CONSOLIDATED FINANCIAL STATEMENTS

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

millions of €

	Note	Dec. 31, 2019	Dec. 31, 2018
ASSETS			
CURRENT ASSETS		24,689	21,870
Cash and cash equivalents	1	5,393	3,679
Trade receivables	2	10,846	9,988
Contract assets	3	1,876	1,765
Current recoverable income taxes	31	481	492
Other financial assets	11	3,254	2,847
Inventories	4	1,568	1,790
Other assets	12	1,175	1,164
Non-current assets and disposal groups held for sale	5	97	145
NON-CURRENT ASSETS		145,983	123,505
Intangible assets	6	68,202	64,950
Property, plant and equipment	7	49,548	50,631
Right-of-use assets	8	17,998	n.a.
Capitalized contract costs	9	2,075	1,744
Investments accounted for using the equity method	10	489	576
Other financial assets	11	3,996	1,585
Deferred tax assets	31	2,704	2,949
Other assets	12	970	1,070
TOTAL ASSETS		170,672	145,375

millions of €

	Note	Dec. 31, 2019	Dec. 31, 2018
LIABILITIES AND SHAREHOLDERS' EQUITY			
CURRENT LIABILITIES		32,913	29,144
Financial liabilities	13	11,463	10,527
Lease liabilities	13	3,987	n.a.
Trade and other payables	14	9,431	10,735
Income tax liabilities	31	463	328
Other provisions	16	3,082	3,144
Other liabilities	17	2,850	2,654
Contract liabilities	18	1,608	1,720
Liabilities directly associated with non-current assets and disposal groups held for sale	5	29	36
NON-CURRENT LIABILITIES		91,528	72,794
Financial liabilities	13	54,886	51,748
Lease liabilities	13	15,848	n.a.
Provisions for pensions and other employee benefits	15	5,831	5,502
Other provisions	16	3,581	3,291
Deferred tax liabilities	31	8,954	8,240
Other liabilities	17	1,972	3,427
Contract liabilities	18	456	585
LIABILITIES		124,441	101,938
SHAREHOLDERS' EQUITY	19	46,231	43,437
Issued capital		12,189	12,189
Treasury shares		(47)	(49)
		12,142	12,141
Capital reserves		55,029	54,646
Retained earnings including carryforwards		(38,709)	(37,392)
Total other comprehensive income		(622)	(653)
Net profit (loss)		3,867	2,166
ISSUED CAPITAL AND RESERVES ATTRIBUTABLE TO OWNERS OF THE PARENT		31,707	30,907
Non-controlling interests		14,524	12,530
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		170,672	145,375

The IFRS 16 "Leases" accounting standard has been applied since January 1, 2019. Prior-year comparatives were not adjusted. Financial liabilities included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018. For further information, please refer to the section "Initial application of standards, interpretations, and amendments in the financial year" in the notes to the consolidated financial statements.

CONSOLIDATED INCOME STATEMENT

millions of €

	Note	2019	2018	2017
NET REVENUE	20	**80,531**	**75,656**	**74,947**
Of which: interest income calculated using the effective interest method		345	305	n.a.
Other operating income	21	1,121	1,491	3,819
Changes in inventories		29	(14)	21
Own capitalized costs	23	2,418	2,433	2,292
Goods and services purchased	24	(36,956)	(38,160)	(38,161)
Personnel costs	25	(16,723)	(16,436)	(15,504)
Other operating expenses	26	(3,301)	(3,134)	(3,444)
Impairment losses on financial assets		(452)	(394)	n.a.
Gains (losses) from the write-off of financial assets measured at amortized cost		(42)	(120)	n.a.
Other		(2,807)	(2,620)	(3,444)
EBITDA		**27,120**	**21,836**	**23,969**
Depreciation, amortization and impairment losses	27	(17,663)	(13,836)	(14,586)
PROFIT FROM OPERATIONS (EBIT)		**9,457**	**8,001**	**9,383**
Finance costs	28	(2,364)	(1,817)	(2,197)
Interest income		348	277	320
Interest expense		(2,712)	(2,094)	(2,517)
Share of profit (loss) of associates and joint ventures accounted for using the equity method	29	87	(529)	76
Other financial income (expense)	30	81	(502)	(2,269)
PROFIT (LOSS) FROM FINANCIAL ACTIVITIES		**(2,197)**	**(2,848)**	**(4,390)**
PROFIT BEFORE INCOME TAXES		**7,260**	**5,153**	**4,994**
Income taxes	31	(1,993)	(1,824)	558
PROFIT (LOSS)		**5,268**	**3,329**	**5,551**
PROFIT (LOSS) ATTRIBUTABLE TO				
Owners of the parent (net profit (loss))		3,867	2,166	3,461
Non-controlling interests	32	1,401	1,163	2,090
EARNINGS PER SHARE	33			
Basic €		0.82	0.46	0.74
Diluted €		0.82	0.46	0.74

The IFRS 16 “Leases” accounting standard has been applied since January 1, 2019. Prior-year comparatives were not adjusted. For further information, please refer to the section “Initial application of standards, interpretations, and amendments in the financial year” in the notes to the consolidated financial statements.

The accounting standards IFRS 15 “Revenue from Contracts with Customers” and IFRS 9 “Financial Instruments” took effect as of January 1, 2018. The 2017 comparatives have not been adjusted. For further information, please refer to the section “Initial application of standards, interpretations, and amendments in the financial year” in the notes to the consolidated financial statements in the 2018 Annual Report.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

millions of €

	2019	2018	2017
PROFIT (LOSS)	**5,268**	**3,329**	**5,551**
Items not subsequently reclassified to profit or loss (not recycled)			
Gains (losses) from the remeasurement of equity instruments[a]	99	(619)	0
Gains (losses) from the remeasurement of defined benefit plans	(603)	127	116
Revaluation due to business combinations	0	0	0
Share of profit (loss) of investments accounted for using the equity method	0	0	0
Income taxes relating to components of other comprehensive income	134	36	(19)
	(369)	**(456)**	**97**
Items subsequently reclassified to profit or loss (recycled), if certain reasons are given			
Exchange differences on translating foreign operations			
Recognition of other comprehensive income in income statement	(8)	(1)	0
Change in other comprehensive income (not recognized in income statement)	463	1,033	(2,196)
Gains (losses) from the remeasurement of available-for-sale financial assets[a,b]			
Recognition of other comprehensive income in income statement	n.a.	n.a.	7
Change in other comprehensive income (not recognized in income statement)	n.a.	n.a.	27
Gains (losses) from the remeasurement of debt instruments[a]			
Recognition of other comprehensive income in income statement	(47)	(75)	n.a.
Change in other comprehensive income (not recognized in income statement)	34	84	n.a.
Gains (losses) from hedging instruments[a,c]			
Recognition of other comprehensive income in income statement	n.a.	n.a.	450
Change in other comprehensive income (not recognized in income statement)	n.a.	n.a.	(270)
Gains (losses) from hedging instruments (designated risk components)[a]			
Recognition of other comprehensive income in income statement	(148)	(32)	n.a.
Change in other comprehensive income (not recognized in income statement)	(483)	(382)	n.a.
Gains (losses) from hedging instruments (hedging costs)[a,d]			
Recognition of other comprehensive income in income statement	2	3	n.a.
Change in other comprehensive income (not recognized in income statement)	(9)	56	n.a.
Share of profit (loss) of investments accounted for using the equity method			
Recognition of other comprehensive income in income statement	(7)	0	0
Change in other comprehensive income (not recognized in income statement)	11	7	0
Income taxes relating to components of other comprehensive income	155	86	(58)
	(38)	**779**	**(2,040)**
OTHER COMPREHENSIVE INCOME	**(407)**	**323**	**(1,943)**
TOTAL COMPREHENSIVE INCOME	**4,861**	**3,652**	**3,608**
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO			
Owners of the parent	3,514	2,181	2,340
Non-controlling interests	1,347	1,471	1,268

[a] For the new items in relation to IFRS 9 to be recognized in accordance with IAS 1, Deutsche Telekom utilizes the option of not showing comparative figures for the prior-year period.

[b] The measurement category “available-for-sale financial assets” as per IAS 39 was to be applied for the last time as of December 31, 2017.

[c] Gains and losses from hedging costs were recognized for the last time as of December 31, 2017 under IAS 39 as part of gains and losses from hedging instruments. Under IFRS 9, gains and losses from hedging costs are recognized separately in equity.

[d] In the 2018 and 2019 financial years, hedging costs relate entirely to cross currency basis spreads. For further information, please refer to Note 41 “Financial instruments and risk management.”

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

millions of €

	Issued capital and reserves attributable to owners of the parent					
	Equity contributed				Consolidated shareholders' equity generated	
	Number of shares	Issued capital	Treasury shares	Capital reserves	Retained earnings including carryforwards	Net profit (loss)
BALANCE AT JANUARY 1, 2017	**4,676,902**	**11,973**	**(50)**	**53,356**	**(38,727)**	**2,675**
Changes in the composition of the Group						
Transactions with owners				355		
Unappropriated profit (loss) carried forward					2,675	(2,675)
Dividends					(2,794)	
Capital increase at Deutsche Telekom AG	84,557	216		1,175		
Capital increase from share-based payment				124		
Share buy-back/shares held in a trust deposit			1		3	
Profit (loss)						3,461
Other comprehensive income					93	
TOTAL COMPREHENSIVE INCOME						
Transfer to retained earnings						
BALANCE AT DECEMBER 31, 2017	**4,761,459**	**12,189**	**(49)**	**55,010**	**(38,750)**	**3,461**
BALANCE AT JANUARY 1, 2018	**4,761,459**	**12,189**	**(49)**	**55,010**	**(38,750)**	**3,461**
Transfer resulting from change in accounting standards					1,414	
Changes in the composition of the Group						
Transactions with owners				(614)	1	
Unappropriated profit (loss) carried forward					3,461	(3,461)
Dividends					(3,083)	
Capital increase at Deutsche Telekom AG						
Capital increase from share-based payment				250		
Share buy-back/shares held in a trust deposit			1	0	3	
Profit (loss)						2,166
Other comprehensive income					163	
TOTAL COMPREHENSIVE INCOME						
Transfer to retained earnings					(602)	
BALANCE AT DECEMBER 31, 2018	**4,761,459**	**12,189**	**(49)**	**54,646**	**(37,392)**	**2,166**
BALANCE AT JANUARY 1, 2019	**4,761,459**	**12,189**	**(49)**	**54,646**	**(37,392)**	**2,166**
Transfer resulting from change in accounting standards					221	
Changes in the composition of the Group						
Transactions with owners				77		
Unappropriated profit (loss) carried forward					2,166	(2,166)
Dividends					(3,320)	
Capital increase at Deutsche Telekom AG						
Capital increase from share-based payment				306		
Share buy-back/shares held in a trust deposit			1		4	
Profit (loss)						3,867
Other comprehensive income					(463)	
TOTAL COMPREHENSIVE INCOME						
Transfer to retained earnings					74	
BALANCE AT DECEMBER 31, 2019	**4,761,459**	**12,189**	**(47)**	**55,029**	**(38,709)**	**3,867**

Issued capital and reserves attributable to owners of the parent												
Total other comprehensive income										Total	Non-controlling interests	Total shareholders' equity
Translation of foreign operations	Revaluation surplus	Available-for-sale financial assets (IAS 39)	Equity instruments at fair value through other comprehensive income (IFRS 9)	Debt instruments measured at fair value through other comprehensive income (IFRS 9)	Hedging instruments (IAS 39)	Hedging instruments: designated risk components (IFRS 9)	Hedging instruments: hedging costs (IFRS 9)	Investments accounted for using the equity method	Taxes			
(371)	**(60)**	**69**	**n.a.**	**n.a.**	**609**	**n.a.**	**n.a.**	**27**	**(196)**	**29,305**	**9,540**	**38,845**
										0	6	6
9										364	977	1,341
										0	0	0
										(2,794)	(122)	(2,916)
										1,391	0	1,391
										124	68	192
										4	0	4
										3,461	2,090	5,551
(1,367)		32			180			(1)	(58)	(1,121)	(823)	(1,944)
										2,340	**1,268**	**3,608**
(1,729)	**(60)**	**101**	**n.a.**	**n.a.**	**789**	**n.a.**	**n.a.**	**26**	**(254)**	**30,734**	**11,737**	**42,470**
(1,729)	**(60)**	**101**	**n.a.**	**n.a.**	**789**	**n.a.**	**n.a.**	**26**	**(254)**	**30,734**	**11,737**	**42,470**
		(99)	93	0	(789)	789			38	1,446	103	1,549
										0	11	11
(13)	0		0	2		1			(1)	(625)	(764)	(1,389)
										0	0	0
										(3,083)	(172)	(3,255)
										0	0	0
										250	144	394
										4	0	4
										2,166	1,163	3,329
621			(620)	6		(271)	58	7	50	15	308	323
										2,181	**1,471**	**3,652**
	32		611	(6)				(36)	1	0	0	0
(1,120)	**(28)**	**n.a.**	**84**	**2**	**n.a.**	**519**	**58**	**(4)**	**(165)**	**30,907**	**12,530**	**43,437**
(1,120)	**(28)**	**n.a.**	**84**	**2**	**n.a.**	**519**	**58**	**(4)**	**(165)**	**30,907**	**12,530**	**43,437**
										221	125	346
										0	239	239
(7)						4			(1)	73	340	413
										0	0	0
										(3,320)	(236)	(3,555)
										0	0	0
										306	178	484
										5	0	5
										3,867	1,401	5,268
319			99	(9)		(393)	(7)	4	97	(353)	(54)	(407)
										3,514	**1,347**	**4,861**
	7		(82)							0	0	0
(808)	**(21)**	**n.a.**	**101**	**(6)**	**n.a.**	**130**	**51**	**0**	**(69)**	**31,707**	**14,524**	**46,231**

CONSOLIDATED STATEMENT OF CASH FLOWS

millions of €

	Note	2019	2018	2017
PROFIT BEFORE INCOME TAXES	35	**7,260**	**5,153**	**4,994**
Depreciation, amortization and impairment losses		17,663	13,836	14,586
(Profit) loss from financial activities		2,197	2,848	4,390
(Profit) loss on the disposal of fully consolidated subsidiaries		9	0	(537)
(Income) loss from the sale of stakes accounted for using the equity method		(143)	0	(226)
Other non-cash transactions		569	430	(1,447)
(Gains) losses from the disposal of intangible assets and property, plant and equipment		112	(126)	(103)
Change in assets carried as operating working capital		(814)	(998)	(1,650)
Change in other operating assets		(248)	(337)	(224)
Change in provisions		203	(100)	265
Change in liabilities carried as operating working capital		(440)	(515)	814
Change in other operating liabilities		(325)	(11)	(763)
Income taxes received (paid)		(758)	(697)	(634)
Dividends received		15	181	241
Net payments from entering into, canceling or changing the terms and conditions of interest rate derivatives		(3)	0	0
CASH GENERATED FROM OPERATIONS		**25,297**	**19,663**	**19,706**
Interest paid		(3,924)	(3,307)	(3,783)
Interest received		1,701	1,592	1,274
NET CASH FROM OPERATING ACTIVITIES		**23,074**	**17,948**	**17,196**
Cash outflows for investments in				
Intangible assets		(4,375)	(3,353)	(10,345)
Property, plant and equipment		(9,982)	(9,139)	(9,149)
Non-current financial assets		(417)	(639)	(361)
Payments for publicly funded investments in the broadband build-out[a]		(401)	n.a.	n.a.
Proceeds from public funds for investments in the broadband build-out[a]		341	n.a.	n.a.
Payments to acquire control of subsidiaries and for associates		(261)	(2,080)	(15)
Proceeds from disposal of				
Intangible assets		0	2	21
Property, plant and equipment		176	523	379
Non-current financial assets		251	596	612
Proceeds from the loss of control of subsidiaries and associates		62	(67)	528
Net change in short-term investments and marketable securities and receivables		376	(144)	1,514
Other		(1)	5	2
NET CASH USED IN INVESTING ACTIVITIES		**(14,230)**	**(14,297)**	**(16,814)**
Proceeds from issue of current financial liabilities		10,778	51,597	13,516
Repayment of current financial liabilities		(16,533)	(57,253)	(26,537)
Proceeds from issue of non-current financial liabilities		6,278	8,375	11,215
Repayment of non-current financial liabilities		(21)	(23)	(10)
Dividend payments (including to other shareholders of subsidiaries)		(3,561)	(3,254)	(1,559)
Principal portion of repayment of lease liabilities		(3,835)	(1,174)	(715)
Cash inflows from transactions with non-controlling entities		13	29	18
Cash outflows from transactions with non-controlling entities		(261)	(1,557)	(522)
Other		0	0	0
NET CASH USED IN FINANCING ACTIVITIES		**(7,141)**	**(3,259)**	**(4,594)**
Effect of exchange rate changes on cash and cash equivalents		11	(17)	(226)
Changes in cash and cash equivalents associated with non-current assets and disposal groups held for sale		0	(8)	3
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS		**1,713**	**367**	**(4,435)**
CASH AND CASH EQUIVALENTS, AT THE BEGINNING OF THE YEAR		**3,679**	**3,312**	**7,747**
CASH AND CASH EQUIVALENTS, AT THE END OF THE YEAR		**5,393**	**3,679**	**3,312**

[a] The payments and proceeds shown here relate to those investments in the broadband build-out that are publicly financed in full. Since the payments are not made at the same point in time as the proceeds are received, the net amounts can be positive or negative in the individual periods. These investments are not included in the operational KPIs “Cash capex” and “Free cash flow,” because the payments made do not result in additions to property, plant and equipment. For further information on the change in estimates for publicly funded investments in the broadband build-out, please refer to the section “Changes in accounting policies, changes in estimates” in the notes to the consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

SUMMARY OF ACCOUNTING POLICIES

GENERAL INFORMATION

The Deutsche Telekom Group (hereinafter referred to as "Deutsche Telekom" or the "Group") is one of the world's leading service providers in the telecommunications and information technology sector. Deutsche Telekom offers its customers all kinds of products and services for connected life and work. The Group reports on the operating segments Germany, United States, Europe, Systems Solutions, and Group Development, as well as on the Group Headquarters & Group Services segment.

The Company was entered into the commercial register of the Bonn District Court (Amtsgericht – HRB 6794) under the name Deutsche Telekom AG on January 2, 1995.

The Company has its registered office in Bonn, Germany. Its address is Deutsche Telekom AG, Friedrich-Ebert-Allee 140, 53113 Bonn.

The Declaration of Conformity with the German Corporate Governance Code required pursuant to § 161 of the German Stock Corporation Act (Aktiengesetz – AktG) has been released and made available to shareholders. The Declaration of Conformity can be found on the website of Deutsche Telekom in accordance with § 161 AktG.

Declaration of Conformity

The shares of Deutsche Telekom AG are traded on the Frankfurt/Main Stock Exchange as well as on other stock exchanges.

The annual financial statements of Deutsche Telekom AG as well as the consolidated financial statements of Deutsche Telekom, which have an unqualified audit opinion from PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt/Main, are published in the Federal Gazette (Bundesanzeiger). The Annual Report is available upon request from Deutsche Telekom AG, Bonn, Investor Relations, and on Deutsche Telekom's website.

Publications

The consolidated financial statements of Deutsche Telekom for the 2019 financial year were released for publication by the Board of Management on February 10, 2020.

BASIS OF PREPARATION

The consolidated financial statements of Deutsche Telekom have been prepared in accordance with the International Financial Reporting Standards (IFRS) as adopted by the European Union (EU), as well as with the regulations under commercial law as set forth in § 315e (1) of the German Commercial Code (Handelsgesetzbuch – HGB). The term IFRS is consistently used in the following.

The financial year corresponds to the calendar year. The consolidated statement of financial position includes comparative amounts for one reporting date. The consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity, and the consolidated statement of cash flows include two comparative years.

Presentation in the statement of financial position differentiates between current and non-current assets and liabilities, which – where required – are broken down further by their respective maturities in the notes to the consolidated financial statements. The consolidated income statement is presented using the total cost method. Here, the costs incurred in the financial year are broken down by cost type and the costs capitalized under inventories as well as under intangible assets and property, plant and equipment are presented separately as changes in inventories or own capitalized costs. The consolidated financial statements are prepared in euros.

The financial statements of Deutsche Telekom AG and its subsidiaries included in the consolidated financial statements were prepared using uniform group accounting policies.

INITIAL APPLICATION OF STANDARDS, INTERPRETATIONS, AND AMENDMENTS IN THE FINANCIAL YEAR

In the 2019 financial year, Deutsche Telekom applied the following IASB pronouncements and/or amendments to such pronouncements for the first time:

Pronouncement	Title	To be applied by Deutsche Telekom from	Changes	Expected impact on the presentation of Deutsche Telekom's results of operations and financial position
IFRS 16	Leases	January 1, 2019	Under IFRS 16, lessees are required to recognize assets and liabilities for all leases and the rights and obligations associated with these leases in the statement of financial position. Lessees are therefore now no longer required to make the distinction between finance and operating leases that was previously required in accordance with IAS 17. For all leases, the lessee recognizes a lease liability in the statement of financial position for the obligation to make future lease payments. At the same time, the lessee recognizes a right-of-use asset representing its right to use the underlying leased asset which is equivalent to the present value of the future lease payments plus initial direct costs, advance payments, and restoration costs, minus incentive payments received. Similar to the guidance on finance leases in the previously applicable provisions of IAS 17, the lease liability will subsequently be adjusted over the lease term to reflect interest on the liability and principal repayments, while the right-of-use asset will be depreciated. Both factors – in contrast to IAS 17 – lead to higher expenses at the beginning of a lease. For the lessor, on the other hand, the provisions of the new standard are similar to the existing guidance in IAS 17. IFRS 16 also includes new provisions on the definition of a lease and its presentation, on disclosures in the notes, and on sale and leaseback transactions.	The standard has a material effect on the presentation of Deutsche Telekom's results of operations and financial position. The effects are detailed in the explanations following this table.
Amendments to IAS 19	Plan Amendment, Curtailment or Settlement	January 1, 2019	The amendments to IAS 19 change the guidance on the amendment, curtailment, or settlement of a defined benefit pension plan. They clarify that an entity is required to determine current service cost and the net interest for the remainder of the reporting period after a plan amendment, curtailment, or settlement using updated actuarial assumptions and the net liability (or net asset) at the time of the amendment. Any changes in a surplus must be recognized as profit or loss as part of past service cost, or a gain or loss on settlement, even if this surplus had not been previously recognized due to the effect of the asset ceiling. The effects of changes in the asset ceiling are recognized in other comprehensive income.	No material impact.
Amendments to IAS 28	Long-term Interests in Associates and Joint Ventures	January 1, 2019	The amendments clarify that an entity applies IFRS 9 including its impairment requirements to long-term interests in an associate or joint venture that form part of the net investment in the associate or joint venture but are not accounted for using the equity method.	No material impact.
Amendments to IFRS 9	Prepayment Features with Negative Compensation	January 1, 2019	The amendment sets out that, if certain conditions are met, financial assets can be measured at amortized cost or fair value through other comprehensive income (FVOCI) if, in the case of an early termination, compensation is required to be paid to the party that triggers the early termination of the contract.	No material impact.
IFRIC 23	Uncertainty over Income Tax Treatments	January 1, 2019	IFRIC 23 brings clarity to IAS 12 in relation to the recognition and measurement of current income taxes, deferred tax assets, and deferred tax liabilities if there is uncertainty regarding the treatment of income taxes.	No material impact.
Annual Improvements Project	Annual Improvements to IFRSs 2015-2017 Cycle	January 1, 2019	Clarifications in individual IFRS standards.	No material impact.

In January 2016, the IASB issued **IFRS 16 "Leases."** This standard is mandatory for reporting periods beginning on or after January 1, 2019. IFRS 16 has a material effect on Deutsche Telekom's consolidated financial statements, particularly on total assets, the results of operations, cash generated from operations, net cash from/used for financing activities, and the presentation of the financial position.

The new regulations affect Deutsche Telekom as a lessee especially in relation to leases of cell sites (land, space on cell towers, or rooftop surface areas), network infrastructure, and buildings used for administrative or technical purposes.

Deutsche Telekom has not applied the new lease standard retrospectively to each prior reporting period presented, but elected to apply the practical expedients for lessees, also known as the modified retrospective method. Upon transitioning to IFRS 16, the lease liability is measured and recognized at the present value of the remaining lease payments from existing operating leases, discounted using the relevant incremental borrowing rate. The right-of-use assets were measured and recognized as of January 1, 2019 at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments. Due to the significant amount of liabilities from straight-line leases in accordance with IAS 17, which in accordance with IFRS 16 must be deducted from the right-of-use assets, the right-of-use assets as of January 1, 2019 under IFRS 16 were measured and recognized at a significantly lower amount than the corresponding lease liability. This liability primarily relates to leases for T-Mobile US' cell sites. As of the transition date of January 1, 2019, in a first step, the lease terms underlying the liabilities were adjusted to the lease terms determined in accordance with IFRS 16. This adjustment increased shareholders' equity. The remaining accrued lease liability was deducted from the right-of-use asset as described above. For leases that were previously classified as finance leases, their carrying amounts as of December 31, 2018 were carried over and recognized as right-of-use assets and lease liabilities as of January 1, 2019.

Significant policy elections and practical expedients were exercised as follows:

- Right-of-use assets and lease liabilities are presented separately in the statement of financial position.
- The recognition, measurement, and disclosure requirements of IFRS 16 also apply to short-term leases and leases of low-value assets.
- Non-lease components are generally not separated from lease components; instead, each lease component and any associated non-lease components is accounted for as a single lease component. This practical expedient does not include contracts relating to data centers, which due to their special requirements in terms of equipment and premises form their own separate class of underlying asset. For this class of assets, the non-lease payments are recognized as an expense.
- IAS 38 is applied for leases of intangible assets rather than IFRS 16.

In addition, on the date of first-time adoption of IFRS 16, use was made of the main policy elections and practical expedients as follows:

- Provisions for onerous contracts recognized in connection with leases were adjusted against the right-of-use asset as of January 1, 2019.
- In determining the lease term, hindsight may have been used by individual business units where economic considerations and penalties indicate that it is reasonably certain that options to extend or terminate the lease will be exercised.
- Existing contracts will not be grandfathered. On January 1, 2019, IFRS 16 was therefore applied to all existing leases falling within its scope. This applies to contracts in which Deutsche Telekom is a lessee and to contracts in which the Group is a lessor.

Overall, the new definition of a lease does not have a material impact for Deutsche Telekom as a lessor. However, the number of identified leases changes. The new definition does not affect the contracts for servers or similar hardware provided to customers as part of data and network solutions or contracts for terminal equipment provided to customers. These will continue to be defined as leases. However, the number of leases for contracts involving modems/routers for the latest generation of devices provided to consumers as part of fixed-network mass-market contracts – where modem and router functions are installed in one device – is decreasing. In relation to services provided in data centers, the leasing of space, for example, separate rooms for setting up the customer's own hardware, are identified as a component of a lease. Furthermore, the leasing of local loop lines and space to wholesale fixed-network customers (e.g., co-location space) is also classified as a lease.

The adjustments made to the consolidated statement of financial position as of January 1, 2019 and attributable to the first-time application of IFRS 16 are as follows [a]:

millions of €	Carrying amount in accordance with IAS 17 Dec. 31, 2018	Remeasurements	Reclassifications	Carrying amount in accordance with IFRS 16 Jan. 1, 2019
ASSETS				
Intangible assets	64,950		(29)	64,921
Property, plant and equipment	50,631		(2,524)	48,107
Right-of-use assets	n.a.	15,601	638	16,239
Other financial assets	4,432		21	4,453
Deferred tax assets	2,949	166		3,115
Other assets	2,234		(196)	2,038
Non-current assets and disposal groups held for sale	145	9		154
LIABILITIES AND SHAREHOLDERS' EQUITY				
LIABILITIES				
Financial liabilities	62,275		(2,481)	59,794
Lease liabilities	n.a.	15,601	2,472	18,073
Other provisions	6,435		(185)	6,250
Deferred tax liabilities	8,240	290		8,530
Other liabilities	3,427	(470)	(1,859)	1,098
Contract liabilities	585		(7)	578
Trade and other payables	10,735		(30)	10,705
Liabilities directly associated with non-current assets and disposal groups held for sale	36	9		45
SHAREHOLDERS' EQUITY				
Retained earnings including carryforwards plus non-controlling interests[b]	(25,462)	346		(25,116)

[a] The overview above contains only those items of the statement of financial position that are affected by the first-time application of IFRS 16; for reasons of simplification, current and non-current items have been combined in the presentation.

[b] For reasons of simplification, the figure is combined to show the cumulative effect of the transition to IFRS 16 to be recognized directly in equity.

After deferred tax liabilities totaling EUR 0.1 billion (net) were taken into account, the transition to the new standard as of January 1, 2019 resulted in a cumulative effect that increased retained earnings by EUR 0.3 billion and included the effect of shares attributable to non-controlling interests. This largely results from the derecognition of accrued lease payments (liabilities from straight-line leases) described above.

Reclassifications relate in particular to reclassifications of carrying amounts from previous finance leases to right-of-use assets and lease liabilities and the adjustments for prepaid or accrued lease payments from operating leases under the previous accounting method, provisions for onerous contracts, or liabilities from straight-line leases against right-of-use assets, as described above.

The obligations arising from operating leases as of December 31, 2018 (2018 Annual Report, Note 37 "Leases") gave rise to the following reconciliation to the opening balance of lease liabilities as of January 1, 2019:

millions of €	January 1, 2019
Obligations arising from operating leases as of December 31, 2018	18,284
Minimum lease payments (nominal value) of finance lease liabilities as of December 31, 2018	2,950
Changes resulting from new definition of leases	(743)
Changes in the assessment of options to extend or terminate the lease	865
Other	(95)
Gross lease liabilities as of January 1, 2019	**21,261**
Discounting	(3,188)
Lease liabilities as of January 1, 2019	**18,073**
Present value of finance lease liabilities as of December 31, 2018	(2,472)
ADDITIONAL LEASE LIABILITIES ATTRIBUTABLE TO FIRST-TIME APPLICATION OF IFRS 16 AS OF JANUARY 1, 2019	**15,601**

If the interest rate implicit in the lease cannot be readily determined, the interest rate used for the measurement of right-of-use assets and lease liabilities is the incremental borrowing rate. The incremental borrowing rate is determined by deriving benchmark interest rates for a period of up to 30 years from maturity-related risk-free interest rates which are increased by a credit-risk premium and adjusted for a liquidity and country-risk premium.

For measuring the lease liabilities recognized in the statement of financial position as of January 1, 2019, weighted average incremental borrowing rates of 1.7 percent to 5.0 percent were used for discounting in the euro currency area and a rate of 5.2 percent was applied in the U.S. dollar currency area.

The increase in lease liabilities leads to a corresponding increase in net debt.

millions of €

	2019
DEPRECIATION OF RIGHT-OF-USE ASSETS	**3,649**
Right-of-use assets – land and buildings	1,215
Right-of-use assets – land and buildings from sale and leaseback transactions	142
Right-of-use assets – technical equipment and machinery	2,227
Right-of-use assets – other equipment, operating and office equipment	65
INTEREST EXPENSE ON LEASES	**870**

For further information on changes in the right-of-use assets and lease liabilities reported as of December 31, 2019, please refer to Note 8 "Right-of-use assets – lessee relationships" and Note 13 "Financial liabilities and lease liabilities."

For the presentation in the income statement in the 2019 financial year, please refer to the section "Notes to the consolidated income statement."

STANDARDS, INTERPRETATIONS, AND AMENDMENTS ISSUED, BUT NOT YET TO BE APPLIED

Pronouncement	Title	To be applied by Deutsche Telekom from	Changes	Expected impact on the presentation of Deutsche Telekom's results of operations and financial position
IFRSs ENDORSED BY THE EU				
Amendments to References to the Conceptual Framework	References to the Conceptual Framework	January 1, 2020	Updating of the cross references to the revised conceptual framework in the corresponding standards and interpretations.	No material impact.
Amendments to IAS 1 and IAS 8	Definition of Material	January 1, 2020	Clarification of the definition of the concept of materiality.	No material impact.
Amendments to IFRS 9, IAS 39, and IFRS 7	Interest Rate Benchmark Reform	January 1, 2020	Practical expedients for hedge accounting requirements that are mandatory for all hedges affected by the interest rate benchmark reform. Further information on this is also planned.	The effects are detailed in the explanations following this table.
IFRSs NOT YET ENDORSED BY THE EU[a]				
Amendments to IFRS 3	Business Combinations	January 1, 2020	Changes in the definition of a business to clarify whether a business or a group of assets was being acquired.	No material impact.
IFRS 17	Insurance Contracts	January 1, 2021	IFRS 17 governs the accounting for insurance contracts and replaces IFRS 4.	No material impact.
Amendments to IAS 1	Presentation of Financial Statements	January 1, 2021	Clarification of the classification of liabilities as current or non-current.	No material impact.

[a] For standards not yet endorsed by the EU, the date of first-time adoption scheduled by the IASB is assumed for the time being as the likely date of first-time adoption.

The reform of interbank offered rates (IBORs) is currently generating uncertainty regarding the timing of implementation and the precise content of the planned changes. Deutsche Telekom is affected by this uncertainty in its hedging of interest rate and currency risks in designated fair value and cash flow hedges where certain IBORs are part of the hedging relationship (EURIBOR, USD-LIBOR, GBP-LIBOR, AUD-LIBOR, HKD-LIBOR, and NOK-OIBOR). Group Treasury continuously analyzes the latest developments and takes any steps needed to transition to the new interest rate benchmarks. Deutsche Telekom does not expect the changes in the benchmark rates to have a material impact.

For information on financial instruments, please refer to Note 41 "Financial instruments and risk management."

CHANGES IN ACCOUNTING POLICIES, CHANGES IN ESTIMATES

With the exception of the standards, interpretations, and amendments that are effective for the first time in the financial year, Deutsche Telekom did not make any major changes in its accounting policies.

The contractual grants receivable from public funding projects for the broadband build-out in Germany are recognized in full as of the start of the third quarter of 2019. This is due to the fact that the broadband build-out in Germany has now become a routine activity such that now, as soon as a grant agreement is concluded, it has to be assumed with the reasonable assurance required under IFRS that Deutsche Telekom will meet the conditions for the grant and that the public sector will pay out the grant. Consequently, the expected grants are now recognized in full as other financial assets upon conclusion of the agreement, with a matching non-financial other liability for the existing build-out obligation. Previously, the grant conditions were only deemed to be met with reasonable assurance upon acceptance after completion, and hence until now, only advance payments received were recognized as non-financial other liabilities. Consequently, the funded portion of the payments was initially capitalized as property, plant and equipment, as a result of which the corresponding carrying amount was higher. The grants receivable recognized as other financial assets in the second half of 2019 as a result of this change in estimate amounted to EUR 1.3 billion, and non-financial other liabilities of EUR 1.2 billion were newly recognized for the build-out obligations to be fulfilled. The difference is deducted from property, plant and equipment. The financial assets measured at amortized cost are reduced upon receipt of the grants. The non-financial other liabilities are derecognized on a pro rata basis as the build-out progresses, reducing the cost of the publicly funded property, plant and equipment. All grants received from funding projects and payments made for the build-out are recognized in net cash from/used in investing activities. Grants and payments for funding projects for which the reasonable assurance described above already exists are recognized separately in the items “Proceeds from public funds for investments in the broadband build-out” and “Payments for publicly funded investments in the broadband build-out.” Since the payments are not made at the same point in time as the proceeds are received, the net amounts can be positive or negative in the individual periods. These investments are not included in “Cash outflows for investments in property, plant and equipment,” because the payments made do not result in additions to property, plant and equipment.

For further information on this change in estimate, please refer to Note 35 “Notes to the consolidated statement of cash flows.”

ACCOUNTING POLICIES

Key assets and liabilities shown in the consolidated statement of financial position are measured as follows:

Items in the statement of financial position	Measurement principle
ASSETS	
CURRENT ASSETS	
Cash and cash equivalents	Amortized cost
Trade receivables	Depending on the underlying business model in each case: at amortized cost, at fair value through other comprehensive income with recycling to profit or loss, or at fair value through profit or loss
Contract assets	Amortized cost
Current recoverable income taxes	Amount expected to be recovered from the taxation authorities, using the tax rates that have been enacted or substantively enacted by the end of the reporting period
Other financial assets	
Originated loans and other receivables	Depending on the underlying business model in each case: at amortized cost, at fair value through other comprehensive income with recycling to profit or loss, or at fair value through profit or loss
Equity instruments	Fair value through other comprehensive income without recycling to profit or loss
Derivative financial assets	At fair value through profit or loss or, in the case of certain hedging relationships, at fair value through other comprehensive income with recycling to profit or loss
Inventories	Lower of net realizable value and cost
Non-current assets and disposal groups held for sale	Lower of carrying amount or fair value less costs of disposal (including allocable liabilities)

Items in the statement of financial position	Measurement principle
NON-CURRENT ASSETS	
Intangible assets	
Of which: with finite useful lives	Amortized cost or lower recoverable amount
Of which: with indefinite useful lives (including goodwill)	Cost or lower recoverable amount (impairment-only approach)
Property, plant and equipment	Amortized cost or lower recoverable amount
Right-of-use assets	Amortized cost or lower recoverable amount
Capitalized contract costs	Amortized cost or lower recoverable amount
Investments accounted for using the equity method	Pro rata value of the investment's equity carried forward or lower recoverable amount
Other financial assets	
Originated loans and other receivables	Depending on the underlying business model in each case: at amortized cost, at fair value through other comprehensive income with recycling to profit or loss, or at fair value through profit or loss
Equity instruments	Fair value through other comprehensive income without recycling to profit or loss
Derivative financial assets	At fair value through profit or loss or, in the case of specific hedge accounting, at fair value through other comprehensive income with recycling to profit or loss
Deferred tax assets	Non-discounted amount measured at the tax rates that are expected to apply to the period when the asset is realized or the liability settled
LIABILITIES	
CURRENT LIABILITIES	
Financial liabilities	
Non-derivative interest-bearing and non-interest-bearing liabilities	Amortized cost
Derivative financial liabilities	At fair value through profit or loss or, in the case of certain hedging relationships, at fair value through other comprehensive income with recycling to profit or loss
Lease liabilities	Amortized cost
Trade payables	Amortized cost
Income tax liabilities	Amount expected to be paid to the taxation authorities, using the tax rates that have been enacted or substantively enacted by the end of the reporting period
Other provisions	Present value of the settlement amount
Contract liabilities	Amortized cost
NON-CURRENT LIABILITIES	
Financial liabilities	
Non-derivative interest-bearing and non-interest-bearing liabilities	Amortized cost
Derivative financial liabilities	At fair value through profit or loss or, in the case of certain hedging relationships, at fair value through other comprehensive income with recycling to profit or loss
Lease liabilities	Amortized cost
Provisions for pensions and other employee benefits	Actuarial projected unit credit method
Other provisions	Present value of the settlement amount
Contract liabilities	Amortized cost
Deferred tax liabilities	Non-discounted amount measured at the tax rates that are expected to apply to the period when the asset is realized or the liability settled

The material principles on recognition and measurement set out below were applied uniformly to all accounting periods presented in these consolidated financial statements.

INTANGIBLE ASSETS (EXCLUDING GOODWILL)

Intangible assets with finite useful lives, including 5G, LTE, UMTS, and GSM licenses, are measured at cost and generally amortized on a straight-line basis over their useful lives. Such assets are impaired if their recoverable amount, which is measured at the higher of fair value less costs of disposal and value in use, is lower than the carrying amount. Indefinite-lived intangible assets (mobile communications licenses granted by the Federal Communications Commission in the United States (FCC licenses)) are carried at cost. While FCC licenses are issued for a fixed time, renewals of FCC licenses have occurred routinely and at negligible costs. Moreover, Deutsche Telekom has determined that there are currently no legal, regulatory, contractual, competitive, economic, or other factors that limit the useful lives of the FCC licenses, and therefore treats the FCC licenses as an indefinite-lived intangible asset. They are not amortized, but tested for impairment annually or whenever there are indications of impairment and, if necessary, written down to the recoverable amount. If the reasons for recognizing the original impairment loss no longer apply, impairment losses are reversed taking amortization into account, i.e., not exceeding the value that would have been applied if no impairment losses had been recognized in prior periods.

Intangible assets may also be acquired in connection with a frequency or spectrum exchange. The costs of intangible assets acquired in such an exchange are measured at fair value if the swap has commercial substance and the fair value of the asset received and the asset given up is reliably measurable. If the exchange transaction lacks commercial substance or the fair value of neither the asset received nor the asset given up is reliably measurable, the carrying amount of the asset given up is used as the fair value of the asset received.

The useful lives and the amortization methods of the assets are reviewed at least at each financial year-end and, if expectations differ from previous estimates, the changes are accounted for as changes in accounting estimates in accordance with IAS 8.

Amortization of mobile communications licenses begins as soon as the related network is ready for use. The useful lives of mobile communications licenses are determined based on several factors, including the term of the licenses granted by the respective regulatory body in each country, the availability and expected cost of renewing the licenses, as well as the development of future technologies.

The useful lives of Deutsche Telekom’s most important mobile communications licenses are as follows:

Mobile communications licenses	Years
FCC licenses	Indefinite
5G licenses	19 to 21
LTE licenses	6 to 25
UMTS licenses	17 to 19
GSM licenses	7 to 27

Expenditures for internally generated intangible assets incurred during the development phase are capitalized if they meet the criteria for recognition as assets, and are amortized over their useful lives. Research expenditures are expensed as incurred. Development is the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems, or services prior to the commencement of commercial production or use. Examples of activities typically included in development are the design, construction, and testing of pre-production or pre-use prototypes and models involving new technology. The development phase is deemed complete when the IT department has formally documented that the capitalized asset is ready for its intended use. Expenditure on research and development recognized as an expense by Deutsche Telekom amounted to EUR 45.4 million (2018: EUR 57.7 million).

GOODWILL

Goodwill is not amortized, but is tested for impairment based on the recoverable amount of the cash-generating unit to which the goodwill is allocated (impairment-only approach). The impairment test is carried out on a regular basis at the end of each financial year, as well as whenever there are indications that the carrying amount of the cash-generating unit is impaired.

PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment is carried at cost less straight-line depreciation, and impairment losses, if applicable. The depreciation period is based on the expected useful life of the assets. Items of property, plant and equipment are depreciated pro rata temporis in the year of acquisition. The residual values, useful lives, and the depreciation methods of the assets are reviewed at least at each financial year-end and, if expectations differ from previous estimates, the changes are accounted for as changes in accounting estimates in accordance with IAS 8. In addition to directly attributable costs, the costs of internally developed assets include proportionate indirect material and labor costs, as well as administrative expenses relating to production or the provision of services. In addition to the purchase price and costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management, costs also include the estimated costs for dismantling and removing the asset, and restoring the site on which it is located. If an item of property, plant and equipment consists of several components with different estimated useful lives, those components that are significant are depreciated over their individual useful lives. Maintenance and repair costs are expensed as incurred. If an asset is owned and a portion is used as an item of property, plant and equipment while another physically distinct portion of the owned asset is leased under an operating lease (e.g., office floors of a building or individual optical fibers of a cable), the portion of the asset that is leased is not presented separately.

Public investment grants reduce the cost of the property, plant and equipment for which the grants were made.

Investment grants are recognized when there is reasonable assurance that the entity will comply with the conditions attached to them, and the grants will be received in the full amount. If this reasonable assurance already exists when the contract is being concluded, the grant is recognized in full under other financial assets upon conclusion of the agreement, with a matching non-financial other liability for the build-out obligation. In subsequent periods, the financial asset measured at amortized cost is reduced upon receipt of the payments. The other liability is derecognized on a pro rata basis as the build-out progresses, reducing the carrying amount of the publicly funded property, plant and equipment. If there is not yet reasonable assurance, only the installment payments received are recognized, with a matching non-financial other liability. As soon as there is reasonable assurance, outstanding grants are recognized under other financial assets, and the carrying amounts of the other liability and the publicly funded property, plant and equipment are adjusted in accordance with the actual build-out progress. All grants received are recognized in net cash from/used in investing activities.

On disposal of an item of property, plant and equipment or when no future economic benefits are expected from its use or disposal, the carrying amount of the item is derecognized. The gain or loss arising from the disposal of an item of property, plant and equipment is the difference between the net disposal proceeds, if any, and the carrying amount of the item and is recognized as other operating income or other operating expenses when the item is derecognized. The useful lives of the main asset classes are shown in the table below:

Asset classes	Years[a]
Buildings	25 to 50
Technical equipment and machinery	2 to 35
Other equipment, operating and office equipment	2 to 23

[a] The useful lives indicated represent the maximum number of years as specified by the Group. The actual useful lives may be shorter due to contractual arrangements or other specific factors such as time and location.

Leasehold improvements are depreciated over the shorter of their useful lives or applicable lease terms.

BORROWING COSTS

Borrowing costs that are directly attributable to the acquisition, construction, or production of a qualifying asset are capitalized as part of the cost of that asset. Deutsche Telekom defines qualifying assets as construction projects or other assets for which a period of at least twelve months is necessary in order to get them ready for their intended use or sale. Borrowing costs relating to assets measured at fair value and to inventories that are manufactured or produced in large quantities on a repetitive basis are not capitalized.

IMPAIRMENTS OF INTANGIBLE ASSETS (INCLUDING GOODWILL), ITEMS OF PROPERTY, PLANT AND EQUIPMENT, AND RIGHT-OF-USE ASSETS

Impairments are identified by comparing the carrying amount with the recoverable amount. If individual assets do not generate future cash flows independently of other assets, recoverability is assessed on the basis of the cash-generating unit to which the assets can be allocated. At each reporting date, Deutsche Telekom assesses whether there is any indication that an asset may be impaired. If any such indication exists, the recoverable amount of the asset or cash-generating unit must be determined. In addition, annual impairment tests are carried out for intangible assets with indefinite useful lives (goodwill and FCC licenses) at regular intervals. For the purpose of impairment testing, goodwill acquired in a business combination is allocated to each of the cash-generating units that are expected to benefit from the synergies of the combination. If the carrying amount of the cash-generating unit to which goodwill is allocated exceeds its recoverable amount, goodwill allocated to this cash-generating unit must be reduced in the amount of the difference. Impairment losses for goodwill must not be reversed. If the impairment loss recognized for the cash-generating unit exceeds the carrying amount of the allocated goodwill, the additional amount of the impairment loss is to be distributed on a pro rata basis to the assets allocated to the cash-generating unit. The fair values or values in use (if measurable) of the individual assets shall be considered to be the minimum values. If the reasons for previously recognized impairments no longer exist, the impairment losses on the assets concerned (with the exception of goodwill) must be reversed.

The recoverable amount of a cash-generating unit is measured at the higher of fair value less costs of disposal and the value in use. The recoverable amount is generally determined by means of a discounted cash flow (DCF) calculation, unless it can be determined on the basis of a market price. These DCF calculations use projections that are based on financial budgets approved by management covering a ten-year period and are also used for internal purposes. The planning horizon reflects the assumptions for short- to mid-term market developments. Cash flows beyond the ten-year period are extrapolated using appropriate growth rates. For the key assumptions on which management has based its calculation of the recoverable amount, please refer to the explanations provided under “Judgments and estimates,” further on in this section.

INVENTORIES

Inventories are carried at cost on initial recognition and are subsequently measured at the lower of cost and net realizable value. Cost comprises all costs of purchase, costs of conversion, and other costs incurred in bringing the inventories to their present location and condition. Cost is measured using the weighted average cost method. Net realizable value is the estimated standalone selling price in the ordinary course of business less the estimated costs of completion and the necessary estimated selling expenses.

NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE

Non-current assets and disposal groups held for sale are classified as such if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. These assets are measured at the lower of the carrying amount and fair value less costs of disposal and classified as non-current assets and disposal groups held for sale. Such assets are no longer depreciated. Impairment of such assets is recognized if fair value less costs of disposal is lower than the carrying amount. If fair value less costs of disposal subsequently increases, the impairment loss previously recognized must be reversed. The reversal of impairment losses is limited to the impairment losses previously recognized for the assets concerned. If the requirements for the classification of assets as held for sale are no longer met, the assets may no longer be shown as held for sale. The assets are to be measured at the lower of the carrying amount that would have applied if the asset had not been classified as held for sale, and the recoverable amount at the date at which the requirements for the classification as held for sale are no longer met.

