IMPORTANT NOTICE

NOT FOR DISTRIBUTION IN OR INTO THE UNITED STATES OR TO U.S. PERSONS EXCEPT TO PERSONS WHO ARE QUALIFIED INSTITUTIONAL BUYERS PURSUANT TO RULE 144A UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"). NOT FOR DISTRIBUTION ELSEWHERE OR OTHERWISE THAN TO PERSONS TO WHOM IT CAN LAWFULLY BE DISTRIBUTED.

IMPORTANT: You must read the following disclaimer before continuing. The following disclaimer applies to the attached offering memorandum. You are advised to read this disclaimer carefully before accessing, reading or making any other use of the attached offering memorandum. In accessing the attached offering memorandum, you agree to be bound by the following terms and conditions, including any modifications to them from time to time, each time you receive any information as a result of such access.

CONFIRMATION OF YOUR REPRESENTATION: By accessing the attached offering memorandum, you shall be deemed to have represented that (a) you consent to delivery of the attached offering memorandum and any amendments or supplements thereto by electronic transmission and (b) either (i) you are a "qualified institutional buyer" (as defined in Rule 144A under the Securities Act), or (ii) (A) you are outside the United States and are not a U.S. Person (as defined in Regulation S under the Securities Act), nor acting on behalf of a U.S. Person and, to the extent you purchase the Notes (as defined herein) described in the attached offering memorandum, you will be doing so pursuant to Regulation S under the Securities Act, and (B) the electronic mail address to which the attached offering memorandum has been delivered is not located in the United States.

The attached offering memorandum has been made available to you in electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of transmission and consequently none of Citigroup Global Markets Inc., J.P. Morgan Securities LLC and TD Securities (USA) LLC (collectively, the "Initial Purchasers") or any of their respective affiliates, directors, officers, employees, representatives and agents or any other person controlling them accepts any liability or responsibility whatsoever in respect of any discrepancies between the offering memorandum distributed to you in electronic format and the hard copy version available to you on request from the Initial Purchasers.

Restrictions: The attached offering memorandum is being furnished in connection with an offering exempt from registration under the Securities Act. Nothing in this electronic transmission constitutes an offer of securities for sale in the United States or to any U.S. Person.

THE ATTACHED OFFERING MEMORANDUM IS BEING PROVIDED TO YOU ON A CONFIDENTIAL BASIS FOR INFORMATIONAL USE SOLELY IN CONNECTION WITH YOUR CONSIDERATION OF THE PURCHASE OF THE NOTES REFERRED TO THEREIN. YOU ARE NOT AUTHORIZED TO, AND YOU MAY NOT, FORWARD OR DELIVER THE ATTACHED OFFERING MEMORANDUM, ELECTRONICALLY OR OTHERWISE, TO ANY OTHER PERSON OR REPRODUCE SUCH OFFERING MEMORANDUM IN ANY MANNER WHATSOEVER. ANY FORWARDING, DISTRIBUTION OR REPRODUCTION OF THIS DOCUMENT AND THE ATTACHED OFFERING MEMORANDUM, IN WHOLE OR IN PART, IS UNAUTHORIZED. FAILURE TO COMPLY WITH THIS DIRECTIVE MAY RESULT IN A VIOLATION OF THE SECURITIES ACT OR THE APPLICABLE LAWS OF OTHER JURISDICTIONS.

THE NOTES TO BE ISSUED (THE "NOTES") HAVE NOT BEEN, AND WILL NOT BE, REGISTERED UNDER THE SECURITIES ACT OR THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OR OTHER JURISDICTION. THE NOTES MAY NOT BE OFFERED OR SOLD IN THE UNITED STATES OR TO OR FOR THE ACCOUNT OR BENEFIT OF U.S. PERSONS (AS SUCH TERMS ARE DEFINED IN REGULATION S UNDER THE SECURITIES ACT) UNLESS REGISTERED UNDER THE SECURITIES ACT OR PURSUANT TO AN EXEMPTION FROM SUCH REGISTRATION.

The distribution of the attached offering memorandum and the offer, sale or solicitation of an offer to buy the Notes is restricted by law in certain jurisdictions. The attached offering memorandum may not be used for, or in connection with, and does not constitute, any offer to sell or solicitation of an offer to buy the Notes by anyone in any jurisdiction or under any circumstance in which such offer or solicitation is not authorized or is unlawful. Persons into whose possession the attached offering memorandum may come are required to inform themselves about and to observe such restrictions. Further information with regard to restrictions on offers, sales and deliveries of the Notes and the distribution of the attached offering memorandum and other offering material relating to the Notes is set out under "*Plan of Distribution*" in the attached offering memorandum.

No action has been or will be taken in any jurisdiction that would, or is intended to, permit a public offering of the Notes, or possession or distribution of the offering memorandum (in preliminary, proof or final form) or any other offering or publicity material relating to the Notes, in any country or jurisdiction where action for that purpose is required. If a jurisdiction requires that the offering be made by a licensed broker or dealer and any of the Initial Purchasers or any affiliate of the Initial Purchasers is a licensed broker or dealer in that jurisdiction, the offering will be deemed to be made by the Initial Purchasers or such affiliate on behalf of the issuer, Deutsche Telekom AG, in such jurisdiction.

