG for services regarding the initial public offering of Qualtrics.

(G.8) Events After the Reporting Period

Qualtrics Initial Public Offering (IPO)

On January 28, 2021, Qualtrics International Inc. (Qualtrics) successfully issued 12% of its shares on the Nasdaq Stock Market (NASDAQ). Qualtrics placed 82 million new shares with a total placement volume of US$2.3 billion including a private placement transaction. Since SAP did not participate in the capital increase, SAP's ownership decreased to 83%. However, SAP continues to hold high-vote Class B common stock and, as a result, its current voting power exceeds 98%.

In connection with the IPO, Qualtrics conducted a voluntary exchange offer to exchange existing share-based payment awards of Qualtrics employees (Qualtrics Rights and Move SAP RSUs) for awards with underlying shares of Qualtrics at an exchange ratio based upon the IPO price of Qualtrics Class A common stock; the exchange ratio is designed to preserve the intrinsic value of the Qualtrics Rights and Move SAP RSUs that will be tendered. The exchange offer is limited to eligible employees and is subject to various terms and conditions as more fully described in the prospectus relating to such exchange offer published by Qualtrics.

Organizational Changes

At the beginning of 2021, SAP modified its organizational structure to further drive simplification and integration. The organizational changes which will also affect SAP's segment reporting. SAP has already started the process of redefining its management reporting under the new organizational structure, which the segment reporting will follow.

Restructuring

To accelerate the modernization of its cloud infrastructure and to harmonize its platform structure, SAP will undertake a restructuring program in the Global Cloud Services area. The execution started in Q1 2021 and will continue until the end of 2022. Total restructuring expenses are projected to be €150 million to €200 million. The majority of these expenses will be impairments of data centers and related assets.

Acquisition of Signavio

In January 2021, SAP announced it had entered into an agreement to acquire Signavio GmbH, a leader in the enterprise business process intelligence and process management space. The initial purchase price is €950 million. The transaction is expected to close in the first quarter of 2021, subject to regulatory approval.

(G.9) Scope of Consolidation, Subsidiaries and Other Equity Investments

Entities Consolidated in the Financial Statements

	Total
12/31/2018	**265**
Additions	20
Disposals	–21
12/31/2019	**264**
Additions	17
Disposals	–12
12/31/2020	**269**

The additions relate to legal entities added in connection with acquisitions and foundations. The disposals are mainly due to mergers, and liquidations of legal entities.

Subsidiaries

Major Subsidiaries

Name and Location of Company	Owner-ship	Total Revenue in 2020[1]	Profit/Loss (–) After Tax for 2020[1]	Total Equity as at 12/31/2020[1]	Number of Employees as at 12/31/2020[2]	Foot-note
	%	€ thousands	€ thousands	€ thousands		
Ariba Technologies India Private Limited, Bangalore, India	100.0	71,814	5,856	27,694	1,163	
Ariba, Inc., Palo Alto, CA, United States	100.0	1,364,062	393,506	4,384,584	1,905	
Concur Technologies, Inc., Bellevue, WA, United States	100.0	1,704,448	69,886	7,093,719	3,734	
Qualtrics, LLC, Wilmington, DE, United States	100.0	687,972	–595,614	5,490,095	2,431	
SAP (China) Co., Ltd., Shanghai, China	100.0	948,426	2,287	–189,703	5,750	16
SAP (UK) Limited, Feltham, United Kingdom	100.0	1,189,692	81,641	74,774	1,738	10
SAP America, Inc., Newtown Square, PA, United States	100.0	6,038,852	176,711	18,092,145	8,352	
SAP Argentina S.A., Buenos Aires, Argentina	100.0	160,724	–9,749	2,164	955	16
SAP Asia Pte Ltd, Singapore, Singapore	100.0	499,457	80	–12,285	1,102	16
SAP Australia Pty Ltd, Sydney, Australia	100.0	694,917	27,323	36,783	1,218	
SAP Brasil Ltda, São Paulo, Brazil	100.0	463,326	–43,524	–39,474	2,138	16
SAP Canada Inc., Toronto, Canada	100.0	957,871	71,104	525,856	2,985	
SAP Deutschland SE & Co. KG, Walldorf, Germany	100.0	4,571,609	926,552	1,843,908	4,580	7, 9
SAP España – Sistemas, Aplicaciones y Productos en la Informática, S.A., Madrid, Spain	100.0	507,960	40,841	311,958	740	
SAP France S.A., Levallois-Perret, France	100.0	1,089,190	220,940	1,717,909	1,482	
SAP Hungary Rendszerek, Alkalmazások és Termékek az Adatfeldolgozásban Informatikai Kft., Budapest, Hungary	100.0	119,694	2,145	19,777	1,004	
SAP India Private Limited, Bangalore, India	100.0	642,886	111,812	383,157	2,002	
SAP Industries, Inc., Newtown Square, PA, United States	100.0	647,524	138,575	933,749	297	
SAP Italia Sistemi Applicazioni Prodotti in Data Processing S.p.A., Vimercate, Italy	100.0	582,922	41,776	378,505	723	
SAP Japan Co., Ltd., Tokyo, Japan	100.0	1,275,694	139,717	369,854	1,306	
SAP Labs India Private Limited, Bangalore, India	100.0	567,938	46,409	194,632	9,087	
SAP Labs, LLC, Palo Alto, CA, United States	100.0	562,386	22,091	414,651	1,921	
SAP México S.A. de C.V., Mexico City, Mexico	100.0	413,748	44,125	78,011	908	16
SAP National Security Services, Inc., Newtown Square, PA, United States	100.0	760,560	149,624	479,669	536	
SAP Nederland B.V., 's-Hertogenbosch, the Netherlands	100.0	701,572	68,342	262,769	591	11
SAP Service and Support Centre (Ireland) Limited, Dublin, Ireland	100.0	191,745	15,292	66,607	1,625	
SAP Services s.r.o., Prague, Czech Republic	100.0	71,524	729	12,875	1,074	
SuccessFactors, Inc., Newtown Square, PA, United States	100.0	816,597	317,427	4,131,532	931	

Other Subsidiaries[3]

Name and Location of Company	Ownership	Footnote
	%	
"SAP Kazakhstan" LLP, Almaty, Kazakhstan	100.0	
110405, Inc., Newtown Square, PA, United States	100.0	
Abakus Ukraine Limited Liability Company, Kiev, Ukraine	100.0	
Ambin Properties Proprietary Limited, Johannesburg, South Africa	100.0	
Apex Expert Solutions LLC, Chantilly, VA, United States	100.0	
Ariba Czech s.r.o., Prague, Czech Republic	100.0	
Ariba India Private Limited, Gurgaon, India	100.0	
Ariba International Holdings, Inc., Wilmington, DE, United States	100.0	
Ariba International Singapore Pte Ltd, Singapore, Singapore	100.0	
Ariba International, Inc., Wilmington, DE, United States	100.0	
Ariba Slovak Republic, s.r.o., Košice, Slovakia	100.0	
Ariba Software Technology Services (Shanghai) Co., Ltd., Shanghai, China	100.0	
Ariba Technologies Netherlands B.V., 's-Hertogenbosch, the Netherlands	100.0	11
Business Objects Holding B.V., 's-Hertogenbosch, the Netherlands	100.0	11
Business Objects Option, LLC, Wilmington, DE, United States	100.0	
Business Objects Software Limited (Trading as SAP Solutions), Dublin, Ireland	100.0	
Callidus Software Inc., Dublin, CA, United States	100.0	
Callidus Software Ltd., Feltham, United Kingdom	100.0	10
Callidus Software Pty. Ltd., Sydney, Australia	100.0	
CallidusCloud (India) Private Limited, Hyderabad, India	100.0	
CallidusCloud (Malaysia) Sdn. Bhd., Kuala Lumpur, Malaysia	100.0	
CallidusCloud Holdings Pty. Ltd., Sydney, Australia	100.0	
CallidusCloud Pty. Ltd., Sydney, Australia	100.0	
Christie Partners Holding C.V., 's-Hertogenbosch, the Netherlands	100.0	
C-Learning Pty. Ltd., Sydney, Australia	100.0	
ClearTrip Inc. (Mauritius), Ebene, Mauritius	100.0	
ClearTrip Inc., George Town, Cayman Islands	57.0	
ClearTrip MEA FZ LLC, Dubai, United Arab Emirates	100.0	
ClearTrip Packages and Tours Private Limited, Mumbai, India	100.0	
ClearTrip Private Limited, Mumbai, India	100.0	
ClearTrip Travel & Holidays LLC, Dubai, United Arab Emirates	49.0	5
Clicktools Limited, Feltham, United Kingdom	100.0	10
CNQR Operations Mexico S. de. R.L. de. C.V., Mexico City, Mexico	100.0	
Concur (Canada), Inc., Toronto, Canada	100.0	
Concur (Czech) s.r.o., Prague, Czech Republic	100.0	16
Concur (France) S.A.S., Paris, France	100.0	
Concur (Germany) GmbH, Frankfurt am Main, Germany	100.0	8, 9
Concur (Japan) Ltd., Tokyo, Japan	97.1	
Concur (New Zealand) Limited, Wellington, New Zealand	100.0	14
Concur (Philippines) Inc., Makati City, Philippines	100.0	
Concur (Switzerland) GmbH, Zurich, Switzerland	100.0	13
Concur Holdings (France) S.A.S., Paris, France	100.0	
Concur Holdings (Netherlands) B.V., Amsterdam, the Netherlands	100.0	11
Concur Technologies (Australia) Pty. Limited, Sydney, Australia	100.0	
Concur Technologies (Hong Kong) Limited, Hong Kong, China	100.0	
Concur Technologies (India) Private Limited, Bangalore, India	100.0	
Concur Technologies (Singapore) Pte Ltd, Singapore, Singapore	100.0	16
Concur Technologies (UK) Limited, London, United Kingdom	100.0	10
ConTgo Consulting Limited, London, United Kingdom	100.0	10
ConTgo Limited, London, United Kingdom	100.0	10
Crystal Decisions (Ireland) Limited, Dublin, Ireland	100.0	12
Crystal Decisions (UK) Limited, London, United Kingdom	100.0	10
Crystal Decisions Holdings Limited, Dublin, Ireland	100.0	12
Datahug Limited, Dublin, Ireland	100.0	
Delighted, LLC, Wilmington, DE, United States	100.0	
Ebreez Egypt LLC, Cairo, Egypt	100.0	
Emarsys Beijing Limited, Beijing, China	100.0	4
Emarsys eMarketing Systems AG, Vienna, Austria	100.0	4
Emarsys İletişim Sistemleri Tic. Ltd Şti., Istanbul, Turkey	100.0	4
Emarsys Interactive Services GmbH, Berlin, Germany	100.0	4
Emarsys Limited, Hong Kong, China	100.0	4
Emarsys North America, Inc., Indianapolis, IN, United States	100.0	4
Emarsys Pte Ltd, Singapore, Singapore	100.0	4
Emarsys Pty Ltd, Sydney, Australia	100.0	4
Emarsys S.A.S., Levallois-Perret, France	100.0	4
Emarsys Schweiz GmbH, Zurich, Switzerland	100.0	4
Emarsys UK Ltd, London, United Kingdom	100.0	4
EMARSYS-Technologies Informatikai Szolgáltató Kft., Budapest, Hungary	100.0	4
ESS Cubed Procurement Proprietary Limited, Johannesburg, South Africa	100.0	
Extended Systems, Inc., San Ramon, CA, United States	100.0	
Financial Fusion, Inc., San Ramon, CA, United States	100.0	
Flyin Holding Limited, Dubai, United Arab Emirates	100.0	
Flyin Travel and Tourism Private Limited, Hyderabad, India	100.0	

Name and Location of Company	Owner-ship	Foot-note
Flyin Travel Limited, Limassol, Cyprus	100.0	
Flyin Travel S.A.E, Cairo, Egypt	100.0	
FreeMarkets Ltda., São Paulo, Brazil	100.0	
Gigya UK Ltd, Feltham, United Kingdom	100.0	10
Hipmunk, Inc., San Francisco, CA, United States	100.0	
hybris (US) Corp., Wilmington, DE, United States	100.0	
hybris GmbH, Munich, Germany	100.0	8, 9
Inxight Federal Systems Group, Inc., Wilmington, DE, United States	100.0	
IP Asset Holdings, LLC, Provo, UT, United States	100.0	
LeadFormix, Inc., Dublin, CA, United States	100.0	
Learning Heroes Ltd., Feltham, United Kingdom	100.0	10
Learning Seat Borrowings Pty. Ltd., Sydney, Australia	100.0	
Learning Seat Group Pty. Ltd., Sydney, Australia	100.0	
Learning Seat Holdings Pty. Ltd., Sydney, Australia	100.0	
Learning Seat Pty. Ltd., Sydney, Australia	100.0	
LLC "Emarsys", Moscow, Russia	100.0	4
LLC "SAP Labs", Moscow, Russia	100.0	
LLC "SAP Ukraine", Kiev, Ukraine	100.0	16
Loyalsys GmbH, Vienna, Austria	100.0	4
Loyalsys Technologies Israel Ltd., Tel Aviv, Israel	100.0	4
Nihon Ariba K.K., Tokyo, Japan	100.0	
NoteShark, LLC, Chantilly, VA, United States	51.0	
OrientDB Limited, Feltham, United Kingdom	100.0	10
Outerjoin, Inc., Dublin, CA, United States	100.0	
OutlookSoft Deutschland GmbH, Walldorf, Germany	100.0	8, 9
Plat.One Inc., Newtown Square, PA, United States	100.0	
Plat.One Lab S.r.l., Genoa, Italy	100.0	
PT SAP Indonesia, Jakarta, Indonesia	99.0	
Q (AGF2) Inc., Wilmington, DE, United States	100.0	
QAL Technologies Pty Ltd, Sydney, Australia	100.0	
QCL Techonologies Ltd., Toronto, Canada	100.0	
QDL Technologies GmbH, Munich, Germany	100.0	
QFL Technologies S.A.R.L., Paris, France	100.0	
QIL Technologies Limited, Dublin, Ireland	100.0	
QPL Technologies sp. z o.o., Kraków, Poland	100.0	
QSL Technologies Pte. Ltd., Singapore, Singapore	100.0	
Quadrem Africa Pty. Ltd., Johannesburg, South Africa	100.0	
Quadrem Brazil Ltda., Rio de Janeiro, Brazil	100.0	
Quadrem Chile Ltda., Santiago de Chile, Chile	100.0	
Quadrem International Ltd., Hamilton, Bermuda	100.0	
Quadrem Netherlands B.V., Amsterdam, the Netherlands	100.0	11

Name and Location of Company	Owner-ship	Foot-note
Quadrem Overseas Cooperatief U.A., Amsterdam, the Netherlands	100.0	11
Quadrem Peru S.A.C., Lima, Peru	100.0	
Qualtrics Holdings Inc., Wilmington, DE, United States	100.0	4
Qualtrics International Inc., Wilmington, DE, United States	99.0	17
Qualtrics Japan LLC, Tokyo, Japan	100.0	
Qualtrics Sweden AB, Stockholm, Sweden	100.0	
Qualtrics Technologies Spain, S.L.U., Madrid, Spain	100.0	
QUL Technologies Limited, London, United Kingdom	100.0	10
SAP (Beijing) Software System Co., Ltd., Beijing, China	100.0	
SAP (China) Holding Co., Ltd., Beijing, China	100.0	
SAP (Schweiz) AG, Biel, Switzerland	100.0	
SAP Andina y del Caribe C.A., Caracas, Venezuela	100.0	16
SAP AZ LLC, Baku, Azerbaijan	100.0	16
SAP Belgium – Systems, Applications and Products SA, Brussels, Belgium	100.0	
SAP Beteiligungs GmbH, Walldorf, Germany	100.0	
SAP Bulgaria EOOD, Sofia, Bulgaria	100.0	
SAP Business Services Center Nederland B.V., 's-Hertogenbosch, the Netherlands	100.0	11
SAP Chile Limitada, Santiago de Chile, Chile	100.0	16
SAP CIS, LLC, Moscow, Russia	100.0	
SAP Colombia S.A.S., Bogotá, Colombia	100.0	16
SAP Costa Rica, S.A., San José, Costa Rica	100.0	16
SAP ČR, spol. s r.o., Prague, Czech Republic	100.0	
SAP Cyprus Limited, Nicosia, Cyprus	100.0	
SAP d.o.o., Zagreb, Croatia	100.0	
SAP Danmark A/S, Copenhagen, Denmark	100.0	
SAP Dritte Beteiligungs- und Vermögensverwaltungs GmbH, Walldorf, Germany	100.0	
SAP East Africa Limited, Nairobi, Kenya	100.0	16
SAP Egypt LLC, Cairo, Egypt	100.0	16
SAP EMEA Inside Sales S.L., Madrid, Spain	100.0	
SAP Erste Beteiligungs- und Vermögensverwaltungs GmbH, Walldorf, Germany	100.0	8, 9
SAP Estonia OÜ, Tallinn, Estonia	100.0	
SAP Financial, Inc., Toronto, Canada	100.0	
SAP Finland Oy, Espoo, Finland	100.0	
SAP Foreign Holdings GmbH, Walldorf, Germany	100.0	
SAP France Holding S.A., Levallois-Perret, France	100.0	
SAP Global Marketing, Inc., New York, NY, United States	100.0	
SAP Hellas Single Member S.A., Athens, Greece	100.0	
SAP Hong Kong Co., Ltd., Hong Kong, China	100.0	16
SAP Hosting Beteiligungs GmbH, St. Leon-Rot, Germany	100.0	8, 9
SAP India (Holding) Pte Ltd, Singapore, Singapore	100.0	

Name and Location of Company	Owner-ship	Foot-note
SAP International Panama, S.A., Panama City, Panama	100.0	
SAP International, Inc., Miami, FL, United States	100.0	
SAP Investments, Inc., Wilmington, DE, United States	100.0	
SAP Ireland Limited, Dublin, Ireland	100.0	12
SAP Ireland US - Financial Services Designated Activity Company, Dublin, Ireland	100.0	
SAP Israel Ltd., Ra'anana, Israel	100.0	16
SAP Korea Ltd., Seoul, South Korea	100.0	
SAP Labs Bulgaria EOOD, Sofia, Bulgaria	100.0	
SAP Labs France S.A.S., Mougins, France	100.0	
SAP Labs Israel Ltd., Ra'anana, Israel	100.0	
SAP Labs Korea, Inc., Seoul, South Korea	100.0	
SAP Latvia SIA, Riga, Latvia	100.0	
SAP Malaysia Sdn. Bhd., Kuala Lumpur, Malaysia	100.0	
SAP Middle East and North Africa L.L.C., Dubai, United Arab Emirates	49.0	5, 16
SAP Middle East FZ L.L.C, Dubai, United Arab Emirates	100.0	16
SAP Nederland Holding B.V., 's-Hertogenbosch, the Netherlands	100.0	11
SAP New Zealand Limited, Auckland, New Zealand	100.0	
SAP Norge AS, Lysaker, Norway	100.0	
SAP North West Africa Ltd, Casablanca, Morocco	100.0	16
SAP Österreich GmbH, Vienna, Austria	100.0	
SAP Perú S.A.C., Lima, Peru	100.0	16
SAP Philippines, Inc., Taguig City, Philippines	100.0	16
SAP Polska Sp. z o.o., Warsaw, Poland	100.0	
SAP Portals Europe GmbH, Walldorf, Germany	100.0	
SAP Portals Holding Beteiligungs GmbH, Walldorf, Germany	100.0	
SAP Portals Israel Ltd., Ra'anana, Israel	100.0	
SAP Portugal – Sistemas, Aplicações e Produtos Informáticos, Sociedade Unipessoal, Lda., Porto Salvo, Portugal	100.0	
SAP Projektverwaltungs- und Beteiligungs GmbH, Walldorf, Germany	100.0	
SAP Public Services, Inc., Washington, DC, United States	100.0	
SAP Puerto Rico GmbH, Walldorf, Germany	100.0	8, 9, 16
SAP Retail Solutions Beteiligungsgesellschaft mbH, Walldorf, Germany	100.0	
SAP Romania SRL, Bucharest, Romania	100.0	
SAP Saudi Arabia Software Services Ltd, Riyadh, Kingdom of Saudi Arabia	100.0	
SAP Saudi Arabia Software Trading Ltd, Riyadh, Kingdom of Saudi Arabia	75.0	16
SAP Sechste Beteiligungs- und Vermögensverwaltungs GmbH, Walldorf, Germany	100.0	8, 9
SAP Siebte Beteiligungs- und Vermögensverwaltungs GmbH, Walldorf, Germany	100.0	8, 9

Name and Location of Company	Owner-ship	Foot-note
SAP sistemi, aplikacije in produkti za obdelavo podatkov d.o.o., Ljubljana, Slovenia	100.0	
SAP Slovensko s.r.o., Bratislava, Slovakia	100.0	
SAP Software and Services LLC, Doha, Qatar	49.0	5, 16
SAP Svenska Aktiebolag, Stockholm, Sweden	100.0	
SAP System Application and Products Asia Myanmar Limited, Yangon, Myanmar	100.0	
SAP Systems, Applications and Products in Data Processing (Thailand) Ltd., Bangkok, Thailand	100.0	
SAP Taiwan Co., Ltd., Taipei, Taiwan	100.0	
SAP Technologies Inc., Palo Alto, CA, United States	100.0	
SAP Training and Development Institute FZCO, Dubai, United Arab Emirates	100.0	16
SAP Türkiye Yazilim Üretim ve Ticaret A.Ş., Istanbul, Turkey	100.0	
SAP UAB, Vilnius, Lithuania	100.0	
SAP Ventures Investment GmbH, Walldorf, Germany	100.0	8, 9
SAP Vierte Beteiligungs- und Vermögensverwaltungs GmbH, Walldorf, Germany	100.0	
SAP Vietnam Company Limited, Ho Chi Minh City, Vietnam	100.0	
SAP West Balkans d.o.o., Belgrade, Serbia	100.0	
SAP Zweite Beteiligungs- und Vermögensverwaltungs GmbH, Walldorf, Germany	100.0	8, 9
SAP.io Fund, L.P., Palo Alto, CA, United States	0	6
Sapphire Fund Investments II Holdings, LLC, Palo Alto, CA, United States	100.0	6
Sapphire Fund Investments II, LP, Palo Alto, CA, United Stated	0	6
Sapphire Fund Investments III, L.P., Palo Alto, CA, United States	0	6
Sapphire SAP HANA Fund of Funds, L.P., Palo Alto, CA, United States	0	6
Sapphire Ventures Fund I, L.P., Palo Alto, CA, United States	0	6
Sapphire Ventures Fund II, L.P., Palo Alto, CA, United States	0	6
Sapphire Ventures Fund III, L.P., Palo Alto, CA, United States	0	6
Sapphire Ventures Fund IV, L.P., Palo Alto, CA, United States	0	6
Sapphire Ventures Fund V L.P., Palo Alto, CA, United States	0	4, 6
SAPV (Mauritius), Ebene, Mauritius	100.0	6
Saudi Ebreez Company for Electronic Services LLC, Riyadh, Kingdom of Saudi Arabia	100.0	
Statwing, LLC, Wilmington, DE, United States	100.0	
SuccessFactors (Philippines), Inc., Pasig City, Philippines	100.0	16
SuccessFactors Cayman, Ltd., Grand Cayman, Cayman Islands	100.0	
Sybase Angola, LDA, Luanda, Angola	100.0	15
Sybase Iberia, S.L., Madrid, Spain	100.0	
Sybase India, Ltd., Wilmington, DE, United States	100.0	

Name and Location of Company	Ownership	Footnote
Sybase International Holdings Corporation, LLC, San Ramon, CA, United States	100.0	
Sybase Philippines, Inc., Makati City, Philippines	100.0	
Sybase Software (India) Private Limited, Bangalore, India	100.0	
Sybase, Inc., San Ramon, CA, United States	100.0	
Systems Applications Products (Africa Region) Proprietary Limited, Johannesburg, South Africa	100.0	
Systems Applications Products (Africa) Proprietary Limited, Johannesburg, South Africa	100.0	
Systems Applications Products (South Africa) Proprietary Limited, Johannesburg, South Africa	70.0	16
Systems Applications Products Nigeria Limited, Victoria Island, Nigeria	100.0	16
Technology Management Associates Inc., Chantilly, VA, United States	100.0	
Temkin Group, LLC, Wilmington, DE, United States	100.0	
TM Property Holdings, LLC, Wilmington, DE, United States	100.0	
TomorrowNow, Inc., Bryan, TX, United States	100.0	
TRX Europe Limited, London, United Kingdom	100.0	10
TRX Technologies India Private Limited, Raman Nagar, India	100.0	
TRX UK Limited, London, United Kingdom	100.0	10
TRX, Inc., Bellevue, WA, United States	100.0	
Volume Integration, Inc., Reston, VA, United States	100.0	

[1] These figures are based on our local IFRS financial statements prior to eliminations resulting from consolidation and therefore do not reflect the contribution of these companies included in the Consolidated Financial Statements. The translation of the equity into Group currency is based on period-end closing exchange rates, and on average exchange rates for revenue and net income/loss.

[2] As at December 31, 2020, including managing directors, in FTE.

[3] Figures for profit/loss after tax and total equity pursuant to HGB, section 285 and section 313 are not disclosed if they are of minor significance for a fair presentation of the profitability, liquidity, capital resources, and financial position of SAP SE, pursuant to HGB, section 313 (2) sentence 3 no. 4 and section 286 (3) sentence 1 no. 1.

[4] Consolidated for the first time in 2020.

[5] Agreements with the other shareholders provide that SAP SE fully controls the entity.

[6] SAP SE has the following structured entities: SAP.io Fund, L.P., Sapphire Fund Investments II Holdings, LLC, Sapphire Fund Investments II, L.P., Sapphire Fund Investments III, L.P., Sapphire SAP HANA Fund of Funds, L.P., Sapphire Ventures Fund I, L.P., Sapphire Ventures Fund II, L.P., Sapphire Ventures Fund III, L.P, Sapphire Ventures Fund IV, L.P., Sapphire Ventures Fund V, L.P., SAPV (Mauritius). The results of operations of these entities are included in SAP's consolidated financial statements in accordance with IFRS 10 (Consolidated Financial Statements).

[7] Entity whose personally liable partner is SAP SE.

[8] Entity with (profit and) loss transfer agreement.

[9] Pursuant to HGB, section 264 (3) or section 264b, the subsidiary is exempt from applying certain legal requirements to their statutory stand-alone financial statements including the requirement to prepare notes to the financial statements and a review of operations, the requirement of independent audit, and the requirement of public disclosure.

[10] Pursuant to sections 479A to 479C of the UK Companies Act 2006, the entity is exempt from having its financial statements audited on the basis that SAP SE has provided a guarantee of the entity's liabilities in respect of its financial year ended December 31, 2020, or in respect of its financial year ended September 30, 2020, respectively.

[11] Pursuant to article 2:403 of the Dutch Civil Code, the entity is exempt from applying certain legal requirements to their statutory stand-alone financial statements including the requirement to prepare the financial statements, the requirement of independent audit, and the requirement of public disclosure, on the basis that SAP SE has provided a guarantee of the entity's liabilities in respect of its financial year ended December 31, 2020, or in respect of its financial year ended September 30, 2020, respectively.

[12] Pursuant to Irish Companies Act 2014, chapter 16 of Part 6, section 365, the entity is exempt from having its financial statements audited on the grounds that the entity is entitled to the benefits from a dormant entity exemption in respect of its financial year ended December 31, 2020.

[13] Pursuant to article 727a, paragraph 2 of the Swiss Code of Obligations, the entity is exempt from having its financial statements audited in respect of its financial year ended December 31, 2020, or in respect of its financial year ended September 30, 2020, respectively.

[14] Pursuant to section 211 (3) of the New Zealand Companies Act 1993 and section 45 (2) of the Financial Reporting Act 2013, the entity had approved exclusions and is not required to lodge audited financial statements in respect of its financial year ended September 30, 2020.

[15] Pursuant to Angola Tax Law and Presidential Decree no. 147/13 of October 1, 2013, the entity does not qualify as being a Large Taxpayer and therefore is exempt from having its financial statements audited in respect of its financial year ended December 31, 2020.

[16] Entity with support letter issued by SAP SE.

[17] Due to conditions in the share purchase agreement, no effects on the non-controlling interests were considered from an accounting point of view as at December 31, 2020.