EMPLOYEE BENEFITS

Deutsche Telekom maintains **defined benefit pension plans** in various countries on the basis of the pensionable compensation of its employees and their length of service. Some of these pension plans are financed through external pension funds and some through incorporation in a contractual trust agreement (CTA). Provisions for pensions are actuarially measured using the projected unit credit method for defined benefit pension plans, taking into account not only the pension obligations and vested pension rights known at the reporting date, but also expected future salary and benefit increases. The interest rate used to determine the present value of the obligations is generally set on the basis of the yields on high-quality corporate bonds in the respective currency area. The return on plan assets and interest expenses resulting from the unwinding of the discount are reported in profit/loss from financial activities. Service cost is classified as operating expenses. Past service cost resulting from a change in the pension plan shall immediately be recognized in the period in which the change took effect. Gains and losses arising from adjustments and changes in actuarial assumptions are recognized immediately and in full in the period in which they occur outside profit or loss within equity. Some Group entities grant defined contribution plans to their employees in accordance with statutory or contractual requirements, with the payments being made to state or private pension insurance funds. Under defined contribution plans, the employer does not assume any other obligations above and beyond the payment of contributions to an external fund. The amount of the future pension payments will exclusively depend on the contribution made by the employer (and their employees, if applicable) to the external fund, including income from the investment of such contributions. The amounts payable are expensed when the obligation to pay the amounts is established, and classified as expenses.

Up until December 31, 2012, Deutsche Telekom maintained a joint pension fund, **Bundes-Pensions-Service für Post und Telekommunikation e.V.**, Bonn (Federal Pension Service for Post and Telecommunications – BPS-PT), together with Deutsche Post AG and Deutsche Postbank AG for civil-servant pension plans. BPS-PT made pension and allowance payments to retired employees and their surviving dependents who are entitled to pension payments as a result of civil-servant status. The German Act on the Reorganization of the Civil Service Pension Fund (Gesetz zur Neuordnung der Postbeamtenversorgungskasse – PVKNeuG) transferred the functions of BPS-PT relating to civil-servant pensions (organized within the Civil Service Pension Fund) to the German Federal Posts and Telecommunications Agency effective January 1, 2013. The level of Deutsche Telekom AG's payment obligations to the Civil Service Pension Fund is defined under § 16 of the German Act on the Legal Provisions for the Former Deutsche Bundespost Staff (Postpersonalrechtsgesetz). Deutsche Telekom AG has been legally obligated since 2000 to make an annual contribution to the special pension fund amounting to 33 percent of the pensionable gross emoluments of active civil servants and the notional pensionable gross emoluments of civil servants on leave of absence. Deutsche Telekom is not required to fulfill any other obligations in respect of pensions for civil servants. The payment obligations can therefore be considered defined contribution plans.

In the past, Deutsche Telekom AG and its domestic subsidiaries agreed on **phased retirement arrangements** with varying terms and conditions, predominantly based on what is known as the block model. Two types of obligations, both measured at their present value in accordance with actuarial principles, arise and are accounted for separately. The first type of obligation relates to the cumulative outstanding settlement amount, which is recorded on a pro rata basis during the active or working phase. The cumulative outstanding settlement amount is based on the difference between the employee's remuneration before entering phased retirement (including the employer's social security contributions) and the remuneration for the part-time service (including the employer's social security contributions, but excluding top-up payments). The second type of obligation relates to the employer's obligation to make top-up payments plus an additional contribution to the statutory pension scheme. Top-up payments are often hybrid in nature, i.e., although the agreement is often considered a form of compensation for terminating the employment relationship at an earlier date, payments to be made at a later date are subject to the performance of work in the future. Despite having the characteristics of severance payments, the top-up payments must be recognized ratably over the vesting period due to their dependency on the performance of work in the future. If the block model is used, the vesting period for top-up payments starts when the employee is granted the entitlement to participate in the phased retirement program and ends upon entry into the passive phase (leave from work).

Obligations arising from the granting of termination benefits are recognized when Deutsche Telekom does not have a realistic possibility of withdrawal from the granting of the corresponding benefits. **Severance payments for employees and obligations arising in connection with early retirement arrangements** in Germany are mainly granted in the form of offers to the employees to leave the Company voluntarily. As a rule, such obligations are not recognized before the employees have accepted an offer from the Company, unless the Company is prevented by legal or other restrictions from withdrawing its offer at an earlier date. Obligations arising from the sole decision by the Company to shed jobs are recognized when the Company has announced a detailed formal plan to terminate employment relationships. If termination benefits are granted in connection with restructuring measures within the meaning of IAS 37, a liability under IAS 19 is recognized at the same time as a restructuring provision. Where termination benefits fall due more than twelve months after the reporting date, the expected amount to be paid is discounted to the reporting date. If the timing or the amount of the payment is still uncertain at the reporting date, the obligations are reported under other provisions.

OTHER PROVISIONS

Other provisions are recognized for current legal or constructive obligations to third parties that are uncertain with regard to their timing or their amount. Provisions are recognized for these obligations provided they relate to past transactions or events, will probably require an outflow of resources to settle, and this outflow can be reliably measured. Provisions are carried at their expected settlement amount, taking into account all identifiable risks and uncertainties. The settlement amount is calculated on the basis of a best estimate; suitable estimation methods and sources of information are used depending on the characteristics of the obligation. In the case of a number of similar obligations, the group of obligations is treated as one single obligation. The expected value method is used as the estimation method. If there is a range of potential events with the same probability of occurrence, the average value is taken. Individual obligations (e.g., legal and litigation risks) are regularly evaluated based on the most probable outcome, provided an exceptional probability distribution does not mean that other estimates would lead to a more appropriate evaluation. The measurement of provisions is based on past experience, current costing, and price information, as well as estimates and reports from experts. If experience or current costing or price information is used to determine the settlement amount, these values are extrapolated to the expected settlement date. Suitable price trend indicators (e.g., construction price indexes or inflation rates) are used for this purpose. Provisions are discounted when the effect of the time value of money is material. Provisions are discounted using pre-tax market interest rates that reflect the term of the obligation and the risk associated with it (insofar as not already taken into consideration in the calculation of the settlement amount). Reimbursement claims are not netted against provisions; they are recognized separately as soon as their realization is virtually certain.

Provisions for decommissioning, restoration, and similar obligations arising from the acquisition of property, plant and equipment are offset by a corresponding increase in the capitalized cost of the relevant asset. Changes at a later date in estimates of the amount or timing of payments or changes to the interest rate applied in measuring such obligations also result in retrospective increases or decreases in the carrying amount of the relevant item of property, plant and equipment. These in turn change the depreciation of the asset to be recognized in the future, which leads to the changes in estimates being recognized in profit or loss over the remaining useful life. Where the decrease in the amount of a provision exceeds the carrying amount of the related asset, the excess is recognized immediately in profit or loss.

FINANCIAL INSTRUMENTS

Financial instruments are recognized as soon as Deutsche Telekom becomes a party to the contractual regulations of the financial instrument. However, in the case of regular way purchase or sale, the settlement date is relevant for the initial recognition and derecognition. This is the day on which the asset is delivered to or by Deutsche Telekom. In general, financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the entity currently has a right to offset the recognized amounts and intends to settle on a net basis. Transferred financial assets are derecognized in full if substantially all the risks and rewards of ownership are transferred or if some of the risks and rewards of ownership are transferred (risk sharing) and the acquirer has both the legal and the practical ability to sell the assets to a third party. If, in cases where risk is shared, the acquirer is unable to sell the assets to a third party, the assets will continue to be recognized to the extent of the maximum risk retained. Financial liabilities are derecognized when the obligation specified in the contract expires or if there is a substantial modification of the terms of the contract.

Financial assets include cash and cash equivalents, trade receivables, originated loans and other receivables, investments in equity instruments, and derivative financial assets. They are measured at fair value upon initial recognition. For all financial assets not subsequently measured at fair value through profit or loss, the transaction costs directly attributable to the acquisition are taken into account plus, in the case of debt instruments, a loss account for expected credit losses. The fair values recognized in the statement of financial position are generally based on market prices of the financial assets. If these are not available, the fair value is determined using standard valuation models on the basis of current market parameters. For the classification and measurement of debt instruments held, the respective business model for managing the debt instruments and whether the instruments have the characteristics of a standard loan, i.e., whether the cash flows are solely payments of principal and interest, is relevant. Assuming the assets have these characteristics and if the business model is to hold to collect the asset's contractual cash flows, they are measured at amortized cost. If the objective of the business model is to hold to collect and sell the contractual cash flows, they are measured at fair value through other comprehensive income with recycling to profit or loss. In all other cases, financial assets are measured at fair value through profit or loss. There may be different business models for separate portfolios of the same types of debt instruments, for example if factoring transactions exist for certain trade receivables.

Cash and cash equivalents include cash accounts and short-term cash deposits at banks; they have maturities of up to three months at initial recognition.

Trade receivables and originated loans and other receivables are measured at their transaction price at initial recognition if they do not contain a significant financing component. Instruments with a significant financing component are initially measured at fair value.

Investments in **equity instruments** represent strategic investments. Deutsche Telekom has exercised the option of generally measuring these through other comprehensive income without recycling to profit or loss. This is due to the fact that Deutsche Telekom's primary goal for strategic investments is not a short-term maximization of profit (trading). The acquisition and disposal of strategic investments is based on business policy considerations.

Dividends are recognized immediately in profit or loss unless they constitute a repayment of capital.

Derivative financial assets that are not part of an effective hedging relationship are measured at fair value through profit or loss.

In the **consolidated statement of cash flows**, Deutsche Telekom reports cash flows from interest and dividends received as cash inflows or outflows in net cash from operating activities.

Financial liabilities are measured at fair value on initial recognition. For all financial liabilities not subsequently measured at fair value through profit or loss, the transaction costs directly attributable to the acquisition are also a component of the carrying amount.

If the contractual payment term for **liabilities to suppliers** is longer than the normal credit period in the relevant procurement market at this point in time, this liability is reported under other interest-bearing liabilities in financial liabilities instead of under trade payables. A financing agreement of this nature is shown as a non-cash transaction in the statement of cash flows and the relevant repayment of the financial liability reported under net cash from/used in financing activities. This applies regardless of whether the supplier sells its receivable or not.

For further information on the effects on the consolidated statement of cash flows, please refer to Note 35 "Notes to the consolidated statement of cash flows."

Derivative financial liabilities that are not part of an effective hedging relationship are measured at fair value through profit or loss.

Deutsche Telekom has not yet made use of the option to designate financial instruments upon initial recognition as **at fair value through profit or loss**.

At initial recognition, debt instruments that are not measured at fair value through profit or loss are measured including a loss allowance account for expected **credit losses**. For trade receivables with and without a significant financing component, contract assets, and lease assets, the loss allowance is calculated at an amount equal to the lifetime expected credit losses. For all other instruments, the loss allowance is determined at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly since initial recognition. Otherwise, the loss allowance is calculated at an amount equal to twelve-month expected credit losses. In this case, losses incurred later than twelve months after the reporting date would therefore not be considered.

When a loss allowance for expected credit losses is being determined, the historical probability of default supplemented by the relevant future parameters for the credit risk is used as the basis for the calculation. For debt instruments traded in an active market, publicly available market data is used to determine the loss allowance for expected credit losses.

The loss allowance takes adequate account of the future expected credit risk; write-offs lead to the derecognition of the respective receivables. For allowances, financial assets are grouped together on the basis of similar credit risk characteristics, tested collectively for impairment, and written off, if necessary. The cash flows are discounted on the basis of the weighted average of the original effective interest rates of the financial assets in the relevant portfolio. Impairments of trade receivables are recognized in some cases using allowance accounts. The decision to account for credit risks using an allowance account or by directly reducing the receivable will depend on the reliability of the risk assessment. As there are a variety of operating segments and regional circumstances, this decision is the responsibility of the respective portfolio managers.

Deutsche Telekom uses **derivatives** to hedge the interest rate and currency risks resulting from its operating, financing, and investing activities. The Company does not hold or issue derivatives for speculative trading purposes. Derivatives are carried at their fair value upon initial recognition and also for subsequent measurement. The fair value of traded derivatives is equal to their market price, which can be positive or negative. If there is no market price available, the fair value is determined using standard financial valuation models.

The fair value of derivatives is the price that Deutsche Telekom would receive or have to pay if the financial instrument were transferred at the reporting date. This is calculated on the basis of the counterparties' relevant exchange rates and interest rates at the reporting date. Calculations are made using average rates. In the case of interest-bearing derivatives, a distinction is made between the clean price and the dirty price (full fair value). In contrast to the clean price, the dirty price also includes the interest accrued. The fair values carried correspond to the dirty price.

Embedded derivatives must be separated from financial liabilities and other non-financial contracts that are not measured at fair value through profit or loss if the economic characteristics and risks of the embedded derivative are not closely related to the economic characteristics and risks of the host contract. These derivatives must then be recognized separately and measured at fair value through profit or loss. Derivatives embedded in financial assets do not need to be separated, however. In such cases, the entire instrument must be measured at fair value through profit or loss.

Recording the changes in the fair values – either in profit or loss or directly in equity – depends on whether or not the derivative is part of an effective hedging relationship as set out in IFRS 9. If hedge accounting is not applied, the changes in the fair values of the derivatives must be recognized immediately in profit or loss. If, on the other hand, effective hedge accounting exists, the hedge will be recognized as such.

Deutsche Telekom applies hedge accounting to hedged items in the statement of financial position and future cash flows, thus reducing income statement volatility. A distinction is made between fair value hedges, cash flow hedges, and hedges of a net investment in a foreign operation depending on the nature of the hedged item. Hedging relationships are exclusively accounted for in accordance with the requirements of IFRS 9. Deutsche Telekom has exercised the option of designating cross-currency basis spreads as hedging costs rather than as part of the hedging relationship and presenting them separately in equity. To hedge the currency risk of an unrecognized firm commitment, Deutsche Telekom makes use of the option to recognize it as a cash flow hedge rather than a fair value hedge. In the case of fair value hedges, the cumulative adjustments to the carrying amount of the hedged item are amortized when the hedging relationship has been discontinued.

IFRS 9 sets out strict requirements on the use of hedge accounting. Deutsche Telekom complies with these requirements by documenting, at the inception of a hedge, both the relationship between the financial instrument used as the hedging instrument and the hedged item, as well as the risk management objective and the risk strategy of the hedge. This involves concretely assigning the hedging instruments to the corresponding assets or liabilities or (firmly committed/highly probable) future transactions and also assessing the effectiveness of the hedging instruments designated. The effectiveness of existing hedging relationships is monitored on an ongoing basis. If the criteria for applying hedge accounting are no longer met, the hedging relationship will be de-designated immediately.

Deutsche Telekom does not use hedge accounting in accordance with IFRS 9 to hedge the foreign-currency exposure of recognized monetary assets and liabilities, because the gains and losses on the hedged item from currency translation that are recognized in profit or loss in accordance with IAS 21 are shown in the income statement together with the gains and losses on the derivatives used as hedging instruments.

CONTINGENCIES (CONTINGENT LIABILITIES AND ASSETS)

Contingencies (contingent liabilities and assets) are potential liabilities or assets arising from past events whose existence will be confirmed by the occurrence or non-occurrence of one or more uncertain future events not entirely within the control of Deutsche Telekom. Contingent liabilities are also present obligations that arise from past events for which an outflow of resources embodying economic benefits is not probable or for which the amount of the obligation cannot be measured with sufficient reliability. Contingent liabilities are only recognized at their fair value if they were assumed in the course of a business combination. Contingent liabilities not assumed in the course of a business combination are not recognized. Contingent assets are not recognized. However, when the realization of income is virtually certain, then the related asset is no longer a contingent asset, but it is recognized as an asset. Information on contingent liabilities is disclosed in the notes to the consolidated financial statements, unless the possibility of an outflow of resources embodying economic benefits is remote. The same applies to contingent assets where an inflow of economic benefits is probable.

LEASES

A lease is a contract in which the lessor conveys the right to use an asset for a period of time to the lessee in exchange for consideration, typically a payment or series of payments. The scope of IFRS 16 applies to a standard lease, rental, and tenancy agreements as well as agreements in which the lessee is granted other rights to use assets, such as certain easements. A lease only exists if the contract conveys the right to control the use of an identified asset to the lessee. The lessee has control when it has the right to obtain substantially all of the economic benefits from use of the identified asset and the right to direct the use of the identified asset.

Lessee. At the commencement date of the lease, a lessee recognizes a right-of-use asset and a lease liability in the statement of financial position for all leases. The right-of-use asset is measured applying the cost model and the lease liability is measured at the present value of the future lease payments. This measurement concept also applies to leases for which the underlying asset is of low value and to short-term leases for which the lease term is no longer than twelve months. Non-lease components are not separated from lease components, i.e., all non-lease payments due under the contract are also recognized in the statement of financial position. This practical expedient does not include contracts relating to data centers, which due to their special requirements in terms of equipment and premises form their own separate class of underlying asset. For this class of assets, the non-lease payments are recognized as an expense.

The lease liability is recognized at the present value of the future lease payments to be made over the reasonably certain lease term. Lease payments are all of the fixed and in-substance fixed payments, less any future lease incentives payable by the lessor. Variable lease payments that depend on an index or a rate, amounts expected to be payable under residual value guarantees, and payment for the exercise of reasonably certain purchase and termination options are also measured and recognized as part of the lease liability. The series of payments is discounted at the interest rate implicit in the lease or, if that rate cannot be readily determined, at the lessee’s incremental borrowing rate. All other variable payments are typically recognized as an expense. The lease liability is subsequently measured using the effective interest method.

The cost of the right-of-use asset comprises: the amount of the initial measurement of the lease liability; any lease payments made at or before the commencement date, less any lease incentives received from the lessor; any initial direct costs incurred for obtaining the lease, the costs for preparing the leased asset for its intended use; and an estimate of any future dismantling and restoration costs. The right-of-use asset is subsequently depreciated on a straight-line basis over the lease term and, if applicable, reduced by any impairment losses. If ownership of the leased asset is transferred to the lessee at the end of the lease term, or if it is reasonably certain that a purchase or put option will be exercised, the right-of-use asset is depreciated from the commencement date to the end of the useful life of the underlying asset.

The lease term is the period during which it is reasonably certain that an underlying asset will be used by the lessee. The lease term includes the non-cancelable period of a lease together with periods covered by options to extend the lease, if their exercise is reasonably certain, and periods covered by termination options, if their exercise is not reasonably certain. This estimate is reassessed either upon the occurrence of an event or a significant change in circumstances that is within the control of the lessee and affects a change in lease term. The lease term will be revised if an extension option not previously included in the entity’s determination of the lease term is exercised or a termination option not previously included in the entity’s determination of the lease term is not exercised. The revision of the lease term leads to a change in the future series of lease payments and therefore to a remeasurement of the lease liability using a revised current discount rate. The amount of the remeasurement of the lease liability is recognized outside profit or loss as an adjustment to the right-of-use asset. Amounts that exceed the carrying amount of the right-of-use asset are recognized as an expense in profit or loss.

A lease modification that substantially increases the scope of the original lease is accounted for as a separate lease if both the lessee is granted an additional right to use one or more underlying assets and the consideration for the lease increases by an amount commensurate with the stand-alone price for the increase in scope that the lessee would otherwise have to pay for use if it had leased these assets from a third party under a separate lease.

For lease modifications that increase the scope of a lease but are not accounted for as a separate lease, the required remeasurement of the lease liability is accounted for outside profit or loss as an adjustment to the carrying amount of the right-of-use asset and the lease liability for the existing lease. If a lease modification decreases the scope of the lease, the lessee also remeasures both the right-of-use asset and the lease liability and recognizes any gain or loss in profit or loss. The modified amounts are measured at the modification date with a revised discount rate.

Lessor. If substantially all risks and rewards incidental to ownership of an underlying leased asset are attributable to the lessor **(operating lease),** the leased asset is recognized in the statement of financial position by the lessor. Measurement of the leased asset is then based on the accounting policies applicable to the underlying asset. The lease payments received are recognized as revenue in profit or loss by the lessor. Contractually defined future changes in the lease payments during the term of the lease are recognized as revenue from leases on a straight-line basis over the lease term, which is assessed at the commencement date of the contract. Where extension options exist, the exercise of those extension options that are reasonably certain is initially taken into account at the time the lease is concluded. If, contrary to the original expectation, these options are exercised or not exercised during the lease term, the previously assessed term will be revised and taken into account in the recognition of future lease revenue from operating lease transactions.

If substantially all risks and rewards incidental to ownership of the underlying leased asset are attributable to the lessee **(finance lease),** the lessor recognizes at the commencement date, in place of the leased asset, a finance lease receivable at an amount equal to the net investment in the lease. The net investment in the lease is defined as the difference between the gross investment in the lease and the unearned finance income. The lease payments made by the lessees are split into an interest component and a principal component using the effective interest method. In subsequent measurement, the lease receivable is reduced by the principal lease payments received. The interest component of the payments received is recognized as finance income over the lease term in the income statement.

Under business models in which Deutsche Telekom is classified as a manufacturer or dealer lessor within the meaning of IFRS 16, revenue from finance leases is recognized at the date at which the asset is made available for use to the lessee at the fair value of the underlying leased asset or, if lower, the present value of the payments including any guaranteed residual value and presented as lease revenue. The selling profit or loss from the finance lease is realized in the amount of the difference between the revenue and the carrying amount of the underlying asset less the present value of the unguaranteed residual value. The finance income (interest income) is subsequently also presented as the lease revenue.

For sale and leaseback transactions, if there is a transfer of control within the meaning of IFRS 15, Deutsche Telekom as the seller-lessee measures the right-of-use asset arising from the leaseback at the proportion of the previous carrying amount of the asset that relates to the right of use retained by the seller-lessee. Any gain or loss that relates to the rights transferred to the buyer-lessor is recognized in profit or loss as selling profit or loss. If there is no transfer of control, the seller-lessee recognizes the transaction as a financial liability equal to the transfer proceeds. While the transaction is legally subject to a lease contract, it is not accounted for as a lease and the underlying asset is not derecognized.

SHARE-BASED PAYMENT PROGRAMS

Equity-settled share-based payment transactions are measured at fair value on the grant date. The fair value of the obligation is recognized as personnel costs over the vesting period and offset against capital reserves. For equity-settled share-based payment transactions, the fair value is determined using internationally accepted valuation techniques, such as the Black-Scholes model or the Monte Carlo model. For cash-settled share-based payment transactions, the goods and services acquired and the liability incurred have to be recognized at the fair value of the liability. The fair value of the liability has to be newly determined at each reporting date and at the settlement date, and the changes in the fair value have to be recognized in profit and loss, until the liability is settled.

NET REVENUE, CONTRACT ASSETS AND LIABILITIES/CONTRACT COSTS

Revenues include all revenues from the ordinary business activities of Deutsche Telekom. Ordinary activities do not only refer to the core business but also to other recurring sales of goods or rendering of services. However, gains from sales of items of property, plant and equipment or intangible assets are not classified as revenue but as other operating income. All ancillary income in connection with the delivery of goods and rendering of services in the course of an entity's ordinary activities is also presented as revenue. Examples include dunning fees, contractual penalties, and default interest. Income from interest added back from long-term customer receivables and contract assets is also considered ancillary income in the course of an entity's ordinary activities where the underlying receivables or contract assets have resulted in the recognition of revenue. Revenues are recorded net of value-added tax and other taxes collected from customers that are remitted to governmental authorities. They are recognized in accordance with the provision of goods or services, provided that collectability of the consideration is probable. For service contracts with a continuous service provision, the contractually agreed total consideration is recognized as revenue on a straight-line basis over the minimum contract term, regardless of the payment pattern.

A contract asset must be recognized if Deutsche Telekom recorded revenue for fulfillment of a contractual performance obligation before the customer paid consideration or before – irrespective of when payment is due – the requirements for billing and thus the recognition of a receivable exist.

A contract liability must be recognized when the customer paid consideration or a receivable from the customer is due before Deutsche Telekom fulfilled a contractual performance obligation and thus recognized revenue. In a customer contract, contract liabilities must be set off against contract assets.

Multiple-element arrangements involving the delivery or provision of multiple products or services must be separated into distinct performance obligations, each with its own separate revenue contribution that is recognized as revenue on fulfillment of the obligation to the customer. At Deutsche Telekom, this especially concerns the sale or lease of a mobile handset or other telecommunications equipment combined with the conclusion of a mobile or fixed-network telecommunications contract. The total transaction price of the bundled contract is allocated among the individual performance obligations based on their relative – possibly estimated – standalone selling prices, i.e., based on a ratio of the standalone selling price of each separate element to the aggregated standalone selling prices of the contractual performance obligations. As a result, the revenue to be recognized for products (often delivered in advance) such as mobile handsets that are sold at a subsidized price in combination with a long-term service contract is higher than the amount billed or collected. This leads to the recognition of what is known as a contract asset – a receivable arising from the customer contract that has not yet legally come into existence – in the statement of financial position. The contract asset is reversed and reduced over the remaining minimum contract period, lowering revenue from the other performance obligations (in this case: mobile service revenues) compared with the amounts billed. In contrast to the amounts billed, this results in higher revenue from the sale of goods and merchandise and lower revenue from the provision of services.

Customer activation fees and other advance one-time payments by the customer that do not constitute consideration for a separate performance obligation are classed as contract liabilities and are deferred and recognized as revenue over the minimum contract term or, in exceptional cases (e.g., in the case of contracts that can be terminated at any time) over the expected contract period. The same applies to fees for installation and set-up activities that do not have an independent value for the customer.

As distinct from promotional offers, options to purchase additional goods or services free of charge or at a discount are separate performance obligations (material rights) for which part of the revenue is deferred as a contract liability until the option is exercised or expires, providing the discount on future purchases is an implicit component of the consideration for the current contract and is also significant. The measure of significance is whether the decision by the (average) customer to enter into the current contract is likely to have been significantly influenced by their right to the future discount. Offers for volume discounts for the purchase of additional core products of an entity (e.g., a discount offered on an additional fixed-network contract for mobile customers) are classed by Deutsche Telekom as promotional offers to be excluded from consideration.

Long-term customer receivables (e.g., arising from sales of handsets in installments), contract assets (e.g., arising from the subsidized sale of a handset in connection with the conclusion of a long-term customer contract) or contract liabilities (e.g., arising from a prepayment by the customer) are recognized at present value if the financing component is significant in relation to the total contract value (i.e., including those performance obligations that do not contain a financing component). The discount rate also reflects the customer credit risk. Deutsche Telekom makes use of the option not to recognize a significant financing component if the period between when a good or service is transferred to the customer and when the customer pays for that good or service will be one year or less.

Payments to customers including credits or subsequent discounts are recognized as a reduction in revenue unless the payment constitutes consideration for a distinct good or service from the customer, for which the fair value can be reasonably estimated.

Gross vs. net presentation: In cases where a company is in an intermediary position between another supplier/vendor (e.g., manufacturer, wholesaler) and a retail customer, it must be assessed whether the company itself supplies the relevant product or provides the service requested by the customer as the principal or whether the company merely acts as the agent for the supplier. The outcome determines whether the entity can recognize revenue on a gross basis (as the principal) or on a net basis after deducting the costs to the supplier (as the agent). For Deutsche Telekom, the question arises particularly in the case of digital services (e.g., streaming services, cloud-based software as a service) purchased from third parties and sold to retail customers as part of Deutsche Telekom's product portfolio. In summary, in case of rights to another party's goods or services, Deutsche Telekom considers itself to be the principal vis-à-vis the retail customer if all of the following conditions are met and thus reports gross revenues:

- Deutsche Telekom either has a contractual enforceable right to receive the predefined services "on demand" at predefined (fixed or variable) prices, and accordingly the other party has entered into an enforceable ongoing commitment to provide them, or Deutsche Telekom has entered into a material minimum purchase commitment.
- Deutsche Telekom sells access to the other party's services in its own name and for its own account under a contract between Deutsche Telekom and the retail customer.
- Deutsche Telekom has discretion in setting the price for the other party's services sold for its own account.

Contract costs comprise the incremental costs of obtaining a contract (mainly sales commission paid to employees and third-party retailers in the direct and indirect sales channel) and the costs to fulfill a contract. These must be capitalized if it can be assumed that the costs will be compensated by future revenue from the contract. Incremental costs of obtaining a contract are additional costs that would not have been incurred had the contract not been concluded. Costs to fulfill a contract are costs relating directly to a contract that are incurred after contract inception and serve the purpose of fulfilling the contract but are incurred prior to fulfillment and cannot be capitalized under any other standard. Deutsche Telekom makes use of the option to immediately recognize contract costs whose amortization period would not be more than one year as an expense.

The capitalized contract costs are generally recognized on a straight-line basis over the estimated customer retention period. The expenses are disclosed in Deutsche Telekom's income statement, not under depreciation and amortization but – depending on the sales channel – as goods and services purchased or personnel costs.

In the indirect sales channel, third-party retailers often arrange service contracts on behalf of and for the account of Deutsche Telekom (as the agent) in connection with the sale of subsidized handsets in their own name and for their own account (as the principal). In such cases, the retailers receive commission in an amount that explicitly or implicitly compensates them for the handset subsidy granted. As in the case of multiple-element arrangements in the direct sales channel, the customer ultimately covers the handset subsidy by paying a price above the standalone selling price for the service contract. Deutsche Telekom considers this an implicit promise to the customer that on conclusion of this service contract they will be able to purchase a handset at a discounted price. The only difference between this promise and the purchase of a service in the direct sales channel is that it is not Deutsche Telekom that is granting the discount as part of a multiple-element arrangement but a third-party retailer that is compensated for it by Deutsche Telekom through the commission it receives for arranging the service contract. As, from an economic substance perspective, these payments constitute indirect payments by Deutsche Telekom to customers, the portion of the commission payments attributable to the (implicit) cost reimbursements to the retailer is not capitalized as contract costs but as a contract asset and is therefore recognized as a reduction of the service revenues over the contract term rather than as an expense. This ensures that the amount of the service revenues generated with retail customers for identical rate plans does not depend on the type of sales channel.

Depending on the business model, **revenue recognition** at Deutsche Telekom is as follows:

The **mobile and fixed-network business** of the Germany, United States, Europe, and Group Development operating segments includes mobile services, narrow- and broadband access to the fixed network and the internet, television via internet, connection and roaming fees billed to other mobile operators (wholesale business), and sales or lease of mobile handsets, other telecommunications equipment, and accessories. Revenue generated from the use of voice and data communications as well as television via internet is recognized upon rendering of the agreed service. The services rendered relate to use by customers (e.g., call minutes), availability over time (e.g., monthly flat rates), or other agreed rate plans. Revenue and expenses associated with the sale of telecommunications equipment and accessories are recognized when the products are delivered, provided there are no unfulfilled company obligations that affect the customer's final acceptance of the arrangement. Revenue from the lease of mobile handsets and telecommunications equipment that is not considered a sale in economic terms is recognized monthly as the entitlement to the fees accrued. Advertising revenues are recognized in the period in which the advertisements are exhibited.

Trade-in rights for used handsets which are granted to customers upon contract conclusion under the condition of a new purchase transaction (including renewal of an existing service contract) do not constitute repurchase arrangements; however, if the repurchase prices exceed the fair value of the handsets these rights must be recognized as separate performance obligations for which part of the contractual revenue is deferred until they are exercised or expire.

Particularly in the mobile communications business, the timing of payments for mobile handsets purchased in connection with the conclusion of a service contract differs from the timing of the delivery and hence from revenue recognition. Where a significant financing component exists, revenue is measured at the present value. Whereas the sale of subsidized handsets in connection with the conclusion of service contracts in the consumer business is still common in the Germany operating segment and also to some extent in the Europe operating segment, handsets are not sold at a discount at all, or only to a limited extent, in the United States and to some extent in the Europe operating segments; payment-by-installment models or lease models are offered to customers instead. In both the subsidy model and the payment-by-installment model, an asset must thus be carried at the date of revenue recognition which is generally settled over a 24-month service contract term through payments made by the customer. The only difference is that with the subsidy model it is a contract asset that is repaid through the portion of the monthly bill that exceeds the allocated monthly service revenues. By contrast, the payment-by-installment model involves an existing legal customer receivable that is settled based on an installment plan – separately from the monthly billing for telecommunications services.

The **Systems Solutions** operating segment provides, among other things, IT services and network services for corporate customers including IT outsourcing services and the sale of hardware including desktop services. Revenue from service contracts is recognized as the service is performed, i.e., normally on a pro rata basis over the contract term. Revenue from service contracts billed on the basis of time and material used is recognized at the contractual hourly rates as labor hours are delivered and direct expenses are incurred.

Revenue from hardware sales or sales-type leases is recognized when the product is shipped to the customer, provided there are no unfulfilled company obligations that affect the customer's final acceptance of the arrangement. Any costs of these obligations are recognized when the corresponding revenue is recognized.

Revenue from construction contracts and construction-type service contracts (or elements of service contracts), for which a defined output is promised (e.g., IT developments), is recognized using the percentage-of-completion method. The measure of progress or stage of completion of a contract is generally determined as the percentage of cost incurred up until the reporting date relative to the total estimated cost at the reporting date (cost-to-cost method). In particular for complex outsourcing contracts with corporate customers, a reliable estimate of the total cost and therefore of the stage of completion is not possible in many cases, so revenue is only recognized in the amount of the contract costs expensed. This means that a proportionate profit is not realized until the contract has been completed (zero-profit method).

Revenue from non-sales-type rentals and leases is recognized on a straight-line basis over the lease term.

INCOME TAXES

Income taxes include current income taxes as well as deferred taxes. Current and deferred tax assets and liabilities must be recognized where they are probable. They are measured in accordance with the tax laws applicable or already announced as of the reporting date, provided said announcement has the effect of actual enactment. Where uncertain tax assets or uncertain tax liabilities are recognized because they are probable, these must be measured at their most probable amount. In exceptional cases the expected value is considered. Where current and deferred tax is recognized, it must be reported as income or expense except to the extent that the tax arises from a transaction which is recognized outside profit and loss, either in other comprehensive income or directly in equity, or in connection with a business combination. Current tax assets and current tax liabilities and deferred tax assets and deferred tax liabilities are offset in the statement of financial position if Deutsche Telekom has a legally enforceable right to set off current tax assets against current tax liabilities, has an intention to settle net, and the deferred tax assets and the deferred tax liabilities relate to income taxes levied by the same taxation authority.

Current tax assets and current tax liabilities must be recognized in the amount that Deutsche Telekom expects to settle with or recover from the tax authorities. They include liabilities/receivables for the current period as well as for prior periods.

Deferred taxes are recognized for temporary differences between the carrying amounts in the consolidated statement of financial position and the tax base, as well as for tax loss carryforwards and tax credits. By way of derogation from this principle, a deferred tax liability is not recognized for temporary differences if the deferred tax liability arises from the initial recognition of an asset or a liability in a transaction which is not a business combination and, at the time of the transaction, affects neither accounting profit nor taxable profit/tax loss. Nor is a deferred tax liability recognized for temporary differences arising from the initial recognition of goodwill. A deferred tax liability is generally recognized for temporary differences associated with investments in subsidiaries, joint arrangements, and associates, unless Deutsche Telekom is able to control the timing of the reversal of the temporary difference and it is probable that the temporary differences will not reverse in the foreseeable future.

JUDGMENTS AND ESTIMATES

The presentation of the results of operations or financial position in the consolidated financial statements is dependent upon and sensitive to the accounting policies, assumptions, and estimates. The actual amounts may differ from those estimates. The following critical accounting estimates and related assumptions and uncertainties inherent in accounting policies applied are essential to understand the underlying financial reporting risks and the effects that these accounting estimates, assumptions and uncertainties may have on the consolidated financial statements.

Measurement of **property, plant and equipment, and intangible assets** involves the use of estimates for determining the fair value at the acquisition date, provided they were acquired in a business combination. Furthermore, the expected useful lives of these assets must be estimated. The determination of the fair values of assets and liabilities, as well as of the useful lives of the assets is based on management's judgment. The measurement of intangible assets acquired in exchange transactions is based on management's judgment as to whether an exchange transaction has commercial substance. For this, an analysis is performed to determine to what extent the future cash flows (risk, timing, and amount) are expected to change as a consequence of the transaction. Information from external experts is obtained for this analysis and for the determination of the fair values of assets.

The determination of **impairments of property, plant and equipment, intangible assets, and right-of-use assets** involves the use of estimates that include, but are not limited to, the cause, timing, and amount of the impairment. Impairment is based on a large number of factors, such as changes in current competitive conditions, expectations of growth in the telecommunications industry, increased cost of capital, changes in the future availability of financing, technological obsolescence, discontinuance of services, current replacement costs, prices paid in comparable transactions, and other changes in circumstances that indicate an impairment exists. The identification of impairment indicators, as well as the estimation of future cash flows and the determination of fair values for assets (or groups of assets) require management to make significant judgments concerning the identification and validation of impairment indicators, expected cash flows, applicable discount rates, useful lives, and residual values. Specifically, the estimation of cash flows underlying the fair values from the mobile business considers the continued investment in network infrastructure required to generate future revenue growth through the offering of new data products and services, for which only limited historical information on customer demand is available. If the demand for these products and services does not materialize as expected, this would result in less revenue, less cash flow, and potential impairment. When determining the fair values, additional planning uncertainties are factored in that reflect the risks of macroeconomic development, which could adversely affect future results of operations.

The determination of the **recoverable amount of a cash-generating unit** involves the use of estimates by management. Methods used to calculate the recoverable amount include discounted cash flow-based methods and methods that use market prices as a basis. The measurements on the basis of discounted cash flows are founded on projections that are based on financial plans that have been approved by management and are also used for internal purposes. The planning horizon selected reflects the assumptions for short- to medium-term market developments and is selected to achieve a steady state in the business outlook that is necessary for calculating the perpetual annuity. This steady state is only reached based on the planning horizon selected, in particular due to the sometimes long investment cycles in the telecommunications industry and the investments planned and expected in the long run to acquire and extend the rights of spectrum use. Cash flows beyond the internal mid-term planning are extrapolated using appropriate growth rates. The key assumptions on which management has based its calculation of the recoverable amount include the following assumptions that were primarily derived from internal sources and are based on past experience and extended to include internal expectations, and that are underscored by external market data and estimates: development of revenue, customer acquisition and retention costs, churn rates, capital expenditure, market share, and growth rates. Discount rates are determined on the basis of external figures derived from the market, taking account of the risks associated with the cash-generating unit. Any future changes in the aforementioned assumptions could have a significant impact on the fair values of the cash-generating units.

Management maintains an **allowance for doubtful accounts** to account for estimated losses resulting from the inability of customers to make required payments. When evaluating the adequacy of an allowance for doubtful accounts, management bases its estimates on the aging of accounts receivable balances and historical write-off experience, customer creditworthiness, and changes in customer payment terms. If the financial condition of customers were to deteriorate, actual write-offs might be higher than expected.

In each tax jurisdiction in which Deutsche Telekom operates, management must make judgments for the calculation of **current and deferred taxes**. This is relevant, for example, when it comes to a decision on the recognition of deferred tax assets because it must be probable that a taxable profit will be available against which the deductible temporary differences, loss carryforwards, and tax credits can be utilized. In addition to the estimate of future earnings, various factors are used to assess the probability of the future utilization of deferred tax assets, including past results of operations, the reliability of planning, and tax planning strategies. The period used for the assessment of the recoverability depends on the circumstances at the respective Group company and typically is in a range of five to ten years.

Pension obligations for benefits to non-civil servants are generally satisfied by defined benefit plans. Pension benefit costs for non-civil servants are determined in accordance with actuarial valuations, which rely on assumptions regarding the discount rate, the expected salary increase rate, the expected pension trend, and life expectancy. In the event that changes in the assumptions regarding these parameters are required, the future amounts of the pension benefit costs may be affected materially.

Deutsche Telekom is obligated, under the German Federal Posts and Telecommunications Agency Reorganization Act (Gesetz zur Reorganisation der Bundesanstalt für Post und Telekommunikation Deutsche Bundespost), to pay for its share of any operating cost shortfalls between the income of the **Civil Service Health Insurance Fund** (Postbeamtenkrankenkasse) and benefits paid. The Civil Service Health Insurance Fund provides services mainly in cases of illness, birth, or death for its members, who are civil servants employed by or retired from Deutsche Telekom AG, Deutsche Post AG, and Deutsche Postbank AG, and their relatives. When Postreform II came into effect, participation in the Civil Service Health Insurance Fund was closed to new members. The insurance premiums collected by the Civil Service Health Insurance Fund must not exceed the insurance premiums imposed by alternative private health insurance enterprises for comparable insurance benefits, and, therefore, do not reflect the changing age distribution of the participants in the fund. Deutsche Telekom recognizes provisions in the amount of the actuarially determined present value of Deutsche Telekom's share in the fund's future deficit, using a discount rate and making assumptions about life expectancies and projections for contributions and future increases in general health care costs in Germany. Since the calculation of these provisions involves long-term projections over periods of more than 50 years, the present value of the liability may be highly sensitive even to small variations in the underlying assumptions.

Deutsche Telekom exercises considerable judgment in measuring and recognizing **provisions** and **contingent liabilities** related to pending litigation or other outstanding claims subject to negotiated settlement, mediation, arbitration, or government regulation. Judgment is necessary in assessing the likelihood that a pending claim will succeed, or a liability will arise, and to quantify the possible range of the final settlement. Provisions are recognized for losses from executory contracts, provided a loss is considered probable and can be reasonably estimated. Because of the inherent uncertainties in this evaluation process, actual losses may be different from the originally estimated provision. In addition, significant estimates are involved in the determination of provisions related to taxes and litigation risks. These estimates are subject to change as new information becomes available, primarily with the support of internal specialists, if available, or with the support of outside consultants, such as actuaries or legal counsel. Revisions to the estimates of these losses from executory contracts may significantly affect future results of operations.

SIGNIFICANT JUDGMENTS: REVENUE RECOGNITION, CONTRACT ASSETS AND LIABILITIES/CONTRACT COSTS

The standalone selling prices of individual products or services that are part of **multiple-element arrangements** are complex to determine, because some of the elements are price-sensitive and, thus, volatile in a competitive marketplace. In many cases, standalone selling prices can also not be observed for the company's own products. Due to the fact that comparability is generally not completely assured, the use of market prices for similar products is subject to an element of uncertainty, as is an estimate using a cost-plus-margin approach. Changes in estimates of standalone selling prices can significantly influence the allocation of the transaction price for the entire multiple-element arrangement among the individual performance obligations and therefore affect both the financial position, i.e., the carrying amount of contract assets and contract liabilities, and the current and future results of operations.

One-time payments by the customer for contracts that can be terminated at any time are recognized over an expected contract period, the length of which depends on the period over which the customer is likely from a commercial perspective to renew or not terminate the contract on a monthly basis.

Contract costs are deferred and generally recognized as expense over the expected duration of the customer relationship. The estimate of the expected average duration of customer retention is based on historical customer turnover. However, this is subject to fluctuations and has only limited informative value with regard to future customer behavior, particularly if new products are rolled out. If management's estimates are revised, material differences may result in the amount and timing of expenses for subsequent periods.

The significance of material rights is an estimate that is based on both quantitative and qualitative factors. This is ultimately a matter of judgment, even though it is supported by quantitative facts. Depending on the decision as to whether or not the customer has a material right to be deferred, there may be material differences in the amount and timing of revenues for the current and subsequent periods.

Gross vs. net presentation: The assessment of whether Deutsche Telekom presents revenue gross as the principal or net after deduction of costs as the agent, i.e., only in the amount of the remaining margin, requires an analysis of both the legal form and the substance of contracts. After all of the relevant facts and circumstances of the individual case have been weighed up, in many cases the decision also involves a degree of discretion, even if a uniform Group method of assessment is applied. Depending on the conclusion reached, there may be material differences in the amounts of revenues and expenses for the current and subsequent periods. This has no bearing on profit/loss from operations, however.

JUDGMENTS: EXTENSION AND TERMINATION OPTIONS FOR THE LESSEE

Extension and termination options are included in many lease arrangements across the Deutsche Telekom Group. Local teams are responsible for negotiating contracts and managing their individual leases. As a result, lease contracts include a wide range of different terms and conditions in order to provide local management with the flexibility needed to run their business, i.e., to give them operational flexibility in terms of managing the underlying lease assets used in their operations and to allow them to react to changing business needs.

The main population of lease contracts in the Deutsche Telekom Group comprises arrangements for cell site infrastructure, land/ground underneath the infrastructure, office buildings, and retail stores, which are mainly located in the United States and Germany. The length of the lease term in these contracts is the main factor in measuring the lease liabilities.

The majority of cell site leases in the United States have an initial non-cancelable term of five to ten years with four five-year renewal options. Cell site leases in Germany, on the other hand, typically have an initial non-cancelable period of one to 15 years, during which the lease cannot be terminated. After the initial period of time, the lease extends automatically if neither party terminates the lease or if the Deutsche Telekom Group, as lessee, exercises an extension option, which is typically for five years. Leases can be extended on up to three occasions. The majority of extension options are exercisable by the relevant business units of the Deutsche Telekom Group.

In **determining the lease term**, management applies judgment and considers all facts and circumstances that create an economic incentive for Deutsche Telekom to exercise an extension option, or not to exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if Deutsche Telekom is reasonably certain to exercise an option to extend the lease, or not to exercise an option to terminate the lease. The threshold for a “reasonably certain” exercise is lower than “virtually certain” and higher than “more likely than not” under IAS 37 “Provisions, Contingent liabilities and Contingent Assets.”

In determining the duration of leases of cell site space, land/ground, office buildings, and retail stores, which are the most relevant lease contracts in the Deutsche Telekom Group, the following are the most relevant factors that are considered:

- Rapidly advancing and ever-changing technology in the telecommunications industry requires flexible lease contracts, i.e., management tries to minimize longer periods during which the contracts cannot be canceled.
- When determining whether an extension of a lease contract is reasonably certain, in addition to any significant penalties for terminating (or not extending) the lease, business plans and the business model are considered, e.g., cost/benefit analysis, consolidation plans for the mobile network and office facilities, new mobile network standards, significance of the property for the underlying operations, replacement or usage of additional technology, as well as the availability and cost of alternative locations.
- Often leasehold improvements can be used in alternative locations. In many cases, the costs of moving or replacing the asset or initial construction costs are not the main factor considered when determining whether to extend or not to extend the lease.
- Significant investments made in a location, e.g., construction of towers and masts on the leased land, are economic penalties typically considered when determining the lease term.

After having considered all of the factors above, for cell site contracts in the United States, Deutsche Telekom concluded that it is not reasonably certain that an option to extend the lease term beyond the initial non-cancelable lease term will be exercised. For cell site contracts – including the land/ground underneath the infrastructure – in Germany, a lease term of 10 to 15 years is considered reasonably certain. Extension options after that period are typically not considered reasonably certain at commencement of the lease. Payments associated with these optional periods are not included in the measurement of the lease liabilities.

Most extension options for office and shop leases are not included in the lease liability because Deutsche Telekom could replace the leased assets without significant cost or business disruption.

Exposure to future additional cash outflows will only arise when an extension option (not determined to be reasonably certain) is exercised or when a termination option (determined to be reasonably certain) is not exercised.

After the commencement date, the assessment of a reasonable certainty exercise is only reassessed if a significant event or a significant change in circumstances occurs that affects this judgment, and this is within the control of the lessee. Deutsche Telekom reassesses the lease term when an option is exercised (or not exercised) or Deutsche Telekom becomes obligated to exercise or not to exercise it.

For further information on undiscounted future lease payments, please refer to Note 13 “Financial liabilities and lease liabilities.”

CONSOLIDATION METHODS

SUBSIDIARIES

Subsidiaries are companies that are directly or indirectly controlled by Deutsche Telekom. Control only exists if an investor has power over the investee, is exposed to variable returns, and is able to use power to affect its amount of variable returns. The existence and effect of substantive potential voting rights that are currently exercisable or convertible, including potential voting rights held by other Group companies, are considered when assessing whether an entity is controlled.

All subsidiaries are included in the consolidated financial statements, unless the costs of preparing the reporting required for inclusion by means of full consolidation would outweigh the benefits of such reporting, which is primarily the case for subsidiaries which an operating segment or the Group considers to be insignificant based on the following criterion: The sum of all unconsolidated subsidiaries must not account for more than 1 percent of the Group's total assets, revenue, profit/loss for the year, contingent assets/liabilities, and other financial obligations. If the 1-percent limit is exceeded, Deutsche Telekom determines which companies are to be included in the consolidated financial statements, taking the long-term development of the investment and consolidation effects into account. Aside from the quantitative criteria, qualitative criteria will also be used to assess the materiality of an entity for the consolidated group. Excluding a subsidiary must not significantly change the segment result or the Group's profit/loss for the year, nor may other significant trends be ignored. Subsidiaries that are not included in the consolidated financial statements due to their subordinate significance have been recognized under other assets since the 2018 financial year.