You are reminded that the attached offering memorandum has been delivered to you on the basis that you are a person into whose possession the attached offering memorandum may be lawfully delivered in accordance with the laws of the jurisdiction in which you are located. If you receive this document by e-mail, you should not reply by e-mail to this announcement. Any reply e-mail communications, including those you generate by using the "Reply" function on your e-mail software, will be ignored or rejected. If you receive this document by e-mail, your use of this e-mail is at your own risk and it is your responsibility to take precautions to ensure that it is free from viruses and other items of a destructive nature.

OFFERING MEMORANDUM **CONFIDENTIAL**

Deutsche Telekom AG

$1,250,000,000 3.625% Notes due January 21, 2050

Pursuant to this offering memorandum, Deutsche Telekom AG ("Deutsche Telekom" or the "Issuer") is offering $1,250,000,000 3.625% Notes due January 21, 2050 (the "Notes").

Deutsche Telekom will pay interest on the Notes at an annual rate of 3.625%, semi-annually in arrears on January 21 and July 21 of each year, commencing on July 21, 2020.

Deutsche Telekom may redeem the Notes on the terms described in this offering memorandum under "*Description of the Notes—Optional Redemption*". Deutsche Telekom may also redeem the Notes at 100% of their principal amount plus accrued interest if certain tax events occur as described under "*Description of the Notes—Optional Tax Redemption*".

Investing in the Notes involves risks. See "*Risk Factors*" beginning on page 17.

The Notes have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the "Securities Act") or any state or other securities laws. The Notes may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons, except to qualified institutional buyers ("QIBs") in reliance on the exemption from registration provided by Rule 144A under the Securities Act ("Rule 144A") and to certain non-U.S. persons in offshore transactions in reliance on Regulation S under the Securities Act ("Regulation S"). Prospective purchasers are hereby notified that sellers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A. The Notes are not transferable except in accordance with the restrictions described under "*Transfer Restrictions*".

Notes Issue Price: 98.934%

plus accrued interest from January 21, 2020 if settlement occurs after that date.

The Notes will be represented by one or more global notes registered in the name of The Depository Trust Company ("DTC"), as depositary, or a nominee of DTC. Beneficial interests in the Notes will be shown on, and transfers thereof, will be effected through, records maintained by DTC, Clearstream Banking, *société anonyme* ("Clearstream") and Euroclear Bank SA/NV ("Euroclear"), and their respective participants. See "*Book-Entry; Delivery and Form; Summary of Provisions Relating to Notes in Global Form*" and "*Transfer Restrictions*".

The Initial Purchasers (as defined in "*Plan of Distribution*") expect to deliver the Notes against payment in immediately available funds on or about January 21, 2020.

Joint Book-Running Managers

Citigroup **J.P. Morgan** **TD Securities**

Co-Lead Managers

Banca IMI **COMMERZBANK** **MUFG**

January 13, 2020

We are responsible for the information contained in this offering memorandum. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. You should assume that the information appearing in this offering memorandum is accurate as of the date on the front cover of this offering memorandum only. Our business, financial condition, results of operations and prospects may have changed since that date.

This offering memorandum is confidential. You are authorized to use this offering memorandum solely for the purpose of considering the purchase of the Notes described in this offering memorandum. You may not reproduce or distribute this offering memorandum, in whole or in part, and you may not disclose any of the contents of this offering memorandum or use any information herein for any purpose other than considering a purchase of the Notes. You agree to the foregoing by accepting delivery of this offering memorandum.

Each investor in the Notes will be deemed to make certain representations, warranties and agreements regarding the manner of purchase and subsequent transfers of the Notes. These representations, warranties and agreements are described in "*Transfer Restrictions*".

The Initial Purchasers make no representation or warranty, expressed or implied, as to the accuracy or completeness of such information, and nothing contained in this offering memorandum is, or shall be relied upon as, a promise or representation by the Initial Purchasers. Neither we, nor the Initial Purchasers, nor any of our or their respective representatives make any representation to any offeree or purchaser of the Notes offered hereby regarding the legality of an investment by such offeree or purchaser under applicable legal investment or similar laws. You should consult with your own advisers as to legal, tax, business, financial and related aspects of a purchase of the Notes. Notwithstanding anything herein to the contrary, investors may disclose to any and all persons, without limitation of any kind, the U.S. federal or state income tax treatment and tax structure of the offering and all materials of any kind (including opinions or other tax analyses) that are provided to the investors relating such tax treatment and tax structure. However, any information relating to the U.S. federal income tax treatment or tax structure shall remain confidential (and the foregoing sentence shall not apply) to the extent reasonably necessary to enable any person to comply with applicable securities laws. For this purpose, "tax structure" means any facts relevant to the U.S. federal or state income tax treatment of the offering but does not include information relating to the identity of the issuer of the securities, the issuer of any assets underlying the securities, or any of their respective affiliates that are offering the securities.