Other Equity Investments

Name and Location of Company	Ownership
	%
Joint Arrangements and Investments in Associates	
China DataCom Corporation Limited, Guangzhou, China	28.30
Convercent, Inc., Denver, CO, United States	36.97
Procurement Negócios Eletrônicos S/A, Rio de Janeiro, Brazil	17.00

Name and Location of Company
Equity Investments with Ownership of at Least 5%
83North IV, L.P., Herzliya, Israel
Adverity GmbH, Vienna, Austria
Alation, Inc., Redwood City, CA, United States
Alchemist Accelerator Fund I LLC, San Francisco, CA, United States
All Tax Platform - Solucoes Tributarias S.A., São Paulo, Brazil
Amplify Partners II L.P., Menlo Park, CA, United States
Amplify Partners III, L.P., Menlo Park, CA, United States
Amplify Partners IV, L.P., Menlo Park, CA, United States
Amplify Partners Select Fund IV, L.P., Menlo Park, CA, United States
Amplify Partners, L.P., Menlo Park, CA, United States
Auth0, Inc., Bellevue, WA, United States
BGS Holdings, Inc., Austin, TX, United States
Blue Yard Capital I GmbH & Co. KG, Berlin, Germany
Brightfield Holdings, Inc., New York, NY, United States
BY Capital 2 GmbH & Co. KG, Berlin, Germany
Canvas Ventures 3, L.P., Portola Valley, CA, United States
Catchpoint Systems, Inc., New York, NY, United States
Chalfen Ventures Fund I L.P., Jersey, United Kingdom

Name and Location of Company
CircleCI, Inc., San Francisco, CA, United States
Clari, Inc., Sunnyvale, CA, United States
Contentful GmbH, Berlin, Germany
Coscreen, Inc., Menlo Park, CA, United States
Costanoa Venture Capital II L.P., Palo Alto, CA, United States
Costanoa Venture Capital QZ, LLC, Palo Alto, CA, United States
Costanoa Venture Capital III L.P., Palo Alto, CA, United States
Culture Amp, Inc., San Francisco, CA, United States
Data Collective II L.P., Palo Alto, CA, United States
Data Collective III L.P., Palo Alto, CA, United States
Data Collective IV, L.P., Palo Alto, CA, United States
DataRobot, Inc., Boston, MA, United States
Digital Hub Rhein-Neckar GmbH, Ludwigshafen, Germany
Dremio Corporation, Santa Clara, CA, United States
FeedZai S.A., Lisbon, Portugal
Felix Capital Fund III, London, United Kingdom
Felix Ventures II, L.P., London, United Kingdom
Finco Services, Inc. (dba Current), New York, NY, United States
Follow Analytics, Inc., San Francisco, CA, United States
Greater Pacific Capital (Cayman) L.P., Grand Cayman, Cayman Islands
Haystack Ventures V, L.P., Mill Valley, CA, United States
IDG Ventures USA III, L.P., San Francisco, CA, United States
IEX Group, Inc., New York, NY, United States
InfluxData, Inc., San Francisco, CA, United States
InnovationLab GmbH, Heidelberg, Germany
innoWerft Technologie- und Gründerzentrum Walldorf Stiftung GmbH, Walldorf, Germany
JFrog, Ltd., Netanya, Israel
Jibe, Inc., New York, NY, United States
Kaltura, Inc., New York, NY, United States
Kavacha TopCo LLC, New York, NY, United States
Landlog Limited, Tokyo, Japan
LeanData, Inc., Sunnyvale, CA, United States
LGVP F I LLC, Dover, DE, United States
Local Globe Opportunity Fund, L.P., St. Peter Port, Guernsey, Channel Islands
Local Globe VII, L.P., St. Peter Port, Guernsey, Channel Islands
Local Globe VIII, L.P., St. Peter Port, Guernsey, Channel Islands
Local Globe X, L.P., St. Peter Port, Guernsey, Channel Islands
Local Globe XI, L.P., St. Peter Port, Guernsey, Channel Islands
Mango Capital 2018, L.P., Los Altos, CA, United States
Mango Capital 2020, L.P., Los Altos, CA, United States
Matillion Ltd., Altrincham, United Kingdom
Medable Inc., Palo Alto, CA, United States

Name and Location of Company
Mosaic Ventures I, L.P., London , United Kingdom
Narrative Science, Inc., Chicago, IL, United States
Notation Capital II, L.P., Brooklyn, NY, United States
Notation Capital III, L.P., Brooklyn, NY, United States
Notation Capital, L.P., Brooklyn, NY, United States
OpenX Software Limited, Pasadena, CA, United States
OpsRamp, Inc., San Jose, CA, United States
Outreach Corporation, Seattle, WA, United States
Pendo.io, Inc., Raleigh, NC, United States
PivotNorth Early Fund I, L.P., Atherton, CA, United States
Point Nine Annex GmbH & Co. KG, Berlin, Germany
Point Nine Capital Fund II GmbH & Co. KG, Berlin, Germany
Point Nine Capital Fund III GmbH & Co. KG, Berlin, Germany
Point Nine Capital Fund IV GmbH & Co. KG, Berlin, Germany
Point Nine Capital Fund V GmbH & Co. KG, Berlin, Germany
Project 44, Inc., Chicago, IL, United States
PubNub, Inc., San Francisco, CA, United States
Punchh, Inc., San Mateo, CA, United States
Reltio, Inc., Redwood Shores, CA, United States
Restream, Inc., Austin, Texas, United States
Ridge Ventures IV, L.P., San Francisco, CA, United States
Scryer, Inc., New York, NY, United States
Side, Inc., San Francisco, CA, United States
Smart City Planning, Inc., Tokyo, Japan
Splashtop, Inc., San Jose, CA, United States
SportsTech Fund, L.P., Palo Alto, CA, United States
SportsTech Parallel Fund, L.P., Palo Alto, CA, United States
Spring Mobile Solutions, Inc., Salt Lake City, UT, United States
StackHawk, Inc., Denver, CO, United States
Storm Ventures V, L.P., Menlo Park, CA, United States
SumoLogic, Inc., Redwood City, CA, United States
Sun Basket, Inc., San Francisco, CA, United States
SV Angel IV, L.P., San Francisco, CA, United States
The Currency Cloud Group Limited, London, United Kingdom
The SaaStr Fund II, L.P., Palo Alto, CA, United States
The SaaStr Fund, L.P., Palo Alto, CA, United States
Third Kind Venture Capital II, L.P., New York, NY, United States
Third Kind Venture Capital III, L.P., New York, NY, United States
Tribe Capital LLC Series 3, Redwood City, CA, United States
Tribe Capital LLC Series 8, Redwood City, CA, United States
UJET, Inc., San Francisco, CA, United States
Upfront V, L.P., Santa Monica, CA, United States

Name and Location of Company
Uptycs, Inc., Waltham, MA, United States
VerbIT, Inc., New York, NY, United States
Vistex, Inc., Hoffman Estates, IL, United States
Wandera, Inc., San Francisco, CA, United States

(G.10) German Code of Corporate Governance

The German federal government published the German Corporate Governance Code (the "Code") in February 2002 and introduced a commission that amends the Code from time to time. The Code contains statutory requirements and a number of recommendations and suggestions. Only the legal requirements are binding for German companies. With regard to the recommendations, the German Stock Corporation Act, section 161, requires that every year, listed companies publicly state the extent to which they have implemented them. Companies can deviate from the suggestions without having to make any public statements.

In 2020 and 2019, the Executive Board and Supervisory Board of SAP SE issued the required declarations of implementation. The declaration for 2020 was issued at the end of October 2020. These statements are available on our Web site: www.sap.com/corporate/en/investors/governance.

Walldorf, February 24, 2021
SAP SE
Walldorf, Baden
The Executive Board

Christian Klein

Sabine Bendiek

Luka Mucic

Juergen Mueller

Scott Russell

Thomas Saueressig

Management's Annual Report on Internal Control over Financial Reporting in the Consolidated Financial Statements

U.S. law requires that management submit a report on the effectiveness of internal control over financial reporting in the consolidated financial statements. For 2020, that report is as follows:

The management of SAP is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Rules 13a–15(f) and 15d–15(f) under the U.S. Securities Exchange Act of 1934. SAP's internal control over financial reporting is a process designed under the supervision of SAP's CEO and CFO to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board.

SAP's management assessed the effectiveness of the Company's internal control over financial reporting as at December 31, 2020. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control – Integrated Framework (2013).

Based on the assessment under these criteria, SAP management has concluded that, as at December 31, 2020, the Company's internal control over financial reporting was effective.

KPMG AG Wirtschaftsprüfungsgesellschaft, our independent registered public accounting firm, has issued its attestation report on the effectiveness of SAP's internal control over financial reporting. It is included in the independent auditor's report on the Consolidated Financial Statements as at December 31, 2020.

Further Information on Economic, Environmental, and Social Performance

About This Further Information on Economic, Environmental, and Social Performance	**209**
Connectivity of Financial and Non-Financial Indicators	**210**
Materiality	**218**
Stakeholder Engagement	**220**
Sustainability Management	**221**
Our Contribution to the UN Sustainable Development Goals	**222**
Sustainable Procurement	**225**
Waste and Water	**227**
Public Policy	**229**
Memberships, Partnerships, and Commitments	**230**
Non-Financial Notes: Social Performance	**231**
Non-Financial Notes: Environmental Performance	**232**
GRI Content Index and UN Global Compact Communication on Progress	**237**
Task Force on Climate-Related Financial Disclosure (TCFD)	**242**
Assurance Report of the Independent Auditor regarding Sustainability Information	**243**

About This Further Information on Economic, Environmental, and Social Performance

The social and environmental data and information included in the SAP Integrated Report has been prepared in accordance with the GRI Standards: Core option. This option indicates that a report contains the minimum information needed to understand the nature of the organization, its material topics and related impacts, and how these are managed.

The Further Information on Economic, Environmental, and Social Performance includes information that is required to comply with the GRI Standards. In addition, we present our Connectivity model that shows the interrelations between social, environmental, and financial performance. We also report on our contribution towards the United Nations Sustainable Development Goals (SDGs) and respond to the recommendations of the Task Force on Climate-Related Financial Disclosure (TCFD).

Connectivity of Financial and Non-Financial Indicators

Where We Come From: Putting a Value on Non-Financial Performance Indicators

At SAP, we have put a monetary value on how selected non-financial indicators impact our operating profit. For example, how well we engage with our employees and inspire them to commit to our purpose and strategy, support a healthy business culture, and succeed in reducing our carbon emissions.



Figure 1: Connectivity Between Social, Environmental, and Economic Performance. SAP's main KPIs are marked in orange.

To achieve this, we created cause-and-effect chains that show how specific actions we take at SAP lead to shifts in behavior. This behavior impacts on our business and has a financial consequence.

By doing so, we established more than just a correlation between non-financial and financial indicators. It also reveals why and how something such as employee engagement ultimately leads to gains or losses in business performance. We believe that such insights are a prerequisite for fully modeling the financial impact of non-financial performance.

Magnitude of Financial Impact

From 2014 to 2018, SAP used techniques such as linear regression analysis to document the financial impact of four non-financial indicators: Business Health Culture Index, Employee Engagement Index, Employee Retention, and Carbon Emissions. In the past, we assessed each indicator to see what a change of one percentage point (pp) (or 1% for carbon emissions) would mean for our operating profit. The results for 2018, for example, showed that a 1pp change in the Business Health Culture Index affected our operating profit by €90 million to €100 million (non-IFRS).

Having illustrated this impact with concrete numbers, we are now turning our focus to a broader perspective of impact (for example, see *Our Contribution to the UN Sustainable Development Goals* and *A New and Broader Focus*). We still strongly believe in the fundamental conclusions of the analysis, but do not see a need to continuously update specific monetary values on the well-established connections, since the values have not been subject to any large fluctuations over the years. Instead, they have increased steadily, as expected.

Promoting Sustainability Measures as a Way to Boost Financial Performance

Documenting the financial impact of non-financial indicators has helped us move closer to achieving our sustainability goals. Rather than simply stating the business case for social or environmental change, we also have the numbers to back it up.

Our findings have helped us shift the conversation for managers, investors, employees, and other key stakeholders, and firmly establish non-financial indicators as playing a crucial role in our financial success. As a result, engaging employees or reducing our emissions is no longer seen as a nice-to-have, but rather as essential to carrying out a successful business strategy.

By embedding this approach into our decision-making and quarterly business reviews, our sustainability performance steers our business alongside factors such as revenue and profit. Our goal is for all senior managers and experts at SAP to recognize – and be held accountable for – the fact that improving such measures as employee engagement also boosts financial performance.

Embedding Non-Financial Performance Indicators into Our Solutions

We will continue to share our approach and methodology with our customers to help them win in the marketplace. We believe that companies achieve higher profits – resulting from both greater cost efficiency as well as revenue growth – by addressing economic, social, and environmental considerations in a holistic and integrated manner. More importantly, these companies are better equipped to lead in the future, as they navigate the world's most pressing challenges and help to bring about long-term sustainable change.

Using the connectivity model as outlined above, we have been able to embed non-financial KPIs into our solutions, including, for example, SAP Analytics Cloud and SAP Digital Boardroom, allowing a more holistic steering of the company. This integrated approach to financial and non-financial performance is also reflected in our Climate 21 initiative and therefore not only helps SAP but also our customers.

A New and Broader Focus

With a vision to help the world run better and improve people's lives, we have moved beyond financial measures to evaluate the consequences of our actions on society and the environment as well as the wider economy. As well as exploring cause-and-effect chains within SAP's own operations, we also measure positive and negative societal impacts across our complete value chain. For example, a 2017 research project revealed that our purchases of goods and services from suppliers generated employment for approximately 120,000 full-time equivalents, or FTEs. Furthermore, carbon emissions from our supply chain resulted in annual societal costs of approximately €160 million.

Building on our many years of experience in connecting financial and non-financial measures, we cofounded the Value Balancing Alliance (VBA) in 2019. This alliance looks at ways that businesses can better understand their societal and environmental impacts and formulate corporate strategies to address these areas.

The VBA was founded by eight companies: BASF SE, Robert Bosch GmbH, Deutsche Bank AG, LafargeHolcim Ltd, Novartis International AG, Philip Morris International Inc, SAP SE, and SK Group. The organization is supported by the world's four largest accounting companies: Deloitte Touche Tohmatsu Limited, Ernst and Young Global Ltd, KPMG International Ltd, and PricewaterhouseCoopers International Limited. It is also supported by leading universities such as Harvard Business School, together with stakeholders from governments, civil societies, and standard-setting organizations. By participating in the VBA's methodology development and piloting phases, SAP is playing an active part in shaping the future of impact measurement and valuation.

Meeting the Challenges of Non-Financial Value Measurement

Environmental degradation, rising societal inequalities, and the COVID-19 pandemic have highlighted the need for corporate accountability and value creation beyond financial markets. However, most corporations are failing to tackle climate change, biodiversity loss, and inequality, because decisions are based on insufficient information.

Accounting systems often ignore the value of environmental and societal impacts, leading to misallocation of resources. However, as is increasingly recognized by institutions such as Harvard Business School, monetary evaluation of these impacts has the potential to change accounting systems and transform capital markets. The development of impact-weighted accounting metrics is a necessary precondition for this.

Increasing regulatory pressure has also resulted in an urgent requirement for a reporting standard for environmental, social, and governance criteria. In response, organizations such as the Sustainability Accounting Standards Board and the Global Reporting Initiative are adapting and aligning their efforts to develop reporting systems that help investors make more sustainable decisions.

We co-founded the VBA to support the development of a standardized methodology that helps companies, investors, and other stakeholders compare non-financial performance. These insights enable companies to create business value beyond revenue or profit growth while taking into consideration the long-term impacts of their business operations on the environment and society as a whole.

To help the European Union (EU) achieve its commitment to making Europe the first climate-neutral continent by 2050 as part of the European Green Deal, the VBA is also advising it on the implementation of an EU classification system for sustainable activities. Furthermore, the VBA is working on green accounting principles to help drive the establishment of a globally accepted system of standards for non-financial disclosure.

Piloting the Measurement of Non-Financial Impacts

Ending in November 2020, our first VBA pilot analyzed categories including GDP contribution, health and safety, training, consumptive water use, water pollution, greenhouse gas (GHG), air emissions, land use and biodiversity, and waste. We used data from our 2019 integrated report, from our internal controlling and HR systems, and from our environmental management system. The analysis focused on our complete operations and our supply chain. An analysis of the "downstream" impacts resulting from customers' use of our software solutions and services will be piloted in the next phase.

Wherever possible, we used primary data for the calculations. Where primary data was not available, we used proxies, modeling techniques, and assumptions that were well-defined and documented in the VBA method papers. Key stakeholders across all relevant lines of business were engaged in the pilot, which was sponsored by our CFO.

Analysis took place across multiple impact categories, and resulted, for example, in the following findings from the GHG and training categories:

- **GHG**: The increasing concentration of GHG in our atmosphere has a direct effect on our environment. Shifting climate patterns, rising sea levels, extreme weather events, and rising mean temperatures result in impacts on health, the built environment, economies, agriculture, and timber, as well as desertification and other factors that affect ecosystems. Our analysis enabled us to identify the GHG impact of each subsidiary and location, and we now have insights into which SAP locations have the highest carbon dioxide (CO_2) footprints and which locations have the lowest. Negative impacts of GHG were monetized at €182 million and this has helped inform decision-making regarding our CO_2-reduction strategy. It has also helped us quantify the investment required for offsetting emissions by funding alternative energy resources to achieve carbon neutrality in our operations by 2023.
- **Training**: Money spent on offering training to employees positively impacts their employability, earnings, skills, and knowledge. However, it also results in "softer" impacts such as enhanced confidence, self-awareness, and active listening. This can result in improved mental well-being, with benefits for our employees' immediate social environment, as well as social and civic engagement. The analysis identified that our global employee training programs have a positive impact valued at €1.3 billion.

We aim to add further indicators and share best practices and lessons learned with external stakeholders and other VBA member companies to help improve the methodology and input process. In addition, we will make results available to the public.

Shaping the Environment of Impact Measurement

In a post-COVID-19 world, we have an opportunity to create a "new accounting." Impact measurement and valuation is evolving globally, and the connection of economic, social, and environmental impacts will become a guiding principle for the way we evaluate and steer our business.

By simplifying, aligning, and optimizing enterprise sustainability reporting, we are helping our customers address global sustainability challenges. In addition, we are using insights gained during our impact valuation journey in the development of sustainability management initiatives such as the Climate 21 program. In 2018, we determined 77% of global transaction revenue touch an SAP system; with this, we can assist enterprises around the world in their transition to sustainable business practices. We see the monetary evaluation of environmental and society impacts as crucial in achieving a sustainable economy.

Audit Scope

The content of this section was not subject to the independent limited assurance engagement of our external auditor KPMG.

Details: How Our Non-Financial and Financial Performance Indicators Are Interconnected

Employee Engagement

Employee engagement is the level of employee commitment, pride, and loyalty, as well as the feeling of employees of being advocates for their company.

Capability Building > Employee Engagement

Because it is closely linked to how much a company develops its employees and supports their careers, internal hiring to management and expert positions positively affects employees' commitment and loyalty. This hypothesis was confirmed by a study by Bedarkar & Pandita (2014), which identified "career opportunities" as the key driver of employee engagement.[1]

Social Investment > Employee Engagement

By engaging our employees in social sabbaticals, their creating of significant social impact led to increased employee engagement.

Mueller et al. (2012) have found that employees' perception of a company's commitment to corporate social responsibility is positively linked to their own commitment to the organization.[2]

Employee Engagement > Profitability

From 2014 to 2018, we used real data from SAP to analyze and proof the financial impact of employee engagement. We showed what a change by 1pp of employee engagement would mean for SAP's operating profit.

Profitability > Employee Engagement

In our view, a high operating profit, as great business news, can raise employee morale, encourage identification with our purpose, and thus drive employee engagement. On the other hand, we believe that a high profit can also have a negative impact on employee engagement. For example, if cost savings and budget cuts are implemented to reach an ambitious profit target, employees might feel constrained and dissatisfied.

Business Health Culture Index (BHCI) > Employee Engagement

Since 2014, we have been using real data from SAP to analyze and prove the financial impact of the BHCI. We have been able to prove a significant positive correlation between the BHCI and employee engagement. The BHCI positively influences the Leadership Trust Index, which positively influences the Employee Engagement Index; all correlations are significant. This hypothesis was also confirmed by several studies, for example by Johnson, Sheena et al. (2018).[3]

Employee Engagement > Employee Retention

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of employee engagement. We were able to prove a significant positive correlation between employee engagement and employee retention.

Carbon Emissions > Employee Engagement

We believe that lowering SAP's carbon emissions can have a positive impact on employee engagement because loyalty should rise as employees see their company act responsibly towards the environment. However, because lowering emissions also brings certain restrictions, such as on business travel, it may also have a negative impact on employee engagement.

Employee Engagement > Carbon Emissions

We believe that engaged employees are more likely to want to help SAP achieve our own target in lowering carbon emissions. Yet another possible outcome is that a higher level of employee engagement may lead to more business activity requiring travel, and therefore could lead to an increase in carbon emissions.

Employee Engagement > Growth

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of employee engagement. We were able to prove a significant positive correlation between employee engagement and revenue.

Growth > Employee Engagement

We believe that higher revenue has a positive impact on a company's work environment, thereby increasing employee pride and loyalty. This is also stated in a study of Harter et al. (2010), which states that improving financial performance appears to increase general satisfaction and some specific work perceptions.[4]

Business Health Culture Index (BHCI)

Our Business Health Culture Index assesses the health of both our organizational culture and our employees.

Women in Management > BHCI

We believe that a balance of men and women in management roles helps create a more balanced working environment, one in which diversity is valued and people feel free to express their individual styles. It is our expectation that such an environment will positively affect our BHCI.

BHCI > Women in Management

McKinsey (2013) found that different elements of the BHCI, such as flexible working hours, the ability to work from home, and career flexibility, can make it easier for employees to balance work and family life.[5] This leads us to conclude that the higher our BHCI, the more attractive SAP becomes to women who are also seeking management positions.

BHCI > Profitability

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of the BHCI. We showed what a change by 1pp of the BHCI would mean for SAP's operating profit.

Social Investment > BHCI

We believe that by supporting our employees in engaging in activities with a positive social impact, such as skills-based volunteering, we are enhancing the meaning they find in work. This sense of purpose can help create a richer and more rewarding work environment that reduces stress and promotes satisfaction and well-being. Additionally, volunteering can increase overall employee health, which is shown in a study by S. S. Johnson (2017).[6]

BHCI > Employee Engagement

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of the BHCI. We were able to prove a significant positive correlation between the BHCI and employee engagement. The BHCI positively influences the Leadership Trust Index, which positively influences the Employee Engagement Index; all correlations are significant. This hypothesis was also confirmed by several studies, for example by Johnson, Sheena et al. (2018).[7]

BHCI > Growth

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of the BHCI. We were able to prove a significant positive correlation between the BHCI and revenue.

Carbon Emissions > BHCI

Many of SAP's carbon emissions are caused by business travel and commuting, which we believe can have both negative and positive impacts on employee health. Some people may experience greater stress from more travel because they have less time to spend at home, suffer from jetlag, or lose valuable working time; others may enjoy travel because it enables them to experience other places and cultures as well as meet new people. Studies show that business travel potentially increases stress and poses a threat to employees' mental and physical health: see, for example, the study by Rundle, Revenson & Friedman (2017).[8]

BHCI > Customer Loyalty

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of the BHCI. We were able to prove a significant positive correlation between the BHCI and customer loyalty. Recent studies, for example by Reed, Goolsby & Johnston (2016) also suggest this correlation.[9]

Employee Retention

Employee retention is the ratio of the average headcount (expressed in full-time equivalents), minus employee-initiated terminations (turnover), divided by the average headcount, taking into account the past 12 months.

Capability Building > Employee Retention

According to the Global Workforce Study (2012), the "chances to advance the career" is the second-most important driver of employee retention.[10] By promoting and thus growing from within, SAP creates career opportunities for our employees. In turn, it is our expectation that this opportunity leads to an increase in employee retention.

Employee Engagement > Employee Retention

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of employee engagement. We were able to prove a significant positive correlation between employee engagement and employee retention.

Employee Retention > Growth

Meifert (2005) stated a clear relationship between employee retention and a company's revenue and margin.[11]

Employee Retention > Customer Loyalty

Koys (2001) has found evidence that employee turnover has a negative impact on customer satisfaction.[12] We believe this effect stems from the fact that experienced employees work more efficiently, have better product knowledge, and can build trusting relationships with colleagues and customers, so therefore have the ability to better serve customers' needs.

Employee Retention > Profitability

We used real data from SAP to analyze and prove the financial impact of employee retention. We showed what a change by 1pp of employee retention would mean for SAP's operating profit.

Women in Management

"Women in Management" means the share of women in management positions (managing teams, managing managers, board members) as compared to the total number of managers.

Capability Building > Women in Management

Like many of our IT industry peers, SAP has less women than men in senior positions. Given our significant pool of talent, we assume that internal promotions will increase the percentage of women in management positions.

Women in Management > BHCI

We believe that a balance of men and women in management helps create a more balanced working environment, one in which diversity is valued and people feel free to express their individual styles. It is our expectation that such an environment will positively affect our BHCI.

BHCI > Women in Management

McKinsey (2013) found that different elements of the BHCI, such as flexible working hours, the ability to work from home, and career flexibility, can make it easier for employees to balance work and family life.[13] This leads us to conclude that the higher our BHCI, the more attractive SAP becomes to women who are also seeking management positions.

Women in Management > Growth

Studies show that companies with a relatively high percentage of women in upper management or as board members achieve stronger financial performance compared to those with a relatively

low percentage (Catalyst, 2013).[14] We believe that having a higher share of women in management positions will increase our revenue as it helps us better serve our diverse customer base.

Women in Management > Customer Loyalty

Diversity programs – including those focused on the promotion of women to management positions – have a direct and positive impact on customer satisfaction (Catalyst, 2013).[15]

Women in Management > Profitability

Studies show that companies with a high level of gender diversity outperform companies with an average level in terms of return on equity (11.4% versus an average 10.3%); operating results (EBIT 11.1% versus 5.8%); and stock price increases (64% versus 47% over the period 2005–2007) (McKinsey, 2007).[16] It is therefore likely that having a higher share of women in management positions will result in higher profit for SAP.

Social Investment

Social investment reflects SAP's activities in volunteering and technology as well as cash donations.

Social Investment > BHCI

We believe that by supporting our employees in engaging in activities with a positive social impact, such as skills-based volunteering, we are enhancing the meaning they find in work. This sense of purpose helps create a richer and more rewarding work environment that reduces stress and promotes satisfaction and well-being. Additionally, volunteering can increase overall employee health, which is shown in a study by S. S. Johnson (2017).[17]

Social Investment > Employee Engagement

By engaging our employees in social sabbaticals, their creating of significant social impact led to increased employee engagement.

Mueller et al. (2012) have found that employees' perception of a company's commitment to corporate social responsibility is positively linked to their own commitment to the organization.[18]

Social Investment > Growth

A study by Muritala (2013) suggests that corporate social responsibility (or what we characterize as social investment) is likely to have a positive impact on an organization's financial performance.[19] In our experience, social investments do, in fact, have a positive impact on our ability to acquire new customers, especially in emerging markets.

Profitability > Social Investment

It is a common practice for companies to invest a certain percentage of their annual profits in programs and activities that create a positive social impact. We believe that higher profit is therefore likely to lead SAP to make greater social investments.

Capability Building

Capability building is the internal hiring rate (promotions only) into management or expert positions as compared to the external hiring rate into such positions.

Capability Building > Employee Retention

According to the Global Workforce Study (2012), the "chances to advance the career" is the second-most important driver of employee retention.[20] By promoting and thus growing from within, SAP creates career opportunities for our employees. In turn, it is our expectation that this opportunity leads to an increase in employee retention.

Capability Building > Employee Engagement

Because it is closely linked to how much a company develops its employees and supports their careers, internal hiring to management and expert positions positively affects employees' commitment and loyalty. This hypothesis was confirmed by a study by Bedarkar & Pandita (2014), which identified "career opportunities" as the key driver of employee engagement.[21]

Capability Building > Women in Management

Like many of our IT industry peers, SAP has less women than men in senior positions. Given our significant pool of talent, we assume that internal promotions will increase the percentage of women in management positions.

Growth

Growth is one of our strategic objectives. We measure it through several KPIs, for example total revenue that SAP receives from the sale of our products and services.

Social Investment > Growth

A study by Muritala (2013) suggests that corporate social responsibility (or what we characterize as social investment) is likely to have a positive impact on an organization's financial performance.[22] In our experience, social investments do, in fact, have a positive impact on our ability to acquire new customers, especially in emerging markets.

Women in Management > Growth

Studies show that companies with a relatively high percentage of women in upper management ranks or as board members achieve stronger financial performance compared to those with a relatively low percentage (Catalyst, 2013).[23] We believe that having a higher share of women in management positions will increase our revenue as it helps us to better serve our diverse customer base.

BHCI > Growth

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of the BHCI. We were able to prove a significant positive correlation between the BHCI and revenue.

Employee Retention > Growth

Meifert (2005) stated a clear relationship between employee retention and the company's revenue and margin.[24]

Carbon Emissions > Growth

Lowering SAP's carbon emissions could have a positive impact on SAP's revenue because customers increasingly ask their suppliers to act sustainably. This reasoning is supported by a study by PwC (2013) confirming the existence of a positive correlation between a company's environmental performance and financial performance.[25] On the other hand, where additional travel is conducted to generate additional business, the resulting increase in SAP's carbon emissions could have positive impact on growth.