Income and expenses of a subsidiary are included in the consolidated financial statements from the acquisition date and remain included in the consolidated financial statements until the date on which the parent company ceases to control the subsidiary. If necessary, the subsidiaries' accounting principles are aligned with the uniform accounting principles applied by the Deutsche Telekom Group. Intercompany income and expenses, receivables and liabilities, and profits or losses are eliminated.

Upon loss of control, a gain or loss from the disposal of the subsidiary is recognized in the consolidated income statement in the amount of the difference between (i) the proceeds from the disposal of the subsidiary, the fair value of the remaining shares, the carrying amount of the non-controlling interests, and the cumulative amounts of other comprehensive income attributable to the subsidiary, and (ii) the carrying amount of the subsidiary's net assets to be disposed of.

JOINT OPERATIONS, JOINT VENTURES, AND ASSOCIATES

Joint arrangements, in which two or more parties have joint control over an activity, must be classified as either joint operations or joint ventures.

A **joint operation** is characterized by the fact that the parties that have joint control of the arrangement (joint operators) have rights to the assets, and obligations for the liabilities, relating to the arrangement. A joint operator shall account for the assets, liabilities, revenues and expenses relating to its interest in the joint operation as well as its share of the joint assets, liabilities, revenues, and expenses.

In a **joint venture**, on the other hand, the parties that have joint control of the arrangement (partners) have rights to the net assets of the entity. **Associates** are companies on which Deutsche Telekom has a significant influence, and that are neither subsidiaries nor joint ventures. As with joint ventures, associates are accounted for using the **equity method**.

Investments in joint ventures and associates that are included in the consolidated financial statements using the equity method are recognized at cost at the time of acquisition. The carrying amount of the investment may include goodwill as the positive difference between the cost of the investment and Deutsche Telekom's proportionate share in the fair values of the entity's identifiable net assets. If necessary, the accounting principles of joint ventures and associates are aligned with the uniform accounting principles applied by the Deutsche Telekom Group. The carrying amount of the investment accounted for using the equity method is tested for impairment provided there are indications of impairment. If the carrying amount of the investment exceeds its recoverable amount, an impairment loss must be recognized in the amount of the difference. The recoverable amount is measured at the higher of fair value less costs of disposal and value in use.

Upon loss of significant influence, a gain or loss from the disposal of the joint venture/associate is recognized in the amount of the difference between (i) the proceeds from the disposal of the shares, the fair value of the remaining shares, and the cumulative amounts of other comprehensive income attributable to the joint venture or associate, and (ii) the carrying amount of the investment to be disposed of.

The materiality assessment for jointly controlled entities and associates is generally performed using the same methods as for subsidiaries, but is limited to the criteria of profit/loss for the year, contingent assets and liabilities, and other financial obligations.

BUSINESS COMBINATIONS

A business combination exists when Deutsche Telekom obtains control of another entity. All business combinations must be accounted for using the acquisition method. The cost of an acquired subsidiary is measured at the fair value of the consideration transferred, i.e., the sum of the assets transferred, liabilities assumed, and equity instruments issued. Transaction costs are generally recognized as expense. The acquisition cost is allocated to the acquired assets, liabilities, and contingent liabilities. The identifiable assets acquired and the liabilities and contingent liabilities assumed are recognized in full at their fair values at the acquisition date, regardless of the level of the investment held by Deutsche Telekom.

Goodwill arising in a business combination is measured as the excess of the aggregate of the cost of acquisition, the amount of any non-controlling interest in the acquiree, and, in a business combination achieved in stages, the fair value of the equity interest held by Deutsche Telekom in the acquiree prior to the acquisition date over the fair value of the net assets acquired. Any difference arising on the revaluation of equity interests previously held by Deutsche Telekom is recognized in profit or loss.

For all business combinations there is an option in relation to the measurement of the non-controlling interests. These can be recognized either directly at their fair value (i.e., the non-controlling interest in the enterprise value of the acquiree) or at the non-controlling interest in the fair value of the net assets acquired. As a result, in the first case, the non-controlling interests also have a share in the goodwill arising from the business combination, while in the second case the non-controlling interest is limited to the revalued assets and liabilities and the goodwill is therefore recognized only as the amount attributable to Deutsche Telekom.

Transactions relating to the further acquisition or sale of equity interests with other shareholders that do not affect Deutsche Telekom’s controlling interest do not lead to any change in goodwill. The difference between the fair value of the consideration transferred or received (i.e., the purchase price of the interests) and the carrying amount of the equity attributable to the non-controlling interests must be offset directly against consolidated shareholders’ equity in capital reserves or increases the capital reserves.

CHANGES IN THE COMPOSITION OF THE GROUP AND OTHER TRANSACTIONS

In the 2019 financial year, Deutsche Telekom conducted the following transactions, which had or will have an impact on the composition of the Group. Other changes to the composition of the Group not shown here were of no material significance for Deutsche Telekom’s consolidated financial statements.

ACQUISITION OF TELE2 NETHERLANDS HOLDING N.V.

On December 15, 2017, Deutsche Telekom signed an agreement with the Tele2 Group on the acquisition of 100 percent of the shares in the telecommunications provider Tele2 Netherlands Holding N.V. (Tele2 Netherlands) by T-Mobile Netherlands Holding B.V. (T-Mobile Netherlands). After the European Commission issued its approval without conditions on November 27, 2018, the transaction was consummated on January 2, 2019. Tele2 Netherlands has been included in Deutsche Telekom’s consolidated financial statements as a fully consolidated subsidiary since the acquisition date. This transaction will establish a stronger, more sustainable provider of convergent fixed-network and mobile services in the Dutch market.

Consideration totaling EUR 718 million was transferred from the Deutsche Telekom Group at the acquisition date. This consisted of a cash payment (taking purchase price adjustments into account) of EUR 199 million and the transfer of a 25 percent share in T-Mobile Netherlands (prior to the business combination) that was measured at a fair value of EUR 519 million. As a consequence of this transaction, Deutsche Telekom now recognizes non-controlling interests of 25 percent in the combined company resulting from the aforementioned transfer of 25 percent of the shares in T-Mobile Netherlands (prior to the business combination) and the non-controlling interests in Tele2 Netherlands.

The purchase price allocation and the measurement of Tele2 Netherlands' assets and liabilities at the acquisition date were finalized as of December 31, 2019. The fair values of Tele2 Netherlands' acquired assets and liabilities recognized at the acquisition date are presented in the following table:

millions of €	Fair value at the acquisition date
ASSETS	
CURRENT ASSETS	**283**
Cash and cash equivalents	4
Trade receivables	235
Contract assets	7
Other assets	20
Inventories	17
NON-CURRENT ASSETS	**1,094**
Goodwill	109
Other intangible assets	455
Of which: customer base	210
Of which: spectrum licenses	182
Of which: other	63
Property, plant and equipment	286
Right-of-use assets	171
Deferred tax assets	67
Other assets	6
ASSETS	**1,377**
LIABILITIES	
CURRENT LIABILITIES	**264**
Lease liabilities	79
Trade and other payables	97
Other provisions	58
Contract liabilities	10
Other liabilities	20
NON-CURRENT LIABILITIES	**155**
Lease liabilities	118
Other provisions	17
Deferred tax liabilities	15
Contract liabilities	5
LIABILITIES	**419**

Deutsche Telekom has measured the non-controlling interests in the acquiree at fair value. This means that the full-goodwill method has been used.

The acquired goodwill of EUR 109 million to be recognized in Deutsche Telekom's consolidated statement of financial position is calculated as follows:

millions of €	Fair value at the acquisition date
Consideration transferred	718
+ non-controlling interests	240
– fair value of the acquired assets	(1,268)
+ fair value of the acquired liabilities	419
= GOODWILL	**109**

The goodwill reflects the value of expected synergies arising from the acquisition, expected new customer gains, and the value of the assembled workforce. Goodwill can be deducted from income tax in the amount of EUR 92 million.

The spectrum licenses were measured using the guideline transaction method, with the fair value being derived on the basis of the price analyses used in spectrum auctions carried out in the European telecommunications industry. The spectrum licenses are amortized over the expected useful life of 10 to 11 years. The customer base was measured using the multi-period excess earnings method. Under this method, the fair value of the customer base is determined by calculating the present value of profit/loss after taxes that can be assigned to the existing customers. The customer base is amortized over the remaining useful life of 5 to 15 years.

The carrying amounts of the acquired receivables are based on the fair values. The gross amounts of the receivables amount to EUR 279 million. No material contingent liabilities have been identified.

The deferred tax assets relate to Tele2 Netherlands' loss carryforwards. The deferred tax liabilities comprise the tax effect on the temporary differences between the fair value of the different assets and liabilities on the one hand, and the respective carrying amount for tax purposes on the other.

No material transaction-based costs were incurred by December 31, 2019.

Deutsche Telekom's net revenue increased by EUR 598 million in the reporting period due to the acquisition of Tele2 Netherlands. Net profit for the current reporting period includes profit/loss before taxes of EUR -24 million from Tele2 Netherlands. Since the business combination took place before the beginning of the 2019 financial year, net revenue and net profit would not have been other than as reported.

SALE OF TELEKOM ALBANIA

On January 15, 2019, OTE concluded an agreement for the sale of its stake in Telekom Albania to Bulgarian company Albania Telecom Invest AD for a purchase price of EUR 50 million. The transaction was consummated on May 7, 2019. The net deconsolidation gain/loss resulting from the sale is immaterial from a Group perspective.

TRANSFER OF THE STAKE IN STRÖER SE & CO. KGaA TO PLAN ASSETS

On August 14, 2019, Deutsche Telekom transferred its 11.34 percent stake in Ströer SE & Co. KGaA to Deutsche Telekom Trust e.V., where it will be used as plan assets to cover existing pension obligations. This transaction resulted in income of EUR 142 million from the divestiture of the stake, which had previously been accounted for using the equity method.

For further information, please refer to the section "Notes to the consolidated statement of financial position."

The composition of the Deutsche Telekom Group changed as follows in the 2019 financial year:

	Domestic	International	Total
CONSOLIDATED SUBSIDIARIES			
January 1, 2019	61	213	274
Additions	3	17	20
Disposals (including mergers)	3	24	27
DECEMBER 31, 2019	**61**	**206**	**267**
ASSOCIATES ACCOUNTED FOR USING THE EQUITY METHOD			
January 1, 2019	2	7	9
Additions	2	2	4
Disposals	1	2	3
DECEMBER 31, 2019	**3**	**7**	**10**
JOINT VENTURES ACCOUNTED FOR USING THE EQUITY METHOD			
January 1, 2019	2	4	6
Additions	0	2	2
Disposals	1	0	1
DECEMBER 31, 2019	**1**	**6**	**7**
TOTAL			
January 1, 2019	65	224	289
Additions	5	21	26
Disposals (including mergers)	5	26	31
DECEMBER 31, 2019	**65**	**219**	**284**

The following transaction will change the composition of the Deutsche Telekom Group in the future.

AGREED BUSINESS COMBINATION OF T-MOBILE US AND SPRINT

Together with their respective majority shareholders Deutsche Telekom AG and Softbank K.K., T-Mobile US and Sprint Corp. concluded a binding agreement on April 29, 2018 to combine their companies. The agreement is subject to approvals by the regulatory and anti-trust authorities and certain other customary closing conditions. Under the agreement, T-Mobile US will acquire all of the shares in Sprint. In return for every 9.75 Sprint shares, the company's shareholders will receive one new T-Mobile US share without any additional cash contribution. On completion of the transaction, Deutsche Telekom will hold around 42 percent of T-Mobile US' shares and Softbank around 27 percent, while the free float will account for around 31 percent. Due to the voting-rights agreement with Softbank, and to the fact that individuals nominated by Deutsche Telekom will hold the majority of the seats on the new company's Board of Directors, T-Mobile US will continue to be included as a fully consolidated subsidiary in the consolidated financial statements.

For further information, please refer to the section "Group organization" in the combined management report.

OTHER TRANSACTIONS THAT HAD NO EFFECT ON THE COMPOSITION OF THE GROUP

OTE SHARE BUY-BACK

As a consequence of a share buy-back program implemented in 2018, OTE held a total of 10,211,070 treasury shares with an aggregate value of EUR 109 million as of December 31, 2018. The extraordinary shareholders' meeting of OTE S.A. on December 19, 2018 resolved to withdraw 10,211,070 shares from circulation, with a corresponding capital reduction of EUR 29 million. The shares were retired from the Athens Stock Exchange on February 19, 2019. As a result, Deutsche Telekom's share in the OTE group increased from 45.00 to 45.96 percent.

RESOLUTION ON T-MOBILE US' SHARE BUY-BACK PROGRAM IN THE EVENT OF THE TERMINATION OF THE AGREEMENT WITH SPRINT

On April 27, 2018, T-Mobile US' Board of Directors authorized an increase in the total share buy-back program to up to USD 9.0 billion, consisting of the USD 1.5 billion in repurchases already executed and for up to an additional USD 7.5 billion of T-Mobile US common stock until the end of 2020. The additional buy-back authorization is contingent upon termination of the business combination agreement with Sprint.

PRINCIPAL SUBSIDIARIES

The Group's principal subsidiaries are presented in the following table:

Name and registered office		Deutsche Telekom share %	Net revenue[c] millions of €	Profit (loss) from operations[c] millions of €	Share-holders' equity[c] millions of €	Average number of employees	Segment allocation
Telekom Deutschland GmbH, Bonn, Germany	**Dec. 31, 2019/2019**	100.00	21,617	4,736	6,723	3,573	
	Dec. 31, 2018/2018	100.00	21,342	4,692	6,423	4,121	Germany
T-Mobile US, Inc., Bellevue, Washington, United States[a,b]	**Dec. 31, 2019/2019**	62.85	40,420	5,488	30,327	46,544	United States
	Dec. 31, 2018/2018	63.34	36,522	4,634	25,897	45,729	
T-Systems International GmbH, Frankfurt/Main, Germany	**Dec. 31, 2019/2019**	100.00	5,048	(362)	935	12,149	Systems Solutions
	Dec. 31, 2018/2018	100.00	5,086	(454)	1,109	12,481	
Hellenic Telecommunications Organization S.A. (OTE), Athens, Greece[a]	**Dec. 31, 2019/2019**	45.96	3,927	241	2,902	18,033	
	Dec. 31, 2018/2018	45.00	3,861	429	3,239	19,507	Europe
Magyar Telekom Telecommunications Public Limited Company, Budapest, Hungary[a,b]	**Dec. 31, 2019/2019**	59.72	2,049	257	2,316	8,468	
	Dec. 31, 2018/2018	59.72	2,060	241	2,326	9,166	Europe
T-Mobile Netherlands Holding B. V., The Hague, Netherlands[a,b]	**Dec. 31, 2019/2019**	75.00	1,910	57	1,872	1,892	Group Develop-ment
	Dec. 31, 2018/2018	100.00	1,322	192	1,467	1,211	
T-Mobile Polska S.A., Warsaw, Poland[a,b]	**Dec. 31, 2019/2019**	100.00	1,486	93	1,505	4,569	
	Dec. 31, 2018/2018	100.00	1,525	(552)	1,462	4,816	Europe
T-Mobile Czech Republic a.s., Prague, Czech Republic[a,b]	**Dec. 31, 2019/2019**	100.00	1,088	289	1,956	3,369	
	Dec. 31, 2018/2018	100.00	1,047	274	1,924	3,516	Europe
Hrvatski Telekom d.d., Zagreb, Croatia[a,b]	**Dec. 31, 2019/2019**	51.42	1,039	137	2,276	5,511	
	Dec. 31, 2018/2018	51.14	1,049	185	2,303	5,424	Europe
T-Mobile Austria Holding GmbH, Vienna, Austria[a,b]	**Dec. 31, 2019/2019**	100.00	1,276	30	3,488	2,120	
	Dec. 31, 2018/2018	100.00	1,055	41	3,474	1,548	Europe
Slovak Telekom a.s., Bratislava, Slovakia[a,b]	**Dec. 31, 2019/2019**	100.00	785	161	1,543	3,482	
	Dec. 31, 2018/2018	100.00	761	149	1,532	3,568	Europe

[a] Consolidated subgroup.
[b] Indirect shareholding of Deutsche Telekom AG.
[c] IFRS figures of the respective subgroup.

In accordance with § 313 HGB, the full statement of investment holdings, which forms part of the notes to the consolidated financial statements, is published in the Federal Gazette (Bundesanzeiger) together with the consolidated financial statements. It is available upon request from Deutsche Telekom AG, Bonn, Investor Relations, and on Deutsche Telekom's website (www.telekom.com) under Investor Relations. Furthermore, the statement of investment holdings includes a full list of all subsidiaries that exercise simplification options in accordance with § 264 (3) HGB or disclosure simplification options in accordance with § 264b HGB.

The following table shows the non-controlling interests for principal subsidiaries:

Name and registered office		Percentage of shareholding for non-con-trolling interests %	Percentage of voting rights for non-con-trolling interests %	Cumulative non-con-trolling interests[c] millions of €	Dividends paid out to non-con-trolling interests millions of €
T-Mobile US, Inc., Bellevue, Washington, United States[a,b]	**Dec. 31, 2019/2019**	37.15	37.15	11,024	0
	Dec. 31, 2018/2018	36.66	36.66	9,255	0
Hellenic Telecommunications Organization S.A. (OTE), Athens, Greece[a]	**Dec. 31, 2019/2019**	54.04	50.00	1,378	134
	Dec. 31, 2018/2018	55.00	50.00	1,607	93
Magyar Telekom Telecommunications Public Limited Company, Budapest, Hungary[a,b]	**Dec. 31, 2019/2019**	40.28	40.28	701	44
	Dec. 31, 2018/2018	40.28	40.28	696	44
Hrvatski Telekom d.d., Zagreb, Croatia[a,b]	**Dec. 31, 2019/2019**	48.58	48.58	898	54
	Dec. 31, 2018/2018	48.86	48.86	917	33
T-Mobile Netherlands Holding B.V., The Hague, Netherlands[a,b]	**Dec. 31, 2019/2019**	25.00	25.00	468	0
	Dec. 31, 2018/2018	n.a.	n.a.	n.a.	n.a.

[a] Consolidated subgroup.
[b] Indirect shareholding of Deutsche Telekom AG.
[c] IFRS figures at the level of the consolidated financial statements of Deutsche Telekom.

Deutsche Telekom held 45.96 percent plus one vote of the shares in the OTE group as of the reporting date. In accordance with shareholder agreements between Deutsche Telekom and the Hellenic Republic, Deutsche Telekom controls 50 percent plus two voting shares and therefore the OTE group's financial and operating policy. Consequently, the OTE group companies are fully consolidated subsidiaries.

For further information, please refer to the section "Changes in the composition of the Group and other transactions."

Summarized financial information for subsidiaries with significant non-controlling interests:

millions of €

Name and registered office		Current assets[c]	Non-current assets[c]	Current liabilities[c]	Non-current liabilities[c]	Profit (loss)[c]	Total comprehensive income[c]
T-Mobile US, Inc., Bellevue, Washington, United States[a,b]	**Dec. 31, 2019/2019**	10,460	73,954	19,123	34,963	3,593	3,602
	Dec. 31, 2018/2018	9,171	60,052	16,688	26,638	2,481	3,377
Hellenic Telecommunications Organization S.A. (OTE), Athens, Greece[a]	**Dec. 31, 2019/2019**	2,006	5,205	2,432	1,877	79	26
	Dec. 31, 2018/2018	2,161	5,353	2,386	1,888	194	233
Magyar Telekom Telecommunications Public Limited Company, Budapest, Hungary[a,b]	**Dec. 31, 2019/2019**	781	3,352	912	906	139	82
	Dec. 31, 2018/2018	800	3,230	1,069	636	145	79
Hrvatski Telekom d.d., Zagreb, Croatia[a,b]	**Dec. 31, 2019/2019**	817	1,906	333	114	101	94
	Dec. 31, 2018/2018	757	1,941	325	70	141	149
T-Mobile Netherlands Holding B.V., The Hague, Netherlands[a,b]	**Dec. 31, 2019/2019**	754	3,186	643	1,425	12	12
	Dec. 31, 2018/2018	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[a] Consolidated subgroup.
[b] Indirect shareholding of Deutsche Telekom AG.
[c] IFRS figures of the respective subgroup.

millions of €

Name and registered office		Net cash from operating activities[c]	Net cash (used in) from investing activities[c]	Net cash (used in) from financing activities[c]
T-Mobile US, Inc., Bellevue, Washington, United States[a,b]	**2019**	11,438	(6,997)	(4,135)
	2018	7,567	(4,936)	(2,606)
Hellenic Telecommunications Organization S.A. (OTE), Athens, Greece[a]	**2019**	1,121	(446)	(707)
	2018	949	(558)	(597)
Magyar Telekom Telecommunications Public Limited Company, Budapest, Hungary[a,b]	**2019**	492	(257)	(226)
	2018	500	(266)	(167)
Hrvatski Telekom d.d., Zagreb, Croatia[a,b]	**2019**	348	(181)	(219)
	2018	321	(190)	(134)
T-Mobile Netherlands Holding B.V., The Hague, Netherlands[a,b]	**2019**	484	(488)	(142)
	2018	n.a.	n.a.	n.a.

[a] Consolidated subgroup.
[b] Indirect shareholding of Deutsche Telekom AG.
[c] IFRS figures of the respective subgroup.

STRUCTURED ENTITIES

Deutsche Telekom processes factoring transactions by means of structured entities.

For further information, please refer to Note 41 "Financial instruments and risk management."

Since 2014, Deutsche Telekom has consolidated four structured leasing SPEs, and since 2018 two more such SPEs, for real estate as well as operating and office equipment at two sites for the operation of data centers in Germany. The two data centers were built under the management of an external leasing company and are operated by T-Systems International GmbH. Apart from the contractual obligations to make lease payments to the leasing SPEs, Deutsche Telekom has no obligation to give them further financial support.

T-Mobile USA Tower LLC and T-Mobile West Tower LLC, which are included in the consolidated financial statements as investments accounted for using the equity method, are also structured entities.

For further information, please refer to Note 10 "Investments accounted for using the equity method."

JOINT OPERATIONS

On the basis of a contractual arrangement concluded by T-Mobile Polska S.A., Poland, Deutsche Telekom combined the activities for the planning, building, and operation of the Polish mobile communications network with a partner in 2011 to generate savings. Deutsche Telekom recognizes its share (50 percent) of the corresponding assets in line with the economic substance in the consolidated statement of financial position.

CURRENCY TRANSLATION

Foreign-currency transactions are translated into the functional currency at the exchange rate at the date of transaction. At the reporting date, monetary items are translated at the closing rate, and non-monetary items are translated at the exchange rate at the date of transaction. Exchange rate differences are recognized in profit or loss.

The assets and liabilities of Group entities whose functional currency is not the euro are translated into euros from the local currency using the middle rates at the reporting date. The income statements and corresponding profit or loss of foreign-currency denominated Group entities are translated at monthly average exchange rates for the period. The differences that arise from the use of both rates are recognized directly in equity.

The exchange rates of certain significant currencies changed as follows:

€	Annual average rate			Rate at the reporting date	
	2019	2018	2017	**Dec. 31, 2019**	Dec. 31, 2018
100 Czech korunas (CZK)	3.89551	3.87824	3.79799	3.93593	3.88538
1 pound sterling (GBP)	1.13925	1.13049	1.14063	1.17482	1.11769
100 Croatian kuna (HRK)	13.48050	13.48050	13.39790	13.43960	13.48890
1,000 Hungarian forints (HUF)	3.07429	3.13607	3.23421	3.02481	3.11347
100 Macedonian denars (MKD)	1.62726	1.62440	1.62388	1.62299	1.62445
100 Polish zlotys (PLN)	23.26470	23.46130	23.48500	23.49380	23.24910
1 U.S. dollar (USD)	0.89326	0.82946	0.88549	0.89055	0.87321

NOTES TO THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

1 CASH AND CASH EQUIVALENTS

Cash and cash equivalents have an original maturity of less than three months and mainly comprise fixed-term bank deposits. They also include small amounts of cash-in-hand and checks. Deutsche Telekom obtained cash collateral of EUR 1,273 million (December 31, 2018: EUR 404 million) on the basis of collateral contracts as surety for potential credit risks arising from derivative transactions. Cash and cash equivalents increased by EUR 1.7 billion to EUR 5.4 billion.

For further information, please refer to Note 35 "Notes to the consolidated statement of cash flows."

As of December 31, 2019, Deutsche Telekom reported cash and cash equivalents of EUR 25.0 million held by subsidiaries in North Macedonia (December 31, 2018: EUR 12.3 million). These subsidiaries are subject to foreign exchange controls or other legal restrictions. As a result, the cash balances are not fully available for use by the parent or other Group companies.

2 TRADE RECEIVABLES

Trade receivables increased by EUR 0.9 billion to EUR 10.8 billion. Of the total of trade receivables, EUR 9,074 million (December 31, 2018: EUR 8,300 million) is due within one year.

The increase in the carrying amount related primarily to increased receivables in the Systems Solutions, United States, Group Development, and Germany operating segments. In the Systems Solutions operating segment, receivables increased mainly as a result of the expiration of a factoring transaction. A larger customer base and an increase in receivables from wholesale partners contributed to higher receivables in the United States operating segment, while in the Group Development operating segment, receivables increased as a result of the acquisition of Tele2 Netherlands and the resulting increase in the customer base. Exchange rate effects, especially from the translation of U.S. dollars into euros, also increased receivables.

For information on allowances, credit ratings, and write-offs of receivables as well as on factoring agreements, please refer to Note 41 "Financial instruments and risk management."

3 CONTRACT ASSETS

Contract assets increased from EUR 1.8 billion as of December 31, 2018 to EUR 1.9 billion as of December 31, 2019.

Contract assets have arisen from the application of IFRS 15 since the 2018 financial year and relate to receivables that have not yet legally come into existence, which arise from the earlier – as compared to billing – recognition of revenue, in particular from the sale of goods and merchandise under long-term multiple-element arrangements (e.g., mobile contract plus handset). Receivables from long-term construction contracts are also recognized under contract assets. Of the total contract assets, EUR 0.1 billion related to contract assets in connection with long-term construction contracts.

Contract assets increased by EUR 80 million in the reporting year, due to a change in the business model in Poland in September 2018. Whereas the previous business model did not provide for handsets to be sold at a discount, the terminal equipment business is now subsidized.

For information on allowances on contract assets, please refer to Note 41 "Financial instruments and risk management."

4 INVENTORIES

millions of €

	Dec. 31, 2019	Dec. 31, 2018
Raw materials and supplies	50	56
Work in process	18	20
Finished goods and merchandise	1,500	1,714
	1,568	**1,790**

The carrying amount of inventories decreased year-on-year by EUR 0.2 billion to EUR 1.6 billion, mainly due to the reduction in inventories of mobile devices in the Germany and United States operating segments. Write-downs of EUR 20 million (2018: EUR 42 million, 2017: EUR 27 million) on the net realizable value were recognized in profit or loss in 2019. The carrying amount of inventories expensed during the reporting period was EUR 14,340 million (2018: EUR 14,373 million; 2017: EUR 13,358 million).

Finished goods and merchandise primarily comprise retail products (e.g., terminal equipment and accessories) not manufactured by Deutsche Telekom and services rendered but not yet invoiced, primarily to business customers.

5 NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE AND LIABILITIES DIRECTLY ASSOCIATED WITH NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE

As of December 31, 2019, current assets recognized in the consolidated statement of financial position included EUR 0.1 billion (December 31, 2018: EUR 0.1 billion) in non-current assets and disposal groups held for sale. At December 31, 2019, as at the prior-year reporting date, current liabilities in the consolidated statement of financial position did not include any liabilities directly associated with non-current assets and disposal groups held for sale.

millions of €

	Dec. 31, 2019			Dec. 31, 2018			
	Deutsche Telekom AG	Other	Total	Deutsche Telekom AG	Telekom Albania	Other	Total
NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE							
Cash and cash equivalents	0	0	**0**	0	7	0	**7**
Trade receivables	0	0	**0**	0	12	0	**12**
Inventories	0	0	**0**	0	2	0	**2**
Other current assets	0	35	**35**	0	7	34	**41**
Intangible assets	0	0	**0**	0	13	0	**13**
Property, plant and equipment	50	12	**62**	42	21	0	**63**
Deferred tax assets	0	0	**0**	0	6	0	**6**
TOTAL	**50**	**47**	**97**	**42**	**68**	**34**	**145**
LIABILITIES DIRECTLY ASSOCIATED WITH NON-CURRENT ASSETS AND DISPOSAL GROUPS HELD FOR SALE							
Trade and other payables	0	29	**29**	0	34	0	**34**
Other non-current provisions	0	0	**0**	0	2	0	**2**
TOTAL	**0**	**29**	**29**	**0**	**36**	**0**	**36**

Real estate in the Group Headquarters & Group Services segment was sold in the reporting year. As of December 31, 2018, this item had included the assets and liabilities of Telekom Albania, which had been recorded in the Europe operating segment. This made it necessary to remeasure these assets, which resulted in an impairment loss of EUR 35 million recognized as of the date of the reclassification in the prior year on some of the intangible assets and property, plant and equipment assigned to the Albania cash-generating unit. This impairment was recognized under depreciation, amortization and impairment losses. On January 15, 2019, OTE concluded an agreement for the sale of its stake in Telekom Albania to Bulgarian company Albania Telecom Invest AD for a purchase price of EUR 50 million. The transaction was consummated on May 7, 2019.

For further information, please refer to the section "Changes in the composition of the Group and other transactions."

In addition, Deutsche Telekom AG's real estate held for sale of EUR 6 million as of December 31, 2019 (December 31, 2018: EUR 21 million) was no longer recognized at its carrying amounts in accordance with IFRS 5, but at its fair value less costs of disposal. This real estate relates to sites that are no longer considered necessary for operations or that will, in the foreseeable future, no longer be considered necessary for operations on account of technological advances. The fair values are determined by external experts. The fair value is measured on a regular basis using the earnings value method, taking into account local market estimates and specific characteristics of the property, including input parameters that cannot be observed in the market (Level 3). The expected costs of disposal (currently usually around 10 percent of the fair value) are subtracted. The real estate was written down by EUR 5 million (2018: EUR 11 million) to the fair value less costs of disposal. The expense was recognized under depreciation, amortization and impairment losses.

No reversals of impairments of the carrying amounts of the non-current assets and disposal groups held for sale were recognized either in the reporting year or in the prior year.

6 INTANGIBLE ASSETS

millions of €

	Internally generated intangible assets	Acquired intangible assets			
		Total	Acquired concessions, industrial and similar rights and assets	LTE licenses	UMTS licenses
COST					
AT DECEMBER 31, 2017	**6,714**	**74,381**	**1,282**	**6,167**	**9,969**
Currency translation	206	2,001	12	(50)	(6)
Changes in the composition of the Group	0	724	36	0	0
Additions	284	1,236	235	49	0
Disposals	(674)	(1,182)	(144)	(9)	(6)
Change from non-current assets and disposal groups held for sale	0	(264)	0	(14)	(23)
Reclassifications	840	1,378	5	89	0
AT DECEMBER 31, 2018	**7,371**	**78,275**	**1,427**	**6,232**	**9,935**
Adjustment resulting from the change in accounting standards	0	(68)	0	0	0
Currency translation	94	932	6	(9)	3
Changes in the composition of the Group	47	414	2	182	0
Additions	344	4,113	159	0	0
Disposals	(802)	(1,293)	(60)	0	0
Change from non-current assets and disposal groups held for sale	(3)	0	0	0	0
Reclassifications	1,148	1,313	8	(1)	0
AT DECEMBER 31, 2019	**8,200**	**83,687**	**1,542**	**6,404**	**9,937**
ACCUMULATED AMORTIZATION AND IMPAIRMENT LOSSES					
AT DECEMBER 31, 2017	**(4,263)**	**(28,303)**	**(767)**	**(1,496)**	**(8,103)**
Adjustment resulting from the change in accounting standards	0	0	0	0	0
Currency translation	(143)	(337)	(9)	11	4
Changes in the composition of the Group	0	0	0	0	0
Additions (amortization)	(1,017)	(3,320)	(221)	(398)	(583)
Additions (impairment)	(5)	(40)	0	(6)	(6)
Disposals	659	1,173	141	9	6
Change from non-current assets and disposal groups held for sale	0	250	0	9	19
Reclassifications	6	(8)	(1)	1	0
Reversal of impairment losses	0	0	0	0	0
AT DECEMBER 31, 2018	**(4,762)**	**(30,585)**	**(857)**	**(1,870)**	**(8,663)**
Adjustment resulting from the change in accounting standards	0	39	0	0	0
Currency translation	(65)	(181)	(4)	5	(2)
Changes in the composition of the Group	0	0	0	0	0
Additions (amortization)	(1,143)	(3,588)	(266)	(429)	(580)
Additions (impairment)	(2)	(73)	0	0	0
Disposals	801	1,293	60	0	0
Change from non-current assets and disposal groups held for sale	2	0	0	0	0
Reclassifications	(3)	(14)	2	0	0
Reversal of impairment losses	0	0	0	0	0
AT DECEMBER 31, 2019	**(5,171)**	**(33,110)**	**(1,066)**	**(2,294)**	**(9,244)**
NET CARRYING AMOUNTS					
At December 31, 2018	2,609	47,690	569	4,363	1,272
AT DECEMBER 31, 2019	**3,029**	**50,577**	**477**	**4,110**	**692**

Acquired intangible assets				**Goodwill**	**Advance payments and intangible assets under development**	
GSM licenses	FCC licenses (T-Mobile US)	5G licenses	Other acquired intangible assets			Total
1,394	**38,268**	**0**	**17,301**	**29,242**	**2,086**	**112,423**
(5)	1,841	0	209	469	18	2,695
0	71	0	618	736	1	1,462
3	264	0	685	0	2,469	3,989
0	0	0	(1,023)	0	(14)	(1,869)
(15)	(1)	0	(212)	(37)	0	(302)
0	0	0	1,284	0	(2,177)	41
1,377	**40,443**	**0**	**18,862**	**30,410**	**2,383**	**118,439**
0	0	0	(68)	0	0	(68)
2	807	0	124	225	13	1,264
0	0	0	230	162	15	638
0	1,033	2,237	684	0	2,192	6,649
(2)	0	0	(1,230)	0	(30)	(2,124)
0	0	0	0	0	0	(3)
13	0	0	1,294	0	(2,413)	48
1,390	**42,283**	**2,237**	**19,895**	**30,796**	**2,161**	**124,844**
(650)	**(3,960)**	**0**	**(13,327)**	**(16,992)**	**0**	**(49,558)**
0	0	0	0	(78)	0	(78)
4	(189)	0	(159)	(471)	0	(950)
0	0	0	0	0	0	0
(68)	0	0	(2,049)	0	0	(4,337)
(7)	0	0	(22)	(639)	0	(685)
0	0	0	1,018	0	0	1,832
10	0	0	211	37	0	288
0	0	0	(9)	0	0	(2)
0	0	0	0	0	0	0
(711)	**(4,149)**	**0**	**(14,335)**	**(18,143)**	**0**	**(53,489)**
0	0	0	39	0	0	39
(2)	(82)	0	(96)	(218)	0	(464)
0	0	0	0	0	0	0
(58)	0	(13)	(2,242)	0	0	(4,731)
0	0	0	(73)	0	0	(74)
2	0	0	1,230	0	0	2,094
0	0	0	0	0	0	2
(13)	0	0	(3)	0	0	(17)
0	0	0	0	0	0	0
(781)	**(4,232)**	**(13)**	**(15,480)**	**(18,360)**	**0**	**(56,641)**
666	36,293	0	4,526	12,267	2,383	64,950
608	**38,051**	**2,223**	**4,415**	**12,436**	**2,161**	**68,202**

Intangible assets increased by EUR 3.3 billion to EUR 68.2 billion. Additions totaling EUR 6.6 billion increased the carrying amount and mainly relate to capital expenditures in the Germany, United States, Europe, and Group Development operating segments. In the Germany operating segment, additions of EUR 2.2 billion relate to the 5G licenses acquired in Germany. In the United States operating segment, capital expenditures included a total of EUR 1.0 billion for the acquisition of FCC mobile licenses. In the Europe operating segment, 5G licenses acquired in Austria increased the carrying amount by EUR 0.1 billion. The carrying amount was also increased by changes in the composition of the Group amounting to EUR 0.6 billion, mainly in connection with the acquisition of Tele2 Netherlands. Positive exchange rate effects, primarily from the translation of U.S. dollars into euros, increased the carrying amount by EUR 0.8 billion. Amortization and impairment losses reduced the net carrying amount by EUR 4.8 billion. This included impairment losses of EUR 0.1 billion, mainly relating to the Europe operating Segment – due in particular to the impairment loss recognized on non-current assets arising from the ad hoc impairment test at the Romania cash-generating unit – and the Systems Solutions operating segment.

For further information on the ad hoc impairment test, please refer to Note 7 "Property, plant and equipment."

In the 2019 financial year, the following factors affected changes in the **carrying amounts of goodwill at cash-generating units** in the operating segments:

Germany. The increase in goodwill of EUR 10 million compared with December 31, 2018 relates to the acquisition of companies that overall are immaterial for the operating segment.

United States. The increase in goodwill of EUR 51 million compared with December 31, 2018 relates to the acquisition of companies that overall are immaterial for the operating segment, and to exchange rate effects from the translation of U.S. dollars into euros.

Europe. Changes in goodwill in the cash-generating units Poland, Hungary, Croatia, and the Czech Republic result from exchange rate effects.

Group Development. The acquisition of Tele2 Netherlands resulted in identifiable intangible assets totaling EUR 455 million at the acquisition date (including customer base and spectrum licenses) in addition to goodwill of EUR 109 million. Following the acquisition of Tele2 Netherlands Holding N.V. and the business combination with T-Mobile Netherlands Holding B.V., T-Mobile Netherlands' cell towers and roof-top sites were spun off into the newly created cash-generating unit T-Mobile Infra B.V. Prorated goodwill of EUR 259 million was also transferred to this unit at the same time.

For further information, please refer to the section "Changes in the composition of the Group and other transactions."

Disclosures on annual impairment tests. As of December 31, 2019, Deutsche Telekom carried out its annual impairment tests on the goodwill and intangible assets with an indefinite useful life (in particular, FCC licenses in the United States) assigned to the cash-generating units. No need for impairment of goodwill was identified at any of the cash-generating units as of December 31, 2019 on the basis of information available at the reporting date and expectations with respect to the future development of the market and competitive environment. The impairment test as of December 31, 2018 resulted in a need for impairment of goodwill totaling EUR 639 million at the cash-generating units Poland and Romania in the Europe operating segment.

The recoverable amounts to be identified for the impairment test were largely determined on the basis of the fair values less costs of disposal. With the exception of the United States cash-generating unit, these figures were calculated using a net present value approach. The main parameters are discount rate, net cash flow, and sustainable growth rate.

The recoverable amounts at the cash-generating units Netherlands, T-Mobile Infra B.V., Croatia, Montenegro, and North Macedonia were determined using the value in use. The market price of an active and liquid market (share price) of T-Mobile US was used to determine the fair value less costs of disposal in the case of the United States cash-generating unit. The measurements of all other cash-generating units are founded on projections for a ten-year projection period that are based on financial plans that have been approved by management and are also used for internal purposes. The planning horizon selected reflects the assumptions for short- to medium-term market developments and is selected to achieve a steady state in the business outlook that is necessary for calculating the perpetual annuity. This steady state can only be established based on this planning horizon, in particular due to the sometimes long investment cycles in the telecommunications industry and the investments planned and expected in the long run to acquire and extend the rights of spectrum use. Cash flows beyond the internal mid-term planning are extrapolated using appropriate growth rates defined separately for each cash-generating unit. These growth rates are based on real growth and inflation expected in the long term for the countries in which the respective unit operates. To achieve the sustainable growth rates set for the period of the perpetual annuity, additional sustainable investments derived specifically for each cash-generating unit are taken into account. The key assumptions on which management has based its determination of the recoverable amount include the following assumptions that were primarily derived from internal sources and are based on past experience and extended to include internal expectations, and that are underscored by external market data and estimates: development of revenue, customer acquisition and retention costs, churn rates, capital expenditure, market share, and growth rates. Discount rates are determined on the basis of external figures derived from the market, taking account of the market and country risks associated with the cash-generating unit. Any significant future changes in the aforementioned assumptions would have an impact on the fair values of the cash-generating units. Changes in the assumptions may have a negative impact, as a result of future macroeconomic trends, continued intense competition, further possible legislation changes (e.g., as part of national austerity programs), and regulatory intervention.

First-time application of IFRS 16 “Leases.” The first-time application of IFRS 16 had no effect on the results of the impairment tests for the cash-generating units that had to be tested for impairment in accordance with IAS 36.

The following table provides an overview of the main factors affecting the measurement and the classification of the input parameters (levels) used to determine the recoverable amounts in accordance with IFRS 13.

		Goodwill carrying amount millions of €	Impairment millions of €	Detailed planning period years	Discount rates[a] %	Sustainable growth rate p.a. Ø in %	Level allocation of input parameters[b]
GERMANY	**2019**	3,729	0	10	4.11	0.0	Level 3
	2018	3,719	0	10	4.84	0.0	Level 3
UNITED STATES	**2019**	1,332	0	n.a.	n.a.	n.a.	Level 1
	2018	1,281	0	n.a.	n.a.	n.a.	Level 1
EUROPE							
Poland	**2019**	204	0	10	6.39	2.0	Level 3
	2018	202	608	10	7.94	2.0	Level 3
Hungary	**2019**	1,007	0	10	7.22	2.0	Level 3
	2018	1,036	0	10	8.33	2.0	Level 3
Czech Republic	**2019**	800	0	10	5.60	2.0	Level 3
	2018	778	0	10	6.11	2.0	Level 3
Croatia	**2019**	525	0	10	6.24	2.0	Value in use
	2018	521	0	10	7.08	2.0	Value in use
Slovakia	**2019**	428	0	10	4.61	2.0	Level 3
	2018	428	0	10	5.64	2.0	Level 3
Greece	**2019**	422	0	10	6.19	2.0	Level 3
	2018	422	0	10	7.94	2.0	Level 3
Austria	**2019**	877	0	10	4.39	2.0	Level 3
	2018	877	0	10	5.43	2.0	Level 3
Telekom Global Carrier	**2019**	102	0	10	4.20	2.0	Level 3
	2018	102	0	10	4.88	2.0	Level 3
Other[c]	**2019**	78	0	10	8.03–8.06	2.0	Value in use
	2018	78	0	10	8.36–8.38	2.0	Value in use
SYSTEMS SOLUTIONS							
Systems Solutions	**2019**	1,143	0	10	5.45	1.0	Level 3
	2018	1,143	0	10	6.43	1.5	Level 3
GROUP DEVELOPMENT							
Netherlands[d]	**2019**	679	0	10	4.07	0.5	Value in use
	2018	830	0	10	5.14	0.5	Value in use
Deutsche Funkturm	**2019**	259	0	10	3.78	1.0	Level 3
	2018	259	0	10	4.61	1.0	Level 3
T-Mobile Infra B.V.[d]	**2019**	259	0	10	4.59	0.5	Value in use
	2018	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
GROUP HEADQUARTERS & GROUP SERVICES							
Deutsche Telekom IT	**2019**	590	0	10	7.13	1.0	Level 3
	2018	590	0	10	7.13	1.5	Level 3
DEUTSCHE TELEKOM IN TOTAL	**2019**	**12,436**	**0**				
	2018	**12,267**	**639**				

[a] Discount rate consistently after taxes. The discount rate before taxes for the calculation of the value in use amounts to 7.47 percent (2018: 8.49 percent) for Croatia, 8.79 to 9.01 percent (2018: 9.25 to 9.36 percent) for "Other," 5.74 percent (2018: n.a.) for T-Mobile Infra B.V., and 4.90 percent (2018: 5.96 percent) for the Netherlands.

[b] Level of input parameters in the case of fair value less costs of disposal.

[c] This includes goodwill from the cash-generating units Montenegro and North Macedonia.

[d] Goodwill of EUR 109 million arose in connection with the acquisition of Tele2 Netherlands Holding N.V. Following the acquisition, T-Mobile Netherlands' cell towers and roof-top sites were spun off into the newly created cash-generating unit T-Mobile Infra B.V. This involved the transfer of goodwill of EUR 259 million.

The sensitivity analyses for the need for impairment resulting from a change in the main parameters affecting measurement did not result in any need for impairment for any cash-generating unit to which goodwill is allocated. Changes of plus or minus 50 basis points in the discount rate and in the sustainable growth rate, and of 5 percentage points in net cash flows were each analyzed separately.

Deutsche Telekom had commitments for the acquisition of intangible assets in the amount of EUR 0.4 billion (December 31, 2018: EUR 0.5 billion) as of the reporting date. The majority of this related to commitments entered into by T-Mobile US.

7 PROPERTY, PLANT AND EQUIPMENT

millions of €

	Land and equivalent rights, and buildings including buildings on land owned by third parties	Technical equipment and machinery	Other equipment, operating and office equipment	Advance payments and construction in progress	Total
COST					
AT DECEMBER 31, 2017	**17,887**	**123,122**	**8,841**	**3,618**	**153,468**
Currency translation	104	1,165	76	44	1,389
Changes in the composition of the Group	65	1,198	137	8	1,408
Additions	88	4,947	431	5,800	11,266
Disposals	(382)	(3,975)	(591)	(66)	(5,014)
Change from non-current assets and disposal groups held for sale	(184)	(163)	(41)	(5)	(393)
Reclassifications	387	4,226	583	(5,238)	(41)
AT DECEMBER 31, 2018	**17,963**	**130,520**	**9,437**	**4,162**	**162,082**
Transfer resulting from changes in accounting standards[a]	(1,474)	(3,067)	(16)	(2)	(4,558)
Currency translation	44	400	39	30	514
Changes in the composition of the Group	0	273	2	23	298
Additions	90	3,993	497	6,065	10,644
Disposals	(229)	(4,733)	(607)	(125)	(5,694)
Change from non-current assets and disposal groups held for sale	(51)	(4)	0	(3)	(58)
Reclassifications	177	5,502	488	(5,975)	192
AT DECEMBER 31, 2019	**16,522**	**132,885**	**9,839**	**4,174**	**163,421**
ACCUMULATED DEPRECIATION AND IMPAIRMENT LOSSES					
AT DECEMBER 31, 2017	**(11,371)**	**(89,198)**	**(6,021)**	**0**	**(106,590)**
Currency translation	(72)	(647)	(38)	0	(757)
Changes in the composition of the Group	0	0	(1)	0	(1)
Additions (depreciation)	(647)	(7,324)	(806)	0	(8,777)
Additions (impairment)	(13)	(20)	(3)	(3)	(38)
Disposals	292	3,544	534	0	4,371
Change from non-current assets and disposal groups held for sale	134	154	39	3	330
Reclassifications	(7)	49	(41)	0	2
Reversal of impairment losses	7	1	0	0	8
AT DECEMBER 31, 2018	**(11,675)**	**(93,440)**	**(6,337)**	**0**	**(111,452)**
Transfer resulting from changes in accounting standards[a]	1,145	882	7	0	2,034
Currency translation	(29)	(225)	(17)	0	(271)
Changes in the composition of the Group	0	(1)	(1)	0	(2)
Additions (depreciation)	(613)	(7,362)	(911)	0	(8,886)
Additions (impairment)	(1)	(287)	(16)	(15)	(319)
Disposals	177	4,428	528	0	5,133
Change from non-current assets and disposal groups held for sale	13	4	0	3	21
Reclassifications	53	(174)	(16)	0	(137)
Reversal of impairment losses	7	0	0	0	7
AT DECEMBER 31, 2019	**(10,923)**	**(96,176)**	**(6,761)**	**(13)**	**(113,872)**
NET CARRYING AMOUNTS					
At December 31, 2018	6,288	37,080	3,100	4,162	50,631
AT DECEMBER 31, 2019	**5,599**	**36,710**	**3,079**	**4,161**	**49,548**

[a] Due to the introduction of accounting standard IFRS 16 "Leases," leased assets arising from finance leases, which were previously disclosed under property, plant and equipment, were reclassified as right-of-use assets and lease liabilities as of January 1, 2019.