Employee Engagement > Growth

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of employee engagement. We were able

to prove a significant positive correlation between employee engagement and revenue.

Growth > Employee Engagement

We believe that a higher revenue will have a positive impact on a company's work environment, thereby increasing employee pride and loyalty. This is also stated in a study of Harter et al. (2010), stating that improving financial performance appears to increase general satisfaction and some specific work perceptions.[26]

Customer Loyalty > Growth

Reichheld (2003) found a strong correlation between companies' Customer NPS results and their revenue growth rates.[27] We support this view, as we believe that loyal SAP customers are likely to recommend SAP products to other companies, which is likely to result in increased sales and stronger revenue.

Growth > Profitability

Profit (or loss) is the total of income less expenses; if revenue as the main part of total income grows at a higher rate than costs, it will lead to greater profit.

Profitability

Profitability is one of our strategic objectives. We measure it through operating profit. Profit (or loss) is the total of income less expenses.

BHCI > Profitability

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of the BHCI. We showed what a change by 1pp of the BHCI would mean for SAP's operating profit.

Employee Engagement > Profitability

From 2014 to 2018, we used real data from SAP to analyze and prove the financial impact of employee engagement. We showed what a change by 1pp of employee engagement would mean for SAP's operating profit.

Profitability > Employee Engagement

In our view, high profits, as great business news, can raise employee morale, encourage identification with our purpose, and help increase employee engagement. On the other hand, we believe that a high profit expectation can also have a negative impact on employee engagement. If cost savings and budget cuts are implemented to reach an ambitious profit target, employees might feel constrained and dissatisfied.

Women in Management > Profitability

Studies show that companies with a high level of gender diversity outperform companies with an average level in terms of return on equity (11.4% versus an average 10.3%); operating results (EBIT 11.1% versus 5.8%); and stock price increases (64% versus 47% over the period 2005–2007) (McKinsey, 2007).[28] It is therefore likely that having a higher share of women in management positions will result in higher profit for SAP.

Profitability > Social Investment

It is a common practice for companies to invest a certain percentage of their annual profits in programs and activities that create a positive social impact. We believe that a higher profit is therefore likely to lead SAP to make greater social investments.

Employee Retention > Profitability

We used real data from SAP to analyze and prove the financial impact of employee retention. We showed what a change by 1pp of employee retention would mean for SAP's operating profit.

Total Energy Consumed > Profitability

We have found that reduced energy consumption is strongly correlated with a reduction in costs. Therefore, any cost avoidance achieved has a positive impact on our profit.

Growth > Profitability

Profit (or loss) is the total of income less expenses; if revenue as the main part of total income grows at a higher rate than costs, it will lead to greater profit.

Customer Loyalty > Profitability

We believe that positive experiences among our customers can significantly increase business with existing customers, as well as help attract new customers. Both results can lower the cost of sales, thereby increasing our profit.

Carbon Emissions > Profitability

We are using real data from SAP to analyze and prove the financial impact of our carbon emissions, as detailed in the *Energy and Emissions* section.

Customer Loyalty

Customer loyalty is measured with the Net Promoter Score: Percentage of customers that are likely to recommend SAP to friends or colleagues minus the percentage of customers that are unlikely to do so.

Women in Management > Customer Loyalty

Diversity programs – including those focused on the promotion of women to management positions – have a direct and positive impact on customer satisfaction (Catalyst, 2013).[29]

Employee Retention > Customer Loyalty

Koys (2001) has found evidence that employee turnover has a negative impact on customer satisfaction.[30] We believe this effect stems from the fact that experienced employees work more efficiently, have better product knowledge, and can build trusting relationships with colleagues and customers, so therefore have the ability to better serve customers' needs.

Carbon Emissions > Customer Loyalty

We believe that lowering SAP's carbon emissions has a positive reputational effect, thereby enhancing SAP's standing with its customers.

Customer Loyalty > Growth

Reichheld (2003) found a strong correlation between companies' Customer NPS results and their revenue growth rates.[31] We support this view, as we believe that loyal SAP customers are likely to recommend SAP products to other companies, which is likely to result in increased sales and stronger revenue.

Customer Loyalty > Profitability

We believe that positive experiences among our customers can significantly increase business with existing customers, as well as

help attract new customers. Both results can lower the cost of sales, thereby increasing our profit.

BHCI > Customer Loyalty

From 2014 to 2018, we have been using real data from SAP to analyze and prove the financial impact of the BHCI. We have been able to prove a significant positive correlation between the BHCI and customer loyalty. Recent studies, for example by Reed, Goolsby & Johnston (2016) also suggest this correlation.[32]

Carbon Emissions

Our carbon emissions are the sum of all greenhouse gas emissions measured and reported, including renewable energy and third-party reductions, for example, offsets.

Carbon Emissions > BHCI

Many of SAP's carbon emissions are caused by business travel and commuting, which we believe can have both negative and positive impacts on employee health. Some people may experience greater stress from more travel because they have less time to spend at home, suffer from jetlag, or lose valuable working time; others may enjoy travel because it enables them to experience other places and cultures as well as meet new people. Studies show that business travel potentially increases stress and poses a threat to employees' mental and physical health, see for example the study by Rundle, Revenson & Friedman (2017).[33]

Carbon Emissions > Employee Engagement

We believe that lowering SAP's carbon emissions can have a positive impact on employee engagement because loyalty should rise as employees see their company act responsibly towards the environment. However, because lowering emissions also brings certain restrictions, such as on business travel, it may also have a negative impact on employee engagement.

Employee Engagement > Carbon Emissions

We believe that engaged employees are likely to want to help SAP achieve our target in lowering carbon emissions. Yet another possible outcome is that a higher level of employee engagement may lead to more business activity requiring travel, and therefore could lead to an increase in carbon emissions.

Carbon Emissions > Growth

Lowering SAP's carbon emissions could have a positive impact on SAP's revenue because customers increasingly ask their suppliers to act sustainably. This reasoning is supported by a study by PwC (2013) confirming the existence of a positive correlation between a company's environmental performance and financial performance.[34] On the other hand, where additional travel is conducted to generate additional business, the resulting increase in SAP's carbon emissions could have positive impact on growth.

Carbon Emissions > Customer Loyalty

We believe that lowering SAP's carbon emissions has a positive effect on our reputation, thereby enhancing SAP's standing with our customers.

Total Energy Consumed > Carbon Emissions

The emissions caused by SAP's energy consumption add directly to the corporate carbon emissions if they are not reduced through offsets or – for electricity consumption – renewable energy certificates (RECs).

Carbon Emissions > Profitability

We are using real data from SAP to analyze and prove the financial impact of the carbon emissions, as detailed in the *Energy and Emissions* section.

Total Energy Consumed

Total energy consumed is the sum of all energy consumed through SAP's own operations, including energy from renewable sources.

Total Energy Consumed > Profitability

We have found that reduced energy consumption is strongly correlated with a reduction in costs. The cost avoidance thus achieved has a positive impact on our profit.

Total Energy Consumed > Carbon Emissions

The emissions caused by SAP's energy consumption add directly to the corporate carbon emissions if they are not reduced through offsets or – for electricity consumption – renewable energy certificates (RECs).

[1] Bedarkar, M., Pandita, D. (2014): A Study on the drivers of employee engagement impacting employee performance. In: Procedia – Social and Behavioral Sciences, Vol. 133, pp. 106–115.

[2] Mueller, K., Hattrup, K., Spiess, S., Lin-Hi, N. (2012): The effects of corporate social responsibility on employees' affective commitment: A cross-cultural investigation. In: Journal of Applied Psychology, Vol. 97(6), pp. 1186–1200.

[3] Johnson, Sheena et al. (2018): WELL-BEING: Productivity and Happiness at Work 2. ed. 2018., Cham: Springer International Publishing Imprint: Palgrave Macmillan.

[4] Harter, J., Schmidt, F., Asplund, J., Kilham, E., Agrawal, S. (2010): Causal Impact of Employee Work Perceptions on the Bottom Line of Organizations. In: Perspectives on Psychological Science, Vol. 5(4), pp. 378–389.

[5] McKinsey & Company (2013): Women Matter. Gender diversity in top management: Moving corporate culture, moving boundaries. Available at: http://www.mckinsey.com/~/media/McKinsey/Global%20Themes/Women%20matter/WomenMatter%202013%20Report%20(8).ashx [Accessed December 16, 2016].

[6] Johnson, S.S. (2017): The Art of Health Promotion ideas for improving health outcomes. American Journal of Health Promotion, 31(2), pp. 163–164.

[7] Johnson, Sheena et al. (2018): WELL-BEING: Productivity and Happiness at Work 2. ed. 2018., Cham: Springer International Publishing Imprint: Palgrave Macmillan.

[8] Rundle, A. G., Revenson T. A. & Friedman, M. (2017): Business travel and behavioral and mental health. Journal of Occupational and Environmental Medicine,1 DOI: 10.1097/JOM.0000000000001262.

[9] Reed, Goolsby & Johnston (2016): Listening in and out: Listening to customers and employees to strengthen an integrated market-oriented system. Journal of Business Research, 69(9), pp. 3591–3599.

[10] Towers Watson (2012): Global Workforce Study. Geld, Karriere, Sicherheit? Was Mitarbeiter motiviert und in ihrem Unternehmen hält. Available at: https://www.towerswatson.com/de-AT/Insights/IC-Types/Survey-Research-Results/2012/07/Towers-Watson-Global-Workforce-Study-2012-Deutschlandergebnisse [Accessed December 16, 2016].

[11] Meifert, M. (2005): Mitarbeiterbindung: eine empirische Analyse betrieblicher Weiterbildner in deutschen Großunternehmen. München and Mering: Hampp Verlag.

[12] Koys, D. (2001): The effects of employee satisfaction, organizational citizenship behavior, and turnover on organizational effectiveness: A unit-level, longitudinal study. In: Personnel Psychology, Vol. 54(1), pp. 101–114.

[13] McKinsey & Company (2013): Women Matter. Gender diversity in top management: Moving corporate culture, moving boundaries. Available at: http://www.mckinsey.com/~/media/McKinsey/Global%20Themes/Women%20matter/WomenMatter%202013%20Report%20(8).ashx [Accessed December 16, 2016].

[14] Catalyst Information Center (2013): Why Diversity Matters. Available at: http://www.catalyst.org/system/files/why_diversity_matters_catalyst_0.pdf [Accessed December 16, 2016].

[15] Catalyst Information Center (2013): Why Diversity Matters. Available at: http://www.catalyst.org/system/files/why_diversity_matters_catalyst_0.pdf [Accessed December 16, 2016].

[16] McKinsey & Company (2007): Women Matter. Gender diversity, a corporate performance driver. Available at: http://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Organization/Our%20Insights/Women%20matter/Women_matter_oct2007_english.ashx [Accessed December 16, 2016].

[17] Johnson, S.S. (2017): The Art of Health Promotion ideas for improving health outcomes. American Journal of Health Promotion, 31(2), pp. 163–164.

[18] Mueller, K., Hattrup, K., Spiess, S., Lin-Hi, N. (2012): The effects of corporate social responsibility on employees' affective commitment: A cross-cultural investigation. In: Journal of Applied Psychology, Vol. 97(6), pp. 1186–1200.

[19] Muritala, T. (2013): Does CSR Improve Organization Financial Performance? Evidence from Nigeria Using Triangulation Analysis. In: Economics and Applied Informatics, Issue 3, pp. 41–46.

[20] Towers Watson (2012): Global Workforce Study. Geld, Karriere, Sicherheit? Was Mitarbeiter motiviert und in ihrem Unternehmen hält. Available at: https://www.towerswatson.com/de-AT/Insights/IC-Types/Survey-Research-Results/2012/07/Towers-Watson-Global-Workforce-Study-2012-Deutschlandergebnisse [Accessed December 16, 2016].

[21] Bedarkar, M., Pandita, D. (2014): A Study on the drivers of employee engagement impacting employee performance. In: Procedia – Social and Behavioral Sciences, Vol. 133, pp. 106–115.

[22] Muritala, T. (2013): Does CSR Improve Organization Financial Performance? Evidence from Nigeria Using Triangulation Analysis. In: Economics and Applied Informatics, Issue 3, pp. 41–46.

[23] Catalyst Information Center (2013): Why Diversity Matters. Available at: http://www.catalyst.org/system/files/why_diversity_matters_catalyst_0.pdf [Accessed December 16, 2016].

[24] Meifert, M. (2005): Mitarbeiterbindung: eine empirische Analyse betrieblicher Weiterbildner in deutschen Großunternehmen. München and Mering: Hampp Verlag.

[25] PwC (2013): Busting the carbon budget – Low Carbon Economy Index 2013. Available at: https://www.pwc-wissen.de/pwc/de/shop/publikationen/Low+Carbon+Economy+Index+2013/?card=12994 [Accessed December 16, 2016].

[26] Harter, J., Schmidt, F., Asplund, J., Kilham, E., Agrawal, S. (2010): Causal Impact of Employee Work Perceptions on the Bottom Line of Organizations. In: Perspectives on Psychological Science, Vol. 5(4), pp. 378–389.

[27] Reichheld, F. (2003): The One Number You Need to Grow. In: Harvard Business Review, Vol. 81(12), pp. 46–54.

[28] McKinsey & Company (2007): Women Matter. Gender diversity, a corporate performance driver. Available at: http://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Organization/Our%20Insights/Women%20matter/Women_matter_oct2007_english.ashx [Accessed December 16, 2016].

[29] Catalyst Information Center (2013): Why Diversity Matters. Available at: http://www.catalyst.org/system/files/why_diversity_matters_catalyst_0.pdf [Accessed December 16, 2016].

[30] Koys, D. (2001): The effects of employee satisfaction, organizational citizenship behavior, and turnover on organizational effectiveness: A unit-level, longitudinal study. In: Personnel Psychology, Vol. 54(1), pp. 101–114.

[31] Reichheld, F. (2003): The One Number You Need to Grow. In: Harvard Business Review, Vol. 81(12), pp. 46–54.

[32] Reed, Goolsby & Johnston (2016): Listening in and out: Listening to customers and employees to strengthen an integrated market-oriented system. Journal of Business Research, 69(9), pp. 3591–3599.

[33] Rundle, A. G., Revenson T. A. & Friedman, M. (2017): Business travel and behavioral and mental health. Journal of Occupational and Environmental Medicine,1 DOI: 10.1097/JOM.0000000000001262.

[34] PwC (2013): Busting the carbon budget – Low Carbon Economy Index 2013. Available at: https://www.pwc-wissen.de/pwc/de/shop/publikationen/Low+Carbon+Economy+Index+2013/?card=12994 [Accessed December 16, 2016].

Materiality

Defining Key Priorities for Our Non-Financial Reporting

To select the topics to be included in our integrated reporting, we conducted a comprehensive materiality assessment in 2020 using an artificial intelligence (AI) and Big Data solution from Datamaran Limited that helped us build an evidence-based materiality matrix. For the first time, we assessed economic, social, and environmental topics in our reporting according to three criteria:

1) Importance to stakeholders (Y-axis)
2) Relevance to SAP's business success (X-axis)
3) Magnitude of the impact on society, the environment, and the economy (differently colored circles)

Below, we have detailed the key stages of the process.

Identification

We compiled a list of approximately 100 potentially relevant topics based on guidance from standards of the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB), as well as our existing materiality topics. We also considered a materiality assessment for the information and communications technology industry by the Global Enabling Sustainability Initiative (GeSI) as well as the United Nations' Sustainable Development Goals (SDGs). When identifying key topics and their boundaries, we looked at areas related to our operations and supply chain as well as at topics related to our solutions. Since we oriented ourselves on the topics provided in the Datamaran matrix, the selected topics are more detailed than in our last materiality assessment.

Prioritization

We ranked topics by their importance to stakeholders by analyzing six external sources. These sources included corporate peer reports; mandatory and voluntary regulations for the software sector; online news related to the technology equipment and services industry; tweets; and questionnaires gathering non-financial information from socially responsible investors and clients.

Next, we evaluated the financial, operational, and strategic relevance of each topic to SAP's business success, drawing on an analysis by SAP sustainability experts from various units and regions.

Finally, based on survey responses gathered from SAP sustainability experts, we considered the potential impacts on society, the environment, and the economy, ranking topics as either low, medium, or high.

Validation

As part of our materiality assessment process in 2020, selected topics and the results of the materiality analysis were reviewed and confirmed by our steering committee for integrated reporting, our sustainability council, and our sustainability advisory panel. Our chief financial officer and Board sponsor for sustainability and integrated reporting was also informed about the results.

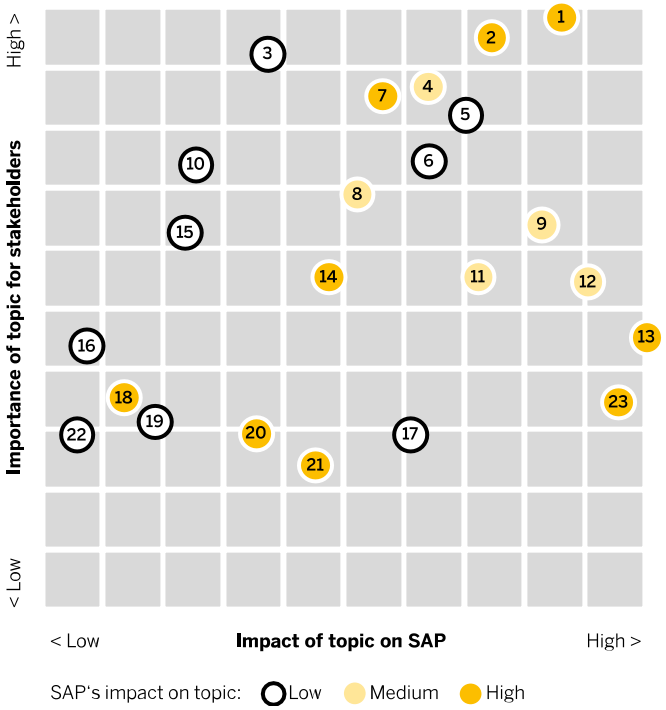
Review

Feedback on and analysis of our integrated report will be taken into account during future materiality assessments.

Results

Our materiality matrix for prioritizing our reporting topics is shown in the following graphic. We have categorized topics according to whether they are sustainability challenges or sustainability management practices. The former affect SAP and are also impacted by us, whereas the latter offer guidance on how to deal with these challenges.

Compared to our last materiality assessment in 2016, we saw an increase in the importance attributed to climate change and air quality as well as human rights. We have estimated our impact on today's society, environment, and economy and we expect the impact level to change as we continue to design solutions to manage areas such as climate change.



Materiality Matrix for Prioritizing Our Reporting Topics (numbers in the matrix are explained in the table on the following page)

In our reporting, we seek to meet the materiality requirements of both the GRI Standards and the German implementation act of the EU Non-Financial Reporting Directive (*CSR-Richtlinie-Umsetzungsgesetz, CSR-RUG*). Because of the diverging definitions of materiality, we see the following difference in material topics:

According to the GRI Standards, the following topics are material:

- 1 Security, privacy, and data protection
- 2 Ethics and compliance
- 4 Fair and inclusive workplace
- 7 Climate change and air quality
- 8 Governance

According to the CSR-RUG, the following topics are material:

- 1 Security, privacy, and data protection
- 2 Ethics and compliance
- 9 Talent and development
- 11 Customer responsibility
- 12 Employee engagement
- 13 Innovation and digitalization
- 23 Business resilience

Sustainability challenges* and management practices** included in our materiality assessment are as follows:

Index	Topics	Definitions
1*	Security, privacy, and data protection	Protection of private, confidential, or sensitive information and data, as well as the vulnerability of critical information systems
2*	Ethics and compliance	Responsible business conduct, including anti-corruption, anti-bribery, fair competition, respect for intellectual property, and responsible tax principles
3*	Employee rights	Labor rights, including unionization, as well as compensation and benefits offered to employees by their employer
4*	Fair and inclusive workplace	Active integration, equal opportunity, as well as fair treatment and remuneration of all employees
5*	Human rights	Fundamental rights of all individuals to live in dignity
6*	Well-being, health, and safety	Social, economic, psychological, and physical conditions of employees in their workplace, as well as employees' occupational health and safety
7*	Climate change and air quality	(Non-)greenhouse gas emissions from operations and products, as well as present or potential disruptive impacts of climate change
8**	Governance	Procedures and rules concerning a company's control and decision-making system, as well as relationship management with investors and stakeholders
9*	Talent and development	Talent attraction, retention, and development
10*	Energy	Energy consumption by operations and products, and the transition to renewable energy
11*	Customer responsibility	Responsibility to help ensure customer satisfaction and costumer rights, including responsible marketing and selling practices
12*	Employee engagement	Corporate culture, employee engagement and motivation, and strategic decisions involving workforce changes
13*	Innovation and digitalization	Development and usage of emerging technologies and digital innovation, including artificial intelligence, to advance business models, as well as their ethical implications
14**	Transparency	Transparency through non-financial reporting on public policy practices and executive compensation
15*	Resource efficiency and waste	(Non-)hazardous waste as well as resource usage, reduction, reuse, or recycling
16*	Water	Use, management, conservation, reduction, and contamination of water
17*	Geopolitical events	Political conditions, demographic changes, and catastrophic or other events with an influence on business
18**	Responsible supply chain	Procurement practices to help ensure respect of the environment and human rights throughout the entire supply chain
19**	Local community support	Programs and projects to help ensure the well-being and positive development of communities with which a company interacts, including employee volunteering
20**	Solutions for an inclusive and circular economy	Products and services that create positive environmental and social impact during their whole lifecycle
21*	Product responsibility	Product and service quality, as well as the information shared with costumers so that they can make informed decisions
22*	Biodiversity	Variety of flora and fauna on earth, and the foundation for ecosystem services that are essential for nature and human well-being
23**	Business resilience	Stability of a company's finances and the ability for long-term value creation, also in times of crises

* Sustainability challenges affect SAP and are also impacted by us.
** Sustainability management practices offer guidance on how to deal with these challenges.

Stakeholder Engagement

For SAP, stakeholder engagement and collaboration are deeply embedded into our process of innovation and the development of our products and services. Before we can design a new solution, we must first understand the issue we are addressing. This is why we regularly liaise with the stakeholder groups described below, including our sustainability and AI ethics advisory panels.

Customers

For more information about our customer engagement programs, see the *Customers* section.

Employees

We survey our employees regularly throughout the year. For the results of our latest employee survey and action items resulting from it, see the *Employees and Social Investments* section.

We strive for constructive labor relations across the world, working within each country's requirements. We currently have social partners in 35 countries in Europe, Asia, and the Americas. These employee representative bodies consist of elected union members and/or non-union members, and are consulted by SAP management mainly on topics that define the work environment and work processes. Collective bargaining agreements with unions are only made in countries where legally required. Overall, about 51% of our employees are represented by works councils or an independent trade union, or are covered by collective bargaining agreements.

In addition, the Executive Board answers employees' questions in quarterly all-hands meetings. In regular coffee corner sessions, senior executives explain our strategy to employees and answer their questions directly.

Financial Analysts and Investors

For more information about our dialog with the financial community (that is, financial analysts, institutional investors, and retail shareholders), see the *Investor Relations* section.

Governments

For more information about our dialog with governments, see the *Public Policy* section.

Industry Analysts

Our Analyst Relations team, the Executive Board, and executives have strong relations with IT analysts and engage with them on strategic SAP solutions and services on a frequent basis.

Partners

With more than 22,000 partners around the world, the SAP ecosystem is vital to our success. We take a multifaceted approach to partner engagement that begins with our interactive partner portal SAPPartnerEdge.com. Additionally, partner-dedicated focus groups and events such as the SAP Global Partner Summit are held throughout the year, around the globe and virtually, to educate partners and further gauge their feedback on how SAP can continuously improve. For more information about our ecosystem, see the section *Products, Research & Development, and Services*.

Non-Profit Organizations (NPOs) and Academia

Our dialog with NPOs and academic institutions helps us understand how we can address today's most pressing issues with our solutions and what is expected from us as a corporation. For example, SAP University Alliances introduces students and faculty to SAP software by providing networking and educational activities and partnering to build technology skills. For more information about how we engage with NPOs, see the *Employees and Social Investments* and *Our Contribution to the UN SDGs* sections.

Sustainability Advisory Panel

Our sustainability advisory panel consists of expert representatives from our customers, investors, partners, NPOs, and academia. In 2020, the panel discussed key initiatives such as Climate 21, the circular economy, and our engagement in the Value Balancing Alliance. The panel also provided input on our materiality assessment.

AI Ethics Advisory Panel

Our AI ethics advisory panel consists of academic, policy, and industry experts who advise us on the development and operationalization of the guiding principles for artificial intelligence.

Sustainability Management

Putting Sustainability at the Heart of Our Strategy

With SAP's purpose to help the world run better and improve people's lives, sustainability is now firmly anchored in our business strategy, governance, and executive compensation system. For more information about our renewed corporate strategy, see the *Strategy and Business Model* section.

We aim to create positive economic, environmental, and social impact within the planetary boundaries using two key levers:

- 1) Providing products and services that meet the sustainability challenges and opportunities of our customers (enabler)
- 2) Leading by example in our own sustainable business operations and practices (exemplar)

Our chief sustainability officer (CSO) reports directly to the chief financial officer (CFO) who is the sponsor for sustainability on the Executive Board. The CSO chairs the Sustainability Council which consists of dedicated senior executives in charge of sustainability in each Board area. Together with the CSO's team, the Council is accountable for driving SAP's holistic, cross-company sustainability agenda and setting annual objectives and priorities.

Changing Our Behavior and Culture

Employee engagement is essential for driving change throughout SAP. We set up a number of programs to help employees understand how sustainability is engrained in our purpose and strategy, and how they can contribute.

We ran most of our campaigns in 2020 in a virtual mode to reach our employees in their home offices. An increased number of talks with our CSO, a newly introduced monthly "Sustainability Open House," a "Sustainability in Practice" series on SAP's Purpose Network Live platform, a virtual Month of Service, and a broad range of global and local Web seminars and online workshops helped to maintain the dialogue with employees on sustainability.

The SAP One Billion Lives initiative gives employees the permission, time, technology, and mentorship to generate positive social impact through innovation. In 2020, many teams worked on ideas of how to respond to various challenges arising from the COVID-19 pandemic by using technology for the common good.

We also launched *Values to Value*, an interactive Web experience to simulate holistic, responsible business decisions, and ran two gamification-oriented online challenges with hands-on tasks that employees could complete from home to contribute to selected Sustainable Development Goals.

SAP continues to include sustainability in its onboarding training for new hires and various line-of-business-specific learning offerings. Furthermore, employees can take openSAP online courses on sustainability, which are also available to the general public for free.

To help drive progress in our sustainability initiatives, we need the support of employees in every part of SAP. We have a global internal network of more than 250 sustainability champions who represent different regions and areas of the business at SAP. Not only do they act as role models and multipliers, these champions also tailor sustainability engagement activities to local and lines-of-business needs and interests and share best practices.

We measure the success of our initiatives through our employee engagement surveys. The latest results from 2019 showed that 94% of our employees agreed with the statement "It is important for SAP to pursue sustainability." (2009: 77%). Furthermore, 87% of our employees stated "I actively contribute to sustainability goals at SAP." This is up from 47% in 2009 when we introduced the question.

Our Contribution to the UN Sustainable Development Goals

The 17 United Nations Sustainable Development Goals (SDGs) provide a globally accepted framework which we use for communicating our purpose to "help the world run better and improve people's lives." We strive to execute on this purpose by being a role model for sustainable, purpose-led operations and by enabling our customers to operate in a sustainable way.

Following the adoption of the SDGs by world leaders in September 2015, we identified and aligned existing initiatives with all 17 SDGs. For example, we looked at the environmental and social impacts of customers using SAP technology and applications, linking these impacts to the SDGs. The resulting Web book (*www.sap.com/unglobalgoals*) was published in early 2016 and has been updated regularly.

In discussions with our Sustainability Council and external sustainability advisory panel, we defined the SDGs for which there is a tangible and material link between our own operational activities or the use of our software by customers.

The following table describes the potential positive and negative direct or indirect impacts of our company and of our products and services related to the selected SDGs. We use "direct" when we refer to impacts through our own operations; "indirect" describes impacts through the use of our solutions and technology or in our ecosystem.

Audit Scope

The content of this section was not subject to the independent limited assurance engagement of our external auditor KPMG.