The carrying amount of property, plant and equipment decreased by EUR 1.1 billion compared to December 31, 2018 to EUR 49.5 billion. The first-time application of IFRS 16 as of January 1, 2019 accounted for a reduction of EUR 2.5 billion. Assets arising from finance leases that were reported under property, plant and equipment until December 31, 2018, for which Deutsche Telekom as the lessee bore substantially all the risks and rewards associated with the lease, are now recognized as rights to use the underlying leased assets. Depreciation and impairment losses of EUR 9.2 billion reduced the carrying amount. This included impairment losses of EUR 0.3 billion primarily relating to technical equipment and machinery in the Romania cash-generating unit in the Europe operating segment. Disposals of EUR 0.6 billion also reduced the carrying amount. Additions of EUR 10.6 billion – especially to upgrade and build out the network in our United States operating segment and in connection with the broadband/fiber-optic build-out, the IP transformation, and mobile infrastructure in the Germany and Europe operating segments – increased the carrying amount. Effects of changes in the composition of the Group resulting from the acquisition of Tele2 Netherlands increased the carrying amount by EUR 0.3 billion. Positive exchange rate effects, primarily from the translation of U.S. dollars into euros, increased the carrying amount by EUR 0.2 billion.

For further information on the first-time application of IFRS 16, please refer to the section "Initial application of standards, interpretations, and amendments."

For further information, please refer to the section "Changes in the composition of the Group and other transactions."

For further information on depreciation, amortization and impairment losses, please refer to Note 27 "Depreciation, amortization and impairment losses" and Note 6 "Intangible assets."

For further information on assets for which there is an operating lease (broken down by class of underlying asset), please refer to Note 38 "Lessor relationships."

A potential need to impair the assets was reviewed in an ad hoc impairment test at the Romania – Fixed-network and Romania – Mobile communications cash-generating units in the Europe operating segment as of December 31, 2019. These impairment tests were triggered by the units' earnings from operations falling short of expectations as well as more pessimistic assessments of business development for the coming years. No goodwill was allocated to the Romania – Fixed-network and Romania – Mobile communications cash-generating units as of December 31, 2019.

The measurement of the Romania – Fixed network and Romania – Mobile communications cash-generating units as of December 31, 2019 was founded on projections for a ten-year projection period that is based on the financial plan that has been approved by management and is also used for internal purposes. The planning horizon selected reflects the assumptions for short- to medium-term market developments and is selected to achieve a steady state in the entities' business outlook that is necessary for calculating the perpetual annuity. This steady state can only be established based on this planning horizon, in particular due to the sometimes long investment cycles in the telecommunications industry and the investments planned and expected in the long run to acquire and extend the rights of spectrum use. Cash flows beyond the internal mid-term planning are extrapolated using appropriate growth rates defined separately for each cash-generating unit. Growth rates of 2.0 percent were set for the cash-generating units Romania – Fixed network and Romania – Mobile communications and were based on the real growth and inflation expected in the long term. The key assumptions on which management has based its determination of the recoverable amount include the following assumptions that were primarily derived from internal sources and are based on past experience and extended to include internal expectations, and that are underscored by external market data and estimates: development of revenue, customer acquisition and retention costs, churn rates, capital expenditure, market share, and growth rates. Discount rates are determined on the basis of external figures derived from the market, taking account of the market and country risks associated with the cash-generating unit. The discount rates were 7.71 percent for the Romania – Fixed network cash-generating unit and 7.96 percent for the Romania – Mobile communications cash-generating unit.

The recoverable amount determined internally, which was calculated in accordance with IFRS 13 using unobservable input parameters (Level 3) amounted (before deduction of net debt) to EUR 176 million for the Romania – Fixed network cash-generating unit and to EUR 299 million for the Romania – Mobile communications cash-generating unit. The resulting need for impairment in 2019 was EUR 298 million for Romania – Fixed network and EUR 22 million for Romania – Mobile communications and, as a rule, had to be allocated to non-current assets. Taking into account existing lower value limits (fair value less costs of disposal of the relevant assets), impairment losses of EUR 296 million were recognized on property, plant and equipment in the area of technical equipment and machinery and EUR 24 million on intangible assets.

Deutsche Telekom had commitments for the acquisition of property, plant and equipment in the amount of EUR 4.4 billion as of the reporting date (December 31, 2018: EUR 3.8 billion). Restoration obligations of EUR 0.2 billion were recognized as of December 31, 2019 (December 31, 2018: EUR 0.2 billion), mainly attributable to restoration obligations of T-Mobile US.

8 RIGHT-OF-USE ASSETS – LESSEE RELATIONSHIPS

millions of €

	Land and equivalent rights, and buildings including buildings on land owned by third parties	Land and buildings from sale and leaseback transactions	Technical equipment and machinery	Other equipment, operating and office equipment	Total
CARRYING AMOUNTS OF RIGHT-OF-USE ASSETS BY CLASS OF UNDERLYING ASSET					
Initial application of IFRS 16 as of January 1, 2019	**5,978**	**649**	**9,527**	**85**	**16,239**
Currency translation	29	(1)	178	0	206
Changes in the composition of the Group	128	0	6	43	177
Additions	1,472	106	3,821	81	5,481
Disposals	(231)	(83)	(46)	(7)	(368)
Depreciation and amortization	(1,215)	(142)	(2,227)	(65)	(3,649)
Impairment losses	0	0	0	0	0
Reclassifications	3	0	(88)	(3)	(88)
AT DECEMBER 31, 2019	**6,163**	**529**	**11,171**	**135**	**17,998**

As a consequence of the first-time application of IFRS 16 as of January 1, 2019, the rights to use the underlying lease assets were recognized in the amount of the lease liability, adjusted by the amount of the prepaid or accrued lease payments. The remeasurement and reclassification effect reported amounted to EUR 16.2 billion as of January 1, 2019. This includes both rights to use lease assets recognized in the statement of financial position for the first time and rights to use assets arising from finance leases in the amount of EUR 2.5 billion that were previously disclosed under property, plant and equipment.

For further information on the application of the new accounting standard, please refer to the section "Initial application of standards, interpretations, and amendments."

In the reporting year, additions of EUR 5.5 billion relate to leases concluded in the reporting year for network technology and cell sites in the United States operating segment. Effects of changes in the composition of the Group of EUR 0.2 billion arising from the acquisition of Tele2 Netherlands, and positive exchange rate effects of EUR 0.2 billion, primarily from the translation of U.S. dollars into euros, increased the carrying amount. Depreciation and amortization totaling EUR 3.6 billion and disposals of EUR 0.4 billion had an offsetting effect.

For information on corresponding lease liabilities, please refer to Note 13 "Financial liabilities and lease liabilities."

The right-of-use assets recognized in the statement of financial position relate in particular to leases for cell sites, network infrastructure, and real estate. The right-of-use assets for land and equivalent rights, and buildings including buildings on land owned by third parties include the right-of-use assets related to data centers with a carrying amount of EUR 103 million. The corresponding depreciation amounted to EUR 18 million in the reporting year. In addition, the right-of-use assets for technical equipment and machinery also include the right-of-use assets related to data centers with a carrying amount of EUR 17 million. The corresponding depreciation amounted to EUR 5 million in the reporting year.

Right-of-use assets in connection with sale and leaseback transactions mainly relate to office and technical facilities in the Group Headquarters & Group Services segment, with Group companies selling real estate and then leasing back the facilities and buildings required for business. No significant gains and losses from sale and leaseback transactions were recorded in the 2019 financial year.

Leases can include extension and termination options that can have a substantial impact on the period of depreciation of the right-of-use assets if it is deemed to be reasonably certain that extension options will be exercised or termination options will not be exercised.

For further information, please refer to the section "Summary of accounting policies – Accounting policies."

9 CAPITALIZED CONTRACT COSTS

millions of €	Dec. 31, 2019	Dec. 31, 2018
Costs of obtaining a contract	2,059	1,726
Costs to fulfill a contract	15	18
	2,075	**1,744**

As of December 31, 2019, the carrying amount of capitalized contract costs stood at EUR 2.1 billion and was thus EUR 0.3 billion higher than at the end of the prior year. This increase is attributable in particular to a higher level of capitalized costs of obtaining a contract in postpaid customer business in the United States operating segment as of the end of the reporting year. The costs of obtaining a contract primarily contained sales commissions paid to third-party retailers in the direct and indirect sales channel and to employees. Overall, capitalized contract costs of EUR 1,388 million (2018: EUR 976 million) were written down on a straight-line basis over the estimated customer retention period.

10 INVESTMENTS ACCOUNTED FOR USING THE EQUITY METHOD

Deutsche Telekom publishes the following information on significant investments included in the consolidated financial statements using the equity method:

	Deutsche Telekom share		**Percentage of voting rights**		**Assigned to segment**	**Fair value of the investment, if a listed market price is available**	
Name and registered office	Dec. 31, 2019 %	Dec. 31, 2018 %	Dec. 31, 2019 %	Dec. 31, 2018 %		Dec. 31, 2019 millions of €	Dec. 31, 2018 millions of €
Hrvatske telekomunikacije d.d. Mostar, Mostar, Bosnia-Herzegovina[a]	39.10	39.10	39.10	39.10	Europe	31	37
Stratospheric Platforms Ltd., Isle of Man, United Kingdom[b]	33.59	n.a.	33.59	n.a.	Group Development	n.a.	n.a.
T-Mobile USA Tower LLC, Wilmington, United States[c]	100.00	100.00	100.00	100.00	United States	n.a.	n.a.
T-Mobile West Tower LLC, Wilmington, United States[c]	100.00	100.00	100.00	100.00	United States	n.a.	n.a.
Ströer SE & Co. KGaA, Cologne, Germany[d]	0.00	11.42	0.00	11.42	Group Development	n.a.	270

[a] Indirect shareholding via Hrvatski Telekom d.d., Croatia (Deutsche Telekom AG's share: 51.42 percent).

[b] The shareholding has been included in Deutsche Telekom's consolidated financial statements using the equity method since the beginning of the 2019 financial year.

[c] Indirect shareholding via T-Mobile US, Inc., United States (Deutsche Telekom AG's share: 63.34 percent).

[d] Transfer of 11.34 percent of the shares in Ströer SE & Co. KGaA to Deutsche Telekom Trust e.V. as plan assets to cover existing pension obligations with effect from August 14, 2019. For further information, please refer to the section "Summary of accounting policies" – "Changes in the composition of the Group and other transactions."

DESCRIPTION OF THE NATURE OF THE ACTIVITIES OF THE JOINT ARRANGEMENT OR ASSOCIATE

Hrvatske telekomunikacije d.d. (HT Mostar d.d.) provides mobile and fixed-network communications services in Bosnia-Herzegovina.

Stratospheric Platforms Ltd. develops new communications technologies for stationary and mobile use.

T-Mobile USA Tower LLC and T-Mobile West Tower LLC are structured entities founded by T-Mobile US in each of which it holds a 100-percent stake for the purpose of contributing cell sites in accordance with a framework agreement signed in 2012 between T-Mobile US and Crown Castle International Corp., Houston, United States, concerning the leasing and use of the cell sites. The sole right to continue to use and lease out these sites was transferred to Crown Castle. T-Mobile US continues to operate its mobile equipment on these cell towers and, to this end, leases back the required capacity from Crown Castle. Previously unused infrastructure is thus available for Crown Castle to lease to third parties. In return, the owners of the land on which the cell towers are built will no longer receive lease payments from T-Mobile US for those cell towers which were contributed to the two associates and those that were disposed of. Both entities were deconsolidated as of the date of the closing of the transaction in 2012, because Crown Castle independently operates the cell towers, generates revenues from the lease out of the sites for an average of 27 years, and determines the finance and business activities of both entities that are relevant for consolidation purposes. It is expected that the leasing of tower space will allow Crown Castle to generate sufficient ongoing profits and cash flows to be able to meet its contractual obligations. Thus Deutsche Telekom has only a significant influence and includes these companies in the consolidated financial statements as associates. Under certain conditions, T-Mobile US will continue to be held liable for any default in the lease payment by Crown Castle to the owners of the underlying land of the cell sites. The agreement includes an extremely low maximum guarantee amount for Deutsche Telekom, since in the unlikely event that this case occurs, T-Mobile US could take over the further use of the relevant cell sites or alternatively terminate the contracts with the owners of the cell site land at short notice. At closing, T-Mobile US established an immaterial cash reserve in the entities sufficient to fund the payment of ongoing administrative expenses not payable by Crown Castle. Aside from the guarantee and the payment of administrative expenses there is no other funding obligation by T-Mobile US.

The following tables provide summarized financial information on the main companies included in the consolidated financial statements and accounted for using the equity method. The data is not based on the stakes attributable to Deutsche Telekom AG, but represents the shareholdings on an assumed 100 percent basis.

Summarized financial information on the main entities accounted for using the equity method

millions of €

	HT Mostar d.d.		Stratospheric Platforms Ltd.[a]	
	Dec. 31, 2019/ 2019	Dec. 31, 2018/ 2018	**Dec. 31, 2019/ 2019**	Dec. 31, 2018/ 2018
Current assets	45	37	16	n.a.
Of which: cash and cash equivalents	11	15	16	n.a.
Non-current assets	175	158	4	n.a.
Current liabilities	29	23	1	n.a.
Non-current liabilities	21	3	0	n.a.
Net revenue	40	43	0	n.a.
Profit (loss)	0	0	(17)	n.a.
Other comprehensive income	0	0	0	n.a.
Total comprehensive income	0	0	(17)	n.a.
Depreciation, amortization and impairment losses	(11)	(12)	0	n.a.
Dividends paid to Deutsche Telekom	0	0	0	n.a.

[a] As financial data of Stratospheric Platforms Ltd. as of December 31, 2019 was not yet available to Deutsche Telekom at the date of preparation, the company's annual financial statements as of December 31, 2018 were used as a basis for the summarized financial information.

millions of €

	T-Mobile USA Tower LLC		T-Mobile West Tower LLC	
	Dec. 31, 2019/ 2019	Dec. 31, 2018/ 2018	**Dec. 31, 2019/ 2019**	Dec. 31, 2018/ 2018
Current assets	0	0	0	0
Non-current assets	118	62	160	95
Current liabilities	0	0	0	0
Non-current liabilities	0	0	0	0
Net revenue	0	0	0	0
Profit (loss)	0	0	0	0
Other comprehensive income	0	0	0	0
Total comprehensive income	0	0	0	0
Dividends paid to Deutsche Telekom	0	0	0	0

Reconciliation to the carrying amount included in the consolidated statement of financial position

millions of €

	HT Mostar d.d.		Stratospheric Platforms Ltd.[a]	
	2019	2018	2019	2018
NET ASSETS AS OF JANUARY 1	169	168	9	n.a.
Profit (loss)	0	0	(17)	n.a.
Other comprehensive income	0	0	0	n.a.
Share-based payment	0	0	0	n.a.
Change in interest without loss of control	0	0	0	n.a.
Dividends paid	0	0	0	n.a.
Capital increase	0	0	28	n.a.
Obligation to acquire own equity instruments	0	0		n.a.
Exchange rate effects	1	1	0	n.a.
NET ASSETS AS OF DECEMBER 31[b]	170	169	20	n.a.
SHARE OF NET ASSETS ATTRIBUTABLE TO DEUTSCHE TELEKOM AS OF DECEMBER 31[b]	66	66	6	n.a.
Goodwill – equity method	0	0	60	n.a.
Reversal of impairment losses	0	0	0	n.a.
Other reconciliation effects	(15)	(15)	0	n.a.
CARRYING AMOUNT AS OF DECEMBER 31	51	51	66	n.a.

[a] As financial data of Stratospheric Platforms Ltd. as of December 31, 2019 was not yet available to Deutsche Telekom at the date of preparation, the company's annual financial statements as of December 31, 2018 were used as a basis for the summarized financial information and for the reconciliation statement to the carrying amount reported in Deutsche Telekom's consolidated statement of financial position. The resulting effects for the extrapolation of the carrying amount as of December 31, 2019 were estimated and are included under other reconciliation effects.

[b] The figures for net assets and the share of the net assets of Stratospheric Platforms Ltd. relate to December 31, 2018.

millions of €

	T-Mobile USA Tower LLC		T-Mobile West Tower LLC	
	2019	2018	2019	2018
NET ASSETS AS OF JANUARY 1	62	60	95	91
Profit (loss)	54	0	63	0
Other comprehensive income	0	0	0	0
Dividends paid	0	0	0	0
Exchange rate effects	2	2	2	4
NET ASSETS AS OF DECEMBER 31	118	62	160	95
SHARE OF NET ASSETS ATTRIBUTABLE TO DEUTSCHE TELEKOM AS OF DECEMBER 31	118	62	160	95
Adjustment of carrying amount	0	0	0	0
Other reconciliation effects	0	0	0	0
CARRYING AMOUNT AS OF DECEMBER 31	118	62	160	95

In the reporting year, as in the prior year, Deutsche Telekom did not recognize losses in connection with investments included in the consolidated financial statements using the equity method.

SUMMARIZED AGGREGATE FINANCIAL INFORMATION ON NON-SIGNIFICANT ENTITIES ACCOUNTED FOR USING THE EQUITY METHOD

The figures relate to the interests attributable to Deutsche Telekom.

millions of €

	Joint ventures		Associates	
	Dec. 31, 2019/2019	Dec. 31, 2018/2018	Dec. 31, 2019/2019	Dec. 31, 2018/2018
Total carrying amounts	12	13	83	47
Total share in profit (loss)	(7)	2	(9)	3
Other comprehensive income	0	0	0	0
TOTAL COMPREHENSIVE INCOME	(7)	2	(9)	3

11 OTHER FINANCIAL ASSETS

millions of €

	Dec. 31, 2019		Dec. 31, 2018	
	Total	Of which: current	Total	Of which: current
Originated loans and receivables	3,133	2,661	3,133	2,684
Other receivables – publicly funded projects	1,350	476	0	0
Derivative financial assets	2,333	88	870	151
Equity instruments – measured at fair value through profit or loss	22	22	0	0
Equity instruments – measured at fair value through other comprehensive income	293	0	324	0
Debt instruments – measured at fair value through profit or loss	115	6	95	6
Other	4	1	10	6
	7,250	**3,254**	**4,432**	**2,847**

Current and non-current other financial assets increased by EUR 2.8 billion compared with December 31, 2018 to EUR 7.3 billion. The carrying amount of other financial assets increased in connection with positive effects from the measurement of embedded derivatives at T-Mobile US of EUR 0.5 billion and with the recording of cash collateral of EUR 0.6 billion in connection with forward-payer swaps concluded for future borrowings at T-Mobile US. Furthermore, grants receivable from publicly funded projects for the broadband build-out in Germany, which as a result of the change in estimate since the start of the third quarter are to be recognized as other financial assets upon conclusion of the agreement, also increased the carrying amount by EUR 1.3 billion.

Receivables of EUR 565 million (December 31, 2018: EUR 299 million) were used in connection with collateral agreements as surety for potential credit risks arising from derivative transactions in connection with the forward-payer swaps described above. In addition, cash collateral of EUR 70 million was provided in connection with a spectrum auction.

For further information on the change in estimate, please refer to the section "Changes in accounting policies, changes in estimates."

For further information on allowances and the credit ratings of originated loans and receivables, please refer to Note 41 "Financial instruments and risk management."

12 OTHER ASSETS

Current and non-current other assets decreased by EUR 0.1 billion to EUR 2.1 billion. As of December 31, 2018, other assets mainly included rental and lease advance payments and further deferred expenses of EUR 1.8 billion. The advance payments arising from operating leases in accordance with IAS 17 included as of December 31, 2018 (EUR 0.2 billion) were offset against the right-of-use assets upon the transition to IFRS 16 as of January 1, 2019. As of December 31, 2019, other assets mainly included advance payments in connection with agreements on services for certain mobile communications equipment that do not fall within the scope of IFRS 16, as well as further deferred expenses totaling EUR 1.7 billion.

For further information on the application of the new accounting standard, please refer to the section "Initial application of standards, interpretations, and amendments."

13 FINANCIAL LIABILITIES AND LEASE LIABILITIES

The following table shows the composition and maturity structure of **financial liabilities** as of December 31, 2019:

millions of €

	Dec. 31, 2019				Dec. 31, 2018			
	Total	Due within 1 year	Due > 1 year ≤ 5 years	Due > 5 years	Total	Due within 1 year	Due > 1 year ≤ 5 years	Due > 5 years
Bonds and other securitized liabilities	51,644	4,176	17,536	29,931	49,033	4,432	16,957	27,644
Liabilities to banks	6,516	2,690	2,656	1,170	5,710	2,103	2,588	1,019
Of which: promissory notes	722	0	188	534	744	0	287	457
Of which: loans from the European Investment Bank	2,981	173	2,351	457	3,141	582	2,159	400
Of which: other loans	2,813	2,517	117	179	1,825	1,521	142	162
	58,160	**6,866**	**20,192**	**31,102**	**54,743**	**6,535**	**19,545**	**28,663**
Finance lease liabilities[a]	n.a.	n.a.	n.a.	n.a.	2,471	849	1,146	476
Liabilities to non-banks from promissory note bonds	699	200	53	446	497	156	53	288
Liabilities with the right of creditors to priority repayment in the event of default	0				0			
Other interest-bearing liabilities	4,369	1,959	1,113	1,298	1,878	1,078	602	198
Other non-interest-bearing liabilities	1,476	1,332	136	8	1,609	1,474	129	6
Derivative financial liabilities	1,645	1,105	115	425	1,077	436	144	497
	8,189	**4,596**	**1,417**	**2,177**	**7,532**	**3,993**	**2,074**	**1,465**
FINANCIAL LIABILITIES	**66,349**	**11,463**	**21,609**	**33,279**	**62,275**	**10,527**	**21,619**	**30,128**
LEASE LIABILITIES	**19,835**	**3,987**	**10,250**	**5,599**	**n.a.**	**n.a.**	**n.a.**	**n.a.**

[a] Financial liabilities included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018.

Current and non-current financial liabilities increased by EUR 4.1 billion to EUR 66.3 billion compared with the prior year. Exchange rate effects, in particular from the translation of U.S. dollars into euros, raised the carrying amount by EUR 0.2 billion.

Bonds and other securitized liabilities increased by EUR 2.6 billion. This increase resulted in particular from the following bond issuances by Deutsche Telekom AG in the reporting year: euro bonds with a total volume of EUR 4.5 billion, pound sterling bonds with a total volume of GBP 0.4 billion (EUR 0.5 billion), U.S. dollar bonds of USD 0.1 billion (EUR 0.1 billion), and Australian dollar bonds of AUD 0.1 billion (EUR 0.1 billion). In addition, OTE PLC issued a euro bond with a volume of EUR 0.4 billion. Scheduled repayments of U.S. dollar bonds totaling USD 1.8 billion (EUR 1.6 billion), euro bonds totaling EUR 0.8 billion, and pound sterling bonds totaling GBP 0.3 billion (EUR 0.3 billion), had an offsetting effect. The net change of EUR 0.5 billion in commercial paper also decreased the carrying amount.

The increase of EUR 0.8 billion in liabilities to banks was mainly due to the positive net change of EUR 0.8 billion in the balance of short-term borrowings. This includes a Deutsche Bundespost treasury note (zero-coupon bond) issued in the past with a carrying amount of EUR 1.4 billion, which fell due on December 31, 2019 and was repaid on that date by a bank using its own funds.

For further information, please refer to Note 35 “Notes to the consolidated statement of cash flows.”

The first-time application of IFRS 16 resulted in finance lease liabilities being reclassified from financial liabilities to lease liabilities. Based on the carrying amounts as of December 31, 2018, this reclassification reduced financial liabilities by EUR 2.5 billion.

For further information on the application of the new accounting standard, please refer to the section "Initial application of standards, interpretations, and amendments."

The increase of EUR 2.5 billion in the carrying amount of other interest-bearing liabilities primarily relates to the spectrum licenses acquired in the Germany operating segment for EUR 2.2 billion. In place of a lump-sum payment, government representatives agreed to let us pay the purchase price in annual installments from 2019 through 2030. After deducting collateral of EUR 36 million and the first, already paid installment of EUR 0.1 billion, the resulting financial liabilities had a carrying amount of EUR 2.0 billion. Payment by installment was granted on the condition that Deutsche Telekom assumes additional build-out obligations.

The carrying amount of derivative financial liabilities increased by EUR 0.6 billion. The measurement of forward-payer swaps concluded for future borrowings at T-Mobile US with a total volume of USD 9.6 billion gave rise to a remeasurement loss recognized directly in equity of EUR 0.6 billion.

For further information on derivative financial liabilities, please refer to Note 41 "Financial instruments and risk management."

Deutsche Telekom has established ongoing liquidity management. To ensure the Group's and Deutsche Telekom AG's solvency and financial flexibility at all times, Deutsche Telekom maintains a liquidity reserve in the form of credit lines and cash. This liquidity reserve is to cover the capital market maturities of the next 24 months at any time.

In addition to the reported liabilities to banks, Deutsche Telekom had standardized bilateral credit agreements with 21 banks for a total of EUR 12.6 billion as of December 31, 2019. As of December 31, 2019, a transaction of EUR 0.6 billion was temporarily deducted from a credit line. In the prior year, EUR 0.6 billion of these credit lines had been utilized. Pursuant to the credit agreements, the terms and conditions depend on Deutsche Telekom's rating. The bilateral credit agreements have an original maturity of 36 months and can, after each period of twelve months, be extended by a further twelve months to renew the maturity of 36 months. From today's perspective, access to the international debt capital markets is not jeopardized.

The first-time application of IFRS 16 led to the recognition of **current and non-current lease liabilities** totaling EUR 18.1 billion. These also included the finance lease liabilities that used to be reported under financial liabilities.

For further information on the application of the new accounting standard, please refer to the section "Initial application of standards, interpretations, and amendments."

The carrying amount of the recognized lease liabilities increased to EUR 19.8 billion as of December 31, 2019. Lease liabilities primarily relate to the United States, Europe, and Group Development operating segments. In addition, there are lease liabilities in the Group Headquarters & Group Services segment in connection with the leasing of real estate and technical sites.

For further information on lessee relationships, please refer to Note 8 "Right of use assets – lessee relationships."

In the 2019 financial year, there were no significant expenses for variable lease payments that were not included in the measurement of lease liabilities. All cash outflows in connection with leases amounted to EUR 4.7 billion in the 2019 financial year.

As of December 31, 2019, future payment obligations for leases that have not yet begun and which are not taken into account in the measurement of lease liabilities amounted to EUR 0.3 billion.

The following tables show the contractually agreed (undiscounted) interest payments and repayments of the non-derivative financial liabilities, the lease liabilities, and the derivatives with positive and negative fair values:

millions of €

	Carrying amounts Dec. 31, 2019	Cash flows in 2020			Cash flows in 2021		
		Fixed interest rate	Variable interest rate	Repay-ment	Fixed interest rate	Variable interest rate	Repay-ment
NON-DERIVATIVE FINANCIAL LIABILITIES (EXCLUDING LEASE LIABILITIES)							
Bonds, other securitized liabilities, liabilities to banks and liabilities to non-banks from promissory notes and similar liabilities	(58,859)	(1,069)	(1)	(4,696)	(1,778)	0	(5,152)
Other interest-bearing liabilities	(4,369)	(19)	(3)	(1,959)	(27)	(1)	(779)
Other non-interest-bearing liabilities	(1,476)			(1,332)			(125)
LEASE LIABILITIES	(19,835)	(669)		(4,087)	(552)		(3,611)
DERIVATIVE FINANCIAL LIABILITIES AND ASSETS							
Derivative financial liabilities:							
Currency derivatives without a hedging relationship	(59)			(68)			(1)
Currency derivatives in connection with cash flow hedges	(4)			(3)			0
Embedded derivatives without a hedging relationship	(146)			(9)			(8)
Other derivatives without a hedging relationship	(7)			0			0
Interest rate derivatives without a hedging relationship	(112)	(148)	140	0	(101)	64	0
Interest rate derivatives in connection with fair value hedges	(65)	97	(81)	0	97	(75)	0
Interest rate derivatives in connection with cash flow hedges	(1,249)	(206)	179	(1,120)	(206)	179	0
Derivative financial assets:							
Currency derivatives without a hedging relationship	49			46			0
Currency derivatives in connection with cash flow hedges	5			2			0
Embedded derivatives without a hedging relationship	0			0			0
Other derivatives without a hedging relationship	3			2			1
Interest rate derivatives without a hedging relationship	212	22	(48)	0	13	(45)	0
Interest rate derivatives in connection with fair value hedges	1,153	503	(247)	0	486	(257)	0
Interest rate derivatives in connection with cash flow hedges	281	(31)	99	0	15	49	0

millions of €	Cash flows in 2022-2024			Cash flows in 2025-2029			Cash flows in 2030 and thereafter		
	Fixed interest rate	Variable interest rate	Repay-ment	Fixed interest rate	Variable interest rate	Repay-ment	Fixed interest rate	Variable interest rate	Repay-ment
NON-DERIVATIVE FINANCIAL LIABILITIES (EXCLUDING LEASE LIABILITIES)									
Bonds, other securitized liabilities, liabilities to banks and liabilities to non-banks from promissory notes and similar liabilities	(4,549)	(1)	(14,912)	(4,480)	0	(20,408)	(2,655)	0	(11,486)
Other interest-bearing liabilities	(62)		(334)	(58)		(1,118)	(23)		(179)
Other non-interest-bearing liabilities			(11)			(1)			(7)
LEASE LIABILITIES	(951)		(6,707)	(437)		(4,933)	(87)		(598)
DERIVATIVE FINANCIAL LIABILITIES AND ASSETS									
Derivative financial liabilities:									
Currency derivatives without a hedging relationship			0			0			0
Currency derivatives in connection with cash flow hedges			0			0			0
Embedded derivatives without a hedging relationship			(32)			(78)			(84)
Other derivatives without a hedging relationship			(9)			0			0
Interest rate derivatives without a hedging relationship	(55)	(5)	2	5	40	(67)	0	93	73
Interest rate derivatives in connection with fair value hedges	215	(141)	(3)	269	(157)	(13)	208	(114)	(7)
Interest rate derivatives in connection with cash flow hedges	(530)	338	0	(111)	92	0	(11)	0	22
Derivative financial assets:									
Currency derivatives without a hedging relationship			0			0			0
Currency derivatives in connection with cash flow hedges			0			0			0
Embedded derivatives without a hedging relationship			0			0			0
Other derivatives without a hedging relationship			2			0			0
Interest rate derivatives without a hedging relationship	38	(89)	79	40	39	69	27	127	72
Interest rate derivatives in connection with fair value hedges	1,360	(706)	0	1,713	(971)	12	1,170	(780)	20
Interest rate derivatives in connection with cash flow hedges	157	1	52	219	2	7	(24)	0	293

millions of €	Carrying amounts Dec. 31, 2018	Cash flows in 2019	2020	2021–2023	2024–2028	2029 and thereafter
NON-DERIVATIVE FINANCIAL LIABILITIES						
Bonds, other securitized liabilities, liabilities to banks and liabilities to non-banks from promissory notes and similar liabilities	(55,240)	(5,395)	(7,701)	(19,443)	(25,070)	(10,170)
Finance lease liabilities[a]	(2,471)	(954)	(657)	(659)	(523)	(157)
Liabilities with the right of creditors to priority repayment in the event of default	0	0	0	0	0	0
Other interest-bearing liabilities	(1,878)	(1,115)	(389)	(275)	(136)	(121)
Other non-interest-bearing liabilities	(1,609)	(1,474)	(50)	(79)	(1)	(5)
DERIVATIVE FINANCIAL LIABILITIES AND ASSETS						
Derivative financial liabilities:						
Currency derivatives without a hedging relationship	(36)	(36)	0	0	0	0
Currency derivatives in connection with cash flow hedges	(3)	(1)	0	0	0	0
Currency derivatives in connection with net investment hedges	0	0	0	0	0	0
Embedded derivatives without a hedging relationship	(52)	(6)	(7)	(18)	(19)	(9)
Other derivatives without a hedging relationship	(12)	0	0	(11)	0	0
Interest rate derivatives without a hedging relationship	(143)	(5)	9	2	22	195
Interest rate derivatives in connection with fair value hedges	(350)	(65)	(65)	(142)	(192)	(89)
Interest rate derivatives in connection with cash flow hedges	(482)	(404)	41	136	207	252
Derivative financial assets:						
Currency derivatives without a hedging relationship	24	13	0	0	0	0
Currency derivatives in connection with cash flow hedges	2	2	0	0	0	0
Embedded derivatives without a hedging relationship	12			4	5	16
Other derivatives without a hedging relationship	2	2	0	1	0	0
Interest rate derivatives without a hedging relationship	460	108	(6)	(4)	66	246
Interest rate derivatives in connection with fair value hedges	267	133	123	283	236	39
Interest rate derivatives in connection with cash flow hedges	8	8	8	8	8	8

[a] Financial liabilities included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018.

All instruments held at December 31, 2019 and for which payments were already contractually agreed were included. Planning data for future, new liabilities were not included. Amounts in foreign currency were each translated at the closing rate at the reporting date. The variable interest payments arising from the financial instruments were calculated using the last interest rates fixed before December 31, 2019. Financial liabilities that can be repaid at any time are always assigned to the earliest possible time period. In accordance with § 2 (4) of the German Act on the Transformation of the Deutsche Bundespost Enterprises into the Legal Structure of Stock Corporation (Stock Corporation Transformation Act – Postumwandlungsgesetz), the Federal Republic is guarantor of all Deutsche Telekom AG's liabilities that were already outstanding as at January 1, 1995. At December 31, 2019, this figure was a nominal EUR 0.5 billion (December 31, 2018: EUR 1.8 billion).

14 TRADE AND OTHER PAYABLES

millions of €	Dec. 31, 2019	Dec. 31, 2018
Trade payables	9,410	10,699
Other liabilities	21	36
	9,431	**10,735**

Trade and other payables decreased by EUR 1.3 billion compared with the prior year to EUR 9.4 billion. The reduction in liabilities in the United States, Europe, and Germany operating segments contributed to this decrease. Exchange rate effects from the translation from U.S. dollars into euros had an increasing effect.

Of the total of trade and other payables, EUR 9,410 million (December 31, 2018: EUR 10,735 million) is due within one year.

15 PROVISIONS FOR PENSIONS AND OTHER EMPLOYEE BENEFITS

DEFINED BENEFIT PLANS

The Group's pension obligations are based on direct and indirect pension commitments mainly in Germany, Greece, and Switzerland. Deutsche Telekom's pension obligations are as follows:

millions of €	Dec. 31, 2019	Dec. 31, 2018
DEFINED BENEFIT LIABILITY	**5,831**	**5,502**
Defined benefit asset	(21)	(11)
NET DEFINED LIABILITY (ASSET)	**5,810**	**5,491**
Of which: provisions for direct commitments	5,775	5,434
Of which: provisions for indirect commitments	35	57

Defined benefit liabilities are disclosed under non-current liabilities in the consolidated statement of financial position. The defined benefit asset is recognized under other non-current assets in the consolidated statement of financial position.

The year-on-year increase in provisions for pensions was mainly due to interest rate adjustments and the decline in the price of the BT share transferred to plan assets. An offsetting effect was generated by the transfer on August 14, 2019 of the stake in Ströer SE & Co. KGaA to Deutsche Telekom Trust e.V. (CTA) as plan assets.

Calculation of net defined benefit liabilities/assets

millions of €	Dec. 31, 2019	Dec. 31, 2018
Present value of the obligations fully or partially funded by plan assets	9,045	8,577
Plan assets at fair value	(6,489)	(6,099)
DEFINED BENEFIT OBLIGATIONS IN EXCESS OF PLAN ASSETS	**2,556**	**2,478**
Present value of the unfunded obligations	3,245	3,013
DEFINED BENEFIT LIABILITY (ASSET) ACCORDING TO IAS 19.63	**5,801**	**5,491**
Effect of asset ceiling (according to IAS 19.64)	9	0
NET DEFINED LIABILITY (ASSET)	**5,810**	**5,491**

millions of €	2019	2018
NET DEFINED BENEFIT LIABILITY (ASSET) AS OF JANUARY 1	**5,491**	**8,360**
Service cost	245	217
Net interest expense (income) on the net defined benefit liability (asset)	87	96
Remeasurement effects	603	(127)
Pension benefits paid directly by the employer	(155)	(212)
Employer contributions to plan assets	(449)	(2,852)
Changes attributable to business combinations/transfers of operation/acquisitions and disposals	(12)	9
Administration costs actually incurred (paid from plan assets)	0	0
Exchange rate fluctuations for plans in foreign currency	0	0
NET DEFINED BENEFIT LIABILITY (ASSET) AS OF DECEMBER 31	**5,810**	**5,491**

Key assumptions for the measurement of the defined benefit obligations are the discount rate, the salary increase rate, the pension increase rate, and longevity. The following table shows the assumptions on which the measurement of defined benefit obligations as of December 31 of the respective year are based. The assumptions made as of December 31 of the respective prior year are used to measure the expected pension expense (defined benefit cost) of a given financial year.

The following figures for the plans in Switzerland relate to T-Systems Schweiz AG and T-Systems Data Migration Consulting AG.

Assumptions for the measurement of defined benefit obligations as of December 31

%		2019	2018	2017
Discount rate	Germany	1.14	1.60	1.61
	Switzerland	0.29	0.82	0.64
	Greece (OTE S.A.)	1.09[a]/0.62[b]	1.60[a]/1.08[b]	1.66[a]/0.92[b]
Salary increase rate	Germany	2.50	2.50	2.40
	Switzerland	1.00	1.00	1.00
	Greece (OTE S.A.)	1.00	1.00[c]	1.00[d]
Pension increase rate	Germany (general)	1.50	1.50	1.50
	Germany (according to articles of association)	1.00	1.00	1.00
	Switzerland	0.10	0.10	0.10
	Greece (OTE S.A.)	n.a.	n.a.	n.a.

[a] The discount rate relates to the plan for staff retirement indemnities (please refer to the section “Global Pension Policy and description of the plans” below).

[b] The discount rate relates to the plan for youth accounts (please refer to the section “Global Pension Policy and description of the plans” below).

[c] The following assumptions were made in 2018 concerning the development of salaries: 2019: 0.52 percent. An increase of 1.00 percent is assumed for the years from 2020 onward.

[d] The following assumptions were made in 2017 concerning the development of salaries in subsequent years: 2018: 1.00 percent, 2019: 0.00 percent. An increase of 1.00 percent is assumed for the years from 2020 onward.

years		Dec. 31, 2019	Dec. 31, 2018
Duration	Germany	12.7	12.7
	Switzerland	15.9	16.2
	Greece (OTE S.A.)	12.6[a]/5.7[b]	12.4[a]/6.1[b]

[a] The duration relates to the plan for staff retirement indemnities (please refer to the section “Global Pension Policy and description of the plans” below).

[b] The duration relates to the plan for youth accounts (please refer to the section “Global Pension Policy and description of the plans” below).

The following biometric assumptions were essential for the measurement of pension obligations:

Germany: Heubeck 2018G, Switzerland: BVG 2015 Generational, Greece (OTE S.A.): EVK2000. Based on the observation of rising life expectancy and the falling probability of invalidity in Germany, the life expectancy tables published by Heubeck were revised in 2018. This resulted in losses of EUR 66 million or 0.6 percent of the German obligations in 2018.

The aforementioned discount rates were used as of December 31, 2019 when calculating the present value of defined benefit obligations, taking into account future salary increases. The rates were determined in line with the average weighted duration of the respective obligation.

The discount rate is determined based on the yields of high-quality European corporate bonds with AA rating, mapped in a yield curve showing the corresponding spot rates. The underlying method is routinely reviewed and refined as required (e.g., further development of the bond markets, automation of the availability of corresponding data in terms of quantity and quality).

As of March 31, 2019, Deutsche Telekom changed the method it uses to calculate the discount rate in the euro zone, Switzerland, and the United Kingdom for determining pension obligations in accordance with IAS 19. The changes result from a change in provider for the determination of the yield curves.

Under the new method, adjustments are made in relation to the selection of the bonds available on the market (previous data basis: Bloomberg; data basis after adjustment: Thomson Reuters) as well as in the determination of the yield curve from this data. The first step is to remove bonds with special options (e.g., put or call options) or other properties (e.g., low-volume bonds, bundled bonds) from the available portfolio. Then a regression curve is determined based on the bond market so as to identify potential outliers (calculated using the double standard deviation) and likewise remove these from the bond portfolio for determining the interest rate. The yield curve determined using this method is subsequently applied to the cash flows in the pension plans so as to determine an equivalent uniform discount rate.

The Group's pension obligations are based on pension commitments mainly in Germany, Greece, and Switzerland. Without the change, the discount rate as of December 31, 2019 would have been 0.30 percentage points lower in Germany, 0.30 or 0.23 percentage points lower in Greece (OTE), and 0.07 percentage points lower in Switzerland. The defined benefit obligations would have been EUR 442 million higher and the service cost for 2020 EUR 11 million higher.

Development of defined benefit obligations in the reporting year

millions of €

	2019	2018
DEFINED BENEFIT OBLIGATIONS AS OF JANUARY 1	**11,590**	**11,462**
Current service cost	250	257
Interest cost	186	184
Remeasurement effects	656	51
Of which: experience-based adjustments	0	11
Of which: adjusted financial assumptions	664	(16)
Of which: adjusted demographic assumptions	(8)	57
Total benefits actually paid	(397)	(343)
Contributions by plan participants	4	4
Changes attributable to business combinations/transfers of operation/acquisitions and disposals	(12)	9
Past service cost (due to plan amendments/curtailments)[a]	(8)	(42)
Settlements	3	3
Taxes to be paid as part of pensions	0	0
Exchange rate fluctuations for plans in foreign currency	18	6
DEFINED BENEFIT OBLIGATIONS AS OF DECEMBER 31	**12,290**	**11,590**
Of which: active plan participants	5,576	5,349
Of which: plan participants with vested pension rights who left the Group	2,448	2,230
Of which: benefit recipients	4,266	4,011

[a] The past service cost due to plan amendments in 2018 relates primarily to the collective agreement concluded at OTE S.A. on March 22, 2018 (please refer to the section "Global Pension Policy and description of the plans" below).

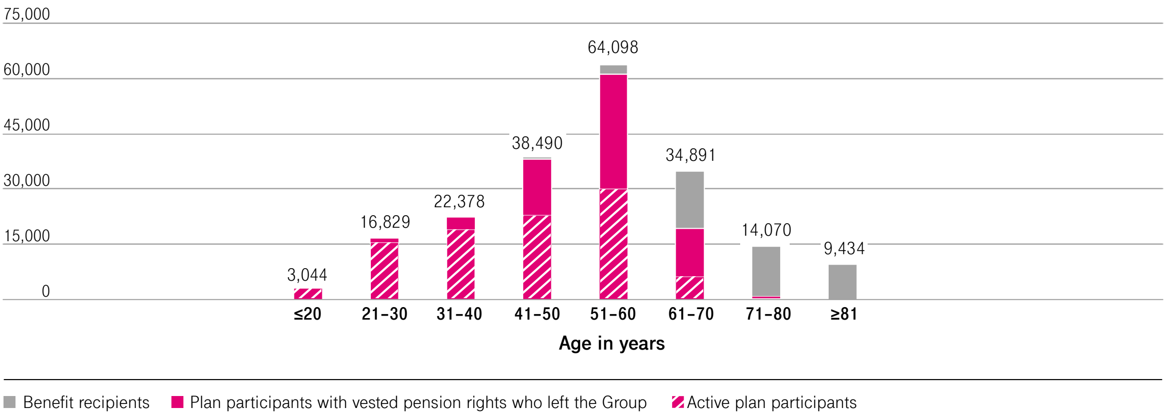
Distribution of obligations relating to Deutsche Telekom's most significant plans as of December 31, 2019 and December 31, 2018

millions of €

	Dec. 31, 2019				Dec. 31, 2018			
	Germany	Switzerland	Greece (OTE S.A.)	Other plans	Germany	Switzerland	Greece (OTE S.A.)	Other plans
Defined benefit obligations	11,530	221	196	343	10,874	220	198	298
Plan assets at fair value	(6,007)	(230)	0	(252)	(5,682)	(208)	0	(209)
Effect of asset ceiling	0	9	0	0	0	0	0	0
NET DEFINED LIABILITY (ASSET)	**5,524**	**0**	**196**	**90**	**5,192**	**12**	**198**	**89**

The following analyses in terms of age structure and sensitivity analysis, as well as descriptions of plans and the risks associated with them, relate to the relevant pension obligations (Germany, Switzerland, and Greece (OTE S.A.)).

Age structure of plan participants in the most significant pension plans[a]



[a] Figures relating to Greece (OTE S.A.) include the staff retirement indemnities plan only.

SENSITIVITY ANALYSIS FOR THE DEFINED BENEFIT OBLIGATIONS

The following sensitivity analysis describes the effects of possible adjustments in the material actuarial assumptions for measurement on the defined benefit obligations determined as of December 31, 2019. A change in the measurement assumptions to the extent described below, with otherwise unchanged assumptions, would have impacted the defined benefit obligations as of December 31, 2019 as follows:

millions of €

	Increase (decrease) of the defined benefit obligations as of Dec. 31, 2019			Increase (decrease) of the defined benefit obligations as of Dec. 31, 2018		
	Germany	Switzerland	Greece (OTE S.A.)	Germany	Switzerland	Greece (OTE S.A.)
Increase of discount rate by 100 basis points	(1,284)	(25)	(19)	(1,203)	(18)	(19)
Decrease of discount rate by 100 basis points	1,566	32	22	1,465	25	22
Increase of salary increase rate by 50 basis points	6	1	7	6	3	7
Decrease of salary increase rate by 50 basis points	(5)	(1)	(7)	(6)	(3)	(7)
Increase of pension increase rate by 25 basis points	5	5	0	5	6	0
Decrease of pension increase rate by 25 basis points	(5)	(2)	0	(5)	(2)	0
Life expectancy increase by 1 year	305	5	0	279	5	0
Life expectancy decrease by 1 year	(296)	(5)	0	(274)	(5)	0

The sensitivity analysis was carried out separately for the discount rate, the salary increase rate, and the pension increase rate. For this purpose, further actuarial evaluations were made for both the increase and the decrease of the assumptions. It can be assumed that the life expectancy of the plan members will not change significantly within a year. Nevertheless, the effect of a change in life expectancy on the obligations was additionally determined from a risk perspective. Evaluations were carried out based on the assumption that the life expectancy of the plan members aged 65 would increase or decrease by one year. The life expectancy of the remaining plan members was adjusted accordingly. Variations in the assumed retirement age or turnover rates would only have an immaterial effect, especially in Germany.

GLOBAL PENSION POLICY AND DESCRIPTION OF THE PLANS

Deutsche Telekom manages its pension commitments based on the Group-wide Global Pension Policy. It ensures on a worldwide basis that Group minimum standards regarding the granting and management of company pension benefits are complied with, plans are harmonized, and financial and other risks to the core business are avoided or reduced. In addition, the policy provides guidelines for the implementation and management of pension commitments and defines requirements for the launch, adjustment, and closure of corresponding plans. The regulations and provisions laid down in this Group policy take into account the national differences in state pension and other commitments under labor, tax, and social law and the common business practices in the area of pension commitments.

Defined benefit plans based on final salaries in the Group have largely been replaced by plans with contribution-based promises to minimize the risks involved. In addition, a corporate CTA (Deutsche Telekom Trust e.V.) is used in Germany for additional funding of pension obligations. A CTA is a legally structured trust agreement to cover unfunded pension commitments with plan assets, and to provide greater protection against insolvency for these obligations.

As of the end of 2018, all existing obligations processed via the Deutsche Telekom Betriebsrenten-Service e.V. (DTBS) special pension fund (current pensions) were transferred to direct commitments and the Telekom Pension Fund (TPF). A new asset segment was set up in the TPF for these obligations. Part of the plan assets from DTBS were transferred to the CTA, and part to the new asset segment of the TPF as an initial allocation. To increase the funding rate of the German obligations in the Deutsche Telekom Group, the stake in BT was transferred to Deutsche Telekom Trust e.V. as plan assets in 2018 and the stake in Ströer was transferred to the latter as plan assets in 2019.

In **Germany** there are commitments for pension and disability benefits for a majority of employees as well as pension benefits for their surviving dependents. As part of a reorganization of the company pension plan, a capital account plan was introduced across Germany in 1997 for active employees. Furthermore, in subsequent years, commitments acquired through company acquisitions were also transferred to the capital account plan scheme. The capital account plan is an employer-financed, contribution-based benefit promise. The salary-linked contributions granted annually earn interest in advance for each year of provision up to age 60, calculated using age-based factors, converting the contribution into a guaranteed insured amount. The advance interest rate currently stands at 3.50 percent p. a. (target interest rate for the capital account plan).