Our Potential Direct and Indirect Impact	Our KPIs and Targets	Our Policies and Selected Activities and Programs to Enhance Positive Impacts and Mitigate Negative Impacts	Where You Can Find More Information in the SAP Integrated Report and Other Sources
SDG 3 Good Health and Well-Being			
Direct: + Provide access to a healthy lifestyle and a safe and healthy working environment for our employees Indirect: + Enhance safe and healthy working conditions, healthcare, and personalized medicine on a global scale − Increase transparency of physical, medical, and health conditions of individuals, which might be abused	Business Health Culture Index	Direct: Global Health and Safety Management Policy; Employee Assistance Program; Corporate Oncology Program for Employees; Mental Health Initiative Indirect: SAP solutions for healthcare; SAP Environment, Health, and Safety Management; SAP SuccessFactors; Corona-Warn-App	*Employees and Social Investments* *SAP and SDG 3* *Healthcare* *SAP Environment, Health, and Safety Management* *Improving Well-Being Through Human Experience Management* *SAP Mental Health Initiative* *SAP's COVID-19 Response* *Corona-Warn-App*
SDG 4 Quality Education			
Direct: + Train and educate SAP employees Indirect: + Build capability in our ecosystem and among our customers	Engaging two million children, youth, and young adults in digital skills and coding programs by 2021	Direct: Cloud-based learning management system for employees Indirect: openSAP; CSR digital literacy programs; SAP digital learning initiative	*Employees and Social Investments* *SAP and SDG 4* *SAP Learning for Life* *Powering Opportunity Through Digital Inclusion* *SAP Digitial Learning Initiative*
SDG 8 Decent Work and Economic Growth			
Direct: + Create decent jobs at SAP through our growth plans, specifically in developing markets Indirect: + Create three million jobs in our ecosystem (based on a 2017 study by SAP and PwC) + Enable an inclusive economy + Combat forced and child labor throughout supply chains	Number of employees	Direct: SAP recruiting programs Indirect: SAP Rural Sourcing Management; SAP Ariba Supplier Risk; Partnership with Social Enterprise UK	*Employees and Social Investments* *SAP and SDG 8* *Skilled and Inclusive Workforce* *Supporting Social Entrepreneurship* *Powering Opportunity Through Digital Inclusion* *SAP Rural Sourcing Management* *SAP Ariba* *SAP Ariba and Social Enterprise UK*

Our Potential Direct and Indirect Impact	Our KPIs and Targets	Our Policies and Selected Activities and Programs to Enhance Positive Impacts and Mitigate Negative Impacts	Where You Can Find More Information in the SAP Integrated Report and Other Sources
− Fuel negative effects on employment through digitalization and automation; potentially increase precarious jobs			
SDG 9 Industry, Innovation, and Infrastructure			
Direct: + Increase inclusive and sustainable industrialization through SAP's investments in research and development (including in developing countries) Indirect: + Support providers of infrastructure, financial services and clean technologies + Provide "Best Practice" business processes through standard software solutions + Integrate small and medium-sized enterprises into global value chains and markets	NA	Direct: SAP Labs Network; One Billion Lives initiative fostering purpose-driven innovation Indirect: SAP support for startups through various programs	*Products, Research & Development, and Services* *Employees and Social Investments* *SAP and SDG 9* *SAP Innovation* *SAP Partnering with Social Enterprise World Forum* *One Billion Lives Initiative* *SAP.io*
SDG 10 Reduced Inequalities			
Direct + Ensure equal opportunity and inclusion of all employees, irrespective of age, sex, disability, race, ethnicity, origin, religion, or economic or other status Indirect + Enable an inclusive economy by providing tools and systems to foster inclusion of all in workforce and supply chains − Decouple societal groups from entire areas of employment through an accelerated digital divide and lack of digital skills	30% women in management by year end 2022 Double the representation of African-American talent in the U.S. over the next three years Reach 5% of annual addressable procurement spend with social enterprises and with diverse businesses by 2025	Direct: Human Rights Commitment Statement; Diversity & Inclusion programs including EDGE certification; SAP Global Anti-Discrimination Policy; 5 & 5 by '25 initiative Indirect: SAP Ariba Supplier Risk Management; Partnerships with Global Citizen and Female Quotient	*SAP and SDG 10* *Human Rights Commitment Statement* *Equality for All* *Diversity and Inclusion* *Social Justice* *Spotlight on Black-Owned Businesses* *Equal Pay for Equal Work* *Inclusive Language in Software* *Fostering Corporate Spend with Diverse Suppliers* *Powering Opportunity Through Digital Inclusion* *SAP Rural Sourcing Management* *SAP Ariba*
SDG 12 Responsible Consumption and Production			
Direct: + Drive sustainable business practices and integrated reporting − Use energy, water, and resources; produce waste Indirect: + Decouple economic prosperity from resource consumption by enabling transparency and optimizing resource productivity in linear or circular economies − Increase absolute resource and energy consumption because efficiency gains through automation may be counteracted (rebound effect)	We drive resource productivity with an aspiration to a world with zero waste.	Direct: Beyond Single-Use Plastics initiative; Supplier Code of Conduct; Sustainable Procurement; e-waste recycling Indirect: SAP Plastics Challenge; 5 & 5 by '25 initiative; SAP Ariba Supplier Risk Management; SAP Digital Supply Chain; SAP Rural Sourcing Management; SAP Logistics Business Network and Material Traceability	*Energy and Emissions* *Waste and Water* *Sustainable Procurement* *Environmental Policy* *SAP and SDG 12* *Circular Economy* *SAP Plastics Cloud* *SAP and the Circular Economy* *Circular Design Project* *SAP and Topolytics Launch COP26 Waste Insights Project* *Phase out single-use plastics* *Buy social: 5 & 5 by '25* *SHIFT: Digital tools to fight ocean plastics* *Material traceability*
SDG 13 Climate Action			
Direct: + Assume responsibility for products in use-related emissions by running customer applications in the SAP green cloud − Emit greenhouse gases Indirect: + Contribute to climate change mitigation and strengthen resilience and adaptive capacity to climate-related hazards and natural disasters of our customers	Become carbon neutral by 2023	Direct: Global Environmental Policy; Report and reduce CO_2 emissions and energy consumption; Procure 100% renewable electricity; Carbon impact relevance for Executive Board compensation Indirect: Green Cloud; Business ambition for 1.5°C; Climate 21 program; Product Carbon Footprint Analytics; Concur Travel, and TripIT	*Energy and Emissions* *Compensation Report* *Environmental Policy* *SAP and SDG 13* *Climate Action* *Climate Change: What SAP Is Doing* *SAP sets 1.5°C science-based emissions reduction targets aligned with a net-zero future* *SAP's investment in Livelihoods Carbon Funds* *Climate 21*

Our Potential Direct and Indirect Impact	Our KPIs and Targets	Our Policies and Selected Activities and Programs to Enhance Positive Impacts and Mitigate Negative Impacts	Where You Can Find More Information in the SAP Integrated Report and Other Sources
+ Enable holistic operational steering by integrating climate-change relevant parameters and help understand and minimize the climate footprint of a company's products, operations, and services − Increase customers' energy consumption through use of software			*SAP Product Carbon Footprint Analytics* *SAP Concur Sustainable Travel*
SDG 17 Partnerships for the Goals			
Direct: + Build capacity throughout our broader ecosystem	NA	Engage in UN Global Compact, Ellen MacArthur Foundation, UN Development Program, UNICEF, Social World Enterprise Forum, UN Technology and Innovation Labs (UNTIL), Global Alliance for YOUth, Value Balancing Alliance, Global Citizen, IMPACT 2030, WEF Platform for Accelerating the Circular Economy, WEF Global Plastic Action Partnership, Global Battery Alliance, SDG Ambition, BSR, Business Call to Action	*Employees and Social Investment* *SAP and SDG 17* *SAP and UNICEF* *SAP Founding Member of Value Balancing Alliance* *SAP joins the Global Alliance for YOUth* *Global Battery Alliance* *Platform for Accelerating the Circular Economy* *SDG Ambition* *SAP joins the Ellen MacArthur Foundation* *WEF Global Plastic Action Partnership*

Sustainable Procurement

Making Our Supply Chain More Sustainable

A significant part of our social and environmental impact is delivered through our supply chain. From eliminating single-use plastics, decreasing carbon emissions, and reducing oversized packages, close collaboration with our supplier network are factors that contribute to a sustainable supply chain.

We aim to transform our Global Procurement Organization (GPO) into a purpose-driven organization, which is why we established the overarching Procurement with Purpose strategy promoting purpose-driven topics such as diversity and responsible resource usage.

Governance

SAP's GPO is led by our chief procurement officer (CPO). Reporting to our CPO are the heads of our procurement categories (1) Car Fleet, (2) IT Infrastructure, (3) Marketing & Travel, (4) Professional Services, and (5) Workplace Infrastructure and their teams.

Also reporting to the CPO, the chief operating officer (COO) is responsible to enable processes and governance within the GPO.

Our CPO and chief sustainability officer meet each quarter to discuss the progress and challenges related to embedding sustainability in our procurement practices.[1]

Upholding High Standards Across Our Supply Chain

SAP's supplier code of conduct (SCoC) is included in our standard supplier contracts and is an essential part of our supplier registration. This supplier registration ensures that potential suppliers of SAP are aware of SAP's SCoC. We review and update our SCoC regularly to maintain high standards within our supplier network. This strengthens the code's enforceability and sends a clear message about its importance for SAP.

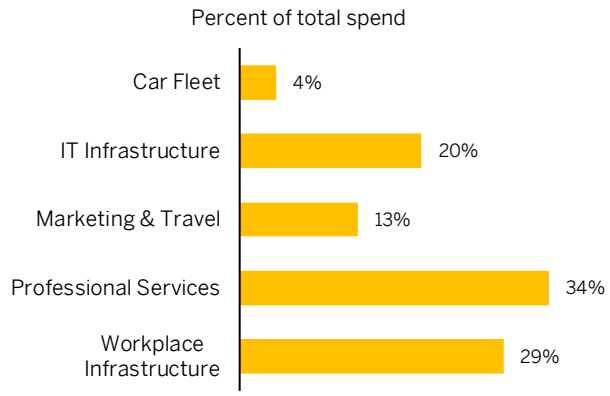
In 2020, we updated our SCoC to include requirements for sustainable packaging (such as plastic-free, appropriately sized boxes) and it contains provisions on the Modern Slavery Act, diversity and inclusion, and a labor standards chapter that expressly refers to human rights.

Furthermore, we recommend to SAP suppliers that they deliver goods and services that are accessible to everyone, including people with disabilities.

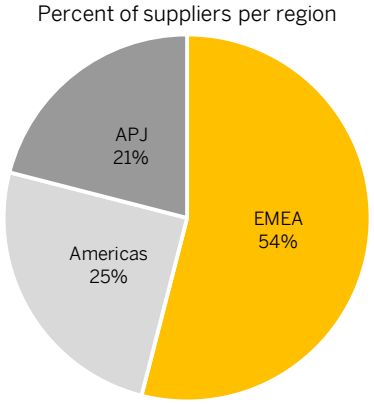
What We Buy and Where We Buy It From

We consider our suppliers to be key partners in our business success. In 2020, we spent approximately €5.1 billion in purchases from more than 14,700 suppliers worldwide (2019: approximately €5.3 billion from more than 18,500 suppliers worldwide). Within our five categories and our Sourcing Excellence Champions unit, we approach sustainability from different angles: Workplace Infrastructure (example: reduced plastics and packaging), Professional Services (example: CO_2-reduced mobility concepts, electronic contracts), Marketing & Travel (example: sustainable merchandise and events), IT Infrastructure (example: sustainable cooling of data centers), and Car Fleet (example: sustainable mobility concepts).

Suppliers by Category (Tier 1)



Supplier Locations



[1] Car Fleet includes procurement relating to the global company car fleet. IT Infrastructure procures products and services for SAP's cloud business such as network services and data center and co-location goods and services. Marketing & Travel supports topics related to SAP's marketing, events, merchandise, and business travel areas. Professional Services includes application and development services as well as financial and legal services. Sourcing Excellence Champions are responsible for the seamless execution of procurement and sourcing activities and are drivers for customer satisfaction and end user success. Workplace Infrastructure includes procurement for areas such as facility services, client services, and equipment, communication, and collaboration services.

Social Procurement

We believe that diverse and sustainable businesses bring significant added value to SAP.

Establishing an inclusive supplier network – that is, minority enterprises defined by gender, ethnicity, disability, sexual orientation, and other characteristics, as well as certified social enterprises that focus their company's mission on making social impact – have become a key priority for SAP. We believe that our commitment to an inclusive, bias-free culture in our workplace must be mirrored in our approach to our supplier base.

Driven by our GPO, SAP's supplier diversity and social enterprise programs are an integral part of our transformation into a purpose-driven organization. These programs aim to build the capacity of diverse and social businesses to provide a fair chance at competing for contracts and are treated equally with other SAP suppliers. Utilizing the procurement skills and expertise within the organization, our GPO engages in skills-based volunteering to build the capacity of social enterprises in the Sustainable Growth of Revenues for International Development (S-GRID) program by the social purpose organization MovingWorlds.

As part of its Procurement with Purpose program, SAP is currently a corporate member of the following supplier and social enterprise certification organizations in 2020:

Supplier Diversity:

- National Minority Supplier Development Council (NMSDC)
- WEConnect International
- Disability:IN
- US Business Leadership Network (USBLN)

Social Enterprise:

- Social Enterprise UK
- Buy Social Canada
- Social Traders (Australia)

These organizations allow the GPO to identify opportunities to engage with diverse suppliers and social enterprises, to support the 5 & 5 by '25 social procurement spend targets. This target is defined as 5% addressable spend with diverse suppliers and 5% addressable spend with Social Enterprises by year end 2025. The previous spend target of 5% spend by 2020 only focused on diverse suppliers where reporting is available. At the end of 2020, we achieved €325 million (6.4%) diverse spend in the United States.

To ensure all diverse and social spend is captured, our GPO evaluates its supplier network to identify and register all existing certified diverse suppliers and social enterprises. Activities such as this and expanding our efforts with the Buy Social Corporate Challenge aim to enable SAP to fulfill our pledge and shift our addressable spend to diverse suppliers and social enterprises.

Improving Sustainability Through Practice

The SAP Ariba Supplier Risk solution enables our GPO to identify, manage, mitigate, and avoid sustainability risks within our supply chain. These risks include, for example, workplace discrimination, workplace safety neglect, the use of child labor, human trafficking, and environmental disasters such as oil spills and radioactive contamination.

As outlined in the *Waste and Water* section, the GPO is one of the focus areas of the interdisciplinary Beyond Single-Use Plastics initiative. From addressing plastic packaging materials, to the items in our SAP Ariba catalog, our GPO is engaging with all relevant suppliers to remove single-use plastics from their packaging material and their offered product portfolio.

Waste and Water

Taking a Global Approach

Our waste and water strategy aims to continuously reduce SAP's impact on the environment. By promoting Company-wide initiatives, we strive to generate less waste and reduce the amount of water we use in locations worldwide. A global approach combined with local targets and initiatives allow for optimizing our environmental performance.

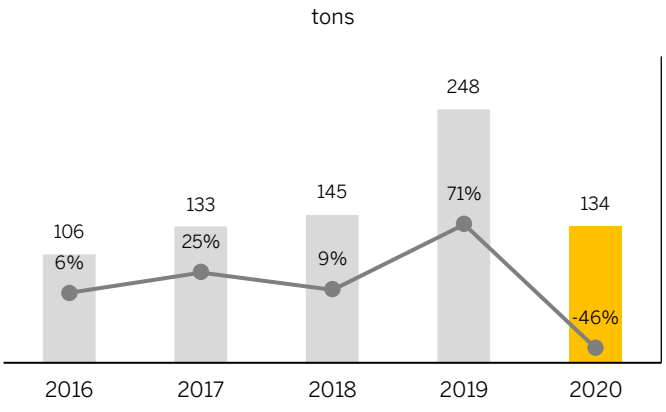
Taking steps to recycle our waste and save water also contributes to our business performance. Through ongoing initiatives at SAP sites, we reduce our operational costs while engaging our employees in our efforts.

Managing Our E-Waste

Our e-waste comes from data center servers and from IT equipment including PCs, peripherals, and mobile devices. In multiple SAP locations, we cooperate with international and local e-waste disposal partners to refurbish, recycle, and dispose our e-waste.

The amount of e-waste has remained at a relatively stable level since 2016, with the exception of a significant rise in 2019. This increase was due to multiple factors, such as internal restructuring measures (that is, large relocations) and reconstruction projects and enhancements to the decommissioning process of our servers and data center machinery. Our transition towards the cloud also contributed to this increase, through the continuous removal of obsolete on-premise devices and machines.

E-Waste



Cutting Down on Waste

In 2020, our continuous effort to improve waste segregation and evolve our processes at offices across the globe came to a slowdown due to the COVID-19 pandemic as many sites were closed for months. Nonetheless, as part of our ISO 14001 program, SAP Finland implemented two centralized waste segregation stations and single-use plastics were eliminated in many SAP locations such as Bangalore, Newtown Square, São Paulo, and Tokyo.

We reduced our paper usage by 80% (over 66 million pages) since 2009, despite a 115.3% increase in employee headcount over the same period. Initiatives such as the continuous global rollout of a secure pull-printing system (used by about 86,000 employees) or the implementation of double-sided black-and-white printouts by default supported this decrease. In 2020, we also continued our approach of paperless contracting. By using the SAP Signature Management application by DocuSign, which enables electronic signatures, we were able to cut down the printing of paper-based contracts by more than 224,000 pages in 2020 (2019: about 205,000 pages – considering the same procurement contract types as in 2020).

As most employees worked from home in 2020 due to the pandemic, the printing volume went down by 35% (31.1 million pages) compared to 2019.

Finding Alternatives to Single-Use Plastic

SAP has committed itself to address plastic pollution, both as enabler and exemplar. We made a commitment with our customers to strive for a dramatically cleaner ocean by 2030 at the World Economic Forum in Davos, alongside the Ellen MacArthur Foundation, World Wildlife Fund, and Global Plastic Action Partnership. To make the circular economy the de facto approach to material use and waste management, we are working with our customers and partners around solutions which allow, for example:

- Responsible sourcing and secondary marketplaces, including sustainably connecting brands with waste-picker communities by using SAP's Plastics Cloud enabled by the Ariba Network
- Resource recovery and reuse, including insights from downstream materials
- Enabling citizens to find their role and best-fit solutions to help solve ocean plastic pollution through the SHiFT platform developed in close collaboration with Emily Penn and eXXpedition

To lead by example, SAP has continued to execute on its commitment to phase out single-use plastics by the end of 2020 as part of its global environmental policy's goals. The interdisciplinary 'Beyond Single-Use Plastics' initiative is based on identifying and eliminating single-use plastics and introducing sustainable alternatives based on three principles: reduce waste, reuse items, and recycle materials.

Worldwide, SAP locations collaborate with their cafeteria suppliers and service providers to eliminate single-use plastic products such as bottles, cups, stirrers, straws, and cutlery. We also continue to reduce single-use plastics in our internal procurement processes as outlined in the *Sustainable Procurement* section. The established "Choose to Reuse" campaign aims to increase visibility

and usage of reusable products by encouraging employees to take photos of their reusable items and share them on social media.

The COVID-19 pandemic is one of the main reasons why we are behind schedule in achieving our goal to eliminate single-use plastics by the end of 2020, as strict hygiene concepts had to be created and implemented at SAP locations globally. To get back on track, we plan to pilot the first two plastic-free cafeteria kiosks at SAP's headquarters in Walldorf once COVID-19 lockdown restrictions are lifted. The lessons learned and experiences will be used to refine the concept and make it suitable for a global rollout. In addition, a digital reusable system for takeout, delivery, and convenience food is expected to be rolled out for all SAP locations in Germany in 2021.

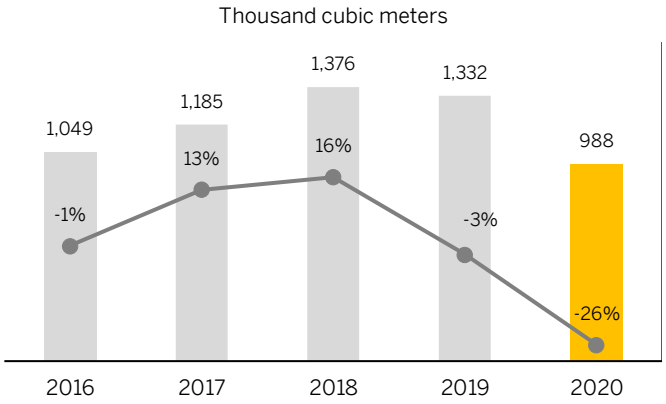
Using Water Efficiently

While our operations are not water-intensive, we continue to use water as efficiently as possible in our data centers and offices. For example, in the data centers of our headquarters, we use adiabatic cooling as well as a closed water circuit to minimize water consumption for cooling our server racks. At our headquarters and other office locations, we use rain and run-off water for irrigation and toilets.

A number of our offices are located in areas with significant water scarcity. In 2020, we addressed this issue with dedicated water management efforts in SAP South Africa. For instance, in Cape Town, two water tanks were installed to harvest rain and condensation water for irrigation.

In 2020, our global water usage dropped due to the COVID-19 pandemic and the strong reduction in the usage of our offices coupled with our implemented water reduction measures.

Global Water Usage



Public Policy

SAP has developed trusting relationships with governments worldwide by exploring the potential for information and communications technology (ICT) to spur economic growth, create jobs, and address societal challenges. This includes governments in their role as our customers, by supporting their digital transformation to become more efficient, effective, and citizen-oriented.

SAP engages with governments around the globe on a number of public policy issues, including the creation of reasonable framework conditions for new technologies or business models such as cloud computing, the Internet of Things, and Big Data.

SAP believes in transparency in the political process. Accordingly, we are registered in the European Transparency Register for interest representatives. In the United States, our company is registered and reports in compliance with the Lobbying Disclosure Act.

Political Contributions

In line with the SAP Code of Business Conduct, SAP does not support any political parties. Under the laws of the United States, a number of SAP employees exercise their right to create a political action committee (PAC). The SAP America PAC is an independent, registered, and strictly regulated organization that allows eligible employees in the United States to support political candidates at the state and federal levels. Consistent with U.S. law, SAP exercises no control over or influence on the SAP America PAC. SAP America PAC expenditures are transparent and available on the U.S. Federal Election Commission Web site.

Memberships, Partnerships, and Commitments

To better understand and evolve sustainable performance, dialogue, and exchange of knowledge and different perspectives on a national, regional, and global level, is vital for SAP, both for our company and customers. Hence, SAP subscribes to, commits to, and routinely engages in a range of third-party organizations, including:

- Advancing Women Executives
- Alliance for Development and Climate
- Alliance for Integrity
- ASEAN Foundation
- Bitkom e.V.
- Breakthrough Energy Coalition
- Business for Social Responsibility
- Carbon Disclosure Project (CDP)
- CEO letter on EU 2030 emissions targets
- Deutschland sicher im Netz e.V.
- DIGITALEUROPE
- econsense e.V.
- EcoVadis
- Ellen MacArthur Circular Economy 100 Network
- ESMIG
- EU Green Deal CEO Pledge
- European Roundtable for Industry (ERT)
- European CEO Alliance
- Federation of German Industries
- German Companies for Climate
- Global Battery Alliance
- Global Compact Network USA
- Global Partnership for Sustainable Development Data
- Global Plastic Action Partnership
- Impact 2030 (founding member)
- Industrial Internet Consortium
- Information Technology Industry Council
- International Integrated Reporting Council
- Klimabündnis Baden-Württemberg
- Mechanical Engineering Industry Association
- National Chambers of Commerce
- Network for Teaching Entrepreneurship (NFTE)
- Ocean Plastics Leadership Network
- Organization for International Investment
- RE100
- Schmalenbach-Gesellschaft für Betriebswirtschaft e.V.
- Science Based Targets initiative
- Social Enterprise UK
- Social Enterprise World Forum
- Social Traders
- Society of Corporate Compliance & Ethics
- Sustainable Brands
- The Conference Board, Inc.
- Thrive Global
- Together with Nature Principles for Nature-Based Solutions
- TRACE International
- Transparency International Germany
- UNICEF
- United Nations Global Compact (since 2000)
- Value Balancing Alliance e.V. (founding member)
- WEConnect International
- "We Mean Business" coalition
- World Bank: "Put a Price on Carbon" statement
- World Economic Forum

Audit Scope

The content of this section was not subject to the independent limited assurance engagement of our external auditor KPMG.

Non-Financial Notes: Social Performance

General Information About Social Indicators

Boundaries

Our reporting takes two different perspectives into account: SAP as a company, which includes all our legal entities and operations and supply chain, and SAP as a solution provider enabling our customers. These boundaries are listed in detail in the GRI Standard Content Index.

Social Indicators

Data for our social indicators is collected and reported on a quarterly or annual basis and is audited at a reasonable assurance level.

Employee Retention

We define employee retention as the ratio of the average number of employees minus the employees who voluntarily departed, to the average number of employees, taking into account the past 12 months (in full-time equivalents, or FTEs). This ratio puts emphasis on employee-initiated turnover – in other words, we seek to measure how many employees choose to stay with SAP. As opposed to keeping a low turnover rate, we aim to keep our retention rate high. The number of voluntarily departed employees excludes the voluntary part of restructuring-related departures for more transparency and precise headcount management purposes.

Women in Management

We define "women in management" as the share of women in management positions as compared to the total number of managers, expressed by the number of individuals and not FTEs.

- Managers managing teams: Refers to managing teams of at least one employee or vacant positions
- Managers managing managers: Refers to managing managers who manage teams
- Board members

Employee Engagement

We define employee engagement as a score for the level of employee commitment, pride, and loyalty, as well as our employees' feeling of advocacy for SAP.

It is calculated based on the results of our engagement survey program "#Unfiltered" powered by Qualtrics. In 2020, we switched from an annual engagement measurement to gauging engagement multiple times throughout the year. The overall program focuses on measuring key people outcome indices, Employee Engagement and Leadership Trust, as well as the organizational and team factors derived from the strategy that impacts engagement, such as Business Health Culture, Innovation, or Process Simplification. In the #Unfiltered survey in May, 62,490 employees participated (response rate: 62%), and in the #Unfiltered survey in September, 69,602 participated (response rate: 69%). All employees were invited to take part in the 2020 #Unfiltered survey cycle.

Business Health Culture Index

The Business Health Culture Index (BHCI) is an indicator of the extent to which SAP successfully offers employees a working environment that promotes health supporting their long-term employability and their active engagement in reaching our corporate goals. The index covers questions concerning how employees rate their personal well-being and the working conditions at SAP, including our leadership culture.

The BHCI is calculated based on the results of our "#Unfiltered" program.

Non-Financial Notes: Environmental Performance

We understand environmental performance as the measurable outcome of SAP's ability to meet environmental objectives and targets set forth in our environmental policy. In this context, we determine SAP's greenhouse gas footprint (in the following called carbon emissions), total energy consumed, and data center electricity as the three key environmental performance indicators. Furthermore, we realize external reductions by purchasing offsets and renewable energy which is partly self-generated in SAP locations but primarily purchased in the form of Renewable Energy Certificates (RECs). Plus, we identify SAP's waste and water consumption as additional environmental aspects.

By looking at the energy usage and emissions throughout our entire value chain, we gain insights to help us manage our environmental performance and, in turn, help our customers to do the same.

Our gross carbon emissions for 2020 were 410 kilotons of CO_2 equivalents (CO_2e) (2019: 794 kilotons CO_2e), including all carbon emission categories in Scope 1 and 2, as well as selected categories of Scope 3 as outlined in the figure below. Our net carbon emissions (135 kilotons in 2020) are calculated by deducting purchased renewable energy certificates, self-generated renewable energy, and carbon offsets from our gross carbon emissions in the respective reporting period.

General Information

We consider the principle of Sustainability Context (the performance of the organization in the context of the limits and demands placed on environmental or social resources at the sectoral, local, regional, or global level) in a number of ways, such as by looking at global issues or trends including climate change and demographic shifts. For example, we assess our carbon emissions in the context of the emissions of the entire information and communications technology landscape, with particular focus on the abatement potential of the industry. When it comes to completeness, we recognize that while we comply with this principle in reporting on our own operations, we are still developing methodologies to reliably quantify our impact through our solutions.

Boundaries

Our reporting takes two different perspectives into account: SAP as a company, which includes all our legal entities and operations and supply chain, and SAP as a solution provider enabling our customers. These boundaries are listed in detail in the Content Index of the Global Reporting Initiative (GRI).

Reporting Approach

Data for our environmental indicators is collected and reported on a quarterly basis and is subject to external assurance for annual reporting.

Reporting on total energy consumed and data center electricity is based on the data collected for the calculation of our carbon emissions. All numbers are based on the metric system. Whenever we state "tons," we mean metric tons.

Carbon Emissions

Definition

We define the carbon emissions as the sum of all greenhouse gas emissions (CO_2e) measured and reported for SAP, including the compensation with renewable energy or offsets.

Reporting Principles

SAP's preparation of the carbon emissions is based on the Corporate Accounting and Reporting Standard, the GHG (Greenhouse Gas) Protocol Scope 2 Guidance and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard of the World Resources Institute/World Business Council for Sustainable Development. This approach conforms to the requirements of GRI Standard indicators 305-1, 305-2, and 305-3.