The period for providing contributions is initially limited to ten future contribution years. The contribution period will be extended automatically every year by a further year, unless terminated. The insured amounts accumulated over the period of active service are paid out if an insured event arises, primarily in the form of a lump sum. Hence there is only a limited longevity risk for these commitments. Based on the payment guidelines and the structure of the capital account plan, the employer can plan for this, and there is only a small risk inherent in the plan with regard to the volatility of remuneration dynamics.

In addition, in Germany there are various closed legacy commitments, which generally provide for old-age and disability benefits as well as benefits for surviving dependents in the form of life-long pensions. The commitments predominantly comprise the overall pension of the supplementary retirement pensions institution (Versorgungsanstalt der Deutschen Bundespost – VAP) that takes into account the statutory pension. Most of the plan members of these commitments are former employees with vested rights and retirees for whom the amount of benefits has already been determined. So the VAP overall pension scheme continues to apply to former employees who were already retired or who had left with vested claims in 1997.

To the extent that defined benefit plans in Germany grant annuities, the future adjustment for these pensions, except for insignificant exceptions, is bindingly defined in the existing benefit regulations. A change in the assumptions for the general pension trend in Germany therefore only has an immaterial impact on the defined benefit obligations.

As a change in life expectancy mainly impacts on the obligations from legacy pension commitments and, since 1997, commitments have been granted in the form of capital, the significance of the risk resulting from the change in life expectancy is expected to decline for the Group over subsequent years.

To cover pension obligations over the long term, Deutsche Telekom has transferred funds to a corporate CTA, a corporate special pension fund (Unterstützungskasse) (until 2018), and a corporate pension fund (from 2018).

Under the company pension system in **Switzerland**, a defined benefit plan is in place that is financed by employer and employee contributions (within the meaning of IAS 19). This plan is granted by the legally independent T-Systems pension fund. Following a restructuring of the Swiss companies and harmonization of the pension fund commitments as of January 1, 2014, T-Systems Data Migration Consulting AG has also been included in T-Systems Schweiz AG's pension fund. As is often the case in Switzerland, both companies grant higher benefits than legally required. The Swiss Federal Law on Occupational Retirement, Surviving Dependants' and Disability Pension (Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge – BVG) sets out minimum requirements for the pay to be insured, the age-based contributions, and a minimum annuity factor for the obligatory portion of the accrued retirement assets to be annuitized. In addition, the Swiss Federal Council defines a minimum interest rate for the obligatory retirement assets (2019: 1.00 percent, 2020: 1.00 percent).

The foundation board (Stiftungsrat) presides over the Swiss pension fund. It ensures the day-to-day running of the pension fund and decides on fundamental aspects, such as the amount and the structure of the pension benefits and the asset investment strategy. The foundation board is equally composed of employer and employees' representatives.

Due to the minimum yield for the obligatory retirement assets, a risk exists for the plans in Switzerland that additional resources would have to be allocated to the pension fund if it were to be underfinanced. The pension fund offers the plan members the option to choose a life-long pension instead of a one-time payment. This option gives rise to longevity and investment risks, since at the time of retirement, assumptions must be made regarding life expectancy and return on assets. As of January 1, 2018, T-Systems Schweiz decided to apply the risk-sharing method when measuring its pension obligations. The measurement of obligations was changed such that employee participation in funding a possible deficit can be taken into account when measuring the employer's obligation. The general option for employee participation in funding a deficit is covered by Art. 28 of the pension regulations.

In **Greece (OTE S.A.),** mandatory staff retirement indemnities are due in cases of premature termination by the employer and, to a lesser extent, upon retirement by the employee. These are paid out in the form of a lump sum and can amount to several times the employee's last monthly pay (including cap), depending on the employee's length of service. Due to a change in the law in 2012, the lump sum was capped at a maximum of twelve monthly salaries. The company also makes a voluntary top-up payment. Under the collective agreement concluded on March 22, 2018, employees are assigned to one of three pension commitments based on the date they joined the company (100 percent of the statutory benefits plus nine or seven monthly salaries or plus 40 percent of the statutory benefits).

OTE S.A. is also obligated to make a one-time payment for the employees' children when they reach the age of 25 (youth accounts). The benefit plan, which had previously been based on the level of the employee's final monthly salary, was changed in November 2011 to a plan with a contribution-based promise financed by contributions by the employee and corresponding limited matching contributions by the employer.

The benefits granted by the staff retirement indemnities and youth account plans are paid out as a lump sum. For this reason there is no longevity risk.

Development of plan assets at fair value in the respective reporting year

millions of €

	2019	2018
PLAN ASSETS AT FAIR VALUE AS OF JANUARY 1	**6,099**	**3,102**
Changes attributable to business combinations/transfers of operation/acquisitions and disposals	0	0
Interest income on plan assets (calculated using the discount rate)	99	88
Amount by which the actual return exceeds (falls short of) the interest income on plan assets (remeasurement)	62	179
Contributions by employer	449	2,852
Contributions by plan participants	4	4
Benefits actually paid from plan assets	(241)	(132)
Settlements	0	0
Administration costs	0	0
Tax payments	0	0
Exchange rate fluctuations for plans in foreign currency	18	6
PLAN ASSETS AT FAIR VALUE AS OF DECEMBER 31	**6,489**	**6,099**

Contributions by employer included shares in BT in 2018 and shares in Ströer in 2019, which were paid into the corporate CTA, and, in an offsetting effect, a refund from the CTA to Deutsche Telekom in 2018 for benefit payments made by the employer.

Breakdown of plan assets at fair value by investment category

millions of €

	Dec. 31, 2019	Of which: price in an active market	Of which: price without an active market	Dec. 31, 2018	Of which: price in an active market	Of which: price without an active market
Equity securities	4,564	4,564	0	4,278	4,278	0
Of which: shares in BT	2,704	2,704	0	3,183	3,183	0
Debt securities	1,113	1,113	0	922	922	0
Real estate	64	64	0	66	66	0
Derivatives	0	0	0	0	0	0
Investment funds	11	11	0	156	156	0
Asset-backed securities	0	0	0	0	0	0
Structured debt instruments	350	350	0	437	437	0
Cash and cash equivalents	275	275	0	118	118	0
Other	112	70	42	122	84	38
PLAN ASSETS AT FAIR VALUE	**6,489**	**6,447**	**42**	**6,099**	**6,061**	**38**

The investment policy and risk management is set in line with the risk and development characteristics of the pension obligations. On the basis of a systematic, integrated asset/liability management analysis, potential results from different investment portfolios, which can cover a large number of asset classes, are compared with the stochastically simulated development of the pension obligations, thereby explicitly considering the relative development of plan assets against the pension obligations. The investment strategy is mainly characterized by the objective of satisfying future obligations from granted pension commitments on time by systematically setting up and professionally managing a suitable portfolio for the plan assets. It essentially aims to establish a widely diversified investment portfolio that generates a risk profile appropriate to the overall objective, by means of corresponding risk factors and diversification. The management of investments is subject to continuous monitoring to ensure active risk management. Cost-efficient investment management is effected by means of professional portfolio management involving external service providers.

At the reporting date, the plan assets at fair value included shares amounting to EUR 3,706 thousand (December 31, 2018: EUR 3,168 thousand) and bonds amounting to EUR 6,688 thousand (December 31, 2018: EUR 2,974 thousand) issued by Deutsche Telekom AG and its subsidiaries.

Development of the effect of the asset ceiling

millions of €

	2019	2018
EFFECT OF ASSET CEILING AS OF JANUARY 1	**0**	**0**
Interest expense on asset ceiling (recognized in the income statement)	0	0
Changes in asset ceiling((gains) losses recognized in equity)	9	0
Currency gain (loss)	0	0
EFFECT OF ASSET CEILING AS OF DECEMBER 31	**9**	**0**

Breakdown of defined benefit costs in the income statement

millions of €

	Disclosure in income statement	2019	2018	2017
Current service cost	Personnel costs	250	257	265
Past service cost (due to plan amendments/curtailments)	Personnel costs	(8)	(42)	(7)
Settlements	Personnel costs	3	3	8
SERVICE COST		**245**	**217**	**266**
Interest cost	Other financial income (expense)	186	184	184
Interest income on plan assets (calculated using the discount rate)	Other financial income (expense)	(99)	(88)	(48)
Interest expense on the effect of the asset ceiling	Other financial income (expense)	0	0	0
NET INTEREST EXPENSE (INCOME) ON NET DEFINED BENEFIT LIABILITY (ASSETS)		**87**	**96**	**136**
DEFINED BENEFIT COST		**332**	**313**	**402**
Administration costs actually incurred (paid from plan assets)	Personnel costs	0	0	0
TOTAL AMOUNTS RECOGNIZED IN PROFIT OR LOSS		**332**	**313**	**402**

Amounts recognized in the consolidated statement of comprehensive income

millions of €

	2019	2018	2017
REMEASUREMENT ((GAIN) LOSS RECOGNIZED IN OTHER COMPREHENSIVE INCOME IN THE FINANCIAL YEAR)	**603**	**(127)**	**(116)**
Of which: remeasurement due to a change in defined benefit obligations	656	51	(11)
Of which: remeasurement due to a change in plan assets	(62)	(179)	(105)
Of which: remeasurement due to changes in the effect of asset ceiling (according to IAS 19.64)	9	0	0

Total benefit payments expected

millions of €

	2020	2021	2022	2023	2024
Benefits paid from pension provisions	116	231	230	254	269
Benefits paid from plan assets	259	226	241	241	261
TOTAL BENEFITS EXPECTED	**375**	**457**	**470**	**495**	**530**

Since 2018, benefit payments for direct pension commitments have also been funded using CTA assets. Furthermore, Deutsche Telekom reserves the right to claim reimbursement from CTA assets in the following year, as required, for payments made directly by the employer. The last time this happened was in 2018.

For 2020, Deutsche Telekom does not plan any allocations to plan assets at fair value in Germany. Deutsche Telekom is planning an international allocation of at least EUR 11 million in 2020.

DEFINED CONTRIBUTION PLANS

The employer's contribution paid to the statutory pension scheme (Deutsche Rentenversicherung) in Germany in the 2019 financial year totaled EUR 0.4 billion (2018: EUR 0.4 billion; 2017: EUR 0.3 billion). Group-wide, EUR 145 million (2018: EUR 120 million, 2017: EUR 131 million) from current contributions for additional defined contribution plans was recognized in the consolidated income statement in 2019.

CIVIL-SERVANT RETIREMENT ARRANGEMENTS AT DEUTSCHE TELEKOM

An expense of EUR 405 million was recognized in the 2019 financial year (2018: EUR 441 million; 2017: EUR 458 million) for the annual contribution to the Civil Service Pension Fund, which generally amounts to 33 percent of the pensionable gross emoluments of active civil servants and the notional pensionable gross emoluments of civil servants on leave of absence. The present value of future payment obligations was EUR 2.1 billion as of the reporting date (December 31, 2018: EUR 2.5 billion, December 31, 2017: EUR 3.1 billion) and is shown under other financial obligations.

For further information, please refer to Note 39 "Other financial obligations."

16 OTHER PROVISIONS

millions of €

	Provisions for termination benefits	Other provisions for personnel costs	Provisions for restoration obligations	Provisions for litigation risks	Provisions for sales and procurement support	Miscellaneous other provisions	Total
AT DECEMBER 31, 2017	**166**	**2,657**	**1,591**	**326**	**706**	**1,080**	**6,527**
Of which: current	166	1,481	40	311	706	668	3,372
Transfer resulting from change in accounting standards	0	0	0	0	(46)	(22)	(68)
Changes in the composition of the Group	1	4	10	1	0	7	24
Currency translation adjustments	0	15	22	2	4	10	54
Addition	125	1,922	113	129	268	337	2,894
Use	(35)	(1,482)	(30)	(27)	(479)	(366)	(2,419)
Reversal	(3)	(74)	(101)	(144)	(4)	(177)	(503)
Interest effect	0	28	(16)	0	0	(2)	9
Other changes	0	(61)	(24)	1	6	(5)	(82)
AT DECEMBER 31, 2018	**255**	**3,010**	**1,564**	**289**	**456**	**862**	**6,435**
Of which: current	168	1,662	35	266	456	557	3,144
Transfer resulting from change in accounting standards	0	0	0	0	0	(184)	(184)
Changes in the composition of the Group	0	28	17	0	0	33	77
Currency translation adjustments	0	10	10	1	3	1	26
Addition	29	2,098	191	75	437	262	3,092
Use	(122)	(1,763)	(86)	(26)	(414)	(200)	(2,611)
Reversal	(3)	(70)	(77)	(57)	(16)	(98)	(321)
Interest effect	0	142	88	1	0	(1)	230
Other changes	1	(94)	0	0	0	12	(81)
AT DECEMBER 31, 2019	**160**	**3,361**	**1,707**	**284**	**466**	**685**	**6,663**
Of which: current	159	1,694	31	261	466	471	3,082

In the measurement of the other provisions, Deutsche Telekom is exposed to interest rate fluctuations, which is why the effect of a possible change in the interest rate on the principal non-current provisions was simulated. The other, non-staff-related provisions are discounted using maturity-related discount rates specific to the respective currency area. To this end, Deutsche Telekom determines discount rates with maturities of up to 30 years. In 2019, the discount rates ranged from 0.00 to 2.41 percent (2018: from 0.06 to 3.08 percent) in the euro currency area and from 2.60 to 4.35 percent (2018: from 3.87 to 6.21 percent) in the U.S. dollar currency area. If the discount rate were increased by 50 basis points with no other change in the assumptions, the present value of the principal other non-current provisions would decrease by EUR 109.0 million (December 31, 2018: EUR 102.7 million). If the discount rate were decreased by 50 basis points with no other change in the assumptions, the present value of the principal other non-current provisions would increase by EUR 111.7 million (December 31, 2018: EUR 107.3 million).

Provisions for termination benefits and other personnel provisions include provisions for staff restructuring. These provisions developed as follows in the 2019 financial year:

millions of €

	Jan. 1, 2019	Addition	Use	Reversal	Other changes	Dec. 31, 2019
Severance and voluntary redundancy models	255	29	(122)	(3)	1	160
Phased retirement	608	584	(395)	0	(64)	733
	863	**614**	**(517)**	**(3)**	**(63)**	**893**
Of which: current	352					372

Other personnel provisions increased by EUR 0.4 billion. EUR 0.2 billion of this increase relates to the provisions recognized for the Civil Service Health Insurance Fund (Postbeamtenkrankenkasse – PBeaKK) and is attributable to the subsequent measurement of the present value determined using actuarial principles (interest effect) and other additions. Other provisions for personnel costs also include provisions for deferred compensation and allowances, as well as for anniversary gifts.

Provisions for restoration obligations include the estimated costs for dismantling and removing an asset, and restoring the site on which it is located. The estimated costs are included in the costs of the relevant asset. The provisions for litigation risks primarily relate to possible settlements attributable to pending lawsuits. Provisions for sales and procurement support are recognized for dealer commissions, subsidies for advertising expenses, and reimbursements. Miscellaneous other provisions include a large number of low-value individual items, such as provisions related to executory contracts, the disposal of businesses and site closures, in particular in prior financial years, as well as warranty and environmental damage provisions.

For further information on litigation risks from pending lawsuits, please refer to Note 37 "Contingencies."

17 OTHER LIABILITIES

millions of €

	Dec. 31, 2019	Of which: current	Dec. 31, 2018	Of which: current
Early retirement	1,097	392	1,227	422
Deferred revenue	153	110	28	28
Liabilities from straight-line leases	0	0	2,232	0
Liabilities from other taxes	1,197	1,197	1,157	1,157
Other deferred revenue	316	142	616	358
Liabilities from severance payments	99	98	138	137
Liabilities – publicly funded projects	1,198	340	0	0
Miscellaneous other liabilities	762	571	683	552
	4,822	**2,850**	**6,081**	**2,654**

Liabilities from early retirement arrangements for civil servants exist vis-à-vis the Civil Service Pension Fund and arise from payment obligations under agreements that had already been concluded. The obligations are payable in up to seven annual installments following retirement. The decline in liabilities from straight-line leases is due to the first-time application of IFRS 16, under which liabilities from straight-line leases, primarily for cell sites in the United States operating segment, are no longer required to be reported. As of January 1, the lease terms underlying these liabilities were adjusted to the lease terms determined in accordance with IFRS 16, increasing shareholders' equity, and then the remaining prepaid expense was offset against the right-of-use asset. Due to the change in estimate implemented in the second half of 2019 in connection with the accounting treatment of contractual grants receivable from funding projects for the broadband build-out in Germany, EUR 1.2 billion was recognized for existing build-out obligations.

For further information on the first-time application of IFRS 16, please refer to the section "Initial application of standards, interpretations, and amendments."

For further information on the change in estimate, please refer to the section "Changes in accounting policies, changes in estimates."

18 CONTRACT LIABILITIES

The carrying amount of current and non-current contract liabilities decreased year-on-year by EUR 0.2 billion to EUR 2.1 billion. These mainly comprise deferred revenues. Revenue of EUR 1,277 million from contract liabilities that were still outstanding as of December 31, 2018 was realized in the reporting year. Of the total of contract liabilities, EUR 1,608 million (December 31, 2018: EUR 1,720 million) is due within one year.

19 SHAREHOLDERS' EQUITY

ISSUED CAPITAL

As of December 31, 2019, the share capital of Deutsche Telekom totaled EUR 12,189 million. The share capital is divided into 4,761,458,596 no par value registered shares.

	2019		2018	
	thousands	%	thousands	%
Federal Republic of Germany – Berlin, Germany	689,601	14.5	689,601	14.5
KfW Bankengruppe – Frankfurt/Main, Germany	829,179	17.4	829,179	17.4
Free float	3,242,679	68.1	3,242,679	68.1
Of which: BlackRock, Inc. – Wilmington, DE, United States[a]	234,194		234,194	
	4,761,459	**100.0**	**4,761,459**	**100.0**

[a] According to the last notification from BlackRock published on September 22, 2017, the reporting threshold of 3 percent of the voting rights was exceeded. The stake in Deutsche Telekom was thus 4.92 percent of the voting rights on September 15, 2017.

Treasury shares. The amount of capital stock assigned to treasury shares was approximately EUR 47 million at December 31, 2019. This equates to 0.4 percent of the capital stock. 18,524,848 treasury shares were held at December 31, 2019. The shareholders’ meeting resolved on May 25, 2016 to authorize the Board of Management to purchase shares in the Company by May 24, 2021, with the amount of share capital accounted for by these shares totaling up to EUR 1,179,302,878.72, provided the shares to be purchased on the basis of this authorization in conjunction with the other shares of the Company that the Company has already purchased and still possesses or are to be assigned to it under § 71d and § 71e AktG do not at any time account for more than 10 percent of the Company’s share capital. Moreover, the requirements under § 71 (2) sentences 2 and 3 AktG must be complied with. Shares shall not be purchased for the purpose of trading in treasury shares. This authorization may be exercised in full or in part. The purchase can be carried out in partial tranches spread over various purchase dates within the authorization period until the maximum purchase volume is reached. Dependent Group companies of Deutsche Telekom AG within the meaning of § 17 AktG or third parties acting for the account of Deutsche Telekom AG or for the account of dependent Group companies of Deutsche Telekom AG within the meaning of § 17 AktG are also entitled to purchase the shares. The shares are purchased through the stock exchange in adherence to the principle of equal treatment (§ 53a AktG). Shares can instead also be purchased by means of a public purchase or share exchange offer addressed to all shareholders, which, subject to a subsequently approved exclusion of the right to offer shares, must also comply with the principle of equal treatment.

The shares may be used for one or several of the purposes permitted by the authorization granted by the shareholders’ meeting on May 25, 2016 under item 6 on the agenda. The shares may also be used for purposes involving an exclusion of subscription rights. They may also be sold on the stock market or by way of an offer to all shareholders, or withdrawn. The shares may also be used to fulfill the rights of Board of Management members to receive shares in Deutsche Telekom AG, which the Supervisory Board has granted to these members as part of the arrangements governing the compensation of the Board of Management, on the basis of a decision by the Supervisory Board to this effect.

Under the resolution of the shareholders’ meeting on May 25, 2016, the Board of Management is also authorized to acquire the shares through the use of equity derivatives.

On the basis of the authorization by the shareholders’ meeting on May 25, 2016 described above and corresponding authorizations by the shareholders’ meeting on May 12, 2011 and May 24, 2012, 110 thousand shares were acquired in June 2011, 206 thousand shares in September 2011, and 268 thousand shares in January 2013. The total volumes amounted to EUR 2,762 thousand in the 2011 financial year, and EUR 2,394 thousand in the 2013 financial year (excluding transaction costs). This increased the number of treasury shares by 316 thousand and 268 thousand, respectively. Further, 90 thousand shares and 860 thousand shares were acquired in September and October 2015, respectively, for an aggregate amount of EUR 14,787 thousand (excluding transaction costs); these acquisitions increased the number of treasury shares by 950 thousand.

No treasury shares were acquired in the reporting period.

As part of the Share Matching Plan, a total of 2 thousand treasury shares were transferred free of charge to the custody accounts of eligible participants in 2012 and 2013, respectively. A further 90 thousand treasury shares were transferred free of charge in the 2014 financial year. An additional 140 thousand treasury shares were transferred in 2015. In the 2016 financial year, 232 thousand treasury shares were transferred, 300 thousand treasury shares were transferred in the 2017 financial year, and 312 thousand in the 2018 financial year. Transfers of treasury shares to the custody accounts of employees of Deutsche Telekom AG are free of charge. In cases where treasury shares are transferred to the custody accounts of employees of other Group companies, the costs have been transferred at fair value to the respective Group company since the 2016 financial year.

In all months of the reporting year with the exception of March, treasury shares (448 thousand in total) were reallocated and transferred to the custody accounts of eligible participants of the Share Matching Plan. As of December 31, 2019, disposals of treasury shares resulting from the transfers in the reporting period accounted for less than 0.01 percent, or EUR 1,148 thousand, of share capital. Gains on disposal arising from transfers of treasury shares amounted to EUR 6,030 thousand. In the reporting year, 238 thousand treasury shares with a fair value of EUR 3,578 thousand were billed to other Group companies. Transfers of treasury shares increased retained earnings by EUR 4,055 thousand and capital reserves by EUR 828 thousand.

As part of the acquisition of VoiceStream Wireless Corp., Bellevue, and Powertel, Inc., Bellevue, in 2001, Deutsche Telekom AG issued new shares from authorized capital to a trustee, for the benefit of holders of warrants, options, and conversion rights, among others. These options or conversion rights expired in full in the 2013 financial year. As a result, the trustee no longer had any obligation to fulfill any claims in accordance with the purpose of the deposit. The trust relationship was terminated at the start of 2016 and the deposited shares were transferred free of charge to a custody account of Deutsche Telekom AG. The previously deposited shares are accounted for in the same way as treasury shares in accordance with § 272 (1a) HGB. On the basis of authorization by the shareholders' meeting on May 25, 2016, the treasury shares acquired free of charge may be used for the same purposes as the treasury shares acquired for a consideration. In the reporting year, 61 thousand previously deposited shares were reallocated for issue to eligible participants of the Share Matching Plan.

Voting rights. Each share entitles the holder to one vote. These voting rights are restricted, however, in relation to treasury shares (at December 31, 2019: around 19 million in total).

Authorized capital and contingent capital. Authorized capital and contingent capital comprised the following components as of December 31, 2019:

	Amount millions of €	No par value shares thousands	Purpose
2017 Authorized capital	3,600	1,406,250	Capital increase against cash contribution/contribution in kind until May 30, 2022
2018 Contingent capital	1,200	468,750	Servicing convertible bonds and/or bonds with warrants issued on or before May 16, 2023

TRANSACTIONS WITH OWNERS

millions of €

	2019			2018		
	Issued capital and reserves attributable to owners of the parent	Non-controlling interests	Total shareholders' equity	Issued capital and reserves attributable to owners of the parent	Non-controlling interests	Total shareholders' equity
Changes in the composition of the Group	**0**	**239**	**239**	**0**	**11**	**11**
Acquisition of Tele2 Netherlands	0	239	239	0	0	0
Other effects	0	0	0	0	11	11
Transactions with owners	**73**	**340**	**413**	**(625)**	**(764)**	**(1,389)**
Acquisition of Tele2 Netherlands	293	226	519	0	0	0
T-Mobile US share buy-back program	0	0	0	(245)	(613)	(858)
Capital restructuring, Romania	(51)	51	0	0	0	0
Acquisition of T-Mobile US shares	0	0	0	(72)	(90)	(162)
Acquisition of OTE shares	0	0	0	(150)	(135)	(285)
OTE share buy-back	(29)	(81)	(110)	(16)	(78)	(94)
Other effects	(140)	144	4	(142)	152	10

The amounts recognized in shareholders' equity as transactions with owners and as changes in the composition of the Group mainly relate to the acquisition consummated on January 2, 2019 of Tele2 Netherlands Holding N.V. by T-Mobile Netherlands Holding B.V. The transfer in this context of 25 percent of the shares in T-Mobile Netherlands (prior to the business combination) resulted in transactions with owners attributable to non-controlling interests of EUR 226 million.

For further information, please refer to the section "Summary of accounting policies – Changes in the composition of the Group and other transactions."

NON-CONTROLLING INTERESTS: TOTAL OTHER COMPREHENSIVE INCOME

Total other comprehensive income of non-controlling interests primarily comprises remeasurement effects as part of the acquisition of the OTE group (business combination achieved in stages) totaling EUR 0.4 billion (December 31, 2018: EUR 0.4 billion), currency translation effects of EUR 0.1 billion (December 31, 2018: EUR 0.0 billion), and an offsetting remeasurement loss recognized directly in equity in connection with forward-payer swaps concluded for future borrowings at T-Mobile US.

NOTES TO THE CONSOLIDATED INCOME STATEMENT

For information on special factors, please refer to the section "Development of business in the Group" in the combined management report.

20 NET REVENUE

Net revenue breaks down into the following revenue categories:

millions of €

	2019	2018[b]	2017[b]
Revenue from the rendering of services	**65,489**	**61,653**	**62,141**
Germany	17,445	17,657	18,382
United States	31,313	27,755	27,232
Europe	10,023	9,883	9,937
Systems Solutions	5,149	5,328	5,413
Group Development	1,487	967	1,067
Group Headquarters & Group Services	71	63	110
Revenue from the sale of goods and merchandise[a]	**12,960**	**12,443**	**11,079**
Germany	2,298	2,208	1,735
United States	8,569	8,170	7,714
Europe	1,556	1,588	1,236
Systems Solutions	143	154	90
Group Development	394	322	286
Group Headquarters & Group Services	0	0	18
Revenue from the use of entity assets by others	**2,081**	**1,561**	**1,727**
Germany	829	486	436
United States	536	596	789
Europe	229	51	45
Systems Solutions	88	15	0
Group Development	276	290	307
Group Headquarters & Group Services	124	123	150
NET REVENUE	**80,531**	**75,656**	**74,947**

[a] Revenue from the sale of goods and merchandise includes interest income of EUR 345 million in the reporting year, calculated using the effective interest method (2018: EUR 305 million). This income is primarily attributable to accrued interest on receivables in connection with handsets sold under installment plans in the United States operating segment.

[b] Prior-year figures were adjusted retrospectively on account of a change in the allocation between revenue categories. This change relates to revenue from the use of entity assets by others of EUR 290 million in 2018 and of EUR 307 million in 2017 in the Group Development operating segment that had been reported under revenue from the rendering of services in the 2018 Annual Report.

Net revenue for the reporting year was EUR 80.5 billion, up EUR 4.9 billion on the prior-year level.

For information on changes in net revenue, please refer to the section "Development of business in the Group" in the combined management report.

The total transaction price attributable to performance obligations that have not been fulfilled or, in some cases, not yet fulfilled at the end of the reporting year (hereinafter: outstanding transaction price) amounts to EUR 19,059 million (2018: EUR 18,323 million).

The portion of the outstanding transaction price attributable to performance obligations that have not been fulfilled or, in some cases, not yet fulfilled at the end of the reporting year is generally recognized as revenue over the remaining term of the service contracts concluded. Since most service contracts – unless they can be canceled at any time – have a minimum contract term of 24 months, an average remaining term of approximately 12 months can be assumed, provided the course of business in the mass business remains virtually unchanged. The disclosures only refer to transactions within the scope of IFRS 15, i.e., they do not include portions of the transaction price being allocated to performance obligations outside the scope of the standard, e.g., leases.

Deutsche Telekom generally makes use of the practical expedients in IFRS 15, according to which outstanding performance obligations under contracts with an expected original term of no more than one year and revenues recognized in accordance with the billed amounts are exempt from the disclosure requirement. Individual subsidiaries deviate from this general approach and have not made use of these practical expedients for similar contracts.

SERVICE CONCESSION ARRANGEMENTS

Satellic NV, Machelen, Belgium, is a fully consolidated subsidiary of Deutsche Telekom and on July 25, 2014 signed a contractual arrangement with Viapass, the public agency responsible for toll collection in Belgium, for the set-up, operation, and financing of an electronic toll collection system. After Viapass accepted the system on March 30, 2016, the set-up phase was completed on March 31, 2016. The operation phase that follows will have a duration of twelve years, with the additional option for Viapass to extend the term three times by one year. Satellic has no entitlement to the toll revenue collected but will receive contractually agreed fees for setting up and operating the system. Viapass is authorized to terminate the arrangement giving notice of six months with payment of reasonable compensation. In the event of regular or premature termination of the agreement, Satellic has an obligation to hand over to Viapass, on request, material assets for the operation of the toll collection system that have not yet passed to the ownership of Viapass; in such an event, however, the software platform for toll collection would not be handed over to Viapass. The agreement was classified as a service concession arrangement within the meaning of IFRIC 12. Since the start of the operation phase on April 1, 2016, the separate fees for operation and maintenance services have been recognized as revenue in the respective periods, which totaled EUR 66 million in the reporting year (2018: EUR 67 million, 2017: EUR 75 million).

21 OTHER OPERATING INCOME

millions of €

	2019	2018	2017
Income from the reversal of impairment losses on non-current assets	7	8	1,665
Of which: IFRS 5	0	0	3
Income from the disposal of non-current assets	101	291	310
Income from reimbursements	144	164	197
Income from insurance compensation	122	335	71
Income from ancillary services	25	29	33
Miscellaneous other operating income	722	663	1,543
Of which: income from divestitures and from the sale of stakes accounted for using the equity method	145	0	763
	1,121	**1,491**	**3,819**

In 2017, income from the reversal of impairment losses on non-current assets mainly comprised the partial reversal during the year of impairment losses on spectrum licenses at T-Mobile US, which increased their carrying amount by EUR 1.7 billion. Income from the disposal of non-current assets was primarily attributable to the disposal of real estate previously classified as non-current assets and disposal groups held for sale. In 2018, income from insurance compensation mainly comprised compensation payments received by T-Mobile US for damage caused by hurricanes in 2017. Miscellaneous other operating income includes income of EUR 0.1 billion from the divestitures of shares accounted for using the equity method as a result of the transfer on August 14, 2019 of the 11.34 percent stake in Ströer SE & Co. KGaA to Deutsche Telekom Trust e.V. as plan assets. In addition, other operating income includes a large number of individual items accounting for marginal amounts. The main items included here in 2017 were income of EUR 0.5 billion from the divestiture of Strato AG, income of EUR 0.2 billion from a payment received in connection with the settlement agreement concluded with BT in July 2017, and income of EUR 0.2 billion from the sale of the remaining shares in Scout24 AG, which had been accounted for using the equity method.

22 CHANGES IN INVENTORIES

Changes in inventories comprise both volume- and value-based increases and decreases in inventories of finished goods and merchandise, and work in process. There were no significant changes in inventories in the reporting year or in prior years.

23 OWN CAPITALIZED COSTS

Own capitalized costs amounted to EUR 2.4 billion in the reporting year (2018: EUR 2.4 billion, 2017: EUR 2.3 billion) and mainly relate to investments in network build-out and the development of platforms for cell sites.

24 GOODS AND SERVICES PURCHASED

millions of €

	2019	2018	2017
Expenses for raw materials and supplies	1,679	1,711	1,960
Expenses for merchandise	15,532	15,031	14,618
Expenses for services purchased	19,746	21,418	21,583
	36,956	**38,160**	**38,161**

25 AVERAGE NUMBER OF EMPLOYEES AND PERSONNEL COSTS

		2019	2018	2017
GROUP (TOTAL)		**212,846**	**216,369**	**216,454**
Germany		96,018	100,227	103,174
International		116,827	116,142	113,280
Non-civil servants		200,174	202,010	200,673
Civil servants (domestic, active service relationship)		12,672	14,359	15,781
Trainees and students on cooperative degree courses		6,136	5,713	6,559
PERSONNEL COSTS	millions of €	**16,723**	**16,436**	**15,504**
Of which: wages and salaries	millions of €	13,655	13,507	12,552
Of which: social security contributions and pension benefit costs	millions of €	3,068	2,929	2,952

The average headcount decreased by 1.6 percent compared with the prior year. It decreased in Germany by 4.2 percent, due in particular to efficiency enhancement measures and the take-up of socially responsible instruments in connection with staff restructuring in the Germany operating segment and the domestic parts of the Group Headquarters & Group Services and Systems Solutions segments. By contrast, the average headcount outside Germany increased slightly by 0.6 percent. Here, the international share increased in all segments, with the exception of Europe, where the average international headcount decreased by 4.2 percent; in the Systems Solutions operating segment the increase was due to the first-time inclusion and expansion of a service unit in India. The total number of employees in the United States operating segment increased primarily due to ongoing growth in the business. The substantial increase in the Group Development operating segment is attributable to the inclusion of Tele2 Netherlands in the Netherlands.

Personnel costs increased by 1.7 percent year-on-year, primarily due to developments in the United States operating segment: the development in exchange rates on the one hand, and the increase in salaries and a slight growth in headcount on the other. The Group Development and Europe operating segments also recorded increases thanks to the acquisition of Tele2 Netherlands and UPC Austria, both of which were included for the full financial year for the first time. The three segments mentioned above also recorded an increase in costs for restructuring. In all other segments, lower headcounts resulted in reduced personnel costs, offset in part by salary increases agreed in the collective agreements concluded in 2018. These segments also saw slightly lower expenses for staff restructuring measures in 2019.

26 OTHER OPERATING EXPENSES

millions of €

	2019	2018	2017
Impairment losses on financial assets[a]	452	394	n.a.
Gains (losses) from the write-off of financial assets measured at amortized cost	42	120	n.a.
Other	2,807	2,620	3,444
Legal and audit fees	328	338	265
Losses from asset disposals	213	165	207
Income (losses) from the measurement of factoring receivables	129	126	112
Income (losses) from the measurement of receivables[a]	n.a.	n.a.	580
Other taxes	427	476	432
Cash and guarantee transaction costs	355	339	344
Insurance expenses	98	93	87
Miscellaneous other operating expenses	1,258	1,083	1,417
	3,301	**3,134**	**3,444**

[a] Due to the transition to IFRS 9 as of January 1, 2018, changes were made both to the method of measuring impairment losses on receivables and to their disclosure in the financial statements. A comparison with the prior period is possible to a limited extent only.

Miscellaneous other operating expenses comprise a large number of low-value individual items, including other administrative expenses and fees totaling EUR 176 million (2018: EUR 181 million, 2017: EUR 217 million).

27 DEPRECIATION, AMORTIZATION AND IMPAIRMENT LOSSES

The following table provides a breakdown of depreciation, amortization and impairment losses:

millions of €

	2019	2018	2017
AMORTIZATION AND IMPAIRMENT OF INTANGIBLE ASSETS	**4,806**	**5,021**	**6,193**
Of which: goodwill impairment losses	0	639	2,071
Of which: amortization of mobile licenses	1,080	1,049	1,038
Of which: impairment losses on mobile licenses	0	19	4
DEPRECIATION AND IMPAIRMENT OF PROPERTY, PLANT AND EQUIPMENT	**9,208**	**8,814**	**8,393**
Of which: impairment losses recognized on property, plant and equipment	319	38	81
DEPRECIATION OF RIGHT-OF-USE ASSETS[a]	**3,649**	**n.a.**	**n.a.**
	17,663	**13,836**	**14,586**

[a] The IFRS 16 “Leases” accounting standard has been applied since January 1, 2019. Prior-year comparatives were not adjusted. For further information, please refer to the section “Initial application of standards, interpretations, and amendments in the financial year.”

Impairment losses break down as follows:

millions of €

	2019	2018	2017
INTANGIBLE ASSETS	**74**	**685**	**2,077**
Of which: goodwill from the year-end impairment test	0	639	829
Of which: goodwill in connection with ad hoc impairment testing in the cash-generating unit in the Systems Solutions operating segment	n.a.	n.a.	1,242
Of which: in connection with ad hoc impairment test in the Romania cash-generating unit	24	n.a.	n.a.
Of which: FCC licenses	0	0	4
PROPERTY, PLANT AND EQUIPMENT	**319**	**38**	**81**
Of which: in connection with ad hoc impairment testing for Romania in the Romania cash-generating unit	296	0	0
Of which: from the year-end impairment test	0	0	37
	393	**722**	**2,158**

Depreciation, amortization and impairment losses on intangible assets, property, plant and equipment, and right-of-use assets increased by EUR 3.8 billion year-on-year to EUR 17.7 billion. Of this figure, EUR 3.6 billion was attributable to the depreciation charge on right-of-use assets required to be recognized for the first time in accordance with IFRS 16. In the prior-year period, expenses had been recognized in EBITDA in connection with operating leases. Depreciation of property, plant and equipment and amortization of intangible assets, which in the prior year had included depreciation and amortization on finance lease assets, were EUR 0.5 billion higher than in the prior year, mainly due to the consistently high investment volume in past years. Impairment losses decreased by EUR 0.3 billion compared with the prior year to EUR 0.4 billion in total. In 2019, these included impairment losses of EUR 0.3 billion in particular on property, plant and equipment in the Romania cash-generating unit in the Europe operating segment on account of the impairment test conducted at year-end. Impairment losses recognized in 2018 on goodwill in the Europe operating segment in the national companies in Poland and Romania amounted to EUR 0.6 billion in total. In addition, impairment losses amounting to EUR 35 million had been recognized on property, plant and equipment and intangible assets in 2018 in connection with the sale of the shares in Telekom Albania.

For further information, please refer to Note 6 “Intangible assets,” Note 7 “Property, plant and equipment,” and Note 8 “Right-of-use assets – lessee relationships.”

28 FINANCE COSTS

millions of €	2019	2018	2017
Interest income	348	277	320
Interest expense	(2,712)	(2,094)	(2,517)
	(2,364)	**(1,817)**	**(2,197)**
Of which: from leases	(870)	n.a.	n.a.
Of which: from finance leases	n.a.	(131)	(133)
Of which: from financial instruments relating to measurement categories in accordance with IFRS 9			
Debt instruments measured at amortized cost	23	27	n.a.
Debt instruments measured at fair value through other comprehensive income	0	0	n.a.
Debt instruments measured at fair value through profit or loss	14	10	n.a.
Financial liabilities measured at amortized cost[a]	(2,011)	(1,707)	n.a.
Of which: from financial instruments relating to measurement categories in accordance with IAS 39			
Loans and receivables (LaR)	n.a.	n.a.	32
Held-to-maturity investments (HtM)	n.a.	n.a.	0
Available-for-sale financial assets (AfS)	n.a.	n.a.	15
Financial liabilities measured at amortized cost (FLAC)[a]	n.a.	n.a.	(2,091)

[a] Interest expense calculated according to the effective interest method and adjusted for accrued interest from derivatives recognized in the reporting year that were used as hedging instruments against interest rate-based changes in the fair values of financial liabilities measured at amortized cost in the reporting year for hedge accounting in accordance with IFRS 9 (2019: interest income of EUR 297 million and interest expense of EUR 54 million; 2018: interest income of EUR 223 million and interest expense of EUR 110 million; 2017: interest income of EUR 260 million and interest expense of EUR 165 million).

The increase in finance costs is attributable in particular to the subsequent measurement of recognized lease liabilities since the first-time application of IFRS 16. This effect increased finance costs by EUR 0.9 billion in the reporting year. Favorable refinancing terms had a reducing effect on finance costs compared with the prior year. In 2018, the Consent Fee of EUR 0.1 billion paid (or still payable) to lending banks in connection with the probable increase in the admissible amount of collateralized financing instruments at T-Mobile US as a consequence of the agreed business combination with Sprint had an increasing effect on finance costs.

EUR 343 million (2018: EUR 290 million; 2017: EUR 176 million) was capitalized as part of acquisition costs in the financial year. The increase mainly relates to investments in the United States operating segment. The amount was calculated on the basis of an interest rate in the average range between 3.5 percent at the start of the year and 3.2 percent at the end of the year (2018: between 3.9 and 3.5 percent) applied across the Group.

Interest payments (including capitalized interest) of EUR 4.3 billion (2018: EUR 3.6 billion, 2017: EUR 4.0 billion) were made in the financial year.

Accrued interest payments from derivatives (interest rate swaps) that were designated as hedging instruments in a fair value hedge in accordance with IFRS 9 are netted per swap contract and recognized as interest income or interest expense depending on the net amount. Finance costs are assigned to the measurement categories on the basis of the hedged item. Only financial liabilities were hedged in the reporting period.

29 SHARE OF PROFIT/LOSS OF ASSOCIATES AND JOINT VENTURES ACCOUNTED FOR USING THE EQUITY METHOD

millions of €

	2019	2018	2017
Share of profit (loss) of joint ventures	(7)	(536)	12
Share of profit (loss) of associates	93	6	64
	87	**(529)**	**76**

The share of profit/loss of associates and joint ventures included in the consolidated financial statements using the equity method increased by EUR 0.6 billion compared with the prior year. This was mainly attributable to the settlement agreement reached in 2018 to end the Toll Collect arbitration proceedings, which reduced earnings by EUR 0.6 billion in 2018. By contrast, the profit distribution of Toll Collect GmbH – EUR 0.1 billion of which is attributable to Deutsche Telekom – had a positive effect.

For further information, please refer to Note 10 "Investments accounted for using the equity method."

30 OTHER FINANCIAL INCOME/EXPENSE

millions of €

	2019	2018	2017
Income from investments (without share of profit (loss) of associates and joint ventures accounted for using the equity method)	(11)	3	179
Gains (losses) from financial instruments	321	(352)	(2,270)
Interest component from measurement of provisions and liabilities	(229)	(178)	(178)
Gains (losses) from the write-off of financial assets measured at amortized cost	0	25	0
	81	**(502)**	**(2,269)**

All income/expense components including interest income and expense from financial instruments classified since January 1, 2018 as at fair value through profit or loss in accordance with IFRS 9 (in 2017 – as held for trading in accordance with IAS 39) are reported under other financial income/expense.

Other financial expense decreased by EUR 0.6 billion year-on-year, resulting in other financial income of EUR 0.1 billion. This improvement was mainly due to higher earnings from financial instruments, EUR 0.5 billion of which related to measurement effects from embedded derivatives at T-Mobile US, in particular as a result of the lower interest rate risk premium for T-Mobile US. By contrast, the interest expense from the measurement of provisions and liabilities increased, in particular in connection with the measurement using actuarial principles of the present value of the provision recognized for the Civil Service Health Insurance Fund (Postbeamtenkrankenkasse – PBeaKK). In 2017, income from investments included the dividends of around EUR 0.2 billion received from the former financial stake in BT.

EUR -14 million (2018: EUR 57 million, 2017: EUR -198 million) of other financial income/expense related to currency translation effects, including gains/losses from derivatives used as hedges in foreign-currency hedge accounting, and EUR 335 million (2018: EUR -409 million, 2017: EUR -2,072 million) to gains/losses from other derivatives as well as measurements of equity investments.

For further information on financial instruments, please refer to Note 41 "Financial instruments and risk management."

31 INCOME TAXES

INCOME TAXES IN THE CONSOLIDATED INCOME STATEMENT

A tax expense of EUR 2.0 billion was recorded in the 2019 financial year. The effective tax rate of 27 percent essentially reflects the shares of the different countries in profit before income taxes and their respective national tax rates. Impairment losses on non-current assets in the Europe operating segment that had no tax effect were offset by factors including positive effects from changes in tax law in the Europe operating segment.

In the prior year, a tax expense of EUR 1.8 billion was recorded, giving rise to an effective tax rate of 35 percent. The main reason for the comparatively high tax burden was impairment losses on goodwill in the Europe operating segment that had no tax effect.

The following table provides a breakdown of income taxes in Germany and internationally:

millions of €	2019	2018	2017
CURRENT TAXES	**883**	**592**	**569**
Germany	488	217	219
International	395	375	350
DEFERRED TAXES	**1,110**	**1,232**	**(1,127)**
Germany	314	334	116
International	796	898	(1,243)
	1,993	**1,824**	**(558)**

Deutsche Telekom's combined income tax rate for 2019 amounts to 31.4 percent (2018: 31.4 percent, 2017: 31.4 percent). It consists of corporate income tax at a rate of 15.0 percent, the solidarity surcharge of 5.5 percent on corporate income tax, and trade tax at an average multiplier of 445 percent (2018: 445 percent, 2017: 445 percent).

Reconciliation of the effective tax rate. Income taxes of EUR -1,993 million (as expense) in the reporting year (2018: EUR -1,824 million (as expense), 2017: EUR 558 million (as benefit)) are derived as follows from the expected income tax expense/benefit that would have arisen had the statutory income tax rate of the parent company (combined income tax rate) been applied to profit/loss before income taxes:

millions of €		2019	2018	2017
PROFIT BEFORE INCOME TAXES		**7,260**	**5,153**	**4,994**
Expected income tax expense (benefit) (income tax rate applicable to Deutsche Telekom AG: 2019: 31.4%, 2018: 31.4%, 2017: 31.4%)		2,280	1,618	1,568
ADJUSTMENTS TO EXPECTED TAX EXPENSE (BENEFIT)				
Effect of changes in statutory tax rates		(41)	39	(2,738)
Tax effects from prior years		(18)	158	(132)
Tax effects from other income taxes		258	114	(141)
Non-taxable income		(26)	(16)	(329)
Tax effects from equity investments		(46)	(112)	(81)
Non-deductible expenses		140	170	591
Permanent differences		(23)	(57)	83
Goodwill impairment losses		(14)	186	620
Tax effects from loss carryforwards		43	22	(11)
Tax effects from additions to and reductions of local taxes		71	189	72
Adjustment of taxes to different foreign tax rates		(633)	(489)	(59)
Other tax effects		2	2	(1)
INCOME TAX EXPENSE (BENEFIT) ACCORDING TO THE CONSOLIDATED INCOME STATEMENT		**1,993**	**1,824**	**(558)**
Effective income tax rate	%	27	35	(11)

Current income taxes in the consolidated income statement

The following table provides a breakdown of current income taxes:

millions of €	2019	2018	2017
CURRENT INCOME TAXES	**883**	**592**	**569**
Of which: current tax expense	803	571	741
Of which: prior-period tax expense	80	21	(172)

Deferred taxes in the consolidated income statement

Deferred taxes developed as follows:

millions of €	2019	2018	2017
DEFERRED TAX EXPENSE (BENEFIT)	**1,110**	**1,232**	**(1,127)**
Of which: from temporary differences	446	1,217	(765)
Of which: from loss carryforwards	654	49	(381)
Of which: from tax credits	10	(34)	19

INCOME TAXES IN THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

Current income taxes in the consolidated statement of financial position

millions of €	Dec. 31, 2019	Dec. 31, 2018
Recoverable taxes	481	492
Tax liabilities	(463)	(328)
Current taxes recognized in other comprehensive income:		
Hedging instruments	(252)	(252)

Deferred taxes in the consolidated statement of financial position

millions of €	Dec. 31, 2019	Dec. 31, 2018
Deferred tax assets	2,704	2,949
Deferred tax liabilities	(8,954)	(8,240)
	(6,249)	**(5,291)**
Of which: recognized in other comprehensive income:		
Gains (losses) from the remeasurement of defined benefit plans	1,448	1,315
Revaluation surplus	167	141
Hedging instruments	199	106
RECOGNIZED IN OTHER COMPREHENSIVE INCOME BEFORE NON-CONTROLLING INTERESTS	**1,814**	**1,562**
Non-controlling interests	(8)	(10)
	1,806	**1,552**

Development of deferred taxes

millions of €	Dec. 31, 2019	Dec. 31, 2018
Deferred taxes recognized in the statement of financial position	(6,249)	(5,291)
Difference to prior year	(959)	(2,237)
Of which: Recognized in income statement	(1,110)	(1,232)
Recognized in other comprehensive income	330	89
Recognized in capital reserves	0	10
Acquisitions (disposals) (including assets and disposal groups held for sale)	(75)	(970)
Currency translation adjustments	(104)	(234)

Development of deferred taxes on loss carryforwards

millions of €	Dec. 31, 2019	Dec. 31, 2018
Deferred taxes on loss carryforwards before allowances	1,291	1,917
Difference to prior year	(626)	(334)
Of which: Recognition (derecognition)	(660)	(131)
Acquisitions (disposals) (including assets and disposal groups held for sale)	0	(279)
Currency translation adjustments	34	76

Deferred taxes relate to the following key items in the statement of financial position, loss carryforwards, and tax credits:

millions of €	Dec. 31, 2019		Dec. 31, 2018	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
CURRENT ASSETS	**1,623**	**(1,142)**	**1,602**	**(974)**
Trade receivables	881	(1,549)	823	(213)
Inventories	75	0	120	0
Other assets	661	2,719	655	(140)
Contract assets	6	(717)	4	(621)
NON-CURRENT ASSETS	**2,911**	**(17,846)**	**2,726**	**(12,701)**
Intangible assets	567	(7,956)	588	(7,499)
Property, plant and equipment	811	(4,445)	748	(4,205)
Other financial assets	1,532	(5,096)	1,390	(657)
Capitalized contract costs	1	(349)	0	(340)
CURRENT LIABILITIES	**1,543**	**(790)**	**992**	**(706)**
Financial liabilities	506	(375)	311	(386)
Trade and other payables	58	(13)	69	(30)
Other provisions	274	(82)	252	(103)
Other liabilities	490	(245)	127	(88)
Contract liabilities	215	(75)	233	(99)
NON-CURRENT LIABILITIES	**8,978**	**(2,891)**	**4,575**	**(2,753)**
Financial liabilities	1,986	(1,252)	1,172	(1,319)
Provisions for pensions and other employee benefits	1,843	(1,392)	1,653	(1,242)
Other provisions	783	(212)	737	(186)
Other liabilities	4,234	(22)	877	(4)
Contract liabilities	132	(13)	136	(2)
RETAINED EARNINGS	**18**	**(155)**	**0**	**(118)**
TAX CREDITS	**270**	**0**	**274**	**0**
LOSS CARRYFORWARDS	**1,010**	**0**	**1,608**	**0**
INTEREST CARRYFORWARDS	**221**	**0**	**184**	**0**
TOTAL	**16,574**	**(22,824)**	**11,961**	**(17,252)**
Of which: non-current	13,547	(20,948)	9,608	(15,620)
Netting	(13,870)	13,870	(9,012)	9,012
RECOGNITION	**2,704**	**(8,954)**	**2,949**	**(8,240)**

The loss carryforwards amount to:

millions of €	Dec. 31, 2019	Dec. 31, 2018
LOSS CARRYFORWARDS FOR CORPORATE INCOME TAX PURPOSES	**3,968**	**6,564**
Expiry within		
1 year	9	31
2 years	395	28
3 years	38	25
4 years	10	571
5 years	59	69
After 5 years	792	4,005
Unlimited carryforward period	2,665	1,835

Loss carryforwards and temporary differences for which no deferred taxes were recorded amount to:

millions of €	Dec. 31, 2019	Dec. 31, 2018
LOSS CARRYFORWARDS FOR CORPORATE INCOME TAX PURPOSES	**968**	**865**
Expiry within		
1 year	6	30
2 years	6	9
3 years	8	8
4 years	1	12
5 years	35	30
After 5 years	148	100
Unlimited carryforward period	764	676
TEMPORARY DIFFERENCES IN CORPORATE INCOME TAX	**747**	**507**

In addition, no deferred taxes are recognized on trade tax loss carryforwards of EUR 58 million (December 31, 2018: EUR 20 million) and on temporary differences for trade tax purposes in the amount of EUR 0 million (December 31, 2018: EUR 7 million). Furthermore, apart from corporate income tax loss carryforwards, no deferred taxes amounting to EUR 112 million (December 31, 2018: EUR 164 million) were recognized for other foreign income tax loss carryforwards and, apart from temporary differences for trade tax purposes, no deferred taxes amounting to EUR 0 million (December 31, 2018: EUR 0 million) were recognized for other foreign income taxes.

No deferred tax assets were recognized on the aforementioned tax loss carryforwards and temporary differences as it is not probable that taxable profit will be available in the foreseeable future against which these tax loss carryforwards can be utilized.

A positive tax effect in the amount of EUR 6 million (2018: EUR 31 million, 2017: EUR 25 million) attributable to the utilization of tax loss carryforwards on which deferred tax assets had not yet been recognized, was recorded in the reporting year.

No deferred tax liabilities were recognized on temporary differences in connection with equity interests in subsidiaries amounting to EUR 920 million (December 31, 2018: EUR 840 million) as it is unlikely that these differences will be recognized in the near future.

Disclosure of tax effects relating to each component of other comprehensive income

millions of €

	2019			2018			2017		
	Before tax amount	Tax (expense) benefit	Net of tax amount	Before tax amount	Tax (expense) benefit	Net of tax amount	Before tax amount	Tax (expense) benefit	Net of tax amount
Items not subsequently reclassified to profit or loss (not recycled)									
Gains (losses) from the remeasurement of defined benefit plans	(603)	134	(469)	127	37	164	116	(19)	97
Gains (losses) from the remeasurement of equity instruments	99	0	99	(619)	(1)	(620)			
Share of profit (loss) of investments accounted for using the equity method	0	0	0				0	0	0
	(504)	**134**	**(369)**	**(492)**	**36**	**(456)**	**116**	**(19)**	**97**
Items subsequently reclassified to profit or loss (recycled), if certain reasons are given									
Exchange differences on translating foreign operations									
Recognition of other comprehensive income in income statement	(8)	0	(8)	(1)	0	(1)	0	0	0
Change in other comprehensive income (not recognized in income statement)	463	0	463	1,033	0	1,033	(2,196)	0	(2,196)
Gains (losses) from the remeasurement of available-for-sale financial assets									
Recognition of other comprehensive income in income statement	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	7	(2)	5
Change in other comprehensive income (not recognized in income statement)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	27	0	27
Gains (losses) from the remeasurement of debt instruments									
Recognition of other comprehensive income in income statement	(47)	0	(47)	(75)	(3)	(78)			
Change in other comprehensive income (not recognized in income statement)	34	(9)	25	84	0	84			
Gains (losses) from hedging instruments (IAS 39 until December 2017, designated risk component)									
Recognition of other comprehensive income in income statement	(148)	46	(102)	(32)	10	(22)	450	(141)	309
Change in other comprehensive income (not recognized in income statement)	(483)	115	(368)	(382)	61	(321)	(270)	85	(185)
Gains (losses) from hedging instruments (IFRS 9 from January 2018, hedging costs)									
Recognition of other comprehensive income in income statement	2	(1)	1	3	(1)	2			
Change in other comprehensive income (not recognized in income statement)	(9)	3	(6)	56	20	76			
Share of profit (loss) of investments accounted for using the equity method									
Recognition of other comprehensive income in income statement	(7)	0	(7)	0	0	0	0	0	0
Change in other comprehensive income (not recognized in income statement)	11	0	11	7	0	7	0	0	0
	(192)	**154**	**(38)**	**693**	**87**	**780**	**(1,982)**	**(58)**	**(2,040)**
OTHER COMPREHENSIVE INCOME	**(696)**	**289**	**(407)**	**201**	**123**	**323**	**(1,866)**	**(77)**	**(1,943)**
Profit (loss)			5,268			3,328			5,551
TOTAL COMPREHENSIVE INCOME			**4,861**			**3,652**			**3,608**

32 PROFIT/LOSS ATTRIBUTABLE TO NON-CONTROLLING INTERESTS

millions of €

	2019	2018	2017
T-Mobile US	1,325	915	1,933
Hrvatski Telekom	49	69	48
Hellenic Telecommunications Organization (OTE)	(27)	119	49
Magyar Telekom	63	65	56
T-Mobile Netherlands Holding B.V.	3	0	0
Other	(12)	(5)	4
	1,401	**1,163**	**2,090**

33 EARNINGS PER SHARE

Basic and diluted earnings per share are calculated in accordance with IAS 33 as follows:

		2019	2018	2017
Profit attributable to the owners of the parent (net profit (loss))	millions of €	3,867	2,166	3,461
Adjustment	millions of €	0	0	0
ADJUSTED NET PROFIT (LOSS) (BASIC/DILUTED)	millions of €	**3,867**	**2,166**	**3,461**
Number of ordinary shares issued	millions	4,761	4,761	4,722
Treasury shares	millions	(19)	(19)	(19)
ADJUSTED WEIGHTED AVERAGE NUMBER OF ORDINARY SHARES OUTSTANDING (BASIC/DILUTED)	millions	**4,743**	**4,742**	**4,703**
EARNINGS PER SHARE (BASIC/DILUTED)	€	**0.82**	**0.46**	**0.74**

The calculation of earnings per share (basic/diluted) is based on the time-weighted number of all ordinary shares outstanding. Furthermore, the weighted average number of ordinary shares outstanding is determined by deducting the weighted average number of treasury shares held by Deutsche Telekom AG. There are currently no significant diluting effects.

34 DIVIDEND PER SHARE

For the 2019 financial year, the Board of Management proposes a dividend of EUR 0.60 for each no par value share carrying dividend rights. On the basis of this payout volume, total dividends in the amount of EUR 2,846 million would be appropriated to the no par value shares carrying dividend rights as of February 10, 2020. The final amount of the total dividend payment depends on the number of no par value shares carrying dividend rights as of the date of the resolution on the appropriation of net income as adopted on the day of the shareholders' meeting.

A dividend of EUR 0.70 for the 2018 financial year for each no par value share carrying dividend rights was paid out in 2019.

OTHER DISCLOSURES

35 NOTES TO THE CONSOLIDATED STATEMENT OF CASH FLOWS

NET CASH FROM OPERATING ACTIVITIES

Net cash from operating activities increased by EUR 5.1 billion year-on-year to EUR 23.1 billion. In the prior year, the cash outflows in connection with operating leases reduced net cash from operating activities. Due to the first-time application of IFRS 16, the principal repayment portion of lease payments is presented in net cash used in financing activities. The strong performance of the operating segments, in particular the United States, significantly increased net cash from operating activities. In the 2019 financial year, factoring agreements – especially in the Germany and Systems Solutions operating segments – resulted in negative effects of EUR 0.3 billion on net cash from operating activities. Factoring agreements had had no material effects in the prior year. Net cash from operating activities was also reduced in the reporting year by a EUR 0.5 billion increase in net interest payments and a EUR 0.1 billion increase in tax payments. In the previous year, dividends received in the amount of EUR 0.2 billion had had an increasing effect.

For further information on the first-time application of IFRS 16, please refer to the section "Initial application of standards, interpretations, and amendments."

Deutsche Telekom's working capital measures are focused on improvements in the area of liabilities as well as in the management of receivables and inventories. However, they are not used for active liquidity management. The negative effect on the change in assets carried as active working capital is mainly attributable to the acquisition of mobile devices in connection with the JUMP! On Demand business model in the United States operating segment and to the expiration of a factoring agreement in the Systems Solutions operating segment. By contrast, the reduction in inventories of mobile devices in the United States and Germany operating segments had a positive effect on working capital. Liabilities carried as working capital decreased mainly as a result of the reduction in trade payables and a lower procurement volume in nearly all operating segments.

For further information on individual assets carried as working capital, please refer to Note 2 "Trade receivables" and Note 4 "Inventories."

For further information, please refer to Note 14 "Trade and other payables."

Net cash used in investing activities

millions of €

	2019	2018	2017
Cash capex			
Germany	(4,349)	(4,240)	(4,214)
United States	(6,369)	(4,661)	(11,932)
Europe	(1,824)	(1,887)	(1,874)
Systems Solutions	(384)	(462)	(383)
Group Development	(452)	(271)	(290)
Group Headquarters & Group Services	(1,028)	(1,078)	(1,005)
Reconciliation	48	107	204
	(14,357)	**(12,492)**	**(19,494)**
Payments for publicly funded investments in the broadband build-out[a]	(401)	n.a.	n.a.
Proceeds from public funds for investments in the broadband build-out[a]	341	n.a.	n.a.
Net cash flows for collateral deposited and hedging transactions	365	(170)	1,390
Cash inflows from the sale of shares in Scout24 AG	0	0	319
Cash outflows for the acquisition of the shares in Tele2 Netherlands[b]	(195)	0	0
Cash outflows for the acquisition of the shares in Layer3 TV[c]	0	(258)	0
Cash outflows for the acquisition of shares in UPC Austria GmbH[d]	0	(1,791)	0
Proceeds from the disposal of property, plant and equipment, and intangible assets	176	525	400
Cash flows from the loss of control of subsidiaries and associates[e,f]	62	(67)	528
Reverse allocation under contractual trust agreement (CTA) on pension commitments	0	225	0
Payment in relation to settlement reached in Toll Collect arbitration proceedings	(200)	(200)	0
Payment in relation to equity maintenance undertaking for Toll Collect GmbH	0	(60)	0
Acquisition/sale of government bonds, net	0	0	5
Other	(21)	(9)	38
	(14,230)	**(14,297)**	**(16,814)**

[a] For further information on the change in estimates for publicly funded investments in the broadband build-out, please refer to the section "Changes in accounting policies, changes in estimates."

[b] Includes, in addition to the purchase price of EUR 199 million, inflows of cash and cash equivalents in the amount of EUR 4 million.

[c] Includes, in addition to the purchase price of EUR 260 million, inflows of cash and cash equivalents in the amount of EUR 2 million.

[d] Includes, in addition to the purchase price of EUR 1,792 million, inflows of cash and cash equivalents in the amount of EUR 1 million.

[e] Relates primarily to outflows of cash and cash equivalents in connection with the transfer of the stake in BT as plan assets to Deutsche Telekom Trust e.V. in March 2018.

[f] In 2017, EUR 600 million of this related to the cash inflows from purchase price payments and EUR 72 million to outflows of cash and cash equivalents.

Cash capex increased by EUR 1.9 billion to EUR 14.4 billion. In the 2019 financial year, mobile spectrum licenses were acquired for total cash of EUR 1.2 billion. EUR 0.1 billion of this related to the United States operating segment and was primarily attributable to the purchase of FCC licenses in two auctions for the 24 GHz and 28 GHz spectrum. In the reporting year, EUR 0.1 billion was spent on the 5G licenses purchased in the Germany operating segment, for which annual installments through 2030 have been agreed. Another EUR 0.1 billion was paid for spectrum in the Europe operating segment. The prior-year figure had included EUR 0.3 billion for the acquisition of mobile spectrum licenses, predominantly for the United States operating segment. Adjusted for investments in mobile spectrum licenses, cash capex was up by EUR 0.9 billion. This increase relates almost entirely to the United States operating segment and was primarily attributable to the infrastructure build-out for the 600 MHz spectrum, which also lays the groundwork for 5G. Interest payments (including capitalized interest) of EUR 4.3 billion (2018: EUR 3.6 billion; 2017: EUR 4.0 billion) were made in the reporting period. Capitalized interest was reported within cash capex in net cash used in investing activities, together with the associated assets.

The contractual grants receivable from publicly funded projects for the broadband build-out in Germany were recognized in full as of the start of the second half of 2019. The grants received and payments made for the build-out continue to be recognized in net cash used in investing activities, however, they are not part of cash capex, because the payments made do not result in additions to property, plant and equipment. Since the payments are not made at the same point in time as the proceeds are received, the net amounts can be positive or negative in the individual periods.

Net cash used in financing activities

millions of €

	2019	2018	2017
Repayment of bonds	(2,718)	(4,604)	(10,992)
Dividend payments (including to other shareholders of subsidiaries)	(3,561)	(3,254)	(1,559)
Repayment of financial liabilities from financed capex and opex	(699)	(260)	(266)
Repayment of EIB loans	(660)	(159)	(374)
Net cash flows for collateral deposited and hedging transactions	112	244	39
Principal portion of repayment of lease liabilities	(3,835)	(1,174)	(715)
Repayment of financial liabilities for media broadcasting rights	(407)	(407)	(259)
Cash flows from continuing involvement factoring, net	(21)	31	1
Loans taken out with the EIB	500	150	825
Promissory notes, net	144	201	317
Secured loans	0	0	(1,863)
Issuance of bonds	5,479	7,824	10,189
Commercial paper, net	(467)	(623)	735
Overnight borrowings from banks	(626)	565	0
Cash inflows from transactions with non-controlling entities			
T-Mobile US stock options	2	3	18
Toll4Europe capital contributions	10	24	0
Other	1	2	0
	13	**29**	**18**
Cash outflows from transactions with non-controlling entities			
T-Mobile US share buy-backs	(139)	(997)	(511)
OTE share buy-back program	(110)	(94)	0
Acquisition of T-Mobile US shares	0	(164)	0
Acquisition of OTE shares	0	(285)	0
Other	(12)	(17)	(11)
	(261)	**(1,557)**	**(522)**
Other	(134)	(265)	(168)
	(7,141)	**(3,259)**	**(4,594)**

NON-CASH TRANSACTIONS IN THE CONSOLIDATED STATEMENT OF CASH FLOWS

A Deutsche Bundespost treasury note (zero-coupon bond) issued by Deutsche Telekom AG in 1990 with a nominal amount of EUR 0.2 billion fell due on December 31, 2019 and was repaid on that date by a bank using its own funds. The payment to this bank by Deutsche Telekom AG was made on the following banking day, January 2, 2020, which is why it is not shown in the consolidated statement of cash flows for the 2019 financial year. The full interest component of EUR 1.2 billion became payable on the due date. The repayment of the nominal amount will be reported under cash used in financing activities in the 2020 financial year. The interest component due will be recognized in net cash from operating activities in 2020.

In the 2019 financial year, Deutsche Telekom chose financing options totaling EUR 0.7 billion under which the payments for trade payables from operating and investing activities primarily become due at a later point in time by involving banks in the process (2018: EUR 0.2 billion). These are shown under financial liabilities in the statement of financial position. As soon as the payments have been made, they are disclosed under net cash used in/from financing activities.

In the 2019 financial year, Deutsche Telekom leased assets totaling EUR 5.5 billion, mainly technical equipment and machinery plus land and buildings. These assets are now recognized in the statement of financial position under right-of-use assets and the related liabiliteis under lease liabilities. Future repayments of the liabilities will be recognized in net cash used in/from financing activities. In the prior year, finance leases totaling EUR 1.0 billion had been concluded in accordance with the previously applicable standard IAS 17.

Consideration for the acquisition of broadcasting rights will be paid by Deutsche Telekom in accordance with the terms of the contract on the date of its conclusion or spread over the term of the contract. Financial liabilities of EUR 0.3 billion were recognized in the 2019 financial year for future consideration for acquired broadcasting rights (2018: EUR 0.3 billion). As soon as the payments have been made, they are disclosed under net cash used in/from financing activities.

In the United States operating segment, EUR 0.9 billion was recognized for mobile handsets under property, plant and equipment in the 2019 financial year (2018: EUR 0.9 billion). These relate to the JUMP! On Demand business model at T-Mobile US, under which customers do not purchase the devices but lease them. The payments are presented under net cash from operating activities.

As part of the acquisition of 100 percent of the shares in Tele2 Netherlands, Deutsche Telekom transferred a 25 percent share in T-Mobile Netherlands (prior to the business combination).

For further information, please refer to the section "Changes in the composition of the Group."

In the Germany operating segment, Deutsche Telekom acquired mobile spectrum licenses worth EUR 2.2 billion in the 2019 financial year for the construction of a 5G network. Under the payment schedule agreed with the Federal Republic of Germany, EUR 0.1 billion was paid in the reporting period and presented as cash capex. Future payments will primarily be recognized in net cash used in/from financing activities.

The carrying amounts of the financial liabilities disclosed in net cash used in/from financing activities, divided into carrying amount changes having and not having an effect on cash flows, developed as follows in the reporting year:

millions of €	As of Jan. 1, 2019	Of which: payments to be disclosed in net cash (used in) from financing activities[a]	Total carrying amount changes having an effect on cash flows	Changes in the composition of the Group
Bonds and other securitized liabilities	49,033	49,033	2,289	0
Liabilities to banks	5,710	4,968	(526)	0
	54,743	**54,001**	**1,763**	**0**
Liabilities to non-banks from promissory note bonds	497	497	(156)	0
Liabilities with the right of creditors to priority repayment in the event of default	0	0	0	0
Other interest-bearing liabilities[b]	1,868	1,447	(1,287)	3
Other non-interest-bearing liabilities	1,609	13	(3)	0
Derivative financial liabilities	1,077	727	(30)	0
	5,051	**2,684**	**(1,476)**	**3**
FINANCIAL LIABILITIES[b]	**59,794**	**56,685**	**287**	**3**
LEASE LIABILITIES[b]	**18,073**	**18,073**	**(3,836)**	**203**
DERIVATIVE FINANCIAL ASSETS	**870**	**34**	**(142)**	**0**

[a] Deutsche Telekom exercised the option pursuant to IAS 7.33 and presented interest paid and interest received under net cash from operating activities.

[b] The opening balances were adjusted on account of the first-time application of the IFRS 16 “Leases” accounting standard. Financial liabilities included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018. For further information, please refer to the section “Initial application of standards, interpretations, and amendments in the financial year” in the notes to the consolidated financial statements.

millions of €

	Carrying amount changes not having an effect on cash flows						
	Currency translation	Fair value	Carrying amount changes according to the effective interest method	Other[a]	Total carrying amount changes not having an effect on cash flows	Carrying amount on Dec. 31, 2019 of the payments to be disclosed in net cash (used in) from financing activities[b]	As of Dec. 31, 2019
Bonds and other securitized liabilities	603	1,006	136	(1,773)	(28)	51,294	51,644
Liabilities to banks	16	52	35	(151)	(48)	4,394	6,516
	619	**1,058**	**171**	**(1,559)**	**289**	**55,688**	**58,161**
Liabilities to non-banks from promissory note bonds	8	0	0	350	358	699	699
Liabilities with the right of creditors to priority repayment in the event of default	0	0	0	0	0	0	0
Other interest-bearing liabilities[c]	0	0	39	3,063	3,105	3,265	4,369
Other non-interest-bearing liabilities	0	0	0	0	0	10	1,476
Derivative financial liabilities	0	0	(465)	0	(465)	232	1,645
	8	**0**	**(426)**	**3,413**	**2,998**	**4,206**	**8,189**
FINANCIAL LIABILITIES[c]	**627**	**1,058**	**(255)**	**1,854**	**3,287**	**59,894**	**66,349**
LEASE LIABILITIES[c]	**237**	**0**	**0**	**5,487**	**5,927**	**20,164**	**19,835**
DERIVATIVE FINANCIAL ASSETS	**0**	**0**	**(198)**	**0**	**(198)**	**(306)**	**2,333**

[a] Other carrying amount changes not having an effect on cash flows relate, among other effects, to bonds and other securitized liabilities in the amount of EUR 365 million and interest in connection with zero-coupon bonds recognized as liabilities to banks in the amount of EUR 1,208 million. Interest payments resulting from this in the future will be recognized in net cash from operating activities.

[b] Deutsche Telekom exercised the option pursuant to IAS 7.33 and presented interest paid and interest received under net cash from operating activities.

[c] The opening balances were adjusted on account of the first-time application of the IFRS 16 “Leases” accounting standard. Financial liabilities included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018. For further information, please refer to the section “Initial application of standards, interpretations, and amendments in the financial year” in the notes to the consolidated financial statements.

Total carrying amount changes having an effect on cash flows of EUR -3.4 billion in the items of the financial position allocated to net cash used in/from financing activities deviate from net cash used in financing activities due in particular to the dividend entitlements of Deutsche Telekom AG’s shareholders having an effect on cash flows. The introduction of the IFRS 16 accounting standard led to the recognition of current and non-current lease liabilities and to the reclassification of finance lease liabilities that in the past had been recognized under financial liabilities. This resulted in an adjustment of the opening balances as of January 1, 2019. The other carrying amount changes in lease liabilities not having an effect on cash flows are mainly attributable to additions to liabilities in connection with the recognition of right-of-use assets. The other carrying amount changes in financial liabilities not having an effect on cash flows include additions of EUR 0.7 billion for selected financing options under which the payments become due at a later point in time by involving banks in the process, as well as additions of EUR 0.3 billion for the acquisition of broadcasting rights.

In the 2019 financial year, Deutsche Telekom made total interest payments of EUR 3.9 billion to service interest obligations. This figure includes interest payments for derivative and non-derivative financial liabilities as well as for lease liabilities. The above reconciliation only shows the carrying amounts of the financial liabilities, lease liabilities, and derivative financial assets allocated to net cash used in financing activities.

For further information, please refer to the section “Non-cash transactions in the consolidated statement of cash flows” above.

For further information on the first-time application of IFRS 16, please refer to the section “Initial application of standards, interpretations, and amendments.”

The carrying amounts of the financial liabilities disclosed in net cash used in/from financing activities, divided into carrying amount changes having and not having an effect on cash flows, developed as follows in 2018:

millions of €	As of Jan. 1, 2018	Of which: payments to be disclosed in net cash (used in) from financing activities	Total carrying amount changes having an effect on cash flows	Changes in the composition of the Group
Bonds and other securitized liabilities	45,453	45,453	2,595	0
Liabilities to banks	4,974	4,974	536	0
	50,427	**50,427**	**3,131**	**0**
Finance lease liabilities	2,635	2,635	(1,174)	4
Liabilities to non-banks from promissory note bonds	480	480	2	0
Liabilities with the right of creditors to priority repayment in the event of default	0	0	0	0
Other interest-bearing liabilities	1,598	1,013	(680)	145
Other non-interest-bearing liabilities	1,443	4	3	6
Derivative financial liabilities	946	807	(5)	0
	7,102	**4,939**	**(1,854)**	**155**
FINANCIAL LIABILITIES	**57,529**	**54,635**	**1,277**	**155**
DERIVATIVE FINANCIAL ASSETS	**1,317**	**287**	**250**	**0**

millions of €	Carrying amount changes not having an effect on cash flows						
	Currency translation	Fair value	Carrying amount changes according to the effective interest method	Other	Total carrying amount changes not having an effect on cash flows	Carrying amount on Dec. 31, 2018 of the payments to be disclosed in net cash (used in) from financing activities	As of Dec. 31, 2018
Bonds and other securitized liabilities	962	36	79	0	1,077	49,033	49,033
Liabilities to banks	51	18	32	0	101	4,968	5,710
	1,013	**54**	**111**	**0**	**1,178**	**54,001**	**54,743**
Finance lease liabilities	70	0	0	989	1,063	2,471	2,471
Liabilities to non-banks from promissory note bonds	17	0	0	0	17	497	497
Liabilities with the right of creditors to priority repayment in the event of default	0	0	0	0	0	0	0
Other interest-bearing liabilities	9	0	41	631	826	1,447	1,878
Other non-interest-bearing liabilities	0	0	0	0	6	13	1,609
Derivative financial liabilities	0	0	(75)	0	(75)	727	1,077
	96	**0**	**(34)**	**1,620**	**1,837**	**5,156**	**7,532**
FINANCIAL LIABILITIES	**1,109**	**54**	**77**	**1,620**	**3,015**	**59,157**	**62,275**
DERIVATIVE FINANCIAL ASSETS	**0**	**0**	**3**	**0**	**3**	**34**	**870**

36 SEGMENT REPORTING

Deutsche Telekom reports on five operating segments, as well as on the Group Headquarters & Group Services segment. Three operating segments are distinguished by region (Germany, United States, Europe), one by customers and products (Systems Solutions), and another by tasks (Group Development). For three operating segments, business activities are assigned by customer and product (Germany, Systems Solutions, United States), while one operating segment allocates its activities on a regional basis (Europe) and another allocates them by equity investment (Group Development).

The **Germany** operating segment comprises all fixed-network and mobile activities for consumers and business customers in Germany. It also focuses on the wholesale business to provide telecommunications services for carriers and the Group's other operating segments. The **United States** operating segment comprises all mobile activities in the U.S. market. The **Europe** operating segment comprises all fixed-network and mobile operations of the national companies in Greece, Romania, Hungary, Poland, the Czech Republic, Croatia, Slovakia, Austria, North Macedonia, and Montenegro. We sold the national company in Albania as of May 7, 2019. In addition to consumer business, most of the national companies also offer ICT solutions for business customers. In the context of international wholesale business, Telekom Global Carrier (TGC), which is a unit of the Europe operating segment, sells wholesale telecommunications services to the operating segments as well as to third parties. The **Systems Solutions** operating segment offers business customers an integrated product and solution portfolio. With offerings for connectivity, digital solutions, cloud and infrastructure, and security, in addition to strategic partnerships, the segment offers its customers help and guidance to implement digital business models. The goal of the **Group Development** operating segment is to actively manage entities and equity investments to grow their value. This approach led to the creation of GD Towers – comprising Deutsche Funkturm (DFMG) and the Dutch cell tower business – within the Group Development segment, as well as the takeover of Tele2 Netherlands by T-Mobile Netherlands effective January 2, 2019. Deutsche Telekom Capital Partners (DTCP) and the Group functions of Mergers & Acquisitions and Strategic Portfolio Management have also been assigned to Group Development. The financial stake in Ströer SE & Co. KGaA was transferred to Deutsche Telekom Trust e.V. in August 2019 as plan assets to cover Deutsche Telekom's existing pension obligations. The Group Development operating segment also included the 12 percent financial stake in BT until March 23, 2018, when it was transferred to Deutsche Telekom Trust e.V. as plan assets. The **Group Headquarters & Group Services** segment comprises all Group units that cannot be allocated directly to one of the operating segments and also reports on the Board of Management department Technology and Innovation. It unites the cross-segment functions of technology, innovation, and IT of the Germany, Europe, and Systems Solutions operating segments. Group Services provides services to the entire Group; in addition to typical services provided by Deutsche Telekom Services Europe, such as financial accounting, human resources services, and operational procurement, Group Services also includes the placement services of personnel services provider Vivento. Vivento Customer Services GmbH, a provider of call center services, was integrated into the Germany operating segment as of January 1, 2018. Further units are Group Supply Services (GSUS) for real estate management and strategic procurement, and MobilitySolutions, which is a full-service provider for fleet management and mobility services. The comparative figures for 2017 have been adjusted retrospectively in segment reporting.

The business segments shown are reviewed at regular intervals by the Deutsche Telekom Board of Management in terms of the allocation of resources and their earnings performance.

The measurement principles for Deutsche Telekom's segment reporting structure are based primarily on the IFRSs adopted in the consolidated financial statements. Deutsche Telekom evaluates the segments' performance based on revenue and profit or loss from operations (EBIT), among other factors. Revenue generated and goods and services exchanged between segments are calculated on the basis of market prices. Services provided by Deutsche Telekom IT are generally charged at cost. Development services are not charged, but capitalized at segment level in accordance with the internal control logic. In accordance with the segments' control logic, intragroup leases are not capitalized by the lessee, but instead recognized as periodic expenses. Segment assets and liabilities include all assets and liabilities that are carried in the financial statements prepared by the segments and included in the consolidated financial statements. Segment investments include additions to intangible assets and property, plant and equipment. Where entities accounted for using the equity method are directly allocable to a segment, their shares of profit or loss after income taxes and their carrying amounts are reported in that segment's accounts. All of the performance indicators shown in the following tables are presented exclusively from the segments' perspective: The effects of intersegment transactions are eliminated and presented in aggregate form in the reconciliation line. The following table shows the performance indicators used by Deutsche Telekom to evaluate the operating segments' performance as well as additional segment-related indicators:

millions of €

		Net revenue	Inter-segment revenue	Total revenue	Profit (loss) from operations (EBIT)	Depreciation and amortization	Impairment losses	Interest income
Germany	2019	20,572	1,314	21,886	4,063	(4,251)	(4)	3
	2018	20,351	1,349	21,700	3,969	(4,037)	(6)	4
	2017	20,552	1,379	21,931	4,276	(3,822)	(6)	6
United States	2019	40,418	2	40,420	5,488	(7,777)	0	19
	2018	36,521	1	36,522	4,634	(5,294)	0	14
	2017	35,735	1	35,736	5,930	(5,015)	(4)	14
Europe	2019	11,808	360	12,168	1,182	(2,790)	(341)	29
	2018	11,522	363	11,885	744	(2,334)	(679)	8
	2017	11,218	371	11,589	462	(2,283)	(874)	6
Systems Solutions	2019	5,380	1,425	6,805	(218)	(503)	(29)	14
	2018	5,497	1,439	6,936	(291)	(403)	(50)	14
	2017	5,504	1,414	6,918	(1,356)	(394)	(1,242)	13
Group Development	2019	2,158	639	2,797	615	(812)	0	0
	2018	1,579	606	2,185	560	(334)	0	0
	2017	1,660	603	2,263	1,504	(304)	0	0
Group Headquarters & Group Services	2019	195	2,425	2,620	(1,648)	(1,158)	(2)	1,330
	2018	186	2,549	2,735	(1,662)	(815)	(10)	1,017
	2017	278	2,657	2,935	(1,437)	(625)	(32)	1,150
TOTAL	**2019**	**80,531**	**6,166**	**86,696**	**9,482**	**(17,291)**	**(376)**	**1,395**
	2018	**75,656**	**6,307**	**81,963**	**7,954**	**(13,217)**	**(745)**	**1,057**
	2017	**74,947**	**6,425**	**81,372**	**9,379**	**(12,443)**	**(2,157)**	**1,189**
Reconciliation	2019	0	(6,166)	(6,166)	(25)	25	(21)	(1,047)
	2018	0	(6,307)	(6,307)	47	104	23	(780)
	2017	0	(6,425)	(6,425)	4	15	(1)	(869)
GROUP	**2019**	**80,531**	**0**	**80,531**	**9,457**	**(17,266)**	**(397)**	**348**
	2018	**75,656**	**0**	**75,656**	**8,001**	**(13,113)**	**(722)**	**277**
	2017	**74,947**	**0**	**74,947**	**9,383**	**(12,428)**	**(2,158)**	**320**

[a] Cash outflows for investments in intangible assets (excluding goodwill) and property, plant and equipment, as shown in the statement of cash flows.

Interest expense	Share of profit (loss) of associates and joint ventures accounted for using the equity method	Income taxes	Segment assets	Segment liabilities	Segment invest-ments	Invest-ments accounted for using the equity method	Net cash from operating activities	Net cash (used in) from investing activities	Of which: cash capex[a]	Net cash (used in) from financing activities	Average number of employees
(205)	0	(1)	41,253	30,968	6,237	12	7,498	(4,407)	(4,349)	7,366	61,626
(163)	0	1	37,419	27,571	4,730	12	8,200	(4,538)	(4,240)	(4,303)	63,832
(142)	6	0	33,739	26,641	4,786	12	8,463	(4,246)	(4,214)	(3,976)	65,482
(1,623)	116	(1,224)	84,413	54,087	7,240	289	11,438	(6,997)	(6,369)	(4,135)	46,544
(993)	(1)	(882)	69,223	43,326	6,699	159	7,567	(4,936)	(4,661)	(2,606)	45,729
(1,434)	(1)	1,444	64,931	42,003	14,811	189	6,847	(9,948)	(11,932)	(966)	43,935
(252)	1	(259)	27,699	10,843	1,974	59	3,585	(1,748)	(1,824)	(1,823)	46,066
(205)	3	(282)	27,263	10,134	2,096	60	2,914	(1,960)	(1,887)	(1,161)	48,059
(260)	2	(281)	25,746	10,206	2,052	62	2,863	(1,761)	(1,874)	(1,067)	47,416
(28)	0	(39)	6,615	4,800	362	25	54	(398)	(384)	93	37,916
(9)	(535)	(36)	5,728	3,810	480	24	286	(1,116)	(462)	237	37,837
(10)	14	(28)	6,408	5,061	471	31	326	(422)	(383)	253	37,745
(140)	(30)	9	8,395	10,571	558	96	1,142	(610)	(452)	4,937	2,708
(13)	4	(114)	6,037	8,553	303	311	1,008	(391)	(271)	(3,064)	1,965
(11)	57	(36)	9,997	5,548	335	346	1,000	673	(290)	(4,656)	2,127
(1,510)	(1)	(491)	54,162	65,066	998	9	4,101	(16,675)	(1,028)	(1,729)	17,985
(1,490)	(1)	(487)	50,047	58,931	1,076	10	5,928	(2,412)	(1,078)	705	18,947
(1,526)	(1)	(541)	46,957	55,863	1,018	11	6,709	(10,082)	(1,005)	5,750	19,750
(3,758)	**87**	**(2,005)**	**222,537**	**176,335**	**17,369**	**489**	**27,818**	**(30,835)**	**(14,406)**	**4,709**	**212,846**
(2,873)	**(529)**	**(1,800)**	**195,717**	**152,325**	**15,384**	**576**	**25,903**	**(15,353)**	**(12,599)**	**(10,192)**	**216,369**
(3,383)	**76**	**558**	**187,778**	**145,323**	**23,473**	**651**	**26,207**	**(25,786)**	**(19,698)**	**(4,662)**	**216,454**
1,046	0	12	(51,865)	(51,894)	(75)	0	(4,744)	16,605	48	(11,850)	0
779	0	(24)	(50,342)	(50,387)	(130)	0	(7,955)	1,056	107	6,933	0
866	0	0	(46,444)	(46,459)	(332)	0	(9,011)	8,972	204	68	0
(2,712)	**87**	**(1,993)**	**170,672**	**124,441**	**17,294**	**489**	**23,074**	**(14,230)**	**(14,357)**	**(7,141)**	**212,846**
(2,094)	**(529)**	**(1,824)**	**145,375**	**101,938**	**15,255**	**576**	**17,948**	**(14,297)**	**(12,492)**	**(3,259)**	**216,369**
(2,517)	**76**	**558**	**141,334**	**98,864**	**23,141**	**651**	**17,196**	**(16,814)**	**(19,494)**	**(4,594)**	**216,454**

Information on geographic areas. The Group's non-current assets and net revenue are shown by region: Germany, Europe (excluding Germany), North America, and other countries. The North America region comprises the United States and Canada. The Europe (excluding Germany) region covers the entire European Union (excluding Germany) and the other countries in Europe. Other countries include all countries that are not Germany or in Europe (excluding Germany) or North America. Non-current assets are allocated to the regions according to the location of the assets in question. Non-current assets encompass intangible assets; property, plant and equipment; investments accounted for using the equity method; as well as other non-current assets. Net revenue is allocated according to the location of the respective customers' operations.

millions of €

	Non-current assets			Net revenue		
	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2017	2019	2018[a]	2017
Germany	42,424	38,093	37,248	24,600	24,358	24,556
International	94,784	79,133	73,965	55,930	51,298	50,391
Europe (excluding Germany)	23,599	21,263	20,172	14,858	14,065	13,913
North America	71,079	57,817	53,724	40,445	36,667	35,897
Other countries	106	53	69	628	566	580
GROUP	**137,208**	**117,226**	**111,213**	**80,531**	**75,656**	**74,947**

[a] Due to a change in allocation between the geographical segments, the value of net revenue for the comparative period 2018 was adjusted retrospectively.

Information on products and services. Revenue generated with external customers for groups of comparable products and services developed as follows:

millions of €

	Net revenue		
	2019	2018	2017
Telecommunications	73,037	68,241	67,688
ICT solutions	7,039	6,958	6,735
Other	454	457	524
	80,531	**75,656**	**74,947**

37 CONTINGENCIES

As part of its ordinary business activities, Deutsche Telekom is involved in various proceedings both in and out of court with government agencies, competitors, and other parties, the outcome of which often cannot be reliably anticipated. As of the reporting date, the Group was exposed to contingent liabilities amounting to EUR 0.6 billion (December 31, 2018: EUR 0.5 billion) and to contingent assets amounting to EUR 0.0 billion (December 31, 2018: EUR 0.0 billion) that, on the basis of the information and estimates available, do not fulfill the requirements for recognition as liabilities or assets in the statement of financial position. Litigation provisions include the costs of legal counsel services and any probable losses. Deutsche Telekom does not believe that any additional costs arising from legal counsel services or the results of proceedings will have a material adverse effect on the results of operations and financial position of the Group. In addition to individual cases that do not have any significant impact on their own, the aforementioned total contingent liabilities include the following items, the sequence of which does not imply an evaluation of their probability of occurrence or potential damage. In the event that in extremely rare cases disclosures required by IAS 37 are not made, Deutsche Telekom comes to the conclusion that these disclosures could seriously undermine the outcome of the relevant proceedings.

CONTINGENT LIABILITIES

Prospectus liability proceedings (third public offering, or DT3). This relates to initially around 2,600 ongoing lawsuits from some 16,000 alleged buyers of T-Shares sold on the basis of the prospectus published on May 26, 2000. The plaintiffs assert that individual figures given in this prospectus were inaccurate or incomplete. The amount in dispute currently totals approximately EUR 78 million plus interest. Some of the actions are also directed at KfW and/or the Federal Republic of Germany as well as the banks that handled the issuances. The Frankfurt/Main Regional Court had issued orders for reference to the Frankfurt/Main Higher Regional Court in accordance with the German Capital Investor Model Proceedings Act (Kapitalanleger-Musterverfahrensgesetz – KapMuG) and has temporarily suspended the initial proceedings. On May 16, 2012, the Frankfurt/Main Higher Regional Court had ruled that there were no material errors in Deutsche Telekom AG's prospectus. In its decision on October 21, 2014, the Federal Court of Justice partly revoked this ruling, determined that there was a mistake in the prospectus, and referred the case back to the Frankfurt/Main Higher Regional Court. On November 30, 2016, the Frankfurt/Main Higher Regional Court ruled that the mistake in the prospectus identified by the Federal Court of Justice could result in liability on the part of Deutsche Telekom AG, although the details of that liability would have to be established in the initial proceedings. Both Deutsche Telekom AG and some of the individual plaintiffs in the model proceedings have brought an appeal before the Federal Court of Justice against this decision. We continue to hold the opinion that there are compelling reasons why Deutsche Telekom AG should not be liable for damages.

Toll Collect arbitration proceedings. On May 16, 2018, Daimler Mobility AG (formerly Daimler Financial Services AG), Deutsche Telekom, and the Federal Republic of Germany reached an agreement to cease the Toll Collect arbitration proceedings. Daimler Mobility AG and Deutsche Telekom have both agreed to make final payments of EUR 550 million each, for which they are jointly and severally liable. These payments will be made in three tranches by 2020; the first two tranches have already been paid. Deutsche Telekom believes that a claim arising from the joint and several liability is unlikely to be made in excess of Deutsche Telekom's share of the risk.

Likewise, on the basis of the information and estimates available, the following issues do not fulfill the requirements for recognition as liabilities in the statement of financial position. As it is not possible to estimate the amount of the contingent liabilities or the group of contingent liabilities with sufficient reliability in each case due to the uncertainties described below, they have not been included in the aforementioned total contingent liabilities.

Claims relating to charges for the shared use of cable ducts. In 2012, Kabel Deutschland Vertrieb und Service GmbH (today Vodafone Kabel Deutschland GmbH (VKDG)) filed a claim against Telekom Deutschland GmbH to reduce the annual charge for the rights to use cable duct capacities in the future and gain a partial refund of the payments made in this connection since 2004. According to VKDG's latest estimates, its claims amounted to around EUR 624 million along with around EUR 9 million for the alleged benefit from additional interest, plus interest in each case. Claims prior to 2009 are now no longer being asserted by VKDG. After the Frankfurt/Main Regional Court had dismissed the complaint in 2013, the Frankfurt/Main Higher Regional Court also rejected the appeal in December 2014. In the ruling dated January 24, 2017, the Federal Court of Justice reversed the appeal ruling and referred the case back to the Frankfurt/Main Higher Regional Court for further consideration. In its ruling dated December 20, 2018, the Frankfurt/Main Higher Regional Court again rejected the appeal and disallowed a further appeal. In similar proceedings, Unitymedia Hessen GmbH & Co. KG, Unitymedia NRW GmbH, and Kabel BW GmbH filed claims against Telekom Deutschland GmbH in January 2013, demanding that it cease charging the plaintiffs more than a specific and precisely stated amount for the shared use of cable ducts. In addition, the plaintiffs are demanding a refund of currently around EUR 570 million plus interest. The claim was dismissed in the first instance by the Cologne Regional Court on October 11, 2016. In its ruling dated March 14, 2018, the Düsseldorf Higher Regional Court rejected the appeal against this decision. In both proceedings, the plaintiffs have lodged a complaint against the non-allowance of appeal with the Federal Court of Justice.

Consent Fee for Sprint. In connection with the agreed business combination of T-Mobile US and Sprint, T-Mobile US may be required to reimburse Sprint for 67 percent of the upfront consent and related bank fees it paid to lending banks, or USD 161 million, if the business combination agreement is terminated.

Arbitration proceedings against T-Mobile Polska S.A. In August 2019, Polish telecommunications provider P4 Sp. z o.o. initiated arbitration proceedings against T-Mobile Polska S.A. The plaintiff is claiming around PLN 400 million (around EUR 93 million) plus interest as payment for its alleged entitlement to retroactive mobile termination rates.

Patents and licenses. Like many other large telecommunications and internet providers, Deutsche Telekom is exposed to a growing number of intellectual property rights disputes. There is a risk that Deutsche Telekom may have to pay license fees and/or compensation; Deutsche Telekom is also exposed to a risk of cease-and-desist orders, for example relating to the sale of a product or the use of a technology.

Anti-trust and consumer protection proceedings. Deutsche Telekom and its subsidiaries are subject to proceedings under competition law in various jurisdictions, which may also lead to follow-on damage actions under civil law. Taken individually, none of the proceedings have a material impact. Deutsche Telekom believes the respective allegations and claims for damages are unfounded. The outcome of the proceedings cannot be foreseen at this point in time.

Claims for damages against Slovak Telekom following a European Commission decision to impose fines. The European Commission decided on October 15, 2014 that Slovak Telekom had abused its market power on the Slovak broadband market and as a result imposed fines on Slovak Telekom and Deutsche Telekom, which were paid in full in January 2015. Slovak Telekom and Deutsche Telekom challenged the European Commission's decision on December 29, 2014 before the General Court of the European Union. On December 13, 2018, the court partially overturned the European Commission's decision and reduced the fines by a total of EUR 13 million. Despite this positive judgment, on February 21, 2019, Slovak Telekom and Deutsche Telekom filed an appeal with the European Court of Justice against the ruling by the General Court. With this appeal, Slovak Telekom and Deutsche Telekom are seeking, inter alia, to overturn the findings of the European Commission determining Slovak Telekom's behavior as abusive. Following the decision of the European Commission, competitors filed damage actions against Slovak Telekom with the civil court in Bratislava. These claims seek compensation for alleged damages due to Slovak Telekom's abuse of a dominant market position, as determined by the European Commission. Three claims totaling EUR 215 million plus interest are currently pending.

Tax risks. In many countries, Deutsche Telekom is subject to the applicable tax regulations. Risks can arise from changes in local taxation laws or case law and different interpretations of existing provisions. As a result, they can affect Deutsche Telekom's tax expense and benefits as well as tax receivables and liabilities.

38 LESSOR RELATIONSHIPS

Finance leases. Deutsche Telekom is a lessor in connection with finance leases. Essentially, these relate to the leasing of routers and other hardware, which Deutsche Telekom provides to its customers for data and telephone network solutions. Deutsche Telekom recognizes a receivable in the amount of the net investment in the lease. The lease payments made by the lessees are split into an interest component and a principal component using the effective interest method. The lease receivable is reduced by the principal received. The interest component of the payments received is recognized as finance income in the income statement. Under business models in which Deutsche Telekom is classified as a manufacturer or dealer within the meaning of IFRS 16, revenue is disclosed similar to the accounting of revenue in accordance with IFRS 15. The gain or loss on the sale of the finance lease is realized in the amount of the difference between the revenue and the carrying amount of the underlying asset less the present value of the unguaranteed residual value. The finance income (interest income) is subsequently also recognized under the lease revenue.