In alignment with the GHG (Greenhouse Gas) Protocol Scope 2 Guidance, we report our net carbon emissions based on the two different calculation approaches: the classic location-based method and the market-based method.

Organizational Boundaries

SAP defines its organizational boundaries by applying the operational control approach as set out in the GHG Protocol.

Operational control is established when SAP has the full authority to introduce and implement its operating policies. The emissions of all operations over which the company has operational control and all owned, leased facilities, co-location data centers, and vehicles that the company occupies or operates are accounted for in the carbon emissions. They are based either on measurements or, where no measured data is available, on estimations and extrapolations.

A portion of SAP's leased facilities operates under full-service or multitenant leases, where SAP does not have access to actual energy consumption information. SAP includes these facilities in our definition of operational control and accounts for them by estimating related energy consumption.

To support the growing demand for SAP's cloud offerings, we subcontract computation power in local third-party data centers. Carbon emissions are approximated and included based on the consumed or extrapolated computation power.

In most instances, however, SAP has 100% ownership of its subsidiaries. Accordingly, the difference between applying the control versus the equity approach is about 0.8% based on SAP revenue. If investments in associates were included, the difference would be even smaller, about 0.7%.

Data Consistency

Comparability

SAP uses a significance threshold of 5% for structural or organizational changes of total current-year emissions. A structural or organizational change that increases or decreases the total carbon inventory by 5% or more will trigger an adjustment of past years. A structural or organizational change that increases or decreases the total inventory by less than 5% will be considered insignificant and thus no adjustment will be made.

Additionally, we annually measure the cumulative cost avoidance of our carbon emissions, compared to a business-as-usual scenario. Since 2015, we apply a cumulative cost avoidance calculation approach using a triennial rolling method. This leads to additional comparability.

Error Correction and Methodology Change

If a significant methodological change occurs or a significant error is found in the base year inventory, it will be corrected. If a significant methodological change occurs or a significant error is found that does not affect the base year but has an impact on the current or preceding year's emissions, it will be corrected. A methodology change or an error is significant if it affects SAP's gross carbon footprint by more than 1%. No restatement due to a methodology change or an error correction of historical data was necessary in 2020.

Conversion Factors

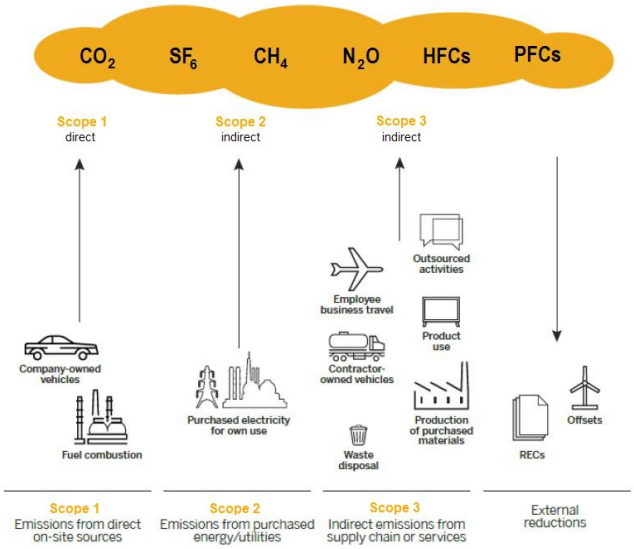
The calculation of the carbon emissions is based on factors for conversion and extrapolation provided, among others, by IEA, US EPA, UK DEFRA, Environmental Paper Network, Environment Canada, GHG Protocol, and SAP's own measurements.

Where relevant, our conversion factors consider CO_2 equivalents (CO_2e) for greenhouse gases. Global Warming Potential factors are based on the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). We report all our carbon emissions in CO_2 equivalents (CO_2e) including the impact from CH_4 and N_2O in our target-relevant Scope 1, Scope 2, and Scope 3. The emission impact of refrigerants includes hydrofluorocarbons (HFCs) only. As SF_6 and PFCs mainly occur in chemical processes, they are not relevant for us. Since 2016, we annually review all our emissions and extrapolation factors and update them if required. Before 2016, the factors were stable each year as they were based on calculations from 2009.

Due to office closures and travel restrictions during the COVID-19 pandemic, the 2020 extrapolation factors for the following emission categories were reduced in alignment with the global facility team and/or global controlling team: stationary combustion in facilities, refrigerants in facilities and corporate cars, mobile combustion in corporate cars, electricity in office buildings, purchased chilled and hot water, steam, and employee commuting.

Methodology and Further Details

Below you will find the different parameters contributing to our carbon emissions. We use "carbon emissions" as the common term for greenhouse gas emissions or CO_2e. Data coverage refers to the share of measured data (compared to extrapolated data) that are the basis for emissions calculation, such as kWh for electricity emissions or liters of fuel for corporate car emissions.



Scope 1

Refers to direct carbon emissions and is defined as emissions from sources that are owned or controlled by the organization. At SAP, the following areas are covered by Scope 1:

- **Stationary Combustion in Facilities**: Emissions caused by oil or gas combustion of heating systems and generators in SAP office buildings and data centers. Emission calculation is based on gas and oil consumption in kWh. Where no measured data is available, stable values (kWh/m^2) based on the previous year's stationary combustion consumption data are used for extrapolation (75% data coverage). In cases where no specific information is available, natural gas reported by local sites is assumed to be reported in Lower Heating Value. Besides gas and oil, we also began using wood pellets to produce thermal heat for our buildings. The Scope 1 emissions of wood pellets can be set to net '0', since the wood itself absorbs an equivalent amount of carbon emissions during the growth phase as the amount of emissions released through combustion. Still, to ensure complete accounting for all emissions caused, we document the direct carbon dioxide impact of burning wood pellets as 'outside of scopes' carbon emissions. In 2020, these emissions accounted for one kiloton of carbon emissions.
- **Refrigerants in Facilities**: HFC emissions caused by the use of refrigeration and air conditioning equipment. The emissions are extrapolated based on the number of server units in data centers and office space with an air conditioning (A/C) system (100% data coverage). All refrigerants are assumed to be HFC134a.
- **Mobile Combustion in Corporate Cars**: Emissions from fuel combustion of company cars. In the context of carbon reporting, the term company car refers to all cars for which SAP permanently covers the fuel costs. Emission calculation is based on fuel consumption. In 2020, 28 countries reported actual fuel data (92% data coverage); for other countries, stable values (liters/car) are used for extrapolation based on the number of

corporate cars reported. The stable values for extrapolation are based on the previous year's carbon emissions data.
- **Refrigerants in Corporate Cars**: HFC emissions caused by air conditioning devices in company cars. Refrigerant emissions are based on an estimate of HFC1234yf emissions per car (in Europe) and HFC134a emissions per car (for the rest of the world) and are extrapolated based on the number of corporate cars reported (100% data coverage).
- **Mobile Combustion in Corporate Jets**: Emissions caused by business trips with SAP-owned or chartered jets. Emission calculation for SAP's own jets is based on actual fuel consumption (100% data coverage).

Scope 2

Refers to indirect carbon emissions and is defined as emissions from the consumption of purchased electricity, steam, or other sources of energy generated upstream from the organization. To determine SAP's global net emissions, we use the location-based method to calculate the Scope 2 emissions. Additionally, we disclose our market-based Scope 2 emissions in the *interactive chart generator*. At SAP, the following emission categories are covered by Scope 2:
- **Electricity in Office Buildings**: Emissions caused by the consumption of purchased electricity in office buildings. Calculation of emissions is based on building electricity consumption. Country-specific emission factors are updated annually. Where no measured data is available, stable values (kWh/m^2) based on the previous year's energy consumption data are used for extrapolation (70% data coverage).
- **Electricity in Data Centers:** Emissions caused by the consumption of purchased electricity in SAP-owned and -operated data centers. The calculation of emissions is based on data center electricity consumption (100% data coverage). CO_2e conversion factors are updated annually based on country-specific grid factors.
- **Purchased Chilled and Hot Water, and Steam:** Emissions caused by the consumption of purchased heat or steam in office buildings (district heating). Calculation of emissions is based on consumption of district heating. Emission factors are updated annually. Where no measured data is available, stable values (kWh/m^2) based on the previous year's energy consumption data are used for extrapolation (41% data coverage).

Scope 3

Refers to other indirect carbon emissions and is defined as emissions that are a consequence of operations of an organization, but are not directly owned or controlled by the organization. Scope 3 emissions are divided into upstream and downstream emissions.

Upstream

Only selected upstream emissions are measured directly and hence included in our corporate carbon target. The following upstream Scope 3 carbon emissions are included in our target:
- **Business Flights**: Emissions caused by business trips by airplane. Calculation of emissions is based on actual distance travelled and actual costs spent (38% data coverage). This data is used to determine an average emission factor based on short, medium, and long-haul flight emission factors. For CO_2 calculation, this factor is applied to actual controlling costs for business flights. Emission factors for business flights do not consider the radiative forcing factors.
- **Rental Cars**: Emissions caused by business trips by rental car. An average emission factor from rental cars is calculated based on actual distance traveled and actual costs spent (67% data coverage). This average emission factor is used for extrapolation based on the controlling costs.
- **Train Travel**: Emissions from business trips by train. An average emission factor from train travel is calculated based on actual distance traveled and actual costs spent (28% data coverage). This average factor is used for extrapolation based on the controlling costs. In Germany, business trips by train are considered carbon neutral as they are compensated with 100% green electricity by Deutsche Bahn.
- **Business Trips with Private Cars**: Emissions from business trips with employee-owned cars and company cars without fuel card. Carbon calculation is based on distance traveled with car (100% data coverage). Company car trips with fuel cards are excluded from this activity type.
- **Employee Commuting**: Emissions caused by commuting between home and work at an SAP office location. Considered are all modes of transport, excluding commuters with corporate cars. A system-integrated commuting survey about the distance to work and the mode of transport is regularly conducted for SAP globally. Approximately 28,000 employees responded to the last survey in 2018. These survey responses are the basis for carbon calculation of employee commuting in 2020. Commuting data for non-responding employees and quarterly updates are extrapolated based on the number of FTEs excluding those employees who own a company car (25% data coverage).
- **Electricity in External Data Centers**: Emissions caused by the consumption of purchased electricity in data centers not operated by SAP. An external data center (co-location) is a local computing center with server units running SAP software that is operated by an external partner. CO_2e conversion factors are updated annually based on country-specific grid factors. Electricity consumption for external data centers is extrapolated based on the consumed data center capacity and a power usage effectiveness (PUE) factor. Where no data is available, average factors are applied (75% data coverage).
- **Electricity Consumed by Hyperscale Services:** Emissions caused by the consumption of purchased electricity resulting from the usage of hyperscale services in providers' hyperscale data centers. Hyperscale data centers enable massive, efficient, and robust scalability of computing, system, and server architecture in order to respond to the increasing demand for cloud computing and Big Data solutions. Electricity consumption is calculated based on the average allocated server memory size (RAM) of all hyperscale services. If RAM is not available, it is extrapolated based on prior-year data and the cost data of the current year. A power conversion factor is used to convert the allocated RAM value into a server power value. Data center utilization factor and PUE factors are used to extrapolate the total hyperscale service electricity. As these factors are not known, the average factors of external data centers are used (0% data coverage).
- **Logistics**: Emissions caused by mail and parcel shipments. Calculation is based on the actual number of parcels and mail

sent from our logistics center in Germany and is extrapolated globally (21% data coverage).
- **Paper Consumption**: Emissions caused by the consumption of printing paper. The calculation is based on printer tracker data (100% data coverage).

Each year, we measure and publish additional upstream Scope 3 carbon emissions such as purchased goods and services and capital goods based on the GHG Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard. These emissions are not included in our corporate target and are meant for indicative purposes only.

The calculation of additional upstream emissions is based on an estimate. Due to the link of our upstream emissions to operating expenses, we extrapolated these upstream figures for 2020 by multiplying the four key contributors to our previous year's upstream emissions with the year-over-year change of operating expenses between 2019 and 2020.

Together, our upstream emissions including these estimates are responsible for about 12% of SAP's total carbon emissions.

Downstream

The following downstream emission category is measured directly and hence included in our corporate carbon target:

Data Download: Emissions caused by our customers downloading data/software from our servers. Carbon calculation is based on the data volume downloaded by our customers globally (89% data coverage).

The vast majority of our overall emissions stem from the use of our software. Even though we do not have control over our customers' IT landscapes, we do calculate related emissions for indicative purposes; the emissions are, however, not included in our corporate carbon target:

Use of Sold Products: When SAP software runs on our customers' hardware and on their premises, the resulting carbon emissions are responsible for about 86% of SAP's total carbon emissions along our value chain (10.6 million tons in 2020). Resource need per year is determined using a landscape simulation. It is extrapolated globally based on the number of productive installations and power usage effectiveness (PUE). We use a PUE factor of 1.59, which is the average PUE of our external data centers. Emissions are calculated using a global electricity emission factor. Due to the special characteristics of software products, we chose an assessment of resource need per year. This deviates from the minimum boundaries as defined by the GHG Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard, which requires assessment and disclosure of "direct use-phase emissions of sold products over their expected lifetime." The calculation covers all of our major solutions, including on-premise software. Cloud solutions are not included, as they are part of internal and external data center electricity emissions. Mobile solutions (for example, SAP apps running on customer IT equipment) are also not included. Calculation parameters will be adapted when significant technology changes occur.

Together, our downstream emissions are responsible for about 86% of SAP's total carbon emissions.

Excluded Scope 3 Emissions

The following Scope 3 emissions sources are not applicable to SAP's business operations: Upstream Leased Assets, Processing of Sold Products, End-of-Life Treatment of Sold Products, Downstream Leased Assets, Franchises, and investments.

External Reductions

SAP uses external reductions, such as purchases of renewable energy and certified voluntary "offsets," to achieve its carbon targets. Emission reductions are subtracted from gross Scope 1 to Scope 3 emissions to achieve a net carbon inventory.

Renewable Electricity

We define renewable energy as electricity coming from renewable energy sources such as wind, solar, hydro, and geothermal. The amount of renewable energy used by SAP is calculated by adding the amounts of renewable energy produced onsite by our own solar cells and covered by Renewable Energy Certificates (RECs).

As recommended by the Greenhouse Gas Protocol and CDP, we actively look for the best available quality and standards, which support renewable energy projects that meet robust criteria in terms of environmental integrity, stakeholder inclusivity, and reporting and verification. We have developed a quality standard that defines key criteria for the procurement of RECs to drive change in the electricity market and to avoid the risk caused by low-quality products. The key characteristics of our renewable energy purchasing guidelines are as follows:
- **Type of Renewable Electricity**: SAP considers solar, wind, biogas, geothermal, and hydro power as renewable electricity. In 2020, we sourced only wind and solar energy.
- **Installation**: The power plant producing the renewable energy shall not be older than 10 years. In case of a renovation of an old power plant, the 10-year rule applies only to the additional electricity output due to efficiency increase. Furthermore, SAP does not consider RECs from government supported power plants.
- **Vintage**: The renewable electricity must be produced in the same year or the year preceding the reporting period to which it will be applied.
- **Accounting**: SAP uses the country-specific emissions factor to calculate the carbon reduction achieved by the RECs. RECs are considered independently to the electricity achieved through their procurement. SAP aims to consider the latest guidelines on REC market boundaries[6].

In addition, all of our purchased renewable electricity is EKOenergy-certified, a high-quality, internationally recognized not-for-profit ecolabel for renewable energy installations that fulfill additional sustainability criteria. Through the purchase of EKOenergy-certified electricity, we also contribute to EKOenergy's Climate Fund, which finances solar projects tackling energy poverty.

To calculate the carbon reductions of the RECs, the amount of purchased electricity is multiplied by the country-specific carbon factor derived from the location where the renewable energy was produced. The renewable electricity is confirmed by an official certificate or written confirmation of our respective REC suppliers (100% data coverage).

[6] In 2020, we achieved an REC market boundary alignment of 88% based on the criteria of RE100 and GHG Protocol Scope 2 Guidance.

In the net carbon emissions, the purchased as well as the produced renewable electricity is already deducted from our Scope 2 and Scope 3 electricity emissions.

Carbon Offsets

In 2020, we further refined our internal carbon emissions calculation methodology and increased the requirements for dealing with carbon offsets:

- In 2020, the investments in the **Livelihoods Carbon Funds** (LCF) were used to compensate for a portion of our business flights as well as 100% of the following emissions categories: corporate jets, business trips with private cars, paper consumption, logistics (parcel and mail) and data download.
- By charging an **internal carbon price for business flights** and investing in the LCF, we were able to offset 80% (73 kt) of our business flights emissions in 2020.

A requirement for carbon offsets is the application of the Verified Carbon Standard (VCS) and equally high quality standards. SAP ensures that the quantified carbon emission reductions from offsets are credible and that they meet four key principles:

- **Real**: The carbon reductions represent actual emission reductions that have already occurred.
- **Additional**: The carbon reductions are surplus to regulation and would not have happened without the offset.
- **Permanent**: The carbon reductions are permanent or have guarantees to ensure that any losses are replaced in the future.
- **Verifiable**: The performance of the carbon reduction projects can be readily and accurately quantified, monitored, and verified.

In the net carbon emissions, purchased offsets are already deducted from our gross emissions.

Total Energy Consumed

We define total energy consumed as the sum of all energy consumed through SAP-own operations (Scope 1 and 2), including energy from renewable sources. It is calculated based on the consumption data obtained through our measurements for the carbon emissions and is the sum of energy consumption from stationary combustion in facilities, mobile combustion in corporate cars, mobile combustion in corporate jets, electricity in offices, electricity in data centers, purchased chilled water, purchased hot water, and purchased steam.

Data Center Electricity

We define data center electricity as the sum of electricity consumed to provide internal and external computation power in SAP data centers, contracted third-party data centers, and hyperscale data centers. A data center is any global, regional, or local computing center (location with any number of server units) that is part of our global IT infrastructure strategy.

Additional Environmental Aspects

Water

By water, we mean the total amount of freshwater withdrawn for our office buildings and data centers. Data is based on measurements and estimations from sites. Data was provided for 60% of the total water consumption; remaining data is extrapolated based on square meter footage.

E-Waste

By e-waste, we mean any discarded electric devices used in our offices and data centers. Data is based on the weight of the devices (95% data coverage).

GRI Content Index and UN Global Compact Communication on Progress

The social and environmental data and information included in the SAP Integrated Report 2020 has been prepared in accordance with the GRI Standards: Core option.

The selection of the material topics for this GRI Content Index is based on the comprehensive *materiality assessment* conducted in 2020. In this context, the Index presents the four material topics that have been identified as sustainability challenges and material topics according to the GRI Standards, namely: 'security, privacy, and data protection', 'ethics and compliance', 'fair and inclusive workplace', and 'climate change and air quality'. The fifth material topic 'governance' is not included here as it has been determined a sustainability management practice that guides us on how to deal with the identified challenges and therefore has strong parallels to the universal GRI 103: Management Approach. Moreover, we included 'human rights' as an additional topic as it is relevant to our annual UN Global Compact Communication on Progress.

General Standard Disclosures	Links and Content	External Assurance	UN Global Compact Principles
102-1	*Strategy and Business Model*	√	
102-2	*Strategy and Business Model*	√	
102-3	*Strategy and Business Model*	√	
102-4	*Strategy and Business Model;* *(G.9) Scope of Consolidation, Subsidiaries and Other Equity Investments*	√ √	
102-5	*Strategy and Business Model*	√	
102-6	*Financial Performance: Review and Analysis;* *(C.1) Results of Segments;* *Strategy and Business Model;* *www.sap.com/industries.html*	√ √ √	
102-7	*Consolidated Financial Statements IFRS;* *Financial Performance: Review and Analysis;* *(G.9) Scope of Consolidation, Subsidiaries and Other Equity Investments;* *(B.1) Employee Headcount*	√ √ √ √	
102-8	*(B.1) Employee Headcount;* *Chart Generator;* *Non-Financial Notes*	√ √	6
102-9	*Strategy and Business Model;* *Sustainable Procurement*	√ √	3
102-10	*(IN.2) Implications of the COVID-19 Pandemic;* *Financial Performance: Review and Analysis;* *Strategy and Business Model;* *Sustainable Procurement*	√ √ √ √	
102-11	We support a precautionary approach towards environmental management, which is why we have implemented an environmental management system across various SAP locations worldwide according to ISO 14001. While we see little apparent risk for our own operations, we do see an opportunity to help our customers anticipate and manage this risk in a more agile and responsive fashion through effective product lifecycle management and sustainable design. *Sustainability Management;* *Strategy and Business Model;* *Products, Research & Development, and Services: Sustainability Management*	√ √ √ √	7
102-12	*Memberships*		
102-13	*Memberships*		
102-14	*Letter from the CEO*		

102-16	*Business Conduct;* *Employees and Social Investments*			√ √		10
102-18	*Corporate Governance Fundamentals;* *Sustainability Management*			 √		
102-40	*Stakeholder Engagement*			√		
102-41	*Stakeholder Engagement*			√		
102-42	*Stakeholder Engagement;* *Business Conduct;* *Human Rights and Labor Standards*			√ √ √		
102-43	*Stakeholder Engagement;* *Business Conduct;* *Human Rights and Labor Standards*			√ √ √		
102-44	*Stakeholder Engagement;* *Employees and Social Investments;* *Customers;* *Products, Research & Development, and Services;* *Report by the Supervisory Board*			√ √ √ √ √		
102-45	*(G.9) Scope of Consolidation, Subsidiaries and Other Equity Investments* All entities are covered by the report.			√		
102-46	*About This Report;* *Materiality;* *Non-Financial Notes*			√ √ √		
102-47	*Materiality*			√		
102-48	*Non-Financial Notes*			√		
102-49	*Non-Financial Notes;* *Materiality*			√ √		
102-50	*About This Report*			√		
102-51	February 27, 2020			√		
102-52	Annual Reporting Cycle			√		
102-53	*Financial Calendar and Addresses*					
102-54	*About This Report*			√		
102-55	*GRI Content Index*			√		
102-56	*About This Report;* *Independent Assurance Report*			√ √		
Topic Specific Disclosures	**Links and Content**	**Omissions**	**Boundaries**	**External Assurance**	**Sustainable Development Goal**	**UN Global Compact Principles**
Material Topic: Ethics and Compliance						
103-1	*Business Conduct;* *GRI Content Index*			√ √		
103-2	*Business Conduct*			√		10
103-3	*Business Conduct*			√		
205-1	*Business Conduct;* *Risk Management and Risks*	In alignment with the different legal requirements in various countries, and as per SAP Global Risk Management Policy and supporting processes, SAP, together with legal advisory services as deemed appropriate, perform risk assessments globally, including the evaluation on risks related to compliance, bribery and corruption. As part of the process,	SAP	√ √	16, 17	10

		a regular and dedicated focus is placed on identifying high-risk countries to identify deep dive reviews and necessary mitigations accompanied by regular monitoring. Given the application of this holistic approach, we subsequently attain the desired coverage but do not publicly report the coverage as we consider it as confidential.				
206-1	*(G.3) Other Litigation, Claims, and Legal Contingencies*		SAP	√	16, 17	
207-1	*SAP's Global Tax Principles*		SAP		9, 11, 16	
207-2	*SAP's Global Tax Principles*		SAP		9, 11, 16	
207-3	*SAP's Global Tax Principles*		SAP		9, 11, 16	
207-4		As a German company, we report our tax expense separately for Germany and the rest of the world. We are confident that this information meets our stakeholders' demands.				
419-1	*(G.3) Other Litigation, Claims, and Legal Contingencies*		SAP	√	16, 17	
Material Topic: Climate Change and Air Quality						
103-1	*Energy and Emissions;* *GRI Content Index*			√ √		
103-2	*Energy and Emissions;* *Sustainability Management*			√ √		
103-3	*Energy and Emissions;* *Sustainability Management*			√ √		
305-1	*Energy and Emissions;* *Non-Financial Notes;* *Chart Generator*		SAP	√ √	3, 12, 13, 14, 15	7, 8
305-2	*Energy and Emissions;* *Non-Financial Notes;* *Chart Generator*		SAP	√ √	3, 12, 13, 14, 15	7, 8
305-3	*Energy and Emissions;* *Non-Financial Notes;* *Chart Generator*		External parties	√ √	3, 12, 13, 14, 15	7, 8
305-4	*Chart Generator;* *Non-Financial Notes*		SAP + external parties	√	13, 14, 15	8
305-5	*Energy and Emissions;* *Non-Financial Notes;* *Chart Generator*		SAP + external parties	√ √	13, 14, 15	8, 9
305-6		As a software company with no production sites, emissions of ozone-depleting substances (ODS) are not material to SAP.		√	3, 12, 13, 14, 15	7, 8
305-7		We are reporting all our GHG emissions in CO_2 equivalents (CO_2e) including the impact from CH_4, N_2O, and HFCs in our Scope 1 and 2 emissions. We do not provide a breakdown. As a software company with no production sites, sulfur oxides (SOx), and other significant air emissions are not material to SAP.		√	3, 12, 13, 15	7, 8

Material Topic: Security, Privacy, and Data Protection						
103-1	*Security, Privacy, and Data Protection;* *GRI Content Index*			√ √		
103-2	*Security, Privacy, and Data Protection;* SAP Trust Center: *Data Protection and Privacy;* *SAP Privacy Statement*			√		
103-3	*Security, Privacy, and Data Protection;* SAP Trust Center: *Data Protection and Privacy*			√		
418-1	*Security, Privacy, and Data Protection*	We do not publicly report the total number of identified leaks, thefts, or losses of customer data. We consider this information as proprietary.	SAP + External parties	√	12, 16	1
Material Topic: Fair and Inclusive Workforce						
103-1	We embrace and encourage different perspectives and believe we are made stronger by our unique combination of culture, race, ethnicity, age, gender, sexual orientation, gender identity or expression, physical or mental ability, and work-life situations. An inclusive, bias-free workplace helps us attract, motivate, and retain employees and better serve the needs of a diverse workforce. Fostering creativity, talent, and commitment of our people is vital to our long-term success. Their ability to innovate and understand the needs of our customers delivers sustainable value to our company and our society. *GRI Content Index*			√ √		
103-2	*Sustainability Management;* *Employees and Social Investments;* *Human Rights and Labor Standards*			√ √ √		
103-3	*Sustainability Management;* *Employees and Social Investments;* *Human Rights and Labor Standards*			√ √ √		
Women in Management	*Employees and Social Investments;* *Chart Generator*		SAP	√	5	6
404-1	*Employees and Social Investments*	Training hours split by gender and employee category are not a material issue for SAP, as we align our training activities according to the needs of each employee and do not tolerate discrimination.	SAP	√	4, 5, 8, 9, 10	
404-2	*Employees and Social Investments* SAP has dedicated as well as volunteer staff that supports generational intelligence on matters of continued employability, managing career endings, and cross-generational integration and collaboration. These experts work to continuously improve processes and design programs that sustain employability for as long as possible. They provide training for cross-generation collaboration, facilitate flexible career endings for employees (such as part-time options), and keep employees connected with the Company after retirement (the “HR Lounge – Mature Talents” consultation session, for example, provides a platform for our experienced, long-term employees in Germany to gain insight on sharing experiences across generations, career development, transitioning to retirement, and so on).		SAP	√ √	4, 5, 8, 9, 10	6

404-3	*Employees and Social Investments* With our performance appraisal approach called SAP Talk our employees receive regular performance and development reviews - independent from gender and employee category.		SAP	√ √	5, 8, 10	6
405-1	*Corporate Governance Statement;* www.sap.com/corporate/en/investors/governance/executive-board.html; https://www.sap.com/investors/en/governance/supervisory-board.html; *Chart Generator*		SAP	√	5, 8, 10	1, 2, 6
Additional Topic: Human Rights						
103-1	*Human Rights and Labor Standards;* *GRI Content Index*			√ √		
103-2	*Human Rights and Labor Standards*			√		
103-3	*Human Rights and Labor Standards*			√		
406-1	*Employees and Social Investments;* *Human Rights and Labor Rights*	At SAP, we focus on remediation and prevention measures and consider the discrimination incident number as proprietary.	SAP + external parties	√ √	8, 10	1, 2, 6
407-1	*Human Rights and Labor Standards* We are not aware of any operations or suppliers in which the right to exercise freedom of association and collective bargaining may be at significant risk. *Sustainable Procurement*		SAP + external parties	√ √ √	8	1, 2, 3
408-1	*Human Rights and Labor Standards* We are not aware of any operations or suppliers as having significant risk for incidents of child labor. *Sustainable Procurement*		SAP + external parties	√ √ √	3, 8	1, 2, 5
409-1	*Human Rights and Labor Standards* We are not aware of any operations or suppliers as having significant risk for incidents of forced or compulsory labor. *Sustainable Procurement*		SAP + external parties	√ √ √	3, 8, 10	1, 2, 4

Task Force on Climate-Related Financial Disclosure (TCFD)

The TCFD recommends companies to disclose their climate-related financial risks to investors, lenders, insurers, and other stakeholders. SAP started to report in alignment with the TCFD recommendations in 2018. For more information, see the table below.

Area	Content	Chapter
Governance	SAP's governance of climate-related risks and opportunities.	*Energy and Emissions*
Strategy	Actual and potential impacts of climate-related risks and opportunities on SAP's businesses, strategy, and financial planning where such information is material.	*Energy and Emissions; Risk Management and Risks; Strategy and Business Model*
Risk Management	How does SAP identify, assess, and manage climate-related risks?	*Energy and Emissions*
Metrics and Targets	Metrics and targets that SAP uses to assess and manage relevant climate-related risks and opportunities where such information is material.	*Energy and Emissions; Risk Management and Risks; Chart Generator*

Audit Scope

The content of this section was not subject to the independent limited assurance engagement of our external auditor KPMG.

Assurance Report of the Independent Auditor regarding Sustainability Information

To the Executive Board of SAP SE, Walldorf

We have performed an independent assurance engagement on selected qualitative and quantitative sustainability disclosures as well as on selected quantitative sustainability indicators included in the Integrated Report 2020 (further "Report") for the business year from January 1 to December 31, 2020 of SAP SE, Walldorf (further "Company" or "SAP"), published under *https://www.sap.com/integrated-reports/2020/en.html*.

For the selected quantitative sustainability indicators Business Health Culture Index; Employee Engagement Index; Employee Retention Rate; Ratio of Women in Management; Total Gross and Net Greenhouse Gas Emissions (Scope 1, Scope 2 and selected Scope 3 emissions including business flights and employee commuting); Renewable Energy Certificates; Total Energy Consumption; and Customer Net Promoter Score, including the explanatory notes supplementing these indicators (further "sustainability indicators"), a reasonable assurance engagement was performed.

For selected qualitative and quantitative sustainability disclosures included in the 'Combined Group Management Report' (sections: SAP's Impact; Security, Data Protection, and Privacy; Employees and Social Investments; Energy and Emissions; Human Rights and Labor Standards; and Business Conduct), as well as included in 'Further Information on Economic, Environmental, and Social Performance' (sections: About this Further Information on Economic, Environmental, and Social Performance; Materiality; Stakeholder Engagement; Sustainability Management Sustainable Procurement; Waste and Water; Public Policy; GRI Content Index; Non-Financial Notes: Social Performance, and Non-Financial Notes: Environmental Performance) (further "sustainability disclosures") a limited assurance engagement was performed.

Selected sustainability disclosures included in the scope of our assurance engagement are marked in the GRI Content Index with the following symbol: „√".

Management's Responsibility

The legal representatives of SAP are responsible for the preparation of the Report in accordance with the Reporting Criteria. SAP's Report applies the principles and standard disclosures of the Global Reporting Initiative (GRI) Sustainability Reporting Standards, the Corporate Accounting and Reporting Standard (Scope 1 and 2) and the Corporate Value Chain (Scope 3) Standard of the Greenhouse Gas Protocol Initiative by the World Resources Institute and the World Business Council for Sustainable Development, in combination with internal guidelines, as described in the 'Non-Financial Notes: Social Performance' and the 'Non-Financial Notes: Environmental Performance' as Reporting Criteria (further: "Reporting Criteria").

The responsibility includes the selection and application of appropriate methods to prepare the Report and the use of assumptions and estimates for individual qualitative and quantitative sustainability disclosures, which are reasonable under the circumstances. Furthermore, this responsibility includes designing, implementing and maintaining systems and processes relevant for the preparation of the Report in a way that is free of – intended or unintended – material misstatements.

Practitioner's Responsibility

Our responsibility is to express a conclusion based on our work performed within the assurance engagement on the sustainability indicators and the sustainability disclosures described above.

We conducted our work in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information", published by IAASB.

Accordingly, we have to comply with our professional duties and to plan and perform the assurance engagement in such a way that we, respecting the principle of materiality, reach our conclusion with a reasonable level of assurance on the above-mentioned sustainability indicators. The assurance of the sustainability indicators encompasses the performance of assurance procedures to obtain evidence for the information included in the Report. The choice of assurance procedures is subject to the auditor's own judgement.

This standard requires that we plan and perform the assurance engagement to obtain limited assurance whether any matters have come to our attention that cause us to believe that the above-mentioned sustainability disclosures of the entity for the business year January 1 to December 31, 2020 have not been prepared, in all material respects, in accordance with the Reporting Criteria. We do not, however, issue a separate conclusion for each disclosure. As the assurance procedures performed in a limited assurance engagement are less comprehensive than in a reasonable assurance engagement, the level of assurance obtained is substantially lower. The choice of assurance procedures is subject to the auditor's own judgement.

Within the scope of our engagement, we performed amongst others the following procedures when conducting the limited assurance:

- An evaluation of the process for determining material aspects and respective boundaries, including results of SAP's stakeholder engagement.

- A risk analysis, including a media search, to identify relevant sustainability aspects for SAP in the reporting period.
- Interviewing management at corporate level responsible for sustainability performance goal setting and monitoring process.
- Reviewing the suitability of the internally developed reporting criteria.
- Evaluation of the design and implementation of the systems and processes for the collection, processing and control of the data on sustainability performance indicators, including the consolidation of the data.
- Interviews with relevant staff at corporate level responsible for providing the data, carrying out internal control procedures and consolidating the data, including the 'Non-Financial Notes'.
- Evaluating internal and external documentation to determine whether selected qualitative claims and quantitative indicators on sustainability performance are supported by sufficient evidence.
- Reviewing the consistency of GRI Standard's in accordance with 'Core Option' as declared by SAP with sustainability performance information presented in the Integrated Report.

In addition, we conducted the following procedures to obtain reasonable assurance:

- An evaluation of the design, existence, and testing of the operation of the systems and methods used to collect and process data reported for Business Health Culture Index; Employee Engagement Index; Employee Retention Rate; Ratio of Women in Management; Total Gross and Net Greenhouse Gas Emissions (Scope 1, Scope 2 and selected Scope 3 emissions including business flights and employee commuting); Renewable Energy Certificates; Total Energy Consumption; and Customer Net Promoter Score, including the aggregation of the data into the information as presented on the online Integrated Report.
- Auditing the 2020 data using internal and external documentation in order to determine in detail whether the data correspond to the information in the relevant underlying sources, and whether all the relevant information contained in such underlying sources has been included in SAP's Integrated Report.
- Conducting site visits to Walldorf, St. Leon Rot (both Germany) and Bangalore (India) to assess the quality of information management systems and the reliability of the data as reported to corporate level.

In our opinion, we obtained sufficient and appropriate evidence for reaching a conclusion for the assurance engagement.

Independence and Quality Assurance on the Part of the Auditing Firm

In performing this engagement, we applied the legal provisions and professional pronouncements regarding independence and quality assurance, in particular the Professional Code for German Public Auditors and Chartered Accountants (in Germany) and the quality assurance standard of the German Institute of Public Auditors (Institut der Wirtschaftsprüfer, IDW) regarding quality assurance requirements in audit practice (IDW QS 1).

Conclusions

In our opinion the above-mentioned sustainability indicators in the Report, including the Non-Financial Notes supplementing these indicators, of SAP SE for the business year from January 1 to December 31, 2020 are presented, in all material respects, in accordance with the Reporting Criteria.

Based on the procedures performed and the evidence obtained for the limited assurance, nothing has come to our attention that causes us to believe that the above-mentioned sustainability disclosures of SAP SE for the business year from January 1 to December 31, 2020, published in the Report, are not prepared, in all material respects, in accordance with the Reporting Criteria.

Restriction of use / Clause on General Engagement Terms

This assurance report is issued for purposes of the Executive Board of SAP SE, Walldorf, only. We assume no responsibility with regard to any third parties.

Our assignment for the Executive Board of SAP SE, Walldorf, and professional liability as described above was governed by the General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften (Allgemeine Auftragsbedingungen für Wirtschaftsprüfer und Wirtschaftsprüfungsgesellschaften) in the version dated January 1, 2017 (https://www.kpmg.de/bescheinigungen/lib/aab_english.pdf). By reading and using the information contained in this assurance report, each recipient confirms notice of the provisions contained therein including the limitation of our liability as stipulated in No. 9 and accepts the validity of the General Engagement Terms with respect to us.

Munich, February 24, 2021

KPMG AG Wirtschaftsprüfungsgesellschaft

Hell ppa. Dollhofer

Additional Information

Five-Year Summary 246
Glossary 251
Financial Calendar and Addresses 264
Financial and Sustainability Publications 265
Publication Details 266

Five-Year Summary[1]

€ millions, unless otherwise stated	**2020**	2019	2018	2017	2016
Revenues					
Cloud (IFRS)	8,080	6,933	4,993	3,769	2,993
Non-IFRS adjustments	5	81	33	2	2
Cloud (non-IFRS)	8,085	7,013	5,027	3,771	2,995
Software licenses (IFRS)	3,642	4,533	4,647	4,872	4,859
Non-IFRS adjustments	0	0	0	0	2
Software licenses (non-IFRS)	3,642	4,533	4,647	4,872	4,862
Software support (IFRS)	11,506	11,547	10,981	10,908	10,571
Non-IFRS adjustments	0	0	0	0	1
Software support (non-IFRS)	11,506	11,548	10,982	10,908	10,572
Cloud and software (IFRS)	23,228	23,012	20,622	19,549	18,424
Non-IFRS adjustments	5	81	33	3	3
Cloud and software (non-IFRS)	23,233	23,093	20,655	19,552	18,427
Services (IFRS = non-IFRS)	4,110	4,541	4,086	3,912	3,639
Total revenue (IFRS)	27,338	27,553	24,708	23,461	22,062
Non-IFRS adjustments	5	81	33	3	5
Total revenue (non-IFRS)	27,343	27,634	24,741	23,464	22,067
Share of more predictable revenue (IFRS, in %)	72	67	65	63	61
Share of more predictable revenue (non-IFRS, in %)	72	67	65	63	61
Operating Expenses					
Cost of cloud (IFRS)	–2,699	–2,534	–2,068	–1,660	–1,313
Non-IFRS adjustments	248	305	213	233	247
Cost of cloud (non-IFRS)	–2,451	–2,228	–1,855	–1,427	–1,066
Cost of software licenses and support (IFRS)	–2,008	–2,159	–2,092	–2,234	–2,182
Non-IFRS adjustments	97	141	130	190	238
Cost of software licenses and support (non-IFRS)	–1,911	–2,018	–1,962	–2,044	–1,944
Cost of cloud and software (IFRS)	–4,707	–4,692	–4,160	–3,893	–3,495
Non-IFRS adjustments	345	446	343	423	485
Cost of cloud and software (non-IFRS)	–4,362	–4,247	–3,817	–3,471	–3,010
Cost of services (IFRS)	–3,178	–3,662	–3,302	–3,158	–3,089
Non-IFRS adjustments	178	254	151	166	113
Cost of services (non-IFRS)	–3,000	–3,408	–3,151	–2,991	–2,976
Total cost of revenue (IFRS)	–7,886	–8,355	–7,462	–7,051	–6,583
Non-IFRS adjustments	523	700	494	589	598
Total cost of revenue (non-IFRS)	–7,362	–7,655	–6,969	–6,462	–5,985
Research and development (IFRS)	–4,454	–4,292	–3,624	–3,352	–3,044
Research and development (in % of total revenue, IFRS)	16.3	15.6	14.7	14.3	13.8

€ millions, unless otherwise stated	2020	2019	2018	2017	2016
Research and development (in % of total operating expenses, IFRS)	21.5	18.6	19.1	18.0	18.0
Sales and marketing (IFRS)	–7,106	–7,693	–6,781	–6,924	–6,265
General and administration (IFRS)	–1,356	–1,629	–1,098	–1,075	–1,005
Depreciation and amortization (IFRS)	–1,831	–1,872	–1,362	–1,272	–1,268
Profits and Margins					
Cloud gross margin (in % of corresponding revenue, IFRS)	66.6	63.5	58.6	56.0	56.1
Cloud gross margin (in % of corresponding revenue, non-IFRS)	69.7	68.2	63.1	62.2	64.4
Cloud and software gross margin (in % of corresponding revenue, IFRS)	79.7	79.6	79.8	80.1	81.0
Cloud and software gross margin (in % of corresponding revenue, non-IFRS)	81.2	81.6	81.5	82.2	83.7
Services gross margin (in % of corresponding revenue, IFRS)	22.7	19.4	19.2	19.3	15.1
Services gross margin (in % of corresponding revenue, non-IFRS)	27.0	25.0	22.9	23.5	18.2
Software and support gross margin (IFRS, in %)	86.7	86.6	86.6	85.8	85.9
Software and support gross margin (non-IFRS, in %)	87.4	87.4	87.4	87.0	87.4
Gross margin (in % of total revenue, IFRS)	71.2	69.7	69.8	69.9	70.2
Gross margin (in % of total revenue, non-IFRS)	73.1	72.3	71.8	72.5	72.9
Operating profit (IFRS)	6,623	4,473	5,703	4,877	5,135
Non-IFRS adjustments	1,664	3,735	1,459	1,892	1,498
Operating profit (non-IFRS)	8,287	8,208	7,163	6,769	6,633
Operating margin (in % of total revenue, IFRS)	24.2	16.2	23.1	20.8	23.3
Operating margin (in % of total revenue, non-IFRS)	30.3	29.7	29.0	28.9	30.1
Financial income, net	776	198	–47	188	–29
Profit before tax (PBT)	7,220	4,596	5,600	5,029	4,872
PBT margin (in % of revenues)	26.4	16.7	22.7	21.4	22.1
Income tax expense	–1,938	–1,226	–1,511	–983	–1,242
Profit after tax	5,283	3,370	4,088	4,046	3,629
Effective tax rate (IFRS, in %)	26.8	26.7	27.0	19.5	25.5
Effective tax rate (non-IFRS, in %)	26.5	26.2	26.3	22.8	26.9
Return on equity (profit after tax in percentage of average equity)	17	11	15	16	15
Order Entry					
Current cloud backlog	7,155	6,681	NA	NA	NA
Orders – number of cloud deals (in transactions)	16,888	15,679	13,813	11,330	8,844
Share of cloud orders greater than €5 million based on total cloud order entry volume (in %)	29	31	30	31	31
Share of cloud orders smaller than €1 million based on total cloud order entry volume (in %)	34	32	32	31	30
Orders – number of on-premise software deals (in transactions)	45,616	52,584	58,530	59,147	57,291
Share of software orders greater than €5 million (in % of total software order entry)	30	32	29	30	29
Share of software orders less than €1 million (in % of total software order entry)	36	35	39	40	38
Non-IFRS Adjustments					
Revenue adjustments	5	81	33	3	5
Adjustment for acquisition-related charges	577	689	577	587	680

€ millions, unless otherwise stated	**2020**	2019	2018	2017	2016
Adjustment for share-based payment expenses	1,084	1,835	830	1,120	785
Adjustment for restructuring	–3	1,130	19	182	28
Segment Results					
Applications, Technology & Support					
Segment revenue	21,680	21,664	19,873	18,932	17,921
Segment gross margin (in % of corresponding revenue)	80	81	81	82	83
Segment profit	9,423	9,454	8,583	8,257	8,226
Segment margin (Segment profit in % of Segment revenue)	43	44	43	44	46
Concur					
Segment revenue	1,505	1,609	1,338	1,165	985
Segment gross margin (in % of corresponding revenue)	79	78	76	75	75
Segment profit	564	620	482	405	342
Segment margin (Segment profit in % of Segment revenue)	37	39	36	35	35
Qualtrics					
Segment revenue	681	508	NA	NA	NA
Segment gross margin (in % of corresponding revenue)	78	78	NA	NA	NA
Segment profit	19	8	NA	NA	NA
Segment margin (Segment profit in % of Segment revenue)	3	2	NA	NA	NA
Services					
Segment revenue	3,157	3,447	3,165	3,012	2,840
Segment gross margin (in % of corresponding revenue)	29	24	21	20	19
Segment profit	499	362	249	160	137
Segment margin (Segment profit in % of Segment revenue)	16	10	8	5	5
Liquidity and Cash Flow					
Net cash flows from operating activities	7,194	3,496	4,303	5,045	4,628
Net cash flows from investing activities	–2,986	–7,021	–3,066	–1,112	–1,799
Net cash flows from financing activities	–3,997	102	3,283	–3,406	–2,705
Capital expenditure	–816	–817	–1,458	–1,275	–1,001
Free cash flow[10]	6,000	2,276	2,844	3,770	3,627
Free cash flow in % of total revenue	22	8	12	16	16
Cash conversion rate (net cash flows from operating activities in % of profit after tax)	136	104	105	125	128
Cash and cash equivalents	5,311	5,314	8,627	4,011	3,702
Short-term investments	1,470	67	211	774	971
Group liquidity (cash and cash equivalents/short-term investments/restricted cash)	6,781	5,382	8,838	4,785	4,673
Financial debts	–13,283	–13,668	–11,331	–6,264	–7,826
Net liquidity (net debt)	–6,503	–8,286	–2,493	–1,479	–3,153
Days sales outstanding (DSO, in days)	78	71	70	70	74
Assets, Equity and Liabilities					
Trade and other receivables	6,730	8,037	6,480	6,017	6,050

€ millions, unless otherwise stated	**2020**	2019	2018	2017	2016
Total current assets	15,069	15,213	16,620	11,930	11,564
Goodwill	27,560	29,159	23,736	21,271	23,311
Total non-current assets	43,402	44,999	34,881	30,554	32,713
Total current liabilities (including contract liabilities/deferred income)	12,842	14,462	10,486	10,210	9,674
Total non-current liabilities (including contract liabilities/deferred income)	15,702	14,929	12,138	6,759	8,205
Total equity (including contract liabilities/deferred income)	29,928	30,822	28,877	25,515	26,397
Total assets	58,472	60,215	51,502	42,484	44,277
Contract liabilities/Deferred income – current (IFRS)[7]	4,150	4,266	3,028	2,771	2,383
Equity ratio (total equity in % of total assets)	51	51	56	60	60
Debt ratio (total liabilities[2] in % of total assets)	49	49	44	40	40
Investments in goodwill, intangible assets, or property, plant, and equipment (including capitalizations due to acquisitions)	1,780	8,090	3,715	1,630	1,145
Key SAP Stock Facts					
Issued shares[7] (in millions)	1,229	1,229	1,229	1,229	1,229
Earnings per share, basic (in €)	4.35	2.78	3.42	3.35	3.04
Earnings per share, basic (non-IFRS, in €)	5.41	5.11	4.35	4.43	3.77
Earnings per share, diluted (in €)	4.35	2.78	3.42	3.35	3.04
Dividend per share[3] (in €)	1.85	1.58	1.50	1.40	1.25
Total dividend distributed[3]	2,273	1,886	1,790	1,671	1,498
Total dividend distributed[3] (in % of profit after tax)	43	56	44	41	41
SAP share price[7] (in €)	107.22	120.32	86.93	93.45	82.81
SAP share price – peak (in €)	142.26	124.72	108.02	100.35	82.81
SAP share price – low (in €)	87.63	84.31	82.47	82.43	64.90
Market capitalization[7] (in € billions)	131.70	147.81	106.80	114.80	101.73
Return on SAP shares[4], 1-year investment period (in %)	–10.9	38.4	–7.0	12.8	14.7
Return on SAP shares[4], 5-year investment period (in %)	7.9	15.6	6.9	9.0	17.3
Return on SAP shares[4], 10-year investment period (in %)	11.0	13.9	13.2	10.2	9.2
Employees and Personnel Expenses					
Number of employees[5, 7]	102,430	100,330	96,498	88,543	84,183
Number of employees, annual average[5]	101,476	99,157	93,709	86,999	80,609
Number of employees in research and development[5, 7]	29,580	27,634	27,060	24,872	23,363
Personnel expenses	13,420	14,870	11,595	11,643	10,229
Personnel expenses – excluding share-based payments	12,336	13,035	10,765	10,523	9,444
Personnel expenses per employee – excluding share-based payments (in € thousands)	122	131	115	121	117
Operating profit per employee (in € thousands)	65	45	61	56	64
Women working at SAP (in %)	33.6	33.5	33.0	32.8	32.4
Women in management[7] (total, in % of total number of employees)	27.5	26.4	25.7	25.4	24.5
Women managing managers[6, 7] (in %)	23.5	22.5	21.1	21.7	20.8
Women managing teams[6, 7] (in %)	29.0	27.8	27.5	26.8	25.9
Employee Engagement Index (in %)	86	83	84	85	85
Business Health Culture Index (BHCI, in %)	80	80	78	79	78

€ millions, unless otherwise stated	**2020**	2019	2018	2017	2016
Leadership Trust Index (LTI, as NPS)	62	59	60	61	57
Employee retention (in %)	95.3	93.3	93.9	94.6	94.3
Total turnover rate (in %)	7.0	10.7	7.6	7.9	7.7
Customer					
Customer Net Promoter Score[9]	4.0	–6.0	–5.0	17.8	19.2
Environment					
Net greenhouse gas emissions (in kilotons)	135	300	310	325	380
Greenhouse gas emissions per employee[5] (in tons)	1.3	3.0	3.3	3.8	4.7
Greenhouse gas emissions per € revenue (in grams)	4.9	10.9	12.6	13.9	17.3
Total energy consumption (in GWh)	693	955	919	920	950
Energy consumed per employee[5] (in kWh)	6,800	9,600	9,800	10,600	11,800
Total data center electricity consumption (in GWh)	361	338	318	265	243
Data center energy consumption per € revenue[8] (in Wh)	13	12	13	11	11
Renewable energy sourced (in %)	100	100	100	100	100

[1] SAP Group. Amounts according to IFRS, unless otherwise stated.

[2] As sum of current and non-current liability

[3] Numbers are based on the proposed dividend and on level of treasury stock at year end.

[4] Average annual return assuming all dividends are reinvested.

[5] Full-time equivalents

[6] Relates to different levels of management position.

[7] Numbers at year end.

[8] Data center energy consumption normalized against € revenue represents the required energy to develop and operate solutions in internal and external data centers.

[9] Due to changes in sampling in 2018, Customer NPS is not fully comparable to the prior years' scores.

[10] As at January 1, 2019, we changed our free cash flow definition to avoid effects resulting from the adoption of IFRS 16.

Glossary

A

accessibility – Umbrella term for efforts to ensure that the environment at SAP and large global events hosted by SAP are accessible for differently-abled people, such as by adding live and closed captioning on videos and keynote screens. We also endeavor to ensure that SAP software is accessible to the differently-abled.

add-on – Software application that is technically dependent on – and can only be installed on top of – another application. See "application."

Africa Code Week – Corporate social responsibility initiative led by SAP initiated in 2015 to help instill digital literacy and coding skills in the young generation across African countries. This program works closely with private, public, and non-profit partners to drive sustainable learning impact across Africa. 2019 results were phenomenal, with 3.85 million young Africans introduced to digital skills. In 2020, the reach was expanded to 54 countries through a new virtual model and mobile app.

analytics – Discovery and communication of meaningful patterns in data. It is applied to business data to describe, predict, and improve business performance; recommend action; and guide decision making across all organizations and functions in a company. Analytics helps companies gain new insight and understanding of their business performance based on data and statistical methods. See "SAP Analytics" and "SAP Unified Analytics."

app – Short for "application," this term is used at SAP exclusively for mobile or Web applications. See "mobile app(s)."

application – Software that enables organizations to address specific business needs and to perform certain business processes or activities. An application may comprise one software product or multiple software products, components, or instances.

application lifecycle management – Processes, tools, services, and organizational model used to manage SAP and third-party software throughout the solution lifecycle, from concept to phase-out. This recommended approach to application lifecycle management (ALM) enables companies to adopt innovations from SAP rapidly and gain optimal value from their business solutions. See "SAP Solution Manager" and "SAP Cloud ALM.

Ariba – See "SAP Ariba."

Ariba Network – Business commerce network where companies of all sizes can connect to their trading partners anywhere, at any time from any application or device to buy, sell, and manage their cash more efficiently and effectively than ever before. Companies around the world use Ariba Network to simplify interenterprise commerce and enhance the results they deliver. See "business network."

artificial intelligence (AI) – A standard definition of AI refers to the simulation of human intelligence processes by machines and computer systems. These processes include learning through the acquisition of information and rules for using information; reasoning through using the rules to reach approximate or definite conclusions; and by self-correction. AI capabilities are built into SAP's intelligent technology solutions. See "intelligent technologies" and "Intelligent Enterprise."

Autism at Work – Outreach program connects people on the autism spectrum with SAP employment resources with an emphasis on careers in technology. In 2018, SAP onboarded people with autism in 23 different roles, in 13 countries, and 28 locations through this program. See "SAP Autism Inclusion Pledge."

B

Back to Best (*https://www.sap.com/covid-19/back-to-best/customers.html*) – Campaign focused on how SAP is helping companies get back to running at their best during and after the COVID-19 pandemic. The solutions provided aim to help companies mitigate risks, ensure business continuity, and manage the needs brought on by a rapidly changing business and health environment.

benchmarking – Process of measuring products, services, and practices against those of leading companies, which can also be used as a reference point of measurement for evaluating best practices.

best practice – A management concept that involves devising a method of process that most effectively produces a desired outcome. SAP applications use business best practices to help customers automate common business processes through software and technology. See "SAP Best Practices."

Big Data – Large volume of data created by billions of connected devices and people generating a tremendous amount of information about their behavior, location, and activity. This availability of massive amounts of data requires companies to rethink technology architecture and database structures.

blockchain – Based on distributed ledgers, blockchain technology securely records information across peer-to-peer networks. This intelligent technology is still developing and areas for business application are growing. SAP also offers blockchain services. See "SAP Blockchain Business Services."

business data platform – See "SAP HANA."

Business Health Culture Index (BHCI) – Indicator of the extent to which SAP successfully offers employees a working environment that promotes health, supporting their long-term employability and their active engagement in reaching SAP's ambitious corporate goals. The BHCI is calculated based on the results of the engagement survey program "#Unfiltered."

business intelligence (BI) – Software that enables users to analyze an organization's raw data and make fact-based decisions. BI-related processes include data mining, analytical processing, querying, and reporting. Business intelligence offerings from SAP include SAP BusinessObjects BI solutions, SAP Crystal Reports, as well as the SAP BusinessObjects BI platform.

business network – An online service that connects businesses and their systems to those of their trading partners and enables new processes and information and insight sharing only possible in a digital environment. See "Ariba Network."

business process – Set of logically related activities performed within an organization to complete a defined business task. SAP

provides software and technology that enable and support business processes. Order processing and payroll are typical examples.

business process intelligence – Common foundation for a business process semantic layer, which contains capabilities for process insights and process improvements. It is a key element of the Intelligent Enterprise strategy in 2021. Business process intelligence (BPI) solutions from SAP allow users to turn process insights into actions to help drive digital transformation.

business transformation as a service – Software, technology, and services in the cloud to support customers in their digital transformation. It helps enterprises holistically transform their business with a fast time to value using new business models and more intelligent processes – at their own speed and terms, regardless of their starting point. RISE with SAP is SAP's business transformation as a service package that simplifies the customer journey through business process redesign, technical migration, and a blueprint to build an intelligent enterprise. See "RISE with SAP."

C

Call to Lead – SAP program that brings together thought leaders and executives from across industries to share personal experiences and best practices for creating and supporting diverse and inclusive communities. **Call to Lead Unplugged** is the related event series for executives to network and share their stories about thought leadership and customer experience

carbon credit – A tradable certificate that allows the holder to emit one ton of CO_2 or the respective equivalent of any other greenhouse gas.

carbon emissions – The sum of all greenhouse gas emissions measured and reported for SAP, including the compensation with renewable energy or offset.

carbon emission offset – Unit of carbon dioxide-equivalent (CO_2 equivalent) that is reduced, avoided, or sequestered to compensate for emissions occurring elsewhere.

carbon impact – Term used for SAP's ambitious short-term and long-term carbon reduction targets. SAP measures the net carbon emissions according to Greenhouse Gas (GHG) Protocol. The net carbon emissions are calculated by deducting emission savings such as renewable electricity and carbon offsets from gross carbon emissions. See "carbon emissions."

carbon neutral – Goal or state of emitting net zero greenhouse gases for certain activities. This includes reducing emissions, but also using renewable electricity certificates or carbon credits.

Climate 21 – Co-innovation initiative with customers, in which technology is developed to track, analyze, and report the carbon footprint of customers' products along the entire value chain. SAP has developed three new sustainability solutions for this program: SAP Product Carbon Footprint Analytics, SAP Product Footprint Management, and SAP Business Ecology Management. See "SAP Product Carbon Footprint Analytics," "SAP Product Footprint Management," and "SAP Business Ecology Management."

cloud computing – Generic term for flexible, IT-related services available through, or hosted on, the Internet for consumers and business, including storage, computing power, software development environments, and applications, combined with service delivery. Accessed as needed "in the cloud," these services eliminate the need for in-house IT resources. See "cloud service model."

cloud credit(s) – As part of the consumption-based commercial model for SAP Business Technology Platform (SAP BTP), cloud credits are the monetary value for prepaid service consumption. These credits are acquired through the Cloud Platform Enterprise Agreement (CPEA) through a pre-investment. With cloud credits as a payment equivalent, customers can consume the cloud services they need. See "Cloud Platform Enterprise Agreement" and "SAP Business Technology Platform."

cloud deployment models – The different infrastructure, software lifecycle management, and licensing models used for deploying software, that is, where software runs and how much control and flexibility a customer has to manage it.