The following table shows how the amount of the net investment in a finance lease is determined:

millions of €	Dec. 31, 2019	Dec. 31, 2018
Minimum lease payments	213	143
Unguaranteed residual value	4	4
Gross investment	218	146
Unearned finance income	(21)	1
NET INVESTMENT (PRESENT VALUE OF THE MINIMUM LEASE PAYMENTS)	**197**	**147**

The following table presents the gross investment amounts and the present value of payable minimum lease payments:

millions of €

Maturity	Dec. 31, 2019 Gross investment	Dec. 31, 2019 Present value of minimum lease payments
Within 1 year	79	74
In 1 to 2 years	65	53
In 2 to 3 years	34	31
In 3 to 4 years	19	18
In 4 to 5 years	15	15
After 5 years	6	6
	218	**197**

millions of €

Maturity	Dec. 31, 2018 Gross investment	Dec. 31, 2018 Present value of minimum lease payments
Within 1 year	61	64
In 1 to 3 years	61	61
In 3 to 5 years	19	19
After 5 years	5	4
	146	**147**

Operating leases. If Deutsche Telekom is a lessor in connection with operating leases, it continues to recognize the leased assets in its statement of financial position. The lease payments received are recognized in profit or loss. The leases mainly relate to the rental of cell sites, building and co-location space, unbundled local loop lines, and terminal equipment.

The regulator requires Deutsche Telekom to make co-location space and unbundled local loop lines available to competitors. In contrast to unregulated products, the residual value risk for these assets is rather low because competitors are economically dependent on the use of these assets. In the unlikely event that co-location space and unbundled local loop lines are not leased, Deutsche Telekom will try to find new tenants for the vacant space or unleased lines. In the case of its own cell sites, Deutsche Telekom will also strive to continue leasing – where possible – all of the free space that it does not itself occupy. The aim here is to reduce the vacancy rate of unused space as far as possible by re-letting and to spread the cost.

Where terminal equipment is leased in the United States operating segment, customers are entitled to receive a new device once per month during the term of the lease. On receipt of the new device or at the end of the contract, the customer either returns or purchases the equipment. The purchase price at the end of the lease is set at the commencement of the lease and is equal to the estimated residual value of the equipment. This is based on the estimated market value of the device at the end of the contract. The contracts do not contain any residual value guarantees or variable lease payments, nor do they contain any restrictions or covenants. Terminal equipment returned by customers is prepared for sale in the secondary market or for use as a replacement for defective devices. This reduces the residual value risk of the returned equipment.

Operating leases exist for the following items of property, plant and equipment:

millions of €	Land and buildings	Technical equipment and machinery	Total
COST			
AT DECEMBER 31, 2017	**112**	**1,543**	**1,656**
Currency translation	0	50	50
Changes in the composition of the Group	0	2	2
Additions	0	932	932
Disposals	(13)	(945)	(958)
Change from non-current assets and disposal groups held for sale	0	0	0
Reclassifications	0	16	16
AT DECEMBER 31, 2018	**99**	**1,599**	**1,697**
Currency translation	(2)	14	11
Changes in the composition of the Group	0	0	0
Additions	0	978	978
Disposals	(18)	(1,027)	(1,045)
Change from non-current assets and disposal groups held for sale	0	0	0
Reclassifications	1	15	16
AT DECEMBER 31, 2019	**80**	**1,578**	**1,657**
ACCUMULATED DEPRECIATION AND IMPAIRMENT LOSSES			
AT DECEMBER 31, 2017	**(85)**	**(726)**	**(811)**
Currency translation	0	(22)	(22)
Changes in the composition of the Group	0	0	0
Additions (depreciation)	(2)	(897)	(899)
Additions (impairment)	0	0	0
Disposals	12	667	679
Change from non-current assets and disposal groups held for sale	0	0	0
Reclassifications	0	(8)	(7)
Reversal of impairment losses	0	0	0
AT DECEMBER 31, 2018	**(76)**	**(984)**	**(1,060)**
Currency translation	2	(10)	(9)
Changes in the composition of the Group	0	0	0
Additions (depreciation)	(3)	(555)	(558)
Additions (impairment)	0	0	0
Disposals	17	787	804
Change from non-current assets and disposal groups held for sale	0	0	0
Reclassifications	1	1	2
Reversal of impairment losses	0	0	0
AT DECEMBER 31, 2019	**(59)**	**(762)**	**(821)**
NET CARRYING AMOUNTS			
At December 31, 2018	23	614	637
AT DECEMBER 31, 2019	**21**	**816**	**837**

The future minimum lease payments arising from non-cancelable operating leases are as follows:

millions of € Maturity	Dec. 31, 2019
Within 1 year	876
In 1 to 2 years	589
In 2 to 3 years	32
In 3 to 4 years	365
In 4 to 5 years	21
After 5 years	697
	2,581

millions of €	
Maturity	Dec. 31, 2018
Within 1 year	704
In 1 to 3 years	448
In 3 to 5 years	311
After 5 years	452
	1,915

The increase in the future minimum lease payments mainly results from the higher number of cell sites and the related conclusion of new leases. Furthermore, the introduction of the IFRS 16 accounting standard also resulted in certain business models being classified as operating leases.

39 OTHER FINANCIAL OBLIGATIONS

The following table provides an overview of Deutsche Telekom's other financial obligations:

millions of €	Dec. 31, 2019			
	Total	Due within 1 year	Due > 1 year ≤ 5 years	Due > 5 years
Purchase commitments regarding property, plant and equipment	4,446	3,906	443	97
Purchase commitments regarding intangible assets	367	263	103	1
Firm purchase commitments for inventories	2,278	2,165	113	0
Other purchase commitments and similar obligations	15,342	7,968	6,044	1,330
Payment obligations to the Civil Service Pension Fund	2,111	336	1,086	689
Obligations from the acquisition of interests in other companies	23,616	23,616	0	0
Miscellaneous other obligations	47	3	14	30
	48,207	**38,257**	**7,803**	**2,147**

Obligations from the acquisition of interests in other companies mainly relate to the business combination of T-Mobile US and Sprint at USD 26.5 billion (EUR 23.6 billion) agreed on April 29, 2018; calculated as of the date of conclusion of the agreement. The item "Other purchase commitments and similar obligations" contains the obligation arising from the acquisition of the national media content rights (including various sublicensing rights) for the 2024 UEFA European Football Championship in the amount of EUR 0.2 billion.

For further information on agreed corporate transactions, please refer to the section "Summary of accounting policies – Changes in the composition of the Group and other transactions."

40 SHARE-BASED PAYMENT

SHARE MATCHING PLAN

Since the 2011 financial year, specific executives have been contractually obligated to invest a minimum of 10 percent of their short-term variable remuneration component, which is based on the achievement of targets set for each person for the financial year (Short-Term Incentive/Variable I), in Deutsche Telekom AG shares. In the 2019 financial year, the upper limit for personal investment was raised from 33.3 percent to 50 percent of the short-term variable remuneration component. Deutsche Telekom AG will award one additional share for every share acquired as part of this executive's aforementioned personal investment (Share Matching Plan). These shares will be allotted to the beneficiaries of this plan on expiration of the four-year lock-up period.

Since the 2015 financial year, further executives who are not contractually obligated to participate in the Share Matching Plan have been given the opportunity to participate on a voluntary basis. This offer is only made when the Group's free cash flow target for the preceding year has been achieved. The conditions of participation in the voluntary Share Matching Plan were updated in the 2019 financial year. Since then, participation has been open to all executives in certain management groups. To participate, the executives invest at least 10 percent and – since the 2019 financial year – a maximum of 50 percent of the target amount (100 percent) of the short-term remuneration component (Short-Term Incentive) in shares of Deutsche Telekom AG. Deutsche Telekom AG will award additional shares for every share acquired as part of this executive's aforementioned personal investment (Share Matching Plan). The number of additional shares granted will depend on the management group to which the executive is assigned. The additional shares will be allotted to the beneficiaries of this plan on expiration of the four-year lock-up period.

The individual Share Matching Plans are each recognized for the first time at fair value on the grant date. To determine the fair value, the expected dividend entitlements are deducted from Deutsche Telekom AG's share price, as there are no dividend entitlements until the matching shares have been allocated. In the 2019 financial year, a total of 0.9 million (2018: 0.7 million) matching shares were allocated to beneficiaries of the plan at a weighted average fair value of EUR 12.06 (2018: EUR 10.64). The cost is to be recognized against the capital reserves pro rata temporis until the end of the service period and amounted to EUR 7.7 million in total for all tranches as of December 31, 2019 (December 31, 2018: EUR 6.1 million). In the reporting year, reserves were reduced by transfers of shares to plan participants in a total value of EUR 5.5 million (2018: EUR 2.6 million). The capital reserves recognized for the Share Matching Plan as of December 31, 2019 amounted to EUR 17.2 million (December 31, 2018: EUR 14.6 million).

For the compensation system of Board of Management members who also participate in the Share Matching Plan, please refer to the "Compensation report" in the combined management report.

LONG-TERM INCENTIVE PLAN

Executives from the Deutsche Telekom AG Group can participate in a long-term incentive plan provided they meet certain eligibility requirements or have an individual contractual commitment. At the inception of the plan, the participating executives receive a package of virtual shares with a value between 10 and 43 percent of the participant's annual target salary depending on the extent to which defined criteria are fulfilled. The number of virtual shares is contingent on the participant's annual target salary, management group assignment, and, since the 2019 financial year, on the achievement of the collective targets (financial and strategic targets) of the organizational unit to which the executive is assigned.

Over the term of the four-year plan, the value of the virtual shares changes in line with Deutsche Telekom AG's share price development. The number of virtual shares will change on achievement of the targets for four equally weighted performance indicators (return on capital employed, adjusted earnings per share, employee satisfaction, and customer satisfaction), to be determined at the end of each year. In addition, a dividend is granted for the virtual shares over the term of the plan. This dividend is reinvested in virtual shares, increasing the number of virtual shares held by each plan participant. At the end of the four-year plan term, the final number of virtual shares will be converted on the basis of a share price calculated in a reference period at the end of the plan and paid out in cash together with the dividend for the last year of the plan, which is not converted into virtual shares.

The individual long-term incentive plans are each recognized for the first time at fair value on the grant date. The fair value of a plan is calculated by multiplying the number of virtual shares by Deutsche Telekom AG's share price discounted to the reporting date. In the 2019 financial year, a total of 3.88 million (2018: 3.46 million) virtual shares were granted at a weighted average fair value of EUR 15.07 (2018: EUR 15.03). A plan must be remeasured at every reporting date until the end of the service period and expensed pro rata temporis. As of December 31, 2019, the cost of the long-term incentive plans amounted to EUR 50 million in total for all tranches (December 31, 2018: EUR 62 million). In 2019, the provision was utilized in the amount of EUR 76 million. The provision totaled EUR 125 million as of December 31, 2019 (December 31, 2018: EUR 151 million).

SHARE-BASED PAYMENT AT T-MOBILE US

Under T-Mobile US' Omnibus Incentive Plan, the company may grant stock options, stock appreciation rights, restricted stock, restricted stock units (RSUs), and performance awards to employees, consultants, advisors and non-employee directors. As of December 31, 2019, there were 19 million T-Mobile US shares of common stock (December 31, 2018: 12 million shares) available for future grants under the incentive plan.

T-Mobile US grants RSUs to eligible employees and certain non-employee directors, and performance-based restricted stock units (PRSUs) to eligible key executives of the company. RSUs entitle the grantee to receive shares of T-Mobile US' common stock at the end of a vesting period of up to three years. PRSUs entitle the holder to receive shares of T-Mobile' US common stock at the end of a vesting period of up to three years if a specific performance goal is achieved. The number of shares ultimately received is dependent on the actual performance of T-Mobile US measured against a defined performance target.

The RSU and PRSU plans resulted in the following share-related development:

Time-based restricted stock units and restricted stock awards (RSUs)

	Number of shares	Weighted average fair value at grant date USD
Non-vested as of January 1, 2019	**11,010,635**	**57.66**
Granted	6,099,719	73.13
Vested	(5,862,128)	55.52
Forfeited	(745,015)	65.87
Non-vested as of December 31, 2019	**10,503,211**	**67.31**

Performance-based restricted stock units (PRSUs)

	Number of shares	Weighted average fair value at grant date USD
Non-vested as of January 1, 2019	**3,851,554**	**64.03**
Granted	1,046,792	73.98
Vested	(1,006,404)	52.47
Forfeited	(88,403)	62.02
Non-vested as of December 31, 2019	**3,803,539**	**69.78**

The program is measured at fair value on the grant date and recognized as expense, net of expected forfeitures, following a graded vesting schedule over the related service period. The fair value of stock awards for the RSUs is based on the closing price of T-Mobile US' common stock on the date of grant. The fair value of stock awards for the PRSUs was determined using the Monte Carlo model. Stock-based compensation expense was EUR 495 million as of December 31, 2019 (December 31, 2018: EUR 440 million).

Prior to the business combination, MetroPCS had established various stock option plans (predecessor plans). The MetroPCS stock options were adjusted in connection with the business combination. Following stockholder approval of T-Mobile US' 2013 Omnibus Incentive Plan, no new awards may be granted under the predecessor plan.

The plan resulted in the following development of the T-Mobile US stock options:

	Number of shares	Weighted average exercise price USD	Weighted average remaining contractual life (years)
Stock options outstanding at January 1, 2019	**284,811**	**14.58**	**3.8**
Exercised	(85,083)	15.94	
Forfeited/canceled	(4,786)	22.75	
Stock options outstanding at December 31, 2019	**194,942**	**13.80**	**2.9**
Stock options exercisable at December 31, 2019	180,966	13.48	2.6

The exercise of stock options generated cash inflows of EUR 1 million (USD 1 million) in the 2019 financial year (2018: EUR 3 million (USD 3 million)).

41 FINANCIAL INSTRUMENTS AND RISK MANAGEMENT

For further information on financial instruments, please refer in particular to Note 2 "Trade receivables," Note 11 "Other financial assets," Note 13 "Financial liabilities and lease liabilities," Note 28 "Finance costs," and Note 30 "Other financial income/expense."

Carrying amounts, amounts recognized, and fair values by class and measurement category

millions of €

	Measurement category in accordance with IFRS 9	Carrying amount Dec. 31, 2019	Amounts recognized in the statement of financial position in accordance with IFRS 9			
			Amortized cost	Fair value through other comprehensive income without recycling to profit or loss	Fair value through other comprehensive income with recycling to profit or loss	Fair value through profit or loss
ASSETS						
Cash and cash equivalents	AC	5,393	5,393			
Trade receivables						
At amortized cost	AC	5,452	5,452			
At fair value through other comprehensive income	FVOCI	5,390			5,390	
At fair value through profit or loss	FVTPL	4				4
Other financial assets						
Originated loans and other receivables						
At amortized cost	AC	4,282	4,282			
Of which: collateral paid	AC	637	637			
Of which: publicly funded projects	AC	1,350	1,350			
At fair value through other comprehensive income	FVOCI	0			0	
At fair value through profit or loss	FVTPL	121				121
Equity instruments						
At fair value through other comprehensive income	FVOCI	293		293		
At fair value through profit or loss	FVTPL	22				22
Derivative financial assets						
Derivatives without a hedging relationship	FVTPL	893				893
Of which: termination rights embedded in bonds issued	FVTPL	630				630
Of which: energy forward agreements embedded in contracts	FVTPL	0				0
Derivatives with a hedging relationship	n.a.	1,439			287	1,152
Lease assets	n.a.	197				
Cash and cash equivalents and trade receivables directly associated with non-current assets and disposal groups held for sale	AC	0	0			
Equity instruments within non-current assets and disposal groups held for sale	FVOCI	35		35		
LIABILITIES						
Trade payables	AC	9,431	9,431			
Bonds and other securitized liabilities	AC	51,644	51,644			
Liabilities to banks	AC	6,516	6,516			
Liabilities to non-banks from promissory note bonds	AC	699	699			
Other interest-bearing liabilities	AC	4,369	4,369			
Of which: collateral received	AC	1,273	1,273			
Other non-interest-bearing liabilities	AC	1,476	1,476			
Lease liabilities	n.a.	19,835				
Finance lease liabilities	n.a.	n.a.				
Derivative financial liabilities						
Derivatives without a hedging relationship	FVTPL	325				325
Of which: options granted to third parties for the purchase of shares in subsidiaries and associates	FVTPL	7				7
Of which: energy forward agreements embedded in contracts	FVTPL	146				146
Derivatives with a hedging relationship	n.a.	1,319			1,253	66
Trade payables directly associated with non-current assets and disposal groups held for sale	AC	29	29			

millions of €

	Measurement category in accordance with IFRS 9	Carrying amount Dec. 31, 2019	Amounts recognized in the statement of financial position in accordance with IFRS 9			
			Amortized cost	Fair value through other comprehensive income without recycling to profit or loss	Fair value through other comprehensive income with recycling to profit or loss	Fair value through profit or loss
Of which: aggregated by measurement category in accordance with IFRS 9						
ASSETS						
Financial assets at amortized cost	AC	15,127	15,127			
Financial assets at fair value through other comprehensive income with recycling to profit or loss	FVOCI	5,390			5,390	
Financial assets at fair value through other comprehensive income without recycling to profit or loss	FVOCI	328		328		
Financial assets at fair value through profit or loss	FVTPL	1,040				1,040
LIABILITIES						
Financial liabilities at amortized cost	AC	74,164	74,164			
Financial liabilities at fair value through profit or loss	FVTPL	325				325

millions of €

					Amounts recognized in the statement of financial position in accordance with IFRS 9					
	Amounts recognized in the statement of financial position in accordance with IFRS 16	Fair value Dec. 31, 2019[a]	Measurement category in accordance with IFRS 9	Carrying amount Dec. 31, 2018	Amortized cost	Fair value through other comprehensive income without recycling to profit or loss	Fair value through other comprehensive income with recycling to profit or loss	Fair value through profit or loss	Amounts recognized in the statement of financial position in accordance with IAS 17	Fair value Dec. 31, 2018[a]
ASSETS										
Cash and cash equivalents			AC	3,679	3,679					
Trade receivables										
At amortized cost			AC	4,280	4,280					
At fair value through other comprehensive income		5,390	FVOCI	5,703			5,703			5,703
At fair value through profit or loss		4	FVTPL	5				5		5
Other financial assets										
Originated loans and other receivables										
At amortized cost		4,317	AC	2,982	2,982					3,013
Of which: collateral paid			AC	299	299					
Of which: publicly funded projects			AC							
At fair value through other comprehensive income			FVOCI	0						0
At fair value through profit or loss		121	FVTPL	103				103		103
Equity instruments										
At fair value through other comprehensive income		293	FVOCI	324		324				324
At fair value through profit or loss		22	FVTPL	0						
Derivative financial assets										
Derivatives without a hedging relationship		893	FVTPL	597				597		597
Of which: termination rights embedded in bonds issued		630	FVTPL	99				99		99
Of which: energy forward agreements embedded in contracts		0	FVTPL	12				12		12
Derivatives with a hedging relationship		1,439	n.a.	273			5	268		273
Lease assets	197		n.a.	147					147	
Cash and cash equivalents and trade receivables directly associated with non-current assets and disposal groups held for sale			AC	27	27					
Equity instruments within non-current assets and disposal groups held for sale		35	FVOCI	34		34				34

[a] The practical expedient under IFRS 7.29a was applied for information on specific fair values.

millions of €

	Amounts recognized in the statement of financial position in accordance with IFRS 16	Fair value Dec. 31, 2019[a]	Measurement category in accordance with IFRS 9	Carrying amount Dec. 31, 2018	Amounts recognized in the statement of financial position in accordance with IFRS 9: Amortized cost	Fair value through other comprehensive income without recycling to profit or loss	Fair value through other comprehensive income with recycling to profit or loss	Fair value through profit or loss	Amounts recognized in the statement of financial position in accordance with IAS 17	Fair value Dec. 31, 2018[a]
LIABILITIES										
Trade payables			AC	10,735	10,735					
Bonds and other securitized liabilities		56,357	AC	49,033	49,033					51,736
Liabilities to banks		6,572	AC	5,710	5,710					5,749
Liabilities to non-banks from promissory note bonds		799	AC	497	497					578
Other interest-bearing liabilities		4,506	AC	1,878	1,878					1,927
Of which: collateral received			AC	404	404					
Other non-interest-bearing liabilities			AC	1,608	1,608					
Lease liabilities	19,835		n.a.	n.a.						
Finance lease liabilities			n.a.	2,472					2,472	2,695
Derivative financial liabilities										
Derivatives without a hedging relationship		325	FVTPL	242				242		242
Of which: options granted to third parties for the purchase of shares in subsidiaries and associates		7	FVTPL	10				10		10
Of which: energy forward agreements embedded in contracts		146	FVTPL	52				52		52
Derivatives with a hedging relationship		1,319	n.a.	836			486	350		836
Trade payables directly associated with non-current assets and disposal groups held for sale			AC	36	36					

[a] The practical expedient under IFRS 7.29a was applied for information on specific fair values.

millions of €

	Amounts recognized in the statement of financial position in accordance with IFRS 16	**Fair value Dec. 31, 2019**[a]	Measurement category in accordance with IFRS 9	Carrying amount Dec. 31, 2018	Amounts recognized in the statement of financial position in accordance with IFRS 9				Amounts recognized in the statement of financial position in accordance with IAS 17	Fair value Dec. 31, 2018[a]
					Amortized cost	Fair value through other comprehensive income without recycling to profit or loss	Fair value through other comprehensive income with recycling to profit or loss	Fair value through profit or loss		
Of which: aggregated by measurement category in accordance with IFRS 9										
ASSETS										
Financial assets at amortized cost		4,317	AC	10,968	10,968					3,013
Financial assets at fair value through other comprehensive income with recycling to profit or loss		5,390	FVOCI	5,703			5,703			5,703
Financial assets at fair value through other comprehensive income without recycling to profit or loss		328	FVOCI	358		358				358
Financial assets at fair value through profit or loss		1,040	FVTPL	705				705		705
LIABILITIES										
Financial liabilities at amortized cost		68,234	AC	69,497	69,497					59,990
Financial liabilities at fair value through profit or loss		325	FVTPL	242				242		242

[a] The practical expedient under IFRS 7.29a was applied for information on specific fair values.

Trade receivables include receivables amounting to EUR 1.8 billion (December 31, 2018: EUR 1.7 billion) due in more than one year. The fair value generally equals the carrying amount.

DISCLOSURES ON FAIR VALUE

When determining the fair value, it is important to maximize the use of current inputs observable in liquid markets for the financial instrument in question and minimize the use of other inputs (e.g., historical prices, prices for similar instruments, prices on illiquid markets). A three-level measurement hierarchy is defined for these purposes. If prices quoted in liquid markets are available at the reporting date for the respective financial instrument, these will be used unadjusted for the measurement (Level 1 measurement). Other input parameters are then irrelevant for the measurement. One such example is shares and bonds that are actively traded on a stock exchange. If quoted prices on liquid markets are not available at the reporting date for the respective financial instrument, but the instrument can be measured using other inputs that are observable on the market at the reporting date, a Level 2 measurement will be applied. The conditions for this are that no major adjustments have been made to the observable inputs and no unobservable inputs are used. Examples of Level 2 measurements are collateralized interest rate swaps, currency forwards, and cross-currency swaps that can be measured using current interest rates or exchange rates. If the conditions for a Level 1 or Level 2 measurement are not met, a Level 3 measurement is applied. In such cases, major adjustments must be made to observable inputs or unobservable inputs must be used.

Financial instruments not measured at fair value, the fair values of which are disclosed nevertheless

millions of €

	Dec. 31, 2019				Dec. 31, 2018			
	Level 1	Level 2	Level 3[a]	Total	Level 1	Level 2	Level 3	Total
ASSETS								
Originated loans and receivables		4,317		**4,317**		3,013		**3,013**
LIABILITIES								
Financial liabilities measured at amortized cost	40,460	27,144	630	**68,234**	41,342	18,548	100	**59,990**
Of which: bonds and other securitized liabilities	40,460	15,267	630	**56,357**	41,342	10,294	100	**51,736**
Of which: liabilities to banks		6,572		**6,572**		5,749		**5,749**
Of which: liabilities to non-banks from promissory notes		799		**799**		578		**578**
Of which: liabilities with the right of creditors to priority repayment in the event of default		0		**0**		0		**0**
Of which: other interest-bearing liabilities		4,506		**4,506**		1,927		**1,927**
Finance lease liabilities						2,695		**2,695**

[a] Separation of embedded derivatives; the fair value of the entire instrument must be categorized as Level 1.

Financial instruments measured at fair value

millions of €

	Dec. 31, 2019				Dec. 31, 2018			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
ASSETS								
Trade receivables								
At fair value through other comprehensive income			5,390	**5,390**			5,703	**5,703**
At fair value through profit or loss			4	**4**			5	**5**
Other financial assets – Originated loans and other receivables								
At fair value through other comprehensive income				**0**				**0**
At fair value through profit or loss	114		7	**121**	93		10	**103**
Equity instruments								
At fair value through other comprehensive income			328	**328**			358	**358**
At fair value through profit or loss	22			**22**				**0**
Derivative financial assets								
Derivatives without a hedging relationship		263	630	**893**		486	111	**597**
Derivatives with a hedging relationship		1,439		**1,439**		273		**273**
LIABILITIES								
Derivative financial liabilities								
Derivatives without a hedging relationship		172	153	**325**		180	62	**242**
Derivatives with a hedging relationship		1,319		**1,319**		836		**836**

Of the equity instruments measured at fair value through other comprehensive income and recognized under other financial assets, the instruments presented in the different levels constitute separate classes of financial instruments. In each case, the fair values of the total volume of equity instruments recognized as Level 1 are the price quotations at the reporting date.

The listed bonds and other securitized liabilities are assigned to Level 1 or Level 2 depending on the market liquidity of the relevant instrument. Consequently, issues denominated in euros or U.S. dollars with relatively large nominal amounts are to be classified as Level 1, the rest as Level 2. The fair values of the instruments assigned to Level 1 equal the nominal amounts multiplied by the price quotations at the reporting date. The fair values of the instruments assigned to Level 2 are calculated as the present values of the payments associated with the debts, based on the applicable yield curve and Deutsche Telekom's credit spread curve for specific currencies.

The fair values of liabilities to banks, liabilities to non-banks from promissory notes, and other interest-bearing liabilities are calculated as the present values of the payments associated with the debts, based on the applicable yield curve and Deutsche Telekom's credit spread curve for specific currencies.

Since there are no market prices available for the derivative financial instruments in the portfolio assigned to Level 2 due to the fact that they are not listed on the market, the fair values are calculated using standard financial valuation models, based entirely on observable inputs. The fair value of derivatives is the price that Deutsche Telekom would receive or have to pay if the financial instrument were transferred at the reporting date. Interest rates of contractual partners relevant as of the reporting date are used in this respect. The middle rates applicable as of the reporting date are used as exchange rates. In the case of interest-bearing derivatives, a distinction is made between the clean price and the dirty price. In contrast to the clean price, the dirty price also includes the interest accrued. The fair values carried correspond to the full fair value or the dirty price.

The equity instruments measured at fair value through other comprehensive income comprise a large number of investments in strategic, unlisted individual positions. Deutsche Telekom considers the chosen measurement through other comprehensive income without recycling to profit or loss to be appropriate because there are no plans to use the investments for short-term profit-taking. At the date of disposal of an investment, the total cumulative gain or loss is reclassified to retained earnings. Acquisitions and disposals are based on business policy investment decisions.

Investments in equity instruments at fair value through other comprehensive income

millions of €

	2019	2018
FAIR VALUE AS OF DECEMBER 31	**328**	**358**
Dividends recognized in profit/loss		
on investments divested in the reporting period	0	
on investments still held at the reporting date	0	3
Fair value at the derecognition date of instruments divested in the reporting period	225	91
Cumulative gains reclassified in the reporting period from other comprehensive income to retained earnings	82	
Of which: from the disposal of investments	60	
Of which: from the conversion of preference shares into common shares	22	
Cumulative losses reclassified in the reporting period from other comprehensive income to retained earnings	0	47
Of which: from the disposal of investments	0	47

Development of the carrying amounts of the financial assets and financial liabilities assigned to Level 3

millions of €

	Equity instruments at fair value through other comprehensive income	Derivative financial assets at fair value through profit or loss: termination rights embedded in bonds issued	Derivative financial assets at fair value through profit or loss: energy forward agreements embedded in contracts	Derivative financial liabilities at fair value through profit or loss: energy forward agreements embedded in contracts
Carrying amount as of January 1, 2019	**358**	**99**	**12**	**(52)**
Additions (including first-time categorization as Level 3)	96	0	0	0
Decreases in fair value recognized in profit/loss (including losses on disposal)		(66)	(20)	(113)
Increases in fair value recognized in profit/loss (including gains on disposal)		594	8	20
Decreases in fair value recognized directly in equity	(29)			
Increases in fair value recognized directly in equity	128			
Disposals	(225)	0	0	0
Currency translation effects recognized directly in equity	0	3	0	(1)
CARRYING AMOUNT AS OF DECEMBER 31, 2019	**328**	**630**	**0**	**(146)**

The equity instruments assigned to Level 3 that are measured at fair value through other comprehensive income and carried under other financial assets are equity investments with a carrying amount of EUR 313 million measured using the best information available at the reporting date. As a rule, Deutsche Telekom considers transactions involving shares in those companies to have the greatest relevance. Transactions involving shares in comparable companies are also considered. The proximity of the relevant transaction to the reporting date, and the question of whether it was conducted at arm's length, are relevant for deciding which information is used for the measurement. Furthermore, the degree of similarity between the object being measured and comparable companies must be taken into consideration. Based on Deutsche Telekom's own assessment, the fair values of the equity investments at the reporting date could be determined with sufficient reliability. For the development of the carrying amounts in the reporting period, please refer to the table above. At the reporting date, investments with a carrying amount of EUR 35 million were held for sale, while there were no plans to sell the remaining investments. In the case of investments with a carrying amount of EUR 190 million, transactions involving shares in these companies took place at arm's length sufficiently close to the reporting date, which is why the share prices agreed in the transactions were to be used without adjustment for the measurement as of December 31, 2019. In the case of investments with a carrying amount of EUR 71 million, an analysis of operational indicators (especially revenue, EBIT, and liquidity) revealed that the carrying amounts were equivalent to current fair values. Due to better comparability, previous arm's-length transactions involving shares in these companies are preferable to more recent transactions involving shares in similar companies. In the case of investments with a carrying amount of EUR 52 million, for which the last arm's length transactions relating to shares in these companies took place some time ago, a measurement performed more recently relating to shares in similar companies provides the most reliable representation of the fair values. Here, multiples to the reference variable of expected revenue (ranging between 3.3 and 8.4) were taken. The 25 percent quantile, the median, or the 75 percent quantile was used for the multiples depending on the specific circumstances. If other values had been used for the multiples and for the expected revenue amounts, the fair values calculated would have been different. These hypothetical deviations (sensitivities) are shown in the table below. In addition, non-material individual items with a carrying amount of EUR 15 million (when translated into euros) are included with differences in value of minor relevance.

For the development of the carrying amounts in the reporting year, please refer to the table above.

The derivatives without a hedging relationship assigned to Level 3 and carried under derivative financial assets relate to options embedded in bonds issued by T-Mobile US with a carrying amount of EUR 630 million when translated into euros. The options, which can be exercised by T-Mobile US at any time, allow early redemption of the bonds at fixed exercise prices. Observable market prices are available regularly and also at the reporting date for the bonds as entire instruments, but not for the options embedded therein. The termination rights are measured using an option pricing model. Historical interest rate volatilities of bonds issued by T-Mobile US and comparable issuers are used for the measurement because these provide a more reliable estimate at the reporting date than current market interest rate volatilities. The absolute figure used for the interest rate volatility at the current reporting date was between 1.0 and 1.9 percent. The spread curve, which is also unobservable, was derived on the basis of current market prices of bonds issued by T-Mobile US and debt instruments of comparable issuers. The spreads used at the current reporting date were between 1.3 and 2.3 percent for the maturities of the bonds and between 0.5 and 1.0 percent for shorter terms. For the mean reversion input, which is likewise unobservable, 10 percent was used. In our opinion, the values used constitute the best estimate in each case. If other values had been used for interest rate volatility, spread curve or mean reversion, the fair values calculated would have been different. These hypothetical deviations (sensitivities) are shown in the table below. In the reporting period, net income of EUR 528 million when translated into euros was recognized under Level 3 in other financial income/expense for unrealized gains for the options in the portfolio at the reporting date. Please refer to the table above for the development of the carrying amounts in the reporting period. The changes in value recognized in profit or loss in the reporting period were mainly attributable to fluctuations in the interest rates and historical interest rate volatilities in absolute terms that are relevant for measurement. Due to their distinctiveness, these instruments constitute a separate class of financial instruments.

For the development of the carrying amounts in the reporting year, please refer to the table above.

Sensitivities[a] of the carrying amounts of the financial assets and financial liabilities assigned to Level 3 depending on unobservable inputs

millions of €

	Equity instruments at fair value through other comprehensive income	Derivative financial assets at fair value through profit or loss: termination rights embedded in bonds issued	Derivative financial liabilities at fair value through profit or loss: energy forward agreements embedded in contracts
Multiple next-level-up quantile	6		
Multiple next-level-down quantile	(16)		
Expected revenues +10%	4		
Expected revenues -10%	(4)		
Interest rate volatility[b] +10%		9	
Interest rate volatility[b] -10%		(10)	
Spread curve[c] +100 basis points		(269)	
Spread curve[c] -100 basis points		335	
Mean reversion[d] +100 basis points		(4)	
Mean reversion[d] -100 basis points		1	
Future energy prices +10%			62
Future energy prices -10%			(63)
Future energy output +5%			4
Future energy output -5%			(5)
Future prices for renewable energy credits[e] +100%			21
Future prices for renewable energy credits[e] from zero			(21)

[a] Change in the relevant input parameter assuming all other input parameters are unchanged.

[b] Interest rate volatility shows the magnitude of fluctuations in interest rates over time (relative change). The larger the fluctuations, the higher the interest rate volatility.

[c] The spread curve shows, for the respective maturities, the difference between the interest rates payable by T-Mobile US and the interest rates on U.S. government bonds.

[d] Mean reversion describes the assumption that, after a change, an interest rate will revert to its average over time. The higher the selected value (mean reversion speed), the faster the interest rate will revert to its average in the measurement model.

[e] Renewable energy credits is the term used for U.S. emission certificates.

With a carrying amount of EUR -146 million when translated into euros, the derivatives without a hedging relationship assigned to Level 3 and carried under derivative financial liabilities relate to energy forward agreements embedded in contracts entered into by T-Mobile US. These agreements consist of two components: the energy forward agreement and the acquisition of renewable energy credits by T-Mobile US. The contracts have been entered into with energy producers since 2017 and run for terms of between 12 and 20 years from the commencement of commercial operation. In the case of two energy forward agreements, commercial operations have already begun; with the others, commercial operations are set to begin between 2020 and 2021. The respective settlement period of the energy forward agreements, which are accounted for separately as derivatives, also starts when the facility begins commercial operation. Under the energy forward agreements, T-Mobile US receives variable amounts based on the facility's actual energy output and the then current energy prices, and pays fixed amounts per unit of energy generated throughout the term of the contract. The energy forward agreements are measured using valuation models because no observable market prices are available. The value of the derivatives is materially influenced by the facility's future energy output, for which T-Mobile US estimated a value of 2,899 gigawatt hours per year at the reporting date. The value of the derivatives is also significantly influenced by future energy prices, which are not observable for the period beyond around five years. Further, the value of the derivatives is materially influenced by the future prices for renewable energy credits, which are also not observable. For the unobservable portion of the term, T-Mobile US used on-peak energy prices of between EUR 13.23/MWh and EUR 59.64/MWh when translated into euros and off-peak prices of between EUR 9.01/MWh and EUR 39.67/MWh when translated into euros. An average on-peak/off-peak ratio of 47 percent was used. In our opinion, the values used constitute the best estimate in each case. If other values had been used for future energy prices, future energy output, or future prices of renewable energy credits, the fair values calculated would have been different. These hypothetical deviations (sensitivities) are shown in the table above. In the reporting period, a net expense of EUR 104 million (when translated into euros) was recognized under the Level 3 measurement in other operating income/expense for unrealized losses for the derivatives.

Please refer to the corresponding table for the development of the carrying amounts in the reporting period.

The market-price changes in the reporting period were largely attributable to changes in observable and unobservable energy prices and to interest rate effects. Due to their distinctiveness, these instruments constitute a separate class of financial instruments. In the view of T-Mobile US, the contracts were entered into at current market conditions, and the most appropriate parameters for the unobservable inputs were used for measurement purposes. The transaction price at inception was zero in each case. Since the unobservable inputs have a material influence on the measurement of the derivatives, the respective amount resulting from initial measurement was not carried on initial recognition. Instead, these amounts are amortized in profit or loss on a straight-line basis over the period of commercial energy generation (for a total amount of EUR 13 million per year when translated into euros). This amortization adjusts the effects from measuring the derivatives in each accounting period using the respective valuation models and updated parameters. All amounts from the measurement of the derivatives are presented in net terms per contract in the statement of financial position (derivative financial assets/liabilities) and in the income statement (other operating income/expenses). The difference yet to be amortized in the income statement developed as follows during the reporting period:

Energy forward agreements

millions of €

	Development of the not yet amortized amounts	
	2019	2018
Measurement amounts on initial recognition	**151**	**112**
Measurement amounts on initial recognition (additions during the reporting period)	27	39
Measurement amounts amortized in profit or loss in prior periods	(3)	0
Measurement amounts amortized in profit or loss in the current reporting period	(6)	(3)
Currency translation adjustments	3	0
MEASUREMENT AMOUNTS NOT AMORTIZED AS OF DECEMBER 31	**172**	**148**

For the trade receivables, loans issued, and other receivables assigned to Level 3, which are measured either at fair value through other comprehensive income or at fair value through profit or loss, the main factor in determining fair value is the credit risk of the relevant counterparties. If the default rates applied as of the reporting date had been 1 percent higher (lower) with no change in the reference variables, the fair values of the instruments would have been 1 percent lower (higher).

The financial liabilities measured at fair value through profit or loss and assigned to Level 3 include derivative financial liabilities with a carrying amount of EUR 7 million resulting from an option granted to third parties for the purchase of shares in an associate of Deutsche Telekom. The option was granted in connection with a sale of shares in this associate, and no notable fluctuations in value are expected. Due to their distinctiveness, the instruments assigned to Level 3 and described above constitute a separate class of financial instruments in each case.

Net gain/loss by measurement category

millions of €

		Recognized in profit or loss from interest and dividends	Recognized in profit or loss from subsequent measurement			Recognized directly in equity from subsequent measurement	Recognized in profit or loss from derecognition	Net gain (loss)
			At fair value	Currency translation	Impairments/ allowances	At fair value		
Debt instruments measured at amortized cost	2019	23	n.a.	662	(165)	n.a.	(41)	**479**
	2018	27	n.a.	1,059	(80)	n.a.	(145)	**861**
Debt instruments measured at fair value through profit or loss	2019	14	1	n.a.	n.a.	n.a.	6	**21**
	2018	10	0	n.a.	n.a.	n.a.	(3)	**7**
Debt instruments measured at fair value through other comprehensive income	2019	0	n.a.	n.a.	(257)	(26)	0	**(283)**
	2018	0	n.a.	n.a.	(322)	23	51	**(248)**
Equity instruments measured at fair value through profit or loss	2019	0	(6)	n.a.	n.a.	n.a.	(2)	**(8)**
	2018	0	0	n.a.	n.a.	n.a.	0	**0**
Equity instruments measured at fair value through other comprehensive income	2019	1	n.a.	n.a.	n.a.	99	n.a.	**100**
	2018	2	n.a.	n.a.	n.a.	(620)	n.a.	**(618)**
Derivatives measured at fair value through profit or loss	2019	n.a.	363	n.a.	n.a.	n.a.	n.a.	**363**
	2018	n.a.	(382)	n.a.	n.a.	n.a.	n.a.	**(382)**
Financial liabilities measured at amortized cost	2019	(1,768)	n.a.	(678)	n.a.	n.a.	n.a.	**(2,446)**
	2018	(1,820)	n.a.	(963)	n.a.	n.a.	n.a.	**(2,783)**
	2019	**(1,729)**	**358**	**(16)**	**(422)**	**73**	**(37)**	**(1,774)**
	2018	**(1,781)**	**(382)**	**96**	**(402)**	**(597)**	**(97)**	**(3,163)**

Interest from financial instruments is recognized in finance costs, dividends in other financial income/expense (income from investments).

For further information, please refer to Note 28 “Finance costs” and Note 30 “Other financial income/expense.”

The other components of the net gain/loss are recognized in other financial income/expense, except for allowances on trade receivables that are classified as debt instruments measured at amortized cost and debt instruments measured at fair value through other comprehensive income, which are reported under other operating expenses.

For further information, please refer to Note 2 “Trade receivables.”

The net gain from the subsequent measurement for financial instruments allocated to the measurement category at fair value through profit or loss (EUR 358 million) also includes interest and currency translation effects. The net currency translation gains on financial assets classified as debt instruments measured at amortized cost (EUR 662 million) are primarily attributable to the Group-internal transfer of foreign-currency loans taken out by Deutsche Telekom’s financing company, Deutsche Telekom International Finance B.V., on the capital market. These were offset by corresponding currency translation losses on capital market liabilities of EUR 678 million. These include currency translation gains from derivatives that Deutsche Telekom used as hedging instruments for hedge accounting in foreign currency (EUR 179 million; 2018: EUR 143 million). Finance costs from financial liabilities measured at amortized cost (expense of EUR 1,768 million) primarily consist of interest expense on bonds and other (securitized) financial liabilities. The item also includes interest expenses from the accumulation of interest added back and interest income from interest discounted from trade payables. However, it does not include the interest expense and interest income from interest rate derivatives Deutsche Telekom used in the reporting year to hedge the fair value risk of financial liabilities.

For further information, please refer to Note 28 “Finance costs.”

Principles of risk management. Deutsche Telekom is exposed in particular to risks from changes in exchange rates, interest rates, and market prices that affect its assets, liabilities, and forecast transactions. Financial risk management aims to limit these market risks through ongoing operational and finance activities. Selected derivative and non-derivative hedging instruments are used for this purpose, depending on the risk assessment. However, Deutsche Telekom only hedges the risks that affect the Group's cash flow. Derivatives are exclusively used as hedging instruments, i.e., not for trading or other speculative purposes. To reduce the credit risk, hedging instruments are generally only concluded with leading financial institutions whose credit rating is at least BBB+/Baa1. In addition, the credit risk for derivatives with a positive market value is generally minimized through collateral agreements with all core banks. Furthermore, the limits for deposits are also set and monitored on a daily basis depending on the rating, share price performance, and credit default swap level of the respective counterparty.

The fundamentals of Deutsche Telekom's financial policy are established by the Board of Management and overseen by the Supervisory Board. Group Treasury is responsible for implementing the financial policy and for ongoing risk management. Certain transactions require the prior approval of the Board of Management, which is also regularly briefed on the severity and amount of the current risk exposure.

Group Treasury regards effective management of the market risk as one of its main tasks. The main risks relate to foreign currencies and interest rates.

Currency risks. Deutsche Telekom is exposed to currency risks from its investing, financing, and operating activities. Risks from foreign currencies are hedged to the extent that they influence the Group's cash flows. Foreign-currency risks that do not influence the Group's cash flows (i.e., the risks resulting from the translation of assets and liabilities of foreign operations into the Group's reporting currency) are generally not hedged, however. Deutsche Telekom may nevertheless also hedge this foreign-currency risk under certain circumstances.

Foreign-currency risks in the area of investment result, for example, from the acquisition and disposal of investments in foreign companies. Deutsche Telekom hedges these risks. If the risk position exceeds EUR 100 million, the Board of Management must make a special decision on how the risk shall be hedged. If the risk position is below EUR 100 million, Group Treasury performs the currency hedging itself. At the reporting date, Deutsche Telekom was not exposed to any significant risks from foreign-currency transactions in the field of investments.

Foreign-currency risks in the financing area are caused by financial liabilities in foreign currency and loans in foreign currency that are issued to Group entities for financing purposes. Group Treasury hedges these risks in full. Cross-currency swaps and currency derivatives are used to convert financial obligations and intragroup loans denominated in foreign currencies into the Group entities' functional currencies.

At the reporting date, the foreign-currency liabilities for which currency risks were hedged mainly consisted of bonds in U.S. dollars and pounds sterling. On account of these hedging activities, Deutsche Telekom was not exposed to any significant currency risks in the area of financing at the reporting date.

The Group entities predominantly execute their operating activities in their respective functional currencies. Payments made in a currency other than the respective functional currency result in foreign-currency risks in the Group. These mainly relate to payments for telecommunications services (procurement of network technology and mobile communications equipment as well as payments to international telecommunications companies and for the provision of connection services) and IT services (procurement of IT hardware, software, and services). Deutsche Telekom generally uses currency derivatives for hedging purposes. On account of these hedging activities, Deutsche Telekom was not exposed to any significant exchange rate risks from its operating activities at the reporting date.

For the presentation of market risks, IFRS 7 requires sensitivity analyses that show the effects of hypothetical changes of relevant risk variables on profit or loss and shareholders' equity. In addition to currency risks, Deutsche Telekom is exposed to interest rate risks and price risks in its investments. The periodic effects are determined by relating the hypothetical changes in the risk variables to the balance of financial instruments at the reporting date. It is assumed that the balance at the reporting date is representative for the year as a whole.

Currency risks as defined by IFRS 7 arise on account of financial instruments being denominated in a currency that is not the functional currency and being of a monetary nature; differences resulting from the translation of financial statements into the Group's presentation currency are not taken into consideration. Relevant risk variables are generally all non-functional currencies in which Deutsche Telekom has contracted financial instruments.

The currency sensitivity analyses are based on the following assumptions: Major non-derivative monetary financial instruments (liquid assets, receivables, interest-bearing securities and/or debt instruments held, interest-bearing liabilities, lease liabilities, non-interest-bearing liabilities) are either directly denominated in the functional currency or are transferred to the functional currency through the use of derivatives. Exchange rate fluctuations therefore have no effects on profit or loss, or shareholders' equity.

Non-interest-bearing securities or equity instruments held are of a non-monetary nature and therefore are not exposed to a currency risk as defined by IFRS 7.

Interest income and interest expense from financial instruments are also either recorded directly in the functional currency or transferred to the functional currency using derivatives. For this reason, there can be no effects on the variables considered in this connection.

In the case of fair value hedges designated to hedge currency risks, the changes in the fair values of the hedged item and the hedging instrument attributable to changes in exchange rates balance out almost completely in the income statement in the same period. As a consequence, these financial instruments are not exposed to currency risks with an effect on profit or loss, or shareholders' equity, either.

Cross-currency swaps are always assigned to non-derivative hedged items, so these instruments do not have any currency effects, either.

Deutsche Telekom is therefore only exposed to currency risks from specific currency derivatives. Some of these are currency derivatives that are part of an effective cash flow hedge for hedging payment fluctuations resulting from changes in exchange rates in accordance with IFRS 9. Volatility in exchange rates of the currencies on which these transactions are based affects the hedging reserves in shareholders' equity and the fair value of these hedging instruments. Others are currency derivatives that are neither part of one of the hedges defined in IFRS 9 nor part of a natural hedge. These derivatives are used to hedge planned transactions. Changes in exchange rates of the currencies on which such financial instruments are based affect other financial income or expense (net gain/loss from remeasurement of financial assets and liabilities to fair value).

If the euro had gained (lost) 10 percent against all currencies at December 31, 2019, the hedging reserves in shareholders' equity and the fair values of the hedging instruments before taxes would have been EUR 4 million higher (lower) (December 31, 2018: EUR 14 million higher (lower)). The hypothetical effect of EUR 4 million on profit or loss primarily results from the currency sensitivities EUR/USD: EUR 12 million and EUR/GBP: EUR -8 million. If the euro had gained (lost) 10 percent against all currencies at December 31, 2019, other financial income and the fair value of the hedging instruments before taxes would have been EUR 52 million higher (lower) (December 31, 2018: EUR 40 million lower (higher)). The hypothetical effect of EUR 52 million on profit or loss primarily results from the currency sensitivities EUR/GBP: EUR 69 million, EUR/USD: EUR -18 million, and EUR/HUF: EUR 1 million.

Interest rate risks. Deutsche Telekom is exposed to interest rate risks, mainly in the euro zone and in the United States. The interest rate risks are managed as part of the interest rate management activities. For the debt position in euros a maximum variable percentage is set on an annual basis. The debt position of T-Mobile US in U.S. dollars is primarily determined through fixed-income securities with issuer cancellation rights. The composition of the liabilities portfolio (ratio of fixed to variable) is managed by issuing primary (non-derivative) financial instruments and, where necessary, also deploying derivative financial instruments. Regular reports are submitted to the Board of Management and Supervisory Board.