Cloud ERP – Cloud ERP as a portfolio was retired in January 2020 and was fully replaced by "Intelligent ERP." See "Intelligent ERP."

Cloud Platform Enterprise Agreement (CPEA) – Agreement between SAP and customers use to purchase cloud credits as part of the consumption-based commercial model for SAP BTP. See "cloud credit(s)."

cloud service model – "As-a-service" offerings where cloud services are offered as infrastructure as a service (IaaS), platform as a service (PaaS), or software as a service (SaaS).

cloud solutions from SAP – Category used to communicate all of SAP offerings and efforts related to the cloud, including platform, managed services, solutions, technology, and infrastructure.

Code of Business Conduct – Global compliance document communicated to all SAP employees globally that contains a fundamental set of rules that define how SAP conducts business and require the highest levels of integrity and ethics. The Code sets the standard for dealings with customers, partners, competitors, and vendors, and each employee is bound by it. It is adapted locally and translated into local languages. We also expect SAP partners and suppliers to commit to meeting the high standards of integrity and sustainability through the SAP Partner Code of Conduct and the SAP Supplier Code of Conduct.

co-location data center – Contracted third-party data center where servers and other equipment from many different companies are 'co-located' in one data center. The hardware is usually owned by the companies themselves, and simply housed (and sometimes maintained) by the data center staff.

Concur Expense Management Suite – A single-priced suite made up of Concur Expense, Concur Request, ExpenseIt, SAP Solution Integration, and a single sign-on service.

Concur Travel & Expense – Signature offering from acquired company Concur that helps businesses simplify the entire travel expense management process, from spend requests to reconciliation, with an integrated expense reporting solution. Easy-to-use tools help improve productivity, increase compliance, and gain control over spend. See "SAP Concur."

connectivity – Framework that describes the interrelatedness of SAP's social, environmental, and economic performance. Based on statistical analysis, it allowed us to quantify the impact of non-financial measures on the operating profit offering a holistic understanding of SAP's value creation.

Corona-Warn-App – An app co-designed by SAP, Deutsche Telekom, and other partners, to track COVID-19 infections and break transmission chains in Germany. It was launched by the German government mid-2020. In October 2020, the app was connected to COVID-19 contact tracing apps in Italy and the

Republic of Ireland, enabled through a system called the European Union (EU) interoperability gateway, an intergovernmental and cross-border initiative

corporate social responsibility – See "SAP Corporate Social Responsibility."

Customer Net Promoter Score (NPS) – Metric that describes the willingness of customers to recommend or promote an organization or company to others. It is defined as the percentage of customers that are likely to recommend an organization or company to friends or colleagues (promoters) minus the percentage of customers that are unlikely to do so.

Customer Success – New SAP Executive Board area combining the former SAP Digital Business Services and Global Customer Operations created in February 2020. This organization is now responsible for global service and support delivery as well as portfolio management, maintenance go-to-market activities, mobile services, development of service and solution best practices, learning content development, and management of SAP user groups and SAP University Alliances.

D

data center energy – Sum of electricity consumed to provide internal and external computation power in SAP data centers, contracted third-party data centers (co-locations), and hyperscale data centers. See "co-location data center" and "hyperscaler."

data platform (as a service) – See "SAP HANA Cloud."

data warehousing – Electronic collection of information organized for easy access by computer programs. See "SAP Business Warehouse" and "SAP BW/4HANA."

digital transformation – Concept that refers to the changes associated with the application of digital technology in all aspects of society. Digital technologies empower customers and consumers in a way they never could before, transforming their relationship with brands and products. Businesses need to meet these new challenges or will miss the potential business success to be realized in the digital economy. Through RISE with SAP, SAP offers business transformation as a service to help customers on their digital transformation journey. See "business transformation as a service."

diversity – The practice or quality of including or involving people from a range of different social and ethnic backgrounds and of different genders, sexual orientations, etc. See "SAP Global Diversity and Inclusion Office."

E

ecosystem – Construct encompassing SAP and its customers and partners that extends the value SAP provides to its customers. By bringing together community-based insight, innovative partner solutions, and industry-leading collaboration and co-innovation, it enables customers to extract the greatest possible value from their SAP investments. The SAP ecosystem currently consists of more than 22,000 partners worldwide that build, sell, service, and run SAP solutions and technology.

Emarsys – A leading omnichannel customer engagement providers acquired by SAP in November 2020. By enhancing the SAP Customer Experience portfolio, Emarsys solutions change how commerce is managed digitally to deliver hyperpersonalized, omnichannel engagements in real time. See "SAP Customer Experience."

Embrace – A collaborative initiative between SAP, Microsoft, and global strategic service partners to help bring existing SAP ERP customers to an SAP S/4HANA-centric application landscape in the cloud.

Employee Engagement Index – Score for the level of employee commitment, pride, and loyalty, as well as the feeling of employees of being advocates for their company. The index is calculated based on the results of the engagement survey program "#Unfiltered" powered by Qualtrics.

employee retention – Ratio of the average number of employees minus the employees who voluntarily departed, to the average number of employees, taking into account the past 12 months (in full-time equivalents, FTEs). This ratio puts emphasis on employee-initiated turnover. As opposed to keeping a low turnover rate – which companies generally seek to do – we aim to keep the retention rate high. A higher retention rate signifies that fewer employees are choosing to leave SAP.

engagement survey – SAP's annual employee survey under the theme of #Unfiltered in 2019 started a new era of feedback experience using Qualtrics technology. Formerly called People Survey.

essential business services from SAP – Portfolio of individual services that are considered critical to businesses during the COVID-19 pandemic. The scenarios contained within this portfolio were created in collaboration with customers and are intended to help companies address business challenges and opportunities caused by the pandemic. Examples include scenarios designed to assess e-commerce performance, optimize inventory, and build technology-based solutions, such as applications for emergency aid.

e-waste (electronic waste) – Any discarded electric devices used in our offices and data centers, such as computers, computer monitors, or mobile devices.

Experience Management (XM) – Experience Management (XM) solutions from SAP and Qualtrics combine experience data (X-data) and operational data (O-data) to measure and improve the experiences provided to customers and stakeholders. The term refers to both the technology as well as the discipline of seeking out and closing the gaps found in the four core experiences of business – customer, product, employee, and brand. See "Qualtrics XM Platform."

F

Fieldglass – See "SAP Fieldglass."

5 & 5 by '25 – Initiative that is part of the SAP One Billion Lives program in which SAP, along with customers and partners, can set a goal of spending 5% of their company's addressable procurement spend with social enterprises and 5% with socially diverse suppliers globally by the year 2025. See "SAP One Billion Lives."

G

General Data Protection Regulation (GDPR) – Set of laws that came into force on May 25, 2018, which affects data privacy practices throughout the European Union (EU).

Global Pandemic Task Force – A team within SAP's Crisis Management & Business Continuity unit set up in early 2020 at the beginning of the COVID-19 pandemic. The main responsibilities include assessing the situation daily, providing guidance and

making sure employees are safe and secure, while keeping a holistic view on the global situation.

green cloud – Term to describe the SAP strategy to run all internal, external, and hyperscale data centers with 100% renewable electricity through the purchase of Renewable Energy Certificates. See "Renewable Energy Certificates (RECs)."

greenhouse gas (GHG) footprint – Sum of all greenhouse gas emissions measured and reported, including renewable energy and third-party reductions, for example, offsets.

H

Hasso Plattner Founders' Award – Introduced in 2014, this employee award is the highest employee recognition at SAP, presented annually by the CEO to an individual or a team. The award is named after one of the original founders of SAP and current chairman of the SAP Supervisory Board, Prof. Dr. Hasso Plattner.

How We Run and Lead – Relaunched version of the "How We Run" core values. The five existing core values tell it like it is, stay curious, embrace differences, keep the promise, build bridges, not siloes were extended by three more leadership behaviors: Unlock potential, explore possibilities, and make it happen together.

hybrid cloud – Deployment model that uses resources comprised of a mix of two or more distinct cloud deployment models that are integrated by standardized or proprietary technology enabling data and application portability. Also called "hybrid cloud deployment model."

hyperscaler – Third-party providers operating large-scale data center(s) to enable massive, efficient, and robust scalability of computing, system, and server architecture to respond to the increasing demand for cloud computing and Big Data solutions.

I

inclusion – The achievement of a work environment in which all individuals are treated fairly and respectfully, have equal access to opportunities and resources, and can contribute fully to the organization's success. See "SAP Global Diversity and Inclusion Office."

inclusive language – Language free from expressions or words that reflect prejudice. In 2020, SAP started the Inclusive Language Project to review terms that are considered non-inclusive and replace them across the SAP ecosystem.

industry – An economic sector characterized by a typical value chain, business processes, and set of products and services that the companies operating in it have in common. At SAP, "industries" is also used as a term to differentiate between line-of-business functions such as marketing, procurement, and finance, and those functions specific to an industry. The SAP portfolio addresses the needs of 25 industries and additional subsegments. See "industry segment."

industry cloud – Refers to the SAP strategy to extend the intelligent suite with innovative industry cloud solutions built by SAP and partners in the cloud, running on the cloud infrastructure of SAP and hyperscaler partners. The result is an open business and technology platform for customers' core business in their respective industries. In short, the industry cloud acts as an open business process and technology platform to foster innovation and collaboration between customers, partners, and SAP. Introduced in June 2020 during SAPPHIRE NOW Reimagined, this one portfolio extends the Intelligent Enterprise strategy into the industry space.

Industry 4.Now – Board-sponsored and funded program that aims to refocus SAP's market presence and increase revenue in the areas covered by Industry 4.0, and to grow awareness of SAP solutions in this space. The program includes go-to-market strategy and further software development.

infrastructure as a service (IaaS) – Processing, storage, network, other computing resources, and typically a defined level of support for consumers to deploy software (such as operating systems and applications). IaaS consumers do not manage underlying cloud infrastructure but may control networking components (such as host firewalls).

innovation – SAP invests in three types of product and service innovation: continuous innovation, which involves incremental improvements to existing offerings; adjacent innovation, which are enhancements to the existing portfolio using new technologies or applying existing knowledge to new markets; and transformative innovation that exploits new trends, technologies, and business models, yielding revolutionary products and markets.

Insight to Actions – A cross-Board collaboration that identified over 20 initiatives to address systemic customer feedback. The program also includes an engagement process spanning regions, solutions, and services.

Intelligent Enterprise (*https://www.sap.com/products/intelligent-enterprise.html*) – Integrated enterprises that use data to feed their intelligence. SAP's Intelligent Enterprise strategy enables customers to become intelligent enterprises by integrating data and processes, building flexible value chains, innovating with industry best practices, providing customers the ability to understand and act on their customer, partner, and employee sentiment, and how to manage their environmental impact — to grow more resilient, more profitable, and more sustainable. The strategy is built on and includes a business technology platform, sustainability management, intelligent suite, industry cloud, experience management, business process intelligence, business network, and cloud infrastructure that address more than 12 lines of business and 25 industries. See "intelligent suite," "SAP Business Technology Platform," "SAP Business Network, "industry cloud," and "Experience Management (XM)."

Intelligent ERP – Term used to message ERP offerings at SAP that now go beyond core ERP and enterprise management to include functionality from selected finance and digital supply chain solutions. It speaks to the added value and differentiator of on-premise and cloud-based ERP solutions, including SAP ERP, SAP S/4HANA, and SAP S/4HANA Cloud. It replaces the terms "digital core" and "Cloud ERP" used in the past. It is not the name of an individual product, suite, or portfolio.

Intelligent Spend Management – Initiative that brings together SAP Ariba, SAP Concur, and SAP Fieldglass solutions. Integrated with SAP S/4HANA, these solutions help customers manage the three primary categories of supplier spending: procurement of indirect and direct goods; travel and expense; and external workforce management.

intelligent suite – The intelligent suite is a fully unified, but still modular, sum of all SAP applications, enabling seamless cross-application business processes delivered through consistent and personalized user experiences. Built on a uniform data model and a

central data storage, the intelligent suite allows you to leverage the possibilities of embedded artificial intelligence and machine learning. See "Intelligent Enterprise."

intelligent technologies – Intelligent technologies that scale innovation in the intelligent suite. These technologies, including the former SAP Leonardo technologies such as machine learning, IoT, and analytics capabilities, are now embedded in many SAP applications. To let customers and partners apply these technologies equally for innovation, they will be readily accessible through SAP Extension Suite and SAP Integration Suite as managed and reusable services. See "Intelligent Enterprise," "SAP Extension Suite," and "SAP Integration Suite."

L

Land, Adopt, Consume, Expand (LACE) – Operating model that aligns sales, services, and customer engagement activities for a seamless experience across customer interactions with SAP along the customer lifecycle.

Leadership Trust Score – Based on the Net Promoter Score (NPS) methodology that results from a question in the annual global employee survey that gauges employees' trust in leaders. It measures the collective effort to foster a work environment based on trust. SAP uses this score to further enhance accountability for leaders and executive management.

Learning for Life – Program for all skill building initiatives from the SAP Corporate Social Responsibility (SAP CSR) team. This program helps support future workforce needs, reskilling efforts, and underserved people in the education/tech space including: women and those from culturally diverse backgrounds. Examples of existing initiatives are SAP Women Forward; Autism at Work; and SAP Skills for Africa.

line of business (LoB) – Internal organizational area or business unit in a company (division) that combines all responsibilities for a product, group, or set of processes, such as sales, purchasing, human resources, finance, marketing, and so on. SAP organizes its functional areas currently into 12 LoBs: asset management, commerce, finance, human resources, manufacturing, marketing, R&D/engineering, sales, service, sourcing and procurement, supply chain management, and sustainability.

M

machine learning – Technology that teaches computers how to perform tasks by learning from data – instead of being explicitly programmed. It uses sophisticated algorithms to "learn" from massive volumes of Big Data. Machine learning describes algorithms that learn from data and support employees to focus on higher value work, thus empowering enterprises to scale innovative solutions and make their organization intelligent.

mobile app(s) – Applications for mobile devices available for download, demo, and purchase on SAP Store, App Store, and other online stores. Mobile apps are categorized as either business/product or consumer in focus. At SAP, mobile apps are task-oriented or allow access to existing on-premise software.

Move SAP – Long-term incentive plan that incentivizes and rewards employees who provide a significant sustained impact to business success. Part of SAP's equity landscape with Own SAP and Grow SAP.

O

openSAP – Educational offering that delivers open online courses (known as "massive open online courses" or MOOCs) to the entire SAP ecosystem and beyond.

open source – Software based on the concept of software developers coming together to build a virtual community and solving a common problem by developing working software that everyone has a right to change. Successful development projects under the open source model include Linux, a free operating system supported by SAP. See "SAP Open Source."

Own SAP – Share purchase plan for SAP employees. In 2019, 66% of SAP employees participated in Own SAP, purchasing a total of 5.2 million of shares. Part of SAP's equity landscape with Move SAP and Grow SAP.

P

People Survey – See "engagement survey."

platform as a service (PaaS) – Cloud infrastructure, operating system, programming languages, libraries, services, tools and typically a defined level of support for consumers to deploy consumer-created or acquired applications. PaaS consumers do not manage underlying cloud infrastructure but have control over deployed applications. SAP Business Technology Platform is the PaaS offering from SAP. See "SAP Business Technology Platform."

powered by SAP HANA – An SAP offering powered by SAP HANA runs on the SAP HANA database. Partner solutions or applications that are powered by SAP HANA are certified by SAP to run on SAP HANA. These applications take advantage of distinctive capabilities of SAP HANA to deliver key benefits, such as simpler administration, reduced overhead, and better business intelligence over traditional databases.

private edition – Deployment model that implies resources are dedicated to one customer and accessed through the Internet. The infrastructure is owned, managed and operated by the customer, a third-party, or both, and is on the premises of the customer, cloud provider, or a third party. Formerly called single tenant edition. See "SAP S/4HANA Cloud, private edition."

Project Amplify – Internal project that aims to help ensure customers' business continuity by packaging together key solutions and services in each LoB with a simplified and flexible pricing and contract model. These packages are featured in the Back to Best initiative. See "Back to Best."

public cloud – Cloud deployment that provides consumers access to a provider's software applications running in a cloud infrastructure. The resources are located on the premises of the cloud provider, not of the customer, and are shared by multiple customers accessing them through the Internet. SAP S/4HANA Cloud is SAP's public cloud offering. See "SAP S/4HANA Cloud."

Q

Qualtrics International (*https://www.qualtrics.com*) – SAP acquired Qualtrics International Inc., the global pioneer of Experience Management (XM) software, that organizations use to collect, manage, and act on experience data. In July 2020, SAP announced that it is taking Qualtrics public through an initial public offering (IPO) in the United States. See "Experience Management (XM)."

Qualtrics Back-to-Business for Communities – Solution released during the COVID-19 pandemic that helps federal, state, and local governments as well as health departments understand the current state of public health in a specific community, and use the data provided to ensure a safe return to work for their citizens.

Qualtrics Customer Confidence Pulse – Automated solution released during the COVID-19 pandemic, that helps monitor customer expectations and capture feedback in real-time, so organizations can best respond and meet the needs of their customers and improve customer confidence.

Qualtrics Return to Work Pulse – Free trial solution released during the COVID-19 pandemic that is designed to help companies understand employee sentiment and determine when and how to reopen their workplace.

Qualtrics Workforce Contact Tracing – Free-to-use, flexible, and highly configurable solution released during the COVID-19 pandemic that allows organizations to pinpoint people who may have been exposed to the coronavirus. The solution runs on the XM Platform, which is compliant with GDPR, HIPAA, HITRUST, ISO27001, and FedRamp, and maintains the highest levels of security and privacy protection available.

Qualtrics Workforce Symptom Check – Solution released during the COVID-19 pandemic that helps organizations to minimize the risks of employees returning to work on-site through daily digital assessments.

Qualtrics XM Platform – Represents the technology that came to SAP with the acquisition of Qualtrics International Inc., in 2019. Experience management (XM) refers to both the technology as well as the discipline of seeking out and closing the gaps found in the four core experiences of business – customer, product, employee, and brand.

R

Renewable Electricity Certificates (RECs) – Certificates that prove that energy has been generated from renewable sources such as solar or wind power. Each REC represents the environmental benefits of 1MWh of renewable electricity generation. By purchasing RECs, renewable electricity is generated on your behalf.

renewable energy – Shares and types of electricity obtained from renewable sources such as hydro, wind, solar, geothermal, and biomass. It is calculated by adding the amount of renewable energy specifically sourced, produced on-site by solar cells and covered by Renewable Energy Certificates (RECs).

RISE with SAP (*https://www.sap.com/products/rise.html*) – Launched on January 27, 2021, this innovative single offer on a single contract supports a customer's transformation journey to an intelligent enterprise. RISE with SAP gives customers the choice of deciding which capabilities to use at what point in time. The offering bundles services to redesign business processes with business process intelligence, support migration of data, and a cloud infrastructure of choice. Key aspects of SAP's vision for an intelligent enterprise are included as part of this offering including access to SAP Business Technology Platform and SAP Business Network, an SAP S/4HANA Cloud deployment of choice, including public and private cloud and an option with enterprise management, access to SAP's supplier, logistics and asset intelligent networks, and an extensive partner ecosystem. RISE with SAP is a holistic "business transformation as a service" offering that allows customers to chart their course to an intelligent enterprise on their terms and on their timeline. It offers lower TCO, faster time to value, and the flexibility to address disruption without high upfront investment. See "business transformation as a service."

road map – Product timeline that has a variety of objectives, including communication to customers, users, or other parties interested in the timing of future product releases; the features planned for those releases; general prioritization of features; and in some cases, the requirements of features in enough detail that current and prospective customers can give feedback on the feature itself and the product's direction. See "SAP road maps."

S

SAP Activate – Innovation adoption framework introduced for SAP S/4HANA that combines SAP Best Practices, methodology, and guided configuration delivered with a reference landscape. The SAP Activate methodology is the SAP guidance for implementation, enhancements, upgrades, or co-innovation of SAP solutions starting with SAP S/4HANA. It enables cost-effective, agile, and fast delivery of the SAP solution to the customer and supports deployments in the cloud, on premise, or in hybrid deployment.

SAP AI Core – An infrastructure that enables a customer's business applications to become intelligent with artificial intelligence (AI) and machine learning technology and their data to train machine learning services to help automate tasks and processes.

SAP Alumni Network (*https://sap-alumni.com/*) – Network and online community that provides a platform to reconnect with former colleagues and to unleash the power of a trusted network for the benefit of SAP and the ecosystem. In 2018, community members included 3,472 former and 2,160 current SAP employees.

SAP Analytics – Portfolio of solutions that help customers achieve the power of collective insight in Big Data by empowering them with the right information at the right time to make insightful business decisions, anticipate change, and uncover new opportunities. SAP Analytics solutions cover the areas of business intelligence, enterprise performance management, and governance, risk, and compliance.

SAP Analytics Cloud – Software as a service (SaaS) that allows organizations to close the gap between transactions, data preparation, analysis and action providing all analytics capabilities in one offering. SAP Analytics Cloud combines business intelligence (BI), planning, and predictive analytics as well as new capabilities such as simulation and automated discovery in BI, as well as storytelling and predicted forecasts in planning. The solution allows customers to take advantage of high-speed innovation in the cloud, while using their existing on-premise investments. Customers can subscribe to SAP Analytics Cloud as a single solution with specific capabilities that can be licensed separately or together. The SAP Digital Boardroom solution is based on SAP Analytics Cloud.

SAP Ariba – Portfolio that includes cloud solutions for procurement, financials, and sourcing and the signature Ariba Network.

SAP Ariba Discovery – Solution that was made available free of charge during the COVID-19 pandemic. It helps buyers source suppliers, goods, and services globally.

SAP Ariba Supplier Risk – Solution that provides real-time visibility and intelligence on risks across an organization's entire supplier ecosystem.

SAP Asset Intelligence Network – Cloud subscription-based network hosted by SAP where manufacturers, asset owners, operators, regulators, and service providers can connect to each other. Content related to assets can be shared and stored on the network, and maintenance and service applications can be delivered through the network. See "SAP Intelligent Asset Management."

SAP Autism Inclusion Pledge – Program that enables SAP to extend the Autism at Work program out to its customer and partner ecosystem, encouraging other companies to create employee opportunities for people with autism. See "Autism at Work."

SAP Best Practices – Packages that provide proven methods and tools for organizations to implement best business practices in key areas and a range of industries using SAP software. The packages deliver methodology, documentation, and preconfiguration that enable rapid, reliable deployment with quick return on investment.

SAP Blockchain Business Services – Term that refers to cloud services from SAP to help application developers to utilize blockchain capabilities.

SAP BTP cockpit – This cockpit provides users a central point to manage all applications deployed from a single dedicated Web-based user interface. Individual services are categories according to integration or extension capabilities under the SAP Integration Suite and SAP Extension Suite umbrellas. See "SAP Business Technology Platform," "SAP Integration Suite," and "SAP Extension Suite."

SAP Business ByDesign – Complete, integrated business solution delivered in the cloud, ideally suited for growing small to midsize companies and subsidiaries. The affordable suite connects and runs all business processes, including financials, HR, sales, procurement, customer service, and supply chain. The solution is available through a monthly software-as-a-service (SaaS) model.

SAP Business Ecology Management – Solution that gives customers insights into their carbon footprint and assessments of other environmental effects of their products to meet sustainability goals and simplify eco-accounting. This cloud offering is part of the Climate 21 initiative and it is integrated into SAP Business ByDesign and SAP Business One. See "Climate 21," "SAP Business ByDesign," and "SAP Business One."

SAP Business Network – Services that aim to bring end-to-end visibility, increased efficiency, and improved collaboration across supply chain processes from design, planning, sourcing, and procurement, to manufacturing, logistics, and asset operations. The technology is designed to use insights from real-time ERP, advanced analytics, and network solutions – such as Ariba Network, SAP Asset Intelligence Network, SAP Logistics Business Network, and SAP Fieldglass solutions – to deliver collective intelligence through an open and interoperable business network. By creating a network of intelligent enterprises, we aim to help companies digitalize multienterprise business processes for better visibility and collaboration across the supply chain ecosystem.

SAP BusinessObjects Business Intelligence – Category of solutions including a business intelligence (BI) platform designed to help optimize business performance and provide business insight by connecting people with information.

SAP Business One – ERP solution designed for small businesses with up to 100 employees, providing a single, integrated solution for managing the entire business across all functions. A cloud version is available as SAP Business One Cloud.

SAP Business Technology Platform (SAP BTP) – Unified, business-centric platform that helps companies decide confidently, act with integrity, connect processes, data, and experiences, and achieve continued business innovation. SAP BTP comprises solutions spanning database and data management, analytics, application development and integration, and intelligent technologies. It gives users flexibility to choose SAP technologies that provide an intrinsic understanding of data and processes in SAP and third-party applications. It includes the integration and extension capabilities formerly integrated in SAP Cloud Platform. See "SAP Integration Suite" and "SAP Extension Suite."

SAP Business Warehouse (SAP BW) – Application that provides a complete view of a company and the tools needed to make the right decisions, optimize processes, and measure strategic success, such as business-critical factors and benchmarks. See "data warehousing."

SAP BW/4HANA – Data warehouse solution built entirely on SAP HANA that provides customers with enhanced data modelling and governance, so they can manage the availability, integrity, and security of data. The solution can be connected to various data sources, including SAP or unstructured third-party data, such as Hadoop. See "data warehousing."

SAP C/4HANA – This brand name was retired in June 2020. See "SAP Customer Experience."

SAP Cloud – See "cloud solutions from SAP."

SAP Cloud ALM – A cloud-based tool for application lifecycle management (ALM) that covers all stages of the application lifecycle, from discovery of cloud solution capabilities to implementation, operations, and continuous innovation as well as business value realization and enhancement. It helps track and manage the needs of customers that use (only or predominantly) cloud solutions from SAP. Customers subscribing to a cloud solution from SAP automatically receive SAP Cloud ALM. It is complementary to SAP Solution Manager which provides comparable capabilities for on-premise landscapes. See "application lifecycle management" and "SAP Solution Manager."

SAP Cloud Platform – As of February 2021, SAP Cloud Platform has been sunset as a product and brand name. The offerings formerly available with SAP Cloud Platform continue to be available, for example, in SAP Integration Suite and SAP Extension Suite. The capabilities of SAP Cloud Platform form the core of the new unified and open platform SAP Business Technology Platform (SAP BTP). See "SAP Integration Suite," "SAP Extension Suite," and "SAP Business Technology Platform."

SAP Community – Online portal with nearly two million members in more than 200 countries, providing individuals with the opportunity to trade experience and insights, pursue business opportunities, and learn from each other. SAP offers distinct communities in the network that offer information, trusted resources, and co-innovation. See "SAP University Alliances."

SAP Concur — Unified brand and portfolio of offerings for travel and expense management resulting from the acquisition of Concur Technologies in 2014. SAP Concur solutions provide an integrated system for expense, invoice, travel, and spend intelligence in the cloud. These solutions help companies of all sizes and stages go beyond automation to a connected spend management system that encompasses travel, expense, invoice, compliance, and risk.

SAP Conversational AI – Collection of natural language processing and bot building services that developers and corporations can use to build conversational interfaces or "chat bots" through intent classification, entity detection, question answering, sentiment analysis, and other high-order capabilities. Ready-to-use chat bots are also included. SAP Conversational AI provides a way to build bots that automate conversational interactions through natural language processing within SAP's intelligent technologies offerings, for example. SAP customers and partners are also able to create their own custom bots with this service.

SAP Conversational AI Foundation – Technical basis for building conversational applications using state-of-the-art natural language processing (NLP) and machine learning algorithms. You can use SAP CoPilot, a digital assistant for the enterprise, to expose the apps or use standard channels such as Slack, Microsoft Teams, or Facebook Messenger. See "SAP CoPilot."

SAP CoPilot – Digital assistant that runs on top of other SAP applications to enable productivity tasks such as real-time information exchange, note-taking, creation of reminders, and creation of draft objects that can be completed later. SAP CoPilot contextualizes, analyzes, and uses informal and unstructured speech to execute actions and present users with business objects, options, and other relevant data in a simple and conversational way.

SAP Corporate Social Responsibility (SAP CSR) – Organization and overall efforts for corporate social responsibility (CSR) and related social investments that puts the SAP purpose to help the world run better and improve people's lives into action through its mission – powering opportunity through digital inclusion. SAP CSR efforts focus on three strategic program pillars: building digital skills; accelerating best-run non-profits and social enterprises; and connecting employees with purpose. See "SAP4Good."

SAP Customer Data Platform – Offering within the SAP Customer Experience portfolio and one of the SAP Customer Data Cloud solutions. The solution aims to deliver personalization and help organizations to know more about their customers based on the ability to collect and manage customer data. It was released in 2020.

SAP Customer Experience – Extensible portfolio of customer experience solutions that speaks directly to the business benefits we seek to deliver to customer experience (CX) audiences and shows category of solutions has evolved from traditional customer relationship management (CRM) to greater customer centricity. This portfolio brings together solutions from acquired companies (Callidus Software, Coresystems, Gigya, hybris) under one umbrella. In November 2020, SAP acquired Emarsys to enhance the SAP Customer Experience portfolio and provide customers with a "commerce anywhere" strategy. See "Emarsys."

SAP data center – Physical facilities around the world used to house computer systems and associated components and meet the highest security standards. Comprised of various interconnected elements, the entire infrastructure is a feat of modern engineering predicated on keeping customer data safe. SAP data centers are currently located in Australia, Brazil, China, Europe, and on the U.S. east coast.

SAP Data Intelligence – Data operations management solution that enables data orchestration, pipelining, and governance as well as agile sharing of all data across a connected data landscape. This solution enables businesses to manage data from numerous sources – SAP or third party – without having to centralize data into one location. Formerly known as SAP Data Hub. A cloud version of this solution is available as SAP Data Intelligence Cloud. See "SAP Data Intelligence Cloud."

SAP Data Intelligence Cloud – Cloud solution that provides advanced data management, data orchestration, data governance for use cases such as data science techniques and technologies and machine learning capabilities. It offers scalable, open, complete data access and management and enables the automation of workflows and the creation, training, maintenance, and deployment of models and machine learning. The on-premise version of the solution is "SAP Data Intelligence." See "SAP Data Intelligence."

SAP Data Space (*http://dataspace-berlin.com/en/*) – Physical space in Berlin where the general public can meet, work, and eat together with innovators, change makers, partners, startups, and artists in a stimulating and innovative environment to discuss topics such as digital transformation.

SAP Data Warehouse Cloud– Integrated and persona-driven data warehouse-as-a service solution designed for business and IT users with capabilities for data integration, database, data warehousing, and analytics. It is an open solution built on SAP HANA.

SAP Digital Boardroom – Premier solution that contextualizes the boardroom, locations, and devices into a real-time enterprise experience. Powered by SAP HANA and experienced through the SAP S/4HANA suite and the SAP Analytics Cloud solution, the solution empowers leaders to monitor, simulate, and drive change in a digital economy. See "SAP Analytics Cloud."

SAP Digital Business Services – See "SAP Services and Support."

SAP Digital Commerce – Integrated digital business unit responsible for delivering e-commerce and digital native offerings to users who can discover, try, buy, implement, use, and renew SAP solutions in a simple online interaction. Formerly called SAP Digital.

SAP Digital Interconnect – SAP and Swedish company Sinch AB announced in May 2020 that they had entered into an agreement for Sinch to acquire the SAP Digital Interconnect group. The business sold consists of several SAP subsidiaries as well as assets transferred from certain SAP entities. The transaction closed on November 1, 2020.

SAP Digital Supply Chain – Portfolio offering enterprises an integrated suite of digital supply chain solutions to plan, design, manufacture, deliver, and operate their products. With these solutions, customers can blend the physical and the digital world throughout the complete supply chain – from design, planning, and manufacturing to logistics and ongoing maintenance – embedding intelligence and ensuring their customers are central to every phase of their business. Customers get total visibility as products are designed, delivered, and deployed by connecting their business processes with real-time data from assets, equipment, customers, and suppliers. This visibility is used to adequately anticipate and respond to real-world physical realities.

SAP Edge Services – Edge services are containerized services centrally provisioned, managed, configured, and deployed by the cloud. It brings compute, storage, and business semantics to the edge managed by the cloud. These edge computing capabilities are used to capture and analyze data for IoT-connected devices across all industries. Edge computing or edge processing relocates

processing from centralized nodes to the extremes of a network to enable analytics at the source of data even when resources are not connected to a network. Edge processing locations are any locations outside of the data centers.

SAP E-Mobility – A cloud solution that enables private sector customers, facility management companies, charge point operators, e-mobility service providers, utilities, automotive, oil and gas, and public sector customers to support their electric road-based vehicles.

SAP Endorsed Apps – Web or mobile apps developed by independent software vendors and endorsed by SAP to support and complete the SAP vision of the Intelligent Enterprise and are sold on SAP Store with post-royalty expense revenues coming back to SAP. See "SAP Store."

SAP Enterprise Support – Services that provide proactive support in addition to all features of SAP Standard Support services. These proactive support services encompass tools, processes, and services that enable continuous improvement, holistic application lifecycle management for continuous innovation, business and operational process improvements, and levers to address the total cost of operation (TCO). SAP Enterprise Support, cloud editions offering is a foundational success plan included with any cloud subscription you have from SAP. It supports successful cloud adoption across the enterprise.

SAP ERP – Application designed to optimize business and IT processes by reducing IT complexity, increasing adaptability, and delivering more IT value at a lower cost than traditional ERP solutions. It can support mission-critical, end-to-end business processes for finance, human capital management, asset management, sales, procurement, and other essential corporate functions. SAP ERP can also support industry-specific processes by providing industry-specific business functions that can be activated selectively via the switch framework, keeping the application core stable and helping ensure maximum performance. An **SAP ERP, private cloud edition** is now available to help customers still running on SAP ECC transition to a cloud landscape. See "SAP ERP Central Component (SAP ECC)."

SAP ERP Central Component (SAP ECC) – Main software component in the SAP ERP application.

SAP Executive Board – The official governing body of SAP, overseeing and deciding on the activities of the company. Subject to the requirements of stock corporation law, the SAP Executive Board is committed to the interests of SAP and bound by company policy. It provides the SAP Supervisory Board with regular, prompt, and comprehensive reports about all essential issues of business, corporate strategy, and potential risks. Membership in the SAP Executive Board is part of the official titles for these Board members.

SAP Experience Center(s) – Open space for inspiration, ideation, innovation, and illustration of digital opportunities today. A part of this is a maker space where organizations can test ideas and build digital and physical prototypes. Current centers exist in Copenhagen, Denmark, Hudson Yards, in New York City, Johannesburg, South Africa, and Tokyo, Japan, for example. SAP Leonardo Centers are in the process of being renamed SAP Experience Centers.

SAP Extension Suite – Umbrella term for all cloud services for extending applications in SAP Business Technology Platform. This suite enables companies to automate, enhance, and adapt business processes beyond standard solutions securely in both, on-premise and cloud landscapes. Comprises the extension capabilities previously available in SAP Cloud Platform. See "SAP Business Technology Platform."

SAP Fieldglass – Unified brand and portfolio of offerings for contingent workforce resulting from the acquisition of Fieldglass in May 2014 that help companies manage their entire workforce including contract workers and permanent staff. The signature SAP Fieldglass Vendor Management System includes cloud-based applications for external workforce management and services procurement.

SAP Fiori – First developed as a set of extensible HTML5 apps specific to key user roles, offering a seamless user experience across devices using responsive design principles. SAP Fiori apps target all employees of existing SAP customers, addressing the most common business functions, such as workflow approvals, information lookups, and self-service tasks. A free launchpad allows users to access their SAP Fiori apps from one single entry point. A cloud version is available as SAP Fiori Cloud.

SAP Fiori user experience (UX) – Umbrella term for the user experience for SAP software. Based on modern design principles, it represents a consumer-like, consistent experience across devices, including tablets and smartphones.

SAP for Me – Portal that gives SAP customers information about their software portfolio and helps them with such processes as provisioning and outage notifications, as well as contract and license management. It also offers recommendations for SAP events, learning paths, trial options, and other SAP products.

SAP4Good – Name used in social media channels to communicate the activities in areas such as corporate social responsibility (CSR), sustainability, diversity, and inclusion. See "SAP Corporate Social Responsibility."

SAP Global Diversity and Inclusion Office – Part of the Human Resources Board area, committed to enabling an inclusive, healthy, bias-free culture to foster employee engagement, spark innovation and drive customer success. See "diversity."

SAP HANA – SAP's flagship in-memory database, available both on premise and as a service in the cloud. It enables businesses to process and analyze live data and make business decisions based on the most up-to-date information, a requirement in today's digital economy. The innovative architecture in SAP HANA allows both transactional processing for data capture and retrieval, and analytical processing for business intelligence and reporting. It reduces time-consuming database and data management tasks and underpins intelligent applications that use advanced analytic processing. It includes features such as text analysis, multitenant database containers to support multiple isolated databases in a single SAP HANA instance, as well as external machine learning libraries. See "SAP HANA Enterprise Cloud."

SAP HANA Cloud – Data platform-as-a-service that offers full capabilities to manage data storage and federation. As the cloud-based data foundation of SAP Business Technology Platform, it integrates data from across the enterprise and enables faster decisions based on live data. SAP HANA Cloud connects customers to all of their information without requiring it to be loaded into a single storage solution.

SAP HANA Enterprise Cloud – This service enables customers to access solutions in the cloud. It contains managed cloud applications, in-memory infrastructure, managed services, and

through an additional license, SAP Business Technology Platform, to build custom applications in the cloud. On-premise applications from SAP can be delivered to customers through SAP HANA Enterprise Cloud.

SAP Innovation Framework – A framework that helps customers organize their portfolio investment planning. This methodology helps explain the difference between embedded intelligence, intelligent technologies, and open innovation; categorize industry scenarios into different buckets so that customers can understand the scenarios more simply; and enable account executives on a guided selling approach. There are three categories of innovations within the SAP Innovation Framework: optimize existing processes for more efficiency or reliability; extend current business processes to capture new sources of value; and transform company's value chain or business mode.

SAP Insights (*https://insights.sap.com/*) – Entity that develops and publishes thought leadership content and its role in and effect on technology in business as well as areas such as purpose, global economic and social impacts, scenario planning, and predictions. The SAP Insights Web site now also includes content formerly available in the Digitalist Magazine by SAP.

SAP Integrated Business Planning – See "SAP Integrated Business Planning for Supply Chain."

SAP Integrated Business Planning for Supply Chain – Powered by SAP HANA, this solution delivers real-time supply chain planning capabilities for sales and operations, demand and supply planning, and inventory optimization in the cloud. It provides the necessary information to make business decisions using embedded analytics, simulation, prediction, and decision support. Specific applications can be used with the established SAP Fiori user experience interface or with a Microsoft Excel plug-in, allowing users to run optimization scenarios directly in their spreadsheets. Renamed to include the Supply Chain focus.

SAP Integration Suite – Umbrella term for all cloud integration offerings in SAP Business Technology Platform. This suite integrates cloud applications, data, devices, and people with on-premise and cloud solutions from SAP and third-party vendors. Users with different skillsets can apply a variety of integration approaches, intuitive tools, and prepackaged content to achieve results faster and to gain business agility with this versatile, dynamic, and enterprise-grade cloud integration platform. Comprises the integration capabilities formerly available in SAP Cloud Platform. See "SAP Business Technology Platform."

SAP Intelligent Asset Management – A group of SAP offerings that enable an organization to use sensor technologies and predictive analytics to improve asset health. The four offerings currently are SAP Asset Intelligence Network, SAP Predictive Asset Insights, SAP Mobile Asset Management, and SAP Asset Strategy and Performance Management. The offerings continue to also be available individually.

SAP Intelligent Business Process Management – Marketing bundle of services and content that includes SAP Business Rules, SAP Process Visibility, SAP Workflow, SAP Conversational AI, SAP CoPilot and SAP Intelligent Robotic Process Automation.

SAP Intelligent Robotic Process Automation – Technology services that enable customers to achieve high degree of automation by delivering robotic process automation, machine learning, and conversational artificial intelligence (AI) in an integrated way to automate business processes in cloud, on-premise, and hybrid environments. In this automation suite software robots are designed to mimic human actions and responses and manual steps are replaced by automated, definable, and repeatable business processes across lines-of-business.

SAP Internet of Things (SAP IoT) – Solution that offers capabilities to address industrial Internet of Things (IoT) use cases. As the IoT layer powering SAP Business Technology Platform, it enables users to reimagine business processes and models with embedded IoT services and data. The solution has a reference architecture that offers business services and specific capabilities across manufacturing, supply chain, logistics, assets, products, service management, and other areas. It is deployed in the cloud and available as software as a service (SaaS), and thus can be accessed from any Web browser. The enterprise IoT capabilities we provide are catalysts for digital transformation, delivering real-time and forward-looking predictive insights that customers need for their intelligent enterprises.

SAP Leonardo – Launched in 2017, SAP Leonardo was the name for SAP's first innovative technology and capabilities for analytics, blockchain, Big Data, data intelligence, IoT, and machine learning. The SAP Leonardo brand was fully retired in March 2020. The SAP Leonardo capabilities are now embedded in intelligent technologies in SAP offerings across the portfolio. See "intelligent technologies" and "Intelligent Enterprise."

SAP Leonardo Center(s) – See "SAP Experience Center(s)."

SAP Model Company – Preconfigured ready-to-run reference solution with business content, accelerators, and engineered services for multiple industries or lines of business. This service provides the building blocks for a solution, helping customers accelerate deployment and digital transformation.

SAP Month of Service – Held annually in October, SAP's signature corporate volunteerism effort offers SAP employees around the world opportunities to come together to support social change in their communities. SAP Month of Service, an annual volunteering campaign, employees executed 800 projects globally. SAP Together will serve as a digital hub for employee volunteerism, continuing to build on the momentum from SAP Month of Service year-round. See "SAP Together."

SAP Next-Gen – Program that enables corporations, governments, and NGOs to connect with academic thought leaders and researchers, students, startups, accelerators, tech community partners, venture firms, purpose-driven partners, futurists, and SAP experts. This purpose-driven innovation university and community supports SAP's commitment to the 17 UN Global Goals for sustainable development, providing an innovation platform that comprises more than 3,700 educational institutions in 116 countries. It manages more than 110 SAP Next-Gen Labs at universities and at partner and SAP locations, and more than 90 SAP Next-Gen Chapters. The SAP Next-Gen program has been extended beyond enterprises and universities to citizens, partners, and young thinkers.

SAP One Billion Lives (*https://www.1blives.com/*) – Program that invites SAP colleagues to propose and gain support for projects that would benefit the public sector, specifically in the areas of education, health care, and disaster management and response. "SAP 1BLives" is used to refer to the program on social media. See "5 & 5 by '25."

SAP Product Engineering – SAP Executive Board area that encompasses product management, engineering, cloud operations and infrastructure, and support teams.

SAPPHIRE NOW (*https://events.sap.com/sapandasug*) – SAP's signature business technology event and the largest SAP customer-driven conference is held annually in several locations around the globe. The global event in the United States is co-located with the Americas' SAP Users' Group (ASUG) annual conference. Attendees discover new initiatives, solutions, products, and services, as well as unique access to the latest business strategies and industry best practices from SAP customers, partners, executives, and industry experts to help them drive business results across all levels.

SAPPHIRE NOW Reimagined – Name of the SAPPHIRE NOW event that took place virtually in April 2020 because of the COVID-19 pandemic.

Sapphire Ventures (*https://sapphireventures.com/*) – Name of independent venture firm spun off from SAP, providing the agility of a start-up while allowing companies to tap into SAP's global enterprise ecosystem of customers and partners. Sapphire Ventures pursues opportunities in which it can help fuel enterprise growth by adding expertise, relationships, geographic reach, and capital. The firm manages over US$4.2 billion and has invested in more than 170 companies. These include growth-stage technology companies and early-stage venture capital funds. It places a particular focus on companies in Europe, Israel, and the United States.

SAP Predictive Analytics – Software that provides an intuitive tool for predictive model design and visualization. It is available as a standalone solution and offers analytics and machine learning capabilities.

SAP Product Carbon Footprint Analytics – Application used with SAP S/4HANA and SAP Analytics Cloud that tracks and analyzes the carbon footprint of products. This offering is part of the Climate 21 initiative. See "Climate 21."

SAP Product Footprint Management – Cloud solution that enables customers to assess, evaluate, and optimize the environmental impact of their products, including carbon and CO2e (carbon dioxide equivalent) emissions and the usage of natural resources such as land and water. This offering is part of the Climate 21 initiative. See "Climate 21."

SAP Road Map Explorer (*https://roadmaps.sap.com/*) – An online tool that provides access for customers to interactive road maps across the SAP portfolio.

SAP road maps – Available for industries, lines of business, and technology, these road maps highlight the SAP solutions available today, planned innovation, and the SAP vision for the future. See "SAP Road Map Explorer."

SAP R/2 – Business software for mainframe computers launched by SAP in 1979; precursor to SAP R/3.

SAP R/3 – Business software for client/server environments launched by SAP in 1992 with enterprise software components for human resources, logistics, financials, sales and distribution, and others; precursor to SAP ERP.

SAP Services and Support – Portfolio of individually named services and support offerings organized under three specific engagement categories: project success, continuous success, and premium success. These offerings provide a simplified engagement, delivery, and overall experience with SAP and expanded the range of intelligent tools designed to underpin service and support offerings. The former organization SAP Services and Support (previously called SAP Digital Business Services) is now part of the Customer Success Board area.

SAP S/4HANA – Launched in February 2015, SAP's next-generation on-premise business suite runs on the SAP HANA database and is designed with role-based SAP Fiori UX. SAP S/4HANA is the enterprise resource planning (ERP) suite for the intelligent enterprise. The SAP S/4HANA suite spans all business functions including finance, human resources, sales, service, procurement, manufacturing, asset management, supply chain, and R&D. The cloud offering is available as SAP S/4HANA Cloud. See "SAP S/4HANA Cloud."

SAP S/4HANA Cloud – SAP's flagship next-generation cloud ERP provides functionality that allows companies to run integrated and intelligent digital businesses in real time. SAP S/4HANA Cloud is built with an open architecture that helps connect it to the wider SAP portfolio. SAP S/4HANA Cloud is a public cloud edition; the private cloud edition is called **SAP S/4HANA Cloud, private edition**. Both private and public cloud editions are available as options in the RISE with SAP offering. The SAP S/4HANA Cloud software development kit (SDK) allows customers and partners to innovate quickly and easily with integration and extension capabilities.

SAP Social Sabbatical – Umbrella name for an SAP CSR program that allows SAP employees to contribute their time and talent to helping entrepreneurs and small businesses in various markets. Program options exist for global, local, and regional engagement. In 2019, we expanded the program to include an option for executive engagement where selected strategic customers and partners were invited to join.

SAP Solution Manager – End-to-end application lifecycle management solution to help streamline business processes and proactively address improvement options, increasing efficiency and decreasing risk with the SAP maintenance agreement. Customers can centralize, enhance, automate, and improve the management of their entire system landscape (SAP and third party), thus reducing total cost of ownership. The solution includes features such as diagnostics, testing, root cause analysis, and solution monitoring. A category of focused solutions for SAP Solution Manager is available on SAP Store. It is complementary to SAP Cloud ALM which provides comparable capabilities for cloud landscapes. See "SAP Cloud ALM."

SAP solutions for small businesses and midsize companies – Category of solutions that combine business management and business intelligence software for small and midsize enterprises (SMEs) and the midmarket. It currently includes cloud-based ERP solutions such as SAP Business ByDesign, SAP Business One Cloud, Edge editions of SAP BusinessObjects BI solutions, and other SME services. As with large enterprises, SMEs seek to streamline business processes, cut costs, drive growth, and increase profitability by receiving the right information at the right time – across all operations.

SAP solutions for sustainability – Category of solutions that helps companies measure sustainability key performance indicators; energy and carbon management; and environment, health, and safety. SAP solutions for sustainability help organizations tackle energy consumption and greenhouse gas emissions, as well as support efforts in product safety, healthcare, and sustainability performance management.

SAP Store *(https://store.sap.com/)* – Online destination where customers can find, try, buy, and renew more than 1,800 solutions from SAP and trusted partners. Available in more than 200 countries and territories globally, it provides customers with real-time access to innovative solutions to become intelligent enterprises and digitally transform their businesses. Solutions from SAP's partners allow customers to extend their existing SAP solutions with a mix of free trials, paid apps, and services. As of February 2021, SAP Store now incorporates SAP App Center.

SAP SuccessFactors – Solutions that help organizations increase the value of their workforce by developing, managing, engaging, and empowering their people. Delivered as a complete digital suite, these solutions address all aspects of human resources (HR), from administration, payroll, and benefits to talent management and collaboration across the employee journey. These solutions integrate fully with the customer's other business software, including SAP S/4HANA. See "SAP SuccessFactors Human Experience Management (HXM) Suite."

SAP SuccessFactors Employee Central – Solution that is the foundation of the SAP SuccessFactors HXM Suite, offering core HR software delivered securely as a service from the cloud. It offers one global system of record, complete workforce overview combining HR and talent data, powerful analytics, and social collaboration fine-tuned to meet local needs.

SAP SuccessFactors HCM Suite – See "SAP SuccessFactors Human Experience Management (HXM) Suite."

SAP SuccessFactors Human Experience Management (HXM) Suite – Cloud HR software designed to increase the value of a workforce by providing solutions to help develop, manage, engage, and empower people. HXM solutions from SAP provide offerings for core HR and payroll, talent management, employee experience, HR analytics, and workforce planning. Previously called SAP SuccessFactors HCM Suite.

SAP TechEd (*https://events.sap.com/teched-global/en/home*) –Annual technical education conference that encompasses a broad scope of topics and audience, focusing on technology with an emphasis on collaboration and hands-on workshops. The event was held virtually in 2020 due to the COVID-19 pandemic. Local versions are designated as SAP TechEd.local events for direct reach to the target audience for virtual, digital, and hybrid elements of the SAP TechEd programs.

SAP Together – New cloud-based employee engagement platform, as well as funding of non-profit organizations. In this way, SAP works to foster employee engagement and societal impact. In 2018, more than 20,000 SAP employees volunteered, dedicating more than 298,000 hours of service. See "SAP Month of Service."

SAP Transformation Navigator (*https://go.support.sap.com/transformationnavigator/*) – Online tool used to provide customers with clear guidance on their road map to an SAP S/4HANA centric application landscape and to support the design and implementation of new business models and business processes. It is available at no cost.

SAP Trust Center (*https://www.sap.com/about/trust-center.html*) – External subsite of SAP.com that consolidates for prospective customers all trust-related content – for cloud and on-premise – such as details about SAP products, cybersecurity, data center security, data privacy, proof of compliance through international standards, and frequently asked questions. Formerly called SAP Cloud Trust Center.

SAP Unified Analytics – Cloud solution that enables a range of integrated analytics and reporting capabilities for data from SAP Ariba, SAP Fieldglass, SAP Concur, and SAP SuccessFactors solutions and SAP S/4HANA. Customers purchase the SKU(s) based on the LoB solution(s) they are running.

SAP Universal ID – Program that aims to unify the customer login experience through a single, lifelong user ID providing seamless access to a user's entitlements, a universal user profile, and self-service user management for accounts. The software solution supporting the program allows users to download and delete their data on demand, supporting GDPR. The technology itself is not sold but embedded into SAP offerings where possible.

SAP University Alliances – Program that introduces students to the exciting technologies shaping business today and designed to connect students around the world interested in SAP solutions, careers, and research opportunities. Students participate in classroom sessions, app development, networking opportunities, events, and more. The SAP University Alliances community provides connections between university leaders and students, SAP customers and partners, and SAP internal experts. Also see "SAP Next-Gen."

SAP Women Forward *(https://discover.sap.com/women-forward/en-us/index.html)* – Externally-facing women's initiative that includes an online community, newsletter, and annual events.

Scope 1 (emissions) – Direct greenhouse gas emissions from sources that are owned or controlled by the reporting company, for example, fuel burned in corporate cars.

Scope 2 (emissions) – Indirect greenhouse gas emissions from consumption of purchased electricity, heat, or steam.

Scope 3 (emissions) – Indirect emissions that are a consequence of the activities of the reporting company but occur from sources owned or controlled by another company, such as business flights.

Signavio (*https://www.signavio.com/*) – In January 2021, SAP announced the intent to acquire Signavio. This acquisition will strengthen SAP capabilities to manage end-to-end business processes. Founded in 2009, Signavio has optimized more than two million processes around the globe. The cloud-based Signavio Business Transformation Suite helps business leaders achieve greater visibility, conformance, and efficiency. Signavio supports more than one million users from offices in Australia, Canada, Germany, France, Japan, India, the Netherlands, Singapore, Sweden, Switzerland, United States, and UK. See "business process intelligence."

software as a service (SaaS) – Software that is provided literally "as a service." Software applications are delivered and managed remotely over a secure Internet connection and a standard Web browser. Access is charged on a subscription basis usually on a dedicated time basis and with expandable feature access options. Typically, a defined level of support is included. See "cloud computing."

solution – Business software that enables a customer to meet a challenge or take advantage of an opportunity and are built or assembled by flexibly combining software products and technology. SAP solutions may include support for best business practices and be aided by consulting and ongoing support. They may also be enhanced or extended by applications and services from partners.

Spotlight Black Businesses – This names an initiative in North America to highlight and support Black-owned businesses. SAP employees will nominate businesses to be featured in this campaign.

SuccessFactors – See "SAP SuccessFactors."

supplier diversity – Refers to an organization's efforts to include suppliers that are at least 51% owned and operated by an individual or group that is part of a traditionally underrepresented or underserved group.

T

technology platform – Technical foundation for a business-driven software architecture that increases the adaptability, flexibility, openness, and cost-efficiency of IT operations and enables organizations to become more agile in responding to change. See "SAP Business Technology Platform."

total energy consumed – Sum of all energy consumed through SAP's own operations (scope 1 and 2), including energy from renewable sources and energy consumed by external data centers delivering our cloud offerings.

U

UN Sustainable Development Goals (SDGs or UN Global Goals) – Set of 17 global development goals by the United Nations which are aimed to ensure an environmentally, socially, and economically sustainable future by tackling adverse challenges to humanity like poverty, hunger, and inequality.

user experience (UX) – In general terms, UX represents the quality of a user's interaction with and perceptions of a system. UX at SAP is a characteristic of solutions or products that use SAP Fiori UX technology and follow SAP Fiori UX guidelines to offer a next-generation experience to users. See "SAP Fiori user experience."

W

women in management – Phrase used to refer to the share of women in management positions (managing teams, managing managers, executive boards) as compared to the total number of managers, expressed by the number of individuals and not full-time equivalents (FTEs).

Financial Calendar and Addresses

Financial Calendar

2021

April 22
Results for the first quarter 2021

May 12
Annual General Meeting of Shareholders, virtual event

May 18
Dividend payment

July 21
Results for the second quarter and half-year 2021

October 21
Results for the third quarter 2021

2022

January 27
Results for the fourth quarter and full-year 2021

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Financial and Sustainability Publications

We present our financial, social, and environmental performance in the SAP Integrated Report 2020, which is available at www.sapintegratedreport.com. This SAP Integrated Report 2020 comprises all of the information required by accounting and disclosure standards applicable to us.

The following publications are available in English at *www.sap.com/investor*, or in German at *www.sap.de/investor*:

- Annual Report on Form 20-F (IFRS, in English)
- SAP Integrated Report (PDF)
- SAP SE Statutory Financial Statements and Review of Operations (HGB, in German)
- Half-Year Reports (in English and German)
- SAP INVESTOR, SAP's quarterly shareholder magazine (in German)

Complete information on the governance of SAP SE is available at *www.sap.com/corpgovernance*. Materials include:

- Information about the management of SAP SE, including the current members of the Executive Board and the Supervisory Board, their CVs and memberships in boards of other companies
- Information about the Supervisory Boards' committees, including their tasks and current composition
- Details of managers' (the Executive and Supervisory Board members') transactions in SAP securities
- Documents relating to SAP SE's Annual General Meetings of Shareholder, including voting results
- SAP SE's Articles of Incorporation
- Agreement on the Involvement of Employees in SAP SE
- German Code of Corporate Governance
- Declaration of Implementation pursuant to the German Stock Corporation Act, Section 161
- Code of Business Conduct for Employees
- Corporate Governance Statement pursuant to the German Commercial Code, Sections 315d and 289f
- Rules of Procedure for the SAP SE Supervisory Board
- Rules of Procedure for the SAP SE Executive Board
- Profile of Skills and Expertise for the SAP SE Supervisory Board
- Overview of the participation of Supervisory Board members in meetings of the Supervisory Board and its committees

Additional SAP policies are made public at *www.sap.com/corporate-sustainability*:

- SAP Human Rights Commitment Statement
- SAP Global Health and Safety Management Policy
- SAP Environmental Policy
- SAP Global Anti-Discrimination Policy
- SAP 's Guiding Principles for Artificial Intelligence
- SAP Supplier Code of Conduct
- SAP Partner Code of Conduct
- SAP's Global Tax Principles

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