Including derivative hedging instruments, an average of 57 percent (2018: 63 percent) of the debt position denominated in euros had a variable rate of interest in 2019. In U.S. dollars, the variable-rate percentage decreased compared with 2018 from 17 percent to 16 percent. There were no significant fluctuations in the course of the reporting year.

Interest rate risks are presented by way of sensitivity analyses in accordance with IFRS 7. These show the effects of changes in market interest rates on interest payments, interest income and expense, other income components, and, if appropriate, shareholders' equity. The interest rate sensitivity analyses are based on the following assumptions: Changes in the market interest rates of non-derivative financial instruments with fixed interest rates only affect income if these are measured at their fair value. As such, all financial instruments with fixed interest rates that are carried at amortized cost are not subject to interest rate risk as defined in IFRS 7.

In the case of fair value hedges designated for hedging interest rate risks, the changes in the fair values of the hedged item and the hedging instrument attributable to changes in interest rates balance out almost completely in the income statement in the same period. This means that interest-rate-based changes in the measurement of the hedged item and the hedging instrument largely do not affect income and are therefore not subject to interest rate risk.

In the case of interest rate derivatives in fair value hedges, however, changes in market interest rates affect the amount of interest payments. As a consequence, they have an effect on interest income and are therefore included in the calculation of income-related sensitivities.

Changes in the market interest rate regarding financial instruments that were designated as hedging instruments in a cash flow hedge to hedge payment fluctuations resulting from interest rate movements affect the hedging reserve in shareholders' equity and are therefore taken into consideration in the equity-related sensitivity calculations.

Changes in market interest rates affect the interest income or expense of non-derivative variable-interest financial instruments, the interest payments of which are not designated as hedged items of cash flow hedges against interest rate risks. As a consequence, they are included in the calculation of income-related sensitivities.

In addition, changes in the market interest rate had an impact on the carrying amount of trade receivables recognized at fair value and originated loans and other receivables. However, these changes in value are not managed.

Changes in the market interest rate regarding interest rate derivatives (interest rate swaps, cross-currency swaps) that are not part of a hedging relationship as set out in IFRS 9 affect other financial income or expense and are therefore taken into consideration in the income-related sensitivity calculations. Currency derivatives are not exposed to interest rate risks and therefore do not affect the interest rate sensitivities.

If the market interest rates had been 100 basis points higher at December 31, 2019, profit or loss before taxes would have been EUR 553 million (December 31, 2018: EUR 23 million) lower. If the market interest rates had been 100 basis points lower at December 31, 2019, profit or loss before taxes would have been EUR 617 million (December 31, 2018: EUR 70 million) higher. This simulation includes the effects from the financial instruments assigned to Level 3 described above. The hypothetical effect of EUR 617 million/EUR -553 million on income primarily results from the potential effects of EUR 585 million/EUR -521 million from interest rate derivatives, and EUR 32 million/EUR -32 million from non-derivative, variable-interest financial liabilities. Potential effects from interest rate derivatives are partially balanced out by the contrasting performance of non-derivative financial instruments, which cannot, however, be shown as a result of applicable accounting standards. If the market interest rates had been 100 basis points higher (lower) at December 31, 2019, the hedging and revaluation reserves in equity before taxes would have been EUR 1,201 million higher (EUR 1,272 million lower) (December 31, 2018: EUR 673 million higher (EUR 672 million lower)).

Other price risks. As part of the presentation of market risks, IFRS 7 also requires disclosures on how hypothetical changes in risk variables affect the price of financial instruments. Important risk variables are stock exchange prices or indexes.

Aside from the value-creating factors in the financial instruments assigned to Level 3 described above, there were no other price risks at the reporting date.

Deutsche Telekom is exposed to a credit risk from its operating activities and certain financing activities. As a rule, transactions with regard to financing activities are only concluded with counterparties that have at least a credit rating of BBB+/Baa1, in connection with an operational credit management system. At the level of operations, the outstanding debts are continuously monitored in each area, i.e., locally. Credit risks are taken into account through individual allowances and allowances calculated at portfolio level. The solvency of the business with corporate customers, especially international carriers, is monitored separately. In terms of the overall risk exposure from the credit risk, however, the receivables from these counterparties are not so extensive as to justify extraordinary concentrations of risk.

Maximum credit risk of financial assets

millions of €

Classes of financial instruments (IFRS 7)	Measurement category (IFRS 9)	2019	2018
Originated loans and other receivables	AC	4,282	2,952
	FVOCI	0	0
	FVTPL	121	103
Cash and cash equivalents	AC	5,392	3,679
Trade receivables	AC	5,452	4,280
	FVOCI	5,390	5,699
	FVTPL	4	5
Contract assets (IFRS 15)	n.a.	1,874	1,764
Lease receivables	n.a.	196	147

Development of allowances

millions of €

	General approach									Simplified approach			
	12-month expected credit losses			Lifetime expected credit losses									
	Stage 1 – No change in credit risk since initial recognition			Stage 2 – Significant increase in credit risk since initial recognition, not credit-impaired			Stage 3 – Credit-impaired at the reporting date (not purchased or originated credit-impaired)						
	Cash and cash equiv-alents	Originated loans and other receivables		Cash and cash equiv-alents	Originated loans and other receivables		Cash and cash equiv-alents	Originated loans and other receivables		Trade receivables		Contract assets	Lease assets
	AC	AC	FVOCI	AC	AC	FVOCI	AC	AC	FVOCI	AC	FVOCI	n.a.	n.a.
January 1, 2019	**0**	**(4)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**(1,465)**	**(277)**	**(26)**	**0**
Reclassification due to a change in business model										66	(65)	0	
Additions								(8)		(384)	(242)	(20)	
Use										342	10	(1)	
Reversal										186	22	11	
Other										(59)			
Foreign currency effect													
DECEMBER 31, 2019	**0**	**(4)**	**0**	**0**	**0**	**0**	**0**	**(8)**	**0**	**(1,314)**	**(552)**	**(36)**	**0**

There were no material transfers in the general approach.

Credit rating of financial assets measured at amortized cost or at fair value through other comprehensive income

millions of €

	Dec. 31, 2019					Dec. 31, 2018				
	Contractual obligations fulfilled to date	Disruptions in performance already occurred	Non-performing	**Total**	Depreciation, amortization and impairment losses	Contractual obligations fulfilled to date	Disruptions in performance already occurred	Non-performing	**Total**	Depreciation, amortization and impairment losses
GENERAL APPROACH (SHORT TERM)										
12-month expected credit losses (stage 1)	8,224			**8,224**		6,167			**6,167**	
Lifetime expected credit losses										
Significant increase in credit risk, but not credit-impaired (stage 2)		103		**103**			9		**9**	
Credit-impaired at the reporting date, but not purchased or originated credit-impaired (stage 3)			28	**28**	(4)			30	**30**	
	8,224	**103**	**28**	**8,355**	**(4)**	**6,167**	**9**	**30**	**6,206**	**0**
GENERAL APPROACH (LONG TERM)										
12-month expected credit losses (stage 1)	1,326			**1,326**		455			**455**	
Lifetime expected credit losses		1		**1**						
Significant increase in credit risk, but not credit-impaired (stage 2)			0	**0**					**0**	
Credit-impaired at the reporting date, but not purchased or originated credit-impaired (stage 3)				**0**					**0**	
	1,326	**1**	**0**	**1,327**	**0**	**455**	**0**	**0**	**455**	**0**
SIMPLIFIED APPROACH										
Trade receivables	11,083	434	1,159	**12,676**	(100)	8,759	448	776	**9,983**	(98)
Contract assets	1,901	1	7	**1,909**	(7)	1,757	8	0	**1,765**	(2)
Lease receivables	197			**197**		130	14	3	**147**	0
	13,181	**435**	**1,166**	**14,782**	**(107)**	**10,646**	**470**	**779**	**11,895**	**(100)**
FINANCIAL ASSETS THAT ARE PURCHASED OR ORIGINATED CREDIT-IMPAIRED										
Receivables	4			**4**					**0**	
	22,735	**539**	**1,194**	**24,468**	**(111)**	**17,268**	**479**	**809**	**18,556**	**(100)**

Gain/loss on full write-off of trade receivables

millions of €

	2019	2018	2017
Expenses for full write-off of receivables	53	139	81
Income from recoveries on receivables written off	11	20	105

Offsetting of financial instruments

millions of €

	Dec. 31, 2019				Dec. 31, 2018			
	Trade receivables	Trade payables	Derivative financial assets	Derivative financial liabilities	Trade receivables	Trade payables	Derivative financial assets	Derivative financial liabilities
Gross amounts subject to enforceable master netting arrangements or similar agreements	202	208	1,702	1,491	376	424	759	1,016
Amounts set off in the statement of financial position in accordance with IAS 32.42	(98)	(98)			(137)	(137)		
Net amounts presented in the statement of financial position	**104**	**110**	**1,702**	**1,491**	**239**	**287**	**759**	**1,016**
Amounts subject to enforceable master netting arrangements or similar agreements and not meeting all offsetting requirements in accordance with IAS 32.42	**(37)**	**(37)**	**(1,653)**	**(1,000)**	**(27)**	**(27)**	**(733)**	**(618)**
Of which: amounts related to recognized financial instruments	(37)	(37)	(446)	(446)	(27)	(27)	(333)	(333)
Of which: amounts related to financial collateral (including cash collateral)			(1,207)	(554)			(400)	(285)
NET AMOUNTS	**67**	**73**	**49**	**491**	**212**	**260**	**26**	**398**

Offsetting is applied in particular to receivables and liabilities at Deutsche Telekom AG and Telekom Deutschland GmbH for the routing of international calls via the fixed network and for roaming fees in the mobile network.

In line with the contractual provisions, in the event of insolvency all derivatives with a positive or negative fair value that exist with the respective counterparty are offset against each other, leaving a net receivable or liability. The net amounts are normally recalculated every bank working day and offset against each other. When the netting of the positive and negative fair values of all derivatives was positive from Deutsche Telekom's perspective, the counterparty provided Deutsche Telekom with cash pursuant to the collateral contracts mentioned in Note 1 "Cash and cash equivalents." The credit risk was thus further reduced.

When the netting of the positive and negative fair values of all derivatives was negative from Deutsche Telekom's perspective, Deutsche Telekom provided cash collateral to counterparties pursuant to collateral agreements. The net amounts are normally recalculated every bank working day and offset against each other. The cash collateral paid is offset by corresponding negative net derivative positions of EUR 554 million at the reporting date, which is why it was not exposed to any credit risks in this amount at the reporting date.

For further information, please refer to Note 11 "Other financial assets."

The collateral paid is reported under originated loans and other receivables within other financial assets. On account of its close connection to the corresponding derivatives, the collateral paid constitutes a separate class of financial assets. Likewise, the collateral received, which is reported as other interest-bearing liabilities under financial liabilities, constitutes a separate class of financial liabilities on account of its close connection to the corresponding derivatives.

According to agreement, no cash collateral was provided for interest rate swaps concluded by T-Mobile US with a nominal value of EUR 4.0 billion (when translated into euros).

The fair values of the unhedged interest rate swaps at the reporting date were negative in each case from the perspective of T-Mobile US (total value of EUR -490 million (when translated into euros)).

In accordance with the terms of bonds issued by T-Mobile US, T-Mobile US has the right to terminate the bonds prematurely under specific conditions. The rights of early termination constitute embedded derivatives and are presented separately as derivative financial assets in the consolidated statement of financial position. Since they are not exposed to any credit risk, they constitute a separate class of financial instruments.

There were no other significant agreements reducing the maximum exposure to the credit risks of financial assets. The maximum exposure to credit risk of the other financial assets thus corresponds to their carrying amounts.

Liquidity risk. For further information, please refer to Note 13 "Financial liabilities and lease liabilities."

HEDGE ACCOUNTING

Fair value hedges. To hedge the fair value risk of fixed-interest liabilities, Deutsche Telekom primarily uses interest rate swaps and forward interest rate swaps (pay variable, receive fixed) denominated in EUR, GBP, and USD. Fixed-income bonds denominated in EUR, GBP, and USD were designated as hedged items. The changes in the fair values of the hedged items resulting from changes in the EURIBOR, GBP LIBOR, or USD LIBOR swap rate are offset against the changes in the value of these interest rate swaps.In addition, cross-currency swaps mainly in the EUR/USD and EUR/GBP currency pairs are designated as fair value hedges, which convert fixed-income foreign currency bonds into variable-interest EUR bonds to hedge the interest rate and currency risk. The changes in the fair value of the hedged items resulting from changes in the USD LIBOR and the GBP LIBOR swap rate as well as the USD and GBP exchange rate are offset against the changes in the fair value of these cross-currency swaps. The aim of the fair value hedges is thus to transform the fixed-income bonds into variable-interest debt, thus hedging the fair value (interest rate risk and currency risk) of these financial liabilities. Credit risks are not part of the hedging.

Cash flow hedges – interest rate risks. Deutsche Telekom mainly uses payer interest rate swaps and forward payer interest rate swaps (pay fixed, receive variable) to hedge the cash flow risk of existing and future debt. The interest payments to be made in the hedging period are the hedged items and are recognized in profit or loss in the same period. Hedged items may be individual liabilities, portfolios of liabilities, or combinations of liabilities and derivatives (aggregate risk exposure). The changes in the cash flows of the hedged items resulting from changes in the USD LIBOR rate and the EURIBOR rate are offset against the changes in the cash flows of the interest rate swaps. The aim of this hedging is to transform the variable-interest bonds into fixed-income debt, thus hedging the cash flows of the financial liabilities. Credit risks are not part of the hedging.

Cash flow hedges – currency risks. Deutsche Telekom entered into currency derivative and cross-currency swaps (pay fixed, receive variable) to hedge cash flows not denominated in a functional currency. The payments in foreign currency to be made in the hedging period are the hedged items and are recognized in profit or loss in the same period. The terms of the hedging relationships will end in the years 2020 through 2033. In the case of rolling cash flow hedges for currency risks, short-term currency forwards are entered into, which are then extended by means of follow-up transactions.

At each reporting date, the effectiveness of the fair value and cash flow hedges is reviewed prospectively based on the main contractual features and determined retrospectively in the form of a statistical regression analysis; rolling foreign currency hedges are reviewed using the dollar offset test. All hedging relationships were sufficiently effective as of the reporting date.

Hedging of a net investment. The hedges of the net investment in T-Mobile US against fluctuations in the U.S. dollar spot rate de-designated in prior periods did not generate any effects in 2019. The amounts recognized in total other comprehensive income would be reclassified in the event of the disposal of T-Mobile US.

Conditions of derivative financial instruments in hedging relationships

millions of €

	2020				
	Nominal amount	Average hedge rate	Average swap rate received	Average swap rate paid	Average margin paid
FAIR VALUE HEDGES					
Interest rate risk					
EURIBOR	4,615		0.3649%	6M EURIBOR	0.0000%
USD LIBOR					
GBP LIBOR					
Cross-currency risk					
USD/EUR					
GBP/EUR					
Other					
CASH FLOW HEDGES					
Currency risk					
Buy					
USD/EUR	247	1.1102			
GBP/EUR	83	0.8362			
Other	29				
Sell					
USD/EUR	173	1.0632			
Interest rate risk					
EURIBOR					
USD LIBOR					

millions of €

	2021–2024				
	Nominal amount	Average hedge rate	Average swap rate received	Average swap rate paid	Average margin paid
FAIR VALUE HEDGES					
Interest rate risk					
EURIBOR	6,453		0.6228%	6M EURIBOR	0.3186%
USD LIBOR	2,449		2.4249%	3M USD LIBOR	0.8962%
GBP LIBOR	352		1.2500%	3M GBP LIBOR	0.7870%
Cross-currency risk					
USD/EUR					
GBP/EUR					
Other	79				
CASH FLOW HEDGES					
Currency risk					
Buy					
USD/EUR	3	1.1373			
GBP/EUR	770	0.9072	6.5000%	6.5718%	
Other	24				
Sell					
USD/EUR	197	1.0990			
Interest rate risk					
EURIBOR	7,178		6M EURIBOR	-0.2099%	0.3263%
USD LIBOR	3,562		3M USD LIBOR	4.9986%	3.0242%

millions of €	2025 and thereafter				
	Nominal amount	Average hedge rate	Average swap rate received	Average swap rate paid	Average margin paid
FAIR VALUE HEDGES					
Interest rate risk					
EURIBOR	9,200		1.4384%	6M EURIBOR	0.7661%
USD LIBOR	3,665		4.3042%	3M USD LIBOR	1.5948%
GBP LIBOR	470		2.5590%	6M GBP LIBOR	0.6477%
Cross-currency risk					
USD/EUR	1,557	1.1221	8.7500%	3M EURIBOR	5.8751%
GBP/EUR	796	0.8799	2.8571%	3M EURIBOR	1.0062%
Other	481				
CASH FLOW HEDGES					
Currency risk					
Buy					
USD/EUR	1,758	1.3620	8.7863%	7.7873%	
GBP/EUR	441	0.9122	7.9388%	7.5811%	
Other					
Sell					
USD/EUR					
Interest rate risk					
EURIBOR	1,000		6M EURIBOR	0.1120%	0.5966%
USD LIBOR	10,998		3M USD LIBOR	3.6857%	0.5350%

Nominal and carrying amounts of derivative financial instruments in hedging relationships

millions of €

	2019					2018					
	Nominal amount of the hedging instruments		Carrying amount of the hedging instruments		Change in value of the hedging instruments in the reporting period for determining ineffectiveness	Nominal amount of the hedging instruments		Carrying amount of the hedging instruments		Change in value of the hedging instruments in the reporting period for determining ineffectiveness	Disclosure of the hedging instruments in the statement of financial position
	in foreign currencies	in euros	Financial assets	Financial liabilities		in foreign currencies	in euros	Financial assets	Financial liabilities		
FAIR VALUE HEDGES											
Interest rate risk		27,204	1,029	(39)	783		23,705	264	(129)	85	Other financial assets/ financial liabilities
Of which: EUR		20,268					16,374				
Of which: USD	6,865	6,114				7,500	6,549				
Of which: GPB	700	822				700	782				
Cross-currency risk		2,912	124	(26)	257		2,373	4	(221)	43	Other financial assets/ financial liabilities
Of which: USD	1,747	1,557				1,747	1,557				
Of which: GPB	700	796				300	339				
Of which: other		560					478				
CASH FLOW HEDGES											
Currency risk		3,725	166	(18)	251		4,121	5	(95)	(107)	Other financial assets/ financial liabilities
Buy											
USD/EUR	2,580	2,008				2,584	2,004				
GBP/EUR	1,171	1,294				1,429	1,574				
Other		52					70				
Sell											
USD/EUR	416	371				540	473				
Interest rate risk		22,739	120	(1,235)	(747)		8,383		(391)	(391)	Other financial assets/ financial liabilities
USD LIBOR	16,350	14,561				9,600	8,383				
EURIBOR		8,178									

In this and the following tables on hedging relationships, losses are shown as negative amounts unless explicitly stated otherwise.

Disclosures on hedged items in hedging relationships

millions of €

		Carrying amount of the hedged items (including cumulative fair value hedge adjustment)	Cumulative adjustments to the carrying amount of the designated fair value hedges	Change in the fair value of the hedged items for determining ineffectiveness in the reporting period	Remaining balance of cumulative adjustments to the carrying amount of the de-designated fair value hedges	Balance of amounts recognized in other comprehensive income relating to hedged risk (existing hedging relationships)[a]	Balance of amounts recognized in other comprehensive income relating to hedged risk (terminated hedging relationships)	Presentation of the hedged items in the statement of financial position
FAIR VALUE HEDGES								Financial liabilities
Interest rate risk	**2019**	28,019	857	(774)	304	n.a.	n.a.	
	2018	23,749	62	(67)	319	n.a.	n.a.	
Cross-currency risk	**2019**	2,981	24	(299)	0	n.a.	n.a.	
	2018	2,102	(254)	(13)	0	n.a.	n.a.	
CASH FLOW HEDGES								n.a.
Currency risk	**2019**	n.a.	n.a.	(244)	n.a.	83	8	
	2018	n.a.	n.a.	103	n.a.	(19)	8	
Interest rate risk	**2019**	n.a.	n.a.	727	n.a.	(1,140)	0	
	2018	n.a.	n.a.	393	n.a.	(393)	(16)	
HEDGE OF NET INVESTMENT								n.a.
Currency risk	**2019**	n.a.	n.a.	0	n.a.	794	n.a.	
	2018	n.a.	n.a.	0	n.a.	0	794	

[a] Figures include non-controlling interests.

Gains/losses from hedge accounting

millions of €

		Hedge ineffectiveness of existing hedging relationships recognized in profit or loss	Changes in fair value recognized directly in other comprehensive income	Amounts reclassified to profit or loss from other comprehensive income due to occurrence of the hedged items (designated hedging relationships)[a]	Amounts reclassified to profit or loss from other comprehensive income due to occurrence of the hedged items (dedesignated hedging relationships)[a]	Total change in other comprehensive income	Presentation of the reclassified effective amounts in profit or loss	Presentation of the ineffectiveness in profit or loss
FAIR VALUE HEDGES							n.a.	Other financial income (expense)
Interest rate risk	**2019**	9	n.a.	n.a.	n.a.	n.a.		
	2018	18	n.a.	n.a.	n.a.	n.a.		
Cross-currency risk	**2019**	(42)	n.a.	n.a.	n.a.	n.a.		
	2018	30	n.a.	n.a.	n.a.	n.a.		
CASH FLOW HEDGES							Net revenue/goods and services purchased/other financial income (expense)	Other financial income (expense)
Currency risk	**2019**	7	244	(143)	0	101		
	2018	(4)	11	(114)	0	(103)		
Interest rate risk	**2019**	(20)	(727)	(21)	16	(732)	Interest expense	
	2018	(1)	(393)	0	82	(311)		

[a] Negative amounts represent gains in the income statement.

The recorded ineffectiveness in the income statement mainly results from the different discount rates of the hedged items (fixed-income) and designated hedging instruments (fixed-income and variable-interest). Furthermore, cross-currency interest rate hedges are impacted by effects from cross currency basis spreads, which are included in the hedging instruments, but not in the hedged items. For some hedges, the characteristics of hedging instruments and hedged items differ, resulting in ineffectiveness. In the case of interest rate hedges on highly probable future borrowings, ineffectiveness could arise if time shifts occur. The relative amounts of the ineffectiveness are not expected to increase significantly in the future. Furthermore, there are no other potential sources of ineffectiveness.

Reconciliation of total other comprehensive income from hedging relationships[a]

millions of €

	Designated risk components (effective portion)					
	Cash flow hedges		Hedges of net investment	Total designated risk components	Hedging costs[b]	Total other comprehensive income
	Currency risk	Interest rate risk	Currency risk			
Balance at January 1, 2019	(10)	(409)	794	375	58	433
Changes recognized directly in equity	244	(727)	0	(483)	(9)	(492)
Reclassification to profit or loss due to occurrence of the hedged item	(143)	(5)	0	(148)	2	(146)
BALANCE AT DECEMBER 31, 2019	**91**	**(1,141)**	**794**	**(256)**	**51**	**(205)**

[a] Figures include non-controlling interests.
[b] In the 2018 and 2019 financial years, hedging costs relate entirely to cross currency basis spreads.

Derivatives. The following table shows the fair values of the various derivatives. A distinction is made depending on whether these are part of an effective hedging relationship as set out in IFRS 9 (fair value hedge, cash flow hedge, net investment hedge) or not. Other derivatives can also be embedded, i.e., a component of a composite instrument that contains a non-derivative host contract.

millions of €

	Net carrying amounts Dec. 31, 2019	Net carrying amounts Dec. 31, 2018
ASSETS		
Interest rate swaps		
Without a hedging relationship	6	121
In connection with fair value hedges	1,029	264
In connection with cash flow hedges	120	0
Currency forwards/currency swaps		
Without a hedging relationship	49	24
In connection with cash flow hedges	5	2
Cross-currency swaps		
Without a hedging relationship	206	339
In connection with fair value hedges	124	4
In connection with cash flow hedges	161	3
Other derivatives in connection with cash flow hedges	0	0
Other derivatives without a hedging relationship	3	2
Embedded derivatives	630	112
LIABILITIES		
Interest rate swaps		
Without a hedging relationship	34	31
In connection with fair value hedges	39	128
In connection with cash flow hedges	1,235	391
Currency forwards/currency swaps		
Without a hedging relationship	59	36
In connection with cash flow hedges	4	3
In connection with net investment hedges	0	0
Cross-currency swaps		
Without a hedging relationship	78	112
In connection with fair value hedges	26	221
In connection with cash flow hedges	14	91
Other derivatives in connection with cash flow hedges	0	0
Other derivatives without a hedging relationship	7	12
Embedded derivatives	146	52

TRANSFER OF FINANCIAL ASSETS

Factoring transactions with substantially all risks and rewards being transferred

Deutsche Telekom is party to several factoring agreements under which it sells current trade receivables on a revolving basis; under these agreements, Deutsche Telekom has the right to decide on a case-by-case basis whether and to what extent the revolving nominal volume will be used. Sales exceeding this amount must be agreed on a case-by-case basis. The risks relevant for the risk assessment with respect to the receivables sold are the credit risk and the late-payment risk, which are transferred to the buyer of the receivables in full in return for payment of a fixed purchase price discount. Losses relating to certain receivables are reimbursed up to a maximum amount under a credit insurance policy, which reduces the credit risk. The receivables sold until the reporting date were derecognized in full. At the derecognition date, the fixed purchase price discount is expensed. Deutsche Telekom continues to perform receivables management against payment for the receivables sold. For the disclosures on the receivables sold, please refer to the table below. Expenses of EUR 24 million (EUR 230 million on a cumulative basis since commencement of the agreement) were recognized for a factoring agreement that expired in the 2019 financial year.

Factoring transactions involving the splitting of significant risks and rewards as well as the transfer of control

There is also a revolving factoring transaction in place under which a bank is required to purchase trade receivables from charges from sales of handsets payable over a period of up to two years. Deutsche Telekom has the right to decide on a case-by-case basis whether the revolving nominal volume will be used and to what extent. The risks relevant for the risk assessment with respect to the receivables sold are the credit risk and the late-payment risk. Deutsche Telekom bears credit risk-related losses from the various tranches up to a certain amount in each case; the other credit risk-related losses are borne by the bank. The late-payment risk is borne in full by Deutsche Telekom. Due to the allocation of the material risks between Deutsche Telekom and the bank, substantially all the risks and rewards of ownership of the receivables were neither transferred nor retained. Control of the receivables sold was transferred to the bank because it has the practical ability to resell the receivables. The bank has the right to sell all receivables overdue back to Deutsche Telekom. The purchase price corresponds to the nominal amount and is payable in the month following the buy-back. This does not affect the allocation of the credit risk-related losses, as such losses would be passed back to the bank in line with the agreed risk allocation. All receivables sold have been derecognized. At the derecognition date, the fair value of the expected losses is expensed as financial liabilities. Please refer to the table below for the disclosures on the continuing involvement resulting from the receivables sold. Expenses of EUR 4 million (EUR 68 million on a cumulative basis since commencement of the agreement) were recognized for factoring agreements terminated in the financial year.

Factoring transactions involving the splitting of significant risks and rewards with control remaining at Deutsche Telekom

In addition, there are several factoring agreements in place under which Deutsche Telekom sells – on a revolving basis – trade receivables from consumers and business customers relating to both charges already due and charges from sales of handsets payable over a period of up to two years.

In two transactions, subsidiaries of Deutsche Telekom sell receivables to structured entities that are also subsidiaries of Deutsche Telekom and were established for the sole purpose of these factoring agreements. The required funding is provided to these structured entities in the context of Deutsche Telekom's general Group financing. These structured entities have no assets and liabilities other than those resulting from the purchase and sale of the receivables under factoring agreements. They resell the receivables to a second structured entity in each case. Deutsche Telekom does not consolidate the two second structured entities because it has no control over these entities' relevant activities. In one of the transactions, the second structured entity resells the ownership interests in the receivables to two banks and a third structured entity on a pro-rata basis. Deutsche Telekom does not consolidate this third structured entity either because it likewise does not control this entity's relevant activities. The structured entities not consolidated by Deutsche Telekom are financed by the external buyers of the receivables. In the other transaction, the second structured entity transfers the legal role of creditor for the receivables to a bank that performs this role on behalf of the investors who have beneficial ownership of the receivables (administrative agent). These investors are a bank and two other structured entities. Deutsche Telekom does not consolidate these other structured entities either because it likewise has no control over these entities' relevant activities. The two other structured entities are financed through the issue of commercial paper to third parties outside the Group or, alternatively, through a credit facility provided by a bank.

In a third transaction, receivables are sold directly to a structured entity. This structured entity holds the receivables and allocates the risks and rewards resulting from these to Deutsche Telekom and a bank on the basis of contractual arrangements. It is financed through the issue of commercial paper to third parties outside the Group or, alternatively, through a credit facility provided by a bank. Deutsche Telekom does not consolidate the structured entity because it does not control the relevant activities.

The receivables being sold are selected from the relevant portfolios, either in an automated process in compliance with the eligibility criteria set out in the receivables purchase agreement or based on the decision of the relevant structured entity taking an obligatory minimum volume into account. The increase in the contractual maximum volume compared with the previous year results from the possibility to sell additional credit classes in a transaction at otherwise unchanged conditions. Receivables are sold on a daily basis and billed on a monthly basis. The purchase price up to a specific amount will be paid out immediately upon sale; remaining portions of the purchase price will only be paid to the extent that the volume of receivables sold in the relevant portfolio decreases further accordingly or the characteristics of the receivables change. In all transactions, Deutsche Telekom is obligated to buy back aged receivables and receivables for which a write-off is imminent at nominal value. Such buy-backs would not affect the allocation of the credit risk-related losses in any way, as the latter would be passed back to the buyers in line with the agreed risk allocation. The cash flows resulting from the buy-backs normally occur in the month following the buy-back. None of the structured entities has business activities other than the purchase or sale of trade receivables or other investments. In none of the transactions is Deutsche Telekom exposed to risks other than the credit risk and late-payment risk resulting from the sold receivables agreed in the respective agreement.

In other transactions, receivables are sold directly to buyers outside the Group without the involvement of structured entities. If more receivables are purchased in individual portfolios, the purchase price payment is deferred until the maximum program volume decreases further accordingly. In all those transactions, Deutsche Telekom has the right to decide whether receivables are sold and in which volume. In individual portfolios, receivables for which a write-off is imminent are sold back to Deutsche Telekom. Here the purchase price corresponds to the actual proceeds from collection or disposal and is payable after Deutsche Telekom receives these proceeds from collection or disposal. These buy-backs would affect neither the allocation of the credit risk-related losses nor Deutsche Telekom’s liquidity situation. In a portfolio, the existing credit insurance reimburses losses relating to certain receivables to a specific maximum amount and thus reduces the exposure to loss.

The risks relevant for the risk assessment with respect to the sold receivables are based on the credit risk and the late-payment risk. Deutsche Telekom bears certain portions of the credit risk in the individual transactions. The other credit risk-related losses are borne by the respective buyers. The late-payment risk in all transactions continues to be borne in full by Deutsche Telekom. Substantially all the risks and rewards of ownership of the receivables were neither transferred nor retained (allocation of the material risks and rewards between Deutsche Telekom and the buyers). Deutsche Telekom continues to perform servicing for the receivables sold. Under the factoring agreements in which structured entities are engaged, buyers have the unilateral right to transfer the servicing to third parties for no specific reason. Although Deutsche Telekom is not authorized to use the receivables sold other than in its capacity as servicer, it retains control over the receivables sold because the buyers and the structured entities do not have the practical ability to resell the purchased receivables. At the time the receivables are sold, the fair value of the expected losses is expensed. Expected future payments are presented as a component of the associated liability. In transactions with structured entities, certain portions of the purchase price are initially held back and, depending on the amount of the actual defaults, are only paid to Deutsche Telekom at a later date. To the extent that such portions of the purchase price are expected to be received in the future, they are recognized at fair value. Deutsche Telekom continues to recognize the trade receivables sold to the extent of its continuing involvement, i.e., in the maximum amount with which it is still liable for the credit risk and late-payment risk inherent in the receivables sold, and recognizes a corresponding associated liability presented in liabilities to banks. The receivables and the associated liability are then derecognized in the extent to which Deutsche Telekom’s continuing involvement is reduced (particularly when payment is made by the customer). The carrying amount of the receivables is subsequently reduced by the extent to which the actual losses to be borne by Deutsche Telekom resulting from the credit risk and the late-payment risk exceed the losses initially expected. This amount is recognized as an expense. Please refer to the table below for the disclosures on the continuing involvement resulting from the receivables sold.

On January 16, 2020, a factoring agreement existing at the reporting date for the revolving sale of trade receivables from consumers and business customers relating to charges already due ended when the contract expired. The receivables with an aggregate nominal volume of EUR 840 million that had been sold directly to buyers outside the Group and had not yet been paid by the customers were bought back when the agreement ended. Receivables that had arisen, been sold, and been derecognized up to and including the reporting date December 31, 2019 were bought back at fair value and are recognized in this amount. Receivables that had arisen and been sold from January 1, 2020 were bought back at their nominal amount, no longer derecognized, and are recognized at the transaction price. Since there is no longer an intention to sell the portfolio of bought-back receivables in the future, the receivables are measured at amortized cost.

Transfer of financial assets

millions of €

	2019				
	Transfer of substantially all risks and rewards	**Allocation of substantially all risks and rewards**			
		Transfer of control	Retention of control		
			Partial transfer of the credit risk and full retention of the late-payment risk		
	Full transfer of the credit and late-payment risk	Partial transfer of the credit risk and retention of most of the late-payment risk	With the involvement of structured entities	Without the involvement of structured entities	Total
End of contract terms	2021–2022	2021	2020–2023	2020–2022	
Contractual maximum volume	184	90	4,959	1,040	**6,273**
Purchase prices to be paid immediately	184	80	2,154	1,040	**3,458**
Volume of receivables sold as of the reporting date	91	42	3,007	1,101	**4,241**
Scope of volume of receivables sold in the reporting year	71–127	24–30	1,889–2,337	992–1,133	
Provision for receivables management	0	0	0	4	**4**
CONTINUING INVOLVEMENT					
Maximum credit risk (before credit insurance)		14	600	80	**694**
Credit insurance	27			23	**50**
Maximum late-payment risk		0	82	4	**86**
Carrying amount of the continuing involvement (asset side)		0	682	84	**766**
Carrying amount of the associated liability		0	733	118	**851**
Fair value of the associated liability		0	51	34	**85**
BUY-BACK AGREEMENTS					
Nominal value of receivables that can be bought back at the nominal amount		42	2,887		**2,929**
Nominal value of receivables that can be bought back at the collected amount			120	840	**960**
PURCHASE PRICE DISCOUNTS RECOGNIZED IN PROFIT OR LOSS, PROGRAM FEES, AND PRO-RATA LOSS ALLOCATIONS					
Current reporting year	1	1	240	62	**304**
Cumulative since commencement of the agreement	4	5	1,064	350	**1,423**

millions of €	2018					
	Transfer of substantially all risks and rewards		Allocation of substantially all risks and rewards			
			Transfer of control	Retention of control		
				Partial transfer of the credit risk and full retention of the late-payment risk		
	Full transfer of the credit and late-payment risk	Full transfer of the credit risk and full retention of the late-payment risk	Partial transfer of the credit risk and retention of most of the late-payment risk	With the involvement of structured entities	Without the involvement of structured entities	Total
End of contract terms	2020–2022	2022	2019	2019–2023	2019–2022	
Contractual maximum volume	197	250	620	4,734	925	**6,726**
Purchase prices to be paid immediately	197	250	390	2,115	925	**3,877**
Volume of receivables sold as of the reporting date	133	285	393	2,949	904	**4,664**
Scope of volume of receivables sold in the reporting year	62–147	144–285	92–420	1,708–2,161	881–1,120	
Provision for receivables management	0	2	0	0	4	**6**
CONTINUING INVOLVEMENT						
Maximum credit risk (before credit insurance)			87	584	46	**717**
Credit insurance	33		150		17	**200**
Maximum late-payment risk		1	5	75	3	**84**
Carrying amount of the continuing involvement (asset side)			0	659	49	**708**
Carrying amount of the associated liability			1	681	80	**762**
Fair value of the associated liability			1	22	31	**54**
BUY-BACK AGREEMENTS						
Nominal value of receivables that can be bought back at the nominal amount			379	2,822	–	**3,201**
Nominal value of receivables that can be bought back at the collected amount			15	127	814	**956**
PURCHASE PRICE DISCOUNTS RECOGNIZED IN PROFIT OR LOSS, PROGRAM FEES, AND PRO-RATA LOSS ALLOCATIONS						
Prior reporting year	1	37	8	187	53	**286**
Cumulative since commencement of the agreement	3	206	68	824	290	**1,391**

42 CAPITAL MANAGEMENT

The overriding aim of Deutsche Telekom's capital management is to strike a balance between the contrasting expectations of the following stakeholders:

- **Shareholders** expect an appropriate, reliable return on their capital employed.
- **Providers of debt capital** expect an appropriate return and that Deutsche Telekom is able to repay its debts.
- **Employees** expect jobs that are secure, prospects for the future, and that any necessary staff restructuring will be done in a responsible manner.
- **"Entrepreneurs within the enterprise"** expect sufficient investment funding to be able to shape Deutsche Telekom's future business and develop products, innovations, and services for the customer.
- **Society** expects Deutsche Telekom to do everything within its power to protect the environment, encourage fair and democratic co-existence, and shape the digital transformation in a responsible manner.

An important key performance indicator for the capital market communication with investors, analysts, and rating agencies is relative debt, i.e., net debt to adjusted EBITDA. This ratio stood at 2.65x at December 31, 2019 (December 31, 2018: 2.4x). The target corridor for relative debt has shifted from 2.00 to 2.50x to 2.25 to 2.75x on account of the mandatory first-time application of the IFRS 16 accounting standard as of January 1, 2019. Adjusted EBITDA and net debt are non-GAAP figures not governed by International Financial Reporting Standards, and their definition and calculation may vary from one company to another. A further essential key performance indicator is the equity ratio, i.e., the ratio of shareholders' equity to total assets as shown in the consolidated statement of financial position. The equity ratio was 27.1 percent as of December 31, 2019 (December 31, 2018: 29.9 percent). The target corridor remains unchanged between 25 and 35 percent. In addition, Deutsche Telekom maintains a liquidity reserve covering all maturities of the next 24 months.

For further information, please refer to the section "Management of the Group" in the combined management report.

millions of €

	Dec. 31, 2019	Dec. 31, 2018
Financial liabilities (current)	11,463	10,527
Financial liabilities (non-current)	54,886	51,748
Lease liabilities	19,835	n.a.
FINANCIAL LIABILITIES AND LEASE LIABILITIES	**86,184**	**62,275**
Accrued interest	(748)	(719)
Other	(739)	(928)
GROSS DEBT	**84,697**	**60,628**
Cash and cash equivalents	5,393	3,679
Derivative financial assets	2,333	870
Other financial assets	940	654
NET DEBT	**76,031**	**55,425**

The IFRS 16 "Leases" accounting standard has been applied since January 1, 2019. The prior-year figures have been adjusted. Financial liabilities included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018.

43 RELATED-PARTY DISCLOSURES

Federal Republic of Germany and other related parties. The Federal Republic of Germany is both a direct and an indirect shareholder (via KfW Bankengruppe) and holds 31.9 percent (December 31, 2018: 31.9 percent) of the share capital of Deutsche Telekom AG. In previous years, this resulted in the Federal Republic of Germany representing a solid majority at the shareholders' meetings of Deutsche Telekom AG due to its level of attendance, giving it control over Deutsche Telekom. Thanks to higher levels of attendance, the Federal Republic has not had a majority of the voting rights at the shareholders' meetings of Deutsche Telekom AG since 2016. As such, it is no longer deemed to have control over Deutsche Telekom, but rather only a significant influence. Therefore, the Federal Republic and the companies controlled and jointly controlled by the Federal Republic, but not the companies over which the Federal Republic can exercise a significant influence are classified as related parties of Deutsche Telekom. In the course of business, Deutsche Telekom deals directly with these companies, and with authorities and other government agencies as an independent party. Deutsche Telekom participates in the spectrum auctions of the Federal Network Agency. The acquisition of mobile spectrum through licenses may result in build-out requirements.

The Federal Posts and Telecommunications Agency (Federal Agency) has been assigned certain tasks by law that affect cross-company issues at Deutsche Telekom AG, Deutsche Post AG, and Deutsche Postbank AG. The Federal Agency's responsibilities include the continuation of the Civil Service Health Insurance Fund (Postbeamtenkrankenkasse), the Recreation Service (Erholungswerk), the Deutsche Bundespost Institution for Supplementary Retirement Pensions for Salaried Employees and Wage Earners (Versorgungsanstalt der Deutschen Bundespost), and the Welfare Service (Betreuungswerk) for Deutsche Telekom AG, Deutsche Post AG, and Deutsche Postbank AG. The coordination and administrative tasks are performed on the basis of agency agreements. Up to and including the 2012 reporting year, Deutsche Telekom AG maintained a joint pension fund, Bundes-Pensions-Service für Post und Telekommunikation e.V., Bonn (Federal Pension Service for Post and Telecommunications – BPS-PT), together with Deutsche Post AG and Deutsche Postbank AG for civil-servant pension plans. The German Act on the Reorganization of the Civil Service Pension Fund (Gesetz zur Neuordnung der Postbeamtenversorgungskasse – PVKNeuG) transferred the functions of BPS-PT relating to civil-servant pensions (organized within the Civil Service Pension Fund) to the existing Federal Agency effective January 1, 2013. The civil-servant pension functions are therefore performed by the Civil Service Pension Fund as an integral part of the Federal Agency. This joint Civil Service Pension Fund works for the funds of all three companies and also handles the financial administration of the pension plan for the Federal Republic on a trust basis. For the 2019 financial year, Deutsche Telekom made payments in the amount of EUR 146 million (2018: EUR 123 million; 2017: EUR 94 million). Furthermore, payments are made to the Civil Service Pension Fund in accordance with the provisions of the Act on the Reorganization of the Civil Service Pension Fund.

For further information, please refer to Note 15 "Provisions for pensions and other employee benefits."

The Federal Republic and the companies controlled and jointly controlled by the Federal Republic, are customers or suppliers of Deutsche Telekom and as such have mutual contractual relationships with Deutsche Telekom.

In May 2019, Deutsche Telekom acquired four frequency blocks in the 2 GHz band and nine lots in the 3.6 GHz band worth a total of EUR 2.17 billion, which the Federal Network Agency auctioned off on behalf of the Federal Republic of Germany. With the auction now over, Telekom Deutschland has filed an application with the Federal Network Agency on using the spectrum to begin building out the 5G network across Germany. In place of a lump-sum payment, government representatives agreed to the payment of the purchase price in annual installments from 2019 through September 13, 2030. Payment by installment was granted on the condition that Deutsche Telekom assumes additional build-out obligations. Deutsche Telekom must build out an additional 333 sites. Build-out obligations were recognized as liabilities in the amount of the financing advantage of EUR 59 million.

Deutsche Telekom Trust e.V. On August 14, 2019, the 11.34 percent stake in Ströer SE & Co. KGaA, which was worth EUR 0.4 million at the time, was transferred to the Group's own trust, Deutsche Telekom Trust e.V., where it will serve as plan assets to cover pension entitlements.

There are no material revenue, receivables, or liabilities from or to **joint ventures**.

Related individuals. In the reporting period, expenses for short-term benefits payable to members of the Board of Management and the Supervisory Board amounted to EUR 19.9 million (2018: EUR 17.7 million) and expenses for other long-term benefits amounted to EUR 4.4 million (2018: EUR 5.2 million). Service cost of EUR 2.4 million (2018: EUR 2.8 million) was recorded for Board of Management benefits. In addition, expenses for share-based payment for Board of Management members were incurred in the amount of EUR 2.0 million (2018: EUR 1.5 million). No termination benefits were expensed in 2019 or 2018.

As of December 31, 2019, Deutsche Telekom recognized provisions for Board of Management and Supervisory Board compensation from short-term benefits of EUR 11.4 million (2018: EUR 10.2 million) and from other long-term benefits of EUR 10.3 million (2018: EUR 11.3 million). Furthermore, the present value of the defined benefit obligation (DBO) from the Board of Management pension amounts to EUR 27.1 million (2018: EUR 23.9 million).

The compensation of the Board of Management and the Supervisory Board totaled EUR 29.0 million in the reporting year (2018: EUR 30.4 million).

For further information, please refer to the "Compensation report" in the combined management report and Note 44 "Compensation of the Board of Management and the Supervisory Board."

Employees elected to the Supervisory Board of Deutsche Telekom AG continue to be entitled to a regular salary as part of their employment contract. The amount of the salary is the adequate compensation for their job or activity within the Company. Besides this, no major transactions took place with related individuals.

The members of the Board of Management and Supervisory Board of Deutsche Telekom AG are members of supervisory boards or management boards of other companies or are shareholders of other companies with which Deutsche Telekom AG maintains relations in the ordinary course of business. All related party transactions are performed on an arm's length basis.

44 COMPENSATION OF THE BOARD OF MANAGEMENT AND THE SUPERVISORY BOARD

COMPENSATION OF THE BOARD OF MANAGEMENT

The presentation of the system used for compensation of the Board of Management and the disclosures required in accordance with § 314 (1) No. 6a sentences 5-8 HGB are a component of the combined management report.

Board of Management compensation for the 2019 financial year

Total compensation of the members of the Board of Management for the 2019 financial year amounted to EUR 23.3 million (2018: EUR 24.6 million). This includes a total of 233,290 entitlements to matching shares with a fair value of EUR 2.7 million on the date granted (2018: EUR 2.3 million).

Former members of the Board of Management

A total of EUR 8.8 million (2018: EUR 8.1 million) was included for payments to and entitlements for former members of the Board of Management as well as any surviving dependents. Provisions (measured in accordance with IAS 19) totaling EUR 213.4 million (2018: EUR 198.6 million) were recognized for current pensions and vested rights to pensions for this group of persons and their surviving dependents.

Other

The Company has not granted any advances or loans to current or former Board of Management members, nor were any other financial obligations to the benefit of this group of people entered into.

COMPENSATION OF THE SUPERVISORY BOARD

The main features of the compensation system and the disclosure of the compensation of the individual members of the Supervisory Board are a component of the combined management report.

Total compensation of the members of the Supervisory Board for 2019 amounted to EUR 2,888,500.00 (plus VAT) and is comprised of fixed annual remuneration plus meeting attendance fees.

The Company has not granted any advances or loans to current or former Supervisory Board members, nor were any other financial obligations to the benefit of this group of people entered into.

45 DECLARATION OF CONFORMITY WITH THE GERMAN CORPORATE GOVERNANCE CODE IN ACCORDANCE WITH § 161 AktG

In accordance with § 161 AktG, the Board of Management and the Supervisory Board of Deutsche Telekom AG have submitted the mandatory declaration of conformity and made it available to shareholders on Deutsche Telekom AG's website. The full text of the Declaration of Conformity is available on the Deutsche Telekom website.

Declaration of Conformity

46 EVENTS AFTER THE REPORTING PERIOD

No significant events took place after the end of the reporting period.

47 AUDITOR'S FEES AND SERVICES IN ACCORDANCE WITH § 314 HGB

PricewaterhouseCoopers Gesellschaft mit beschränkter Haftung, Wirtschaftsprüfungsgesellschaft (PwC) Frankfurt/Main, member of the German Chamber of Public Accountants in Berlin, has audited the consolidated financial statements of Deutsche Telekom AG since the Company's listing in 1996. Following a change within PwC in 2015, Thomas Tandetzki has been the responsible auditor in charge at PwC.

The following table provides a breakdown of the auditor's professional fees recognized as expenses in the 2019 financial year:

millions of €	2019
Auditing services	12
Other assurance services	1
Tax advisory services	0
Other non-audit services	1
	14

Professional fees for auditing services include in particular fees for the statutory auditing of annual and consolidated financial statements and the subsidiaries included in the consolidated financial statements, the review of the interim financial statements, auditing activities in connection with the implementation of new accounting provisions, and the auditing of information systems and processes, as well as fees for other auditing services.

The fees recognized under other assurance services relate primarily to services in connection with regulatory requirements stipulated by the Federal Network Agency and with comfort letters.

Other non-audit services mainly consist of professional services in connection with strategic projects.