In connection with the issue of the Notes, one or more of Citigroup Global Markets Inc., J.P. Morgan Securities LLC, and TD Securities (USA) LLC (the "Stabilizing Manager(s)") (or persons acting on behalf of any Stabilizing Manager(s)) may over-allot Notes or effect transactions with a view to supporting the market price of the Notes at a level higher than that which might otherwise prevail. However, there is no assurance that the Stabilizing Manager(s) (or persons acting on behalf of a Stabilizing Manager) will undertake stabilization action. Any stabilization action may begin on or after the date on which adequate public disclosure of the final terms of the offer of the Notes is made and, if begun, may be ended at any time but must end no later than the earlier of 30 days after the issue date of the Notes and 60 days after the date of the allotment of the Notes. Any stabilization action or over-allotment must be conducted by the relevant Stabilizing Manager(s) (or person(s) acting on behalf of any Stabilizing Manager(s)) in accordance with all applicable laws and rules.

NOTICE TO INVESTORS IN THE UNITED KINGDOM

This offering memorandum is only being distributed to and is only directed at (i) persons who are outside the United Kingdom or (ii) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order") or (iii) high net worth companies, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). The Notes are only available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such Notes will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this document of any of its contents.

NOTICE TO INVESTORS IN THE EUROPEAN ECONOMIC AREA

PROHIBITION OF SALES TO EEA RETAIL INVESTORS – The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area ("EEA"). For these purposes, a retail investor means a person who is one (or more) of: (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "MiFID II"); or (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended or superseded, the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in Regulation (EU) 2017/1129 (as amended or superseded, the "Prospectus Regulation"). Consequently no key information document required by Regulation (EU) No 1286/2014 (as amended, the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them

available to retail investors in the EEA has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

This EEA selling restriction is in addition to any other selling restrictions set out under "*Plan of Distribution—Selling Restrictions*" in this offering memorandum.

NOTICE TO INVESTORS IN CANADA

The Notes may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the Notes must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this offering memorandum (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the Initial Purchasers are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

MIFID II PRODUCT GOVERNANCE/PROFESSIONAL INVESTORS AND ECPS ONLY TARGET MARKET

Solely for the purposes of the manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties and professional clients only, each as defined in Directive 2014/65/EU (as amended, "MiFID II"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the manufacturer's target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturer's target market assessment) and determining appropriate distribution channels.

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DEFINED TERMS AND FINANCIAL INFORMATION

As used in this offering memorandum, unless the context otherwise requires, the terms "we", "us", "our", "Company", and "Group" refer to Deutsche Telekom AG and its consolidated subsidiaries. The "Issuer" and "Deutsche Telekom" refer to Deutsche Telekom AG.

As used in this offering memorandum, "euro", "EUR" or "€" means the single unified currency that was introduced in the Federal Republic of Germany (the "Federal Republic" or "Germany") and ten other participating Member States of the European Union (the "EU") on January 1, 1999. "U.S. dollar", "USD" or "$" means the lawful currency of the United States of America. "British pounds sterling", "GBP" or "£" means the lawful currency of the United Kingdom.

Unless otherwise indicated, the financial information contained in this offering memorandum has been prepared in accordance with the requirements of the International Financial Reporting Standards ("IFRS") as adopted for use in the EU by the European Commission.

Rounding adjustments have been made in calculating some of the financial information included in this offering memorandum. As a result, figures shown as totals in some tables may not be exact arithmetic aggregations of the figures that comprise them.

In this offering memorandum, increases in negative numbers are expressed as positive percentages.

AVAILABLE INFORMATION

For so long as any of the Notes are "restricted securities" within the meaning of Rule 144(a)(3) under the Securities Act, during any period during which the Issuer is neither subject to Sections 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act") nor exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act, the Issuer will make available on request to each holder in connection with any resale thereof and to any prospective purchaser of such Notes from such holder, in each case upon request, the information specified in and meeting the requirements of Rule 144A(d)(4) under the Securities Act.

A copy of the fiscal and paying agency agreement to be entered into by Deutsche Telekom and Citibank, N.A. ("Citibank"), as fiscal agent, is available to holders of the Notes upon request, at no charge, from Citibank, N.A., Agency & Trust, 388 Greenwich Street, 6th Floor, New York, New York 10013, United States of America, and from Deutsche Telekom AG, Friedrich-Ebert-Allee 140, 53113 Bonn, Germany.

MARKET, RANKING AND OTHER DATA

The data included in this offering memorandum regarding markets, including the size of certain market segments and Deutsche Telekom's position within these markets, are based on independent industry publications, reports of government agencies, or other published industry sources and Deutsche Telekom's estimates based on its management's knowledge and experience in the market segments in which it operates. Deutsche Telekom's estimates are based on information obtained from customers, suppliers, trade and business organizations and other contacts in the market segments in which it operates. Deutsche Telekom has not independently verified any of the data from third-party sources nor has it ascertained the underlying economic assumptions relied upon therein. Deutsche Telekom believes these estimates to be accurate as of the date of this offering memorandum. However, this information may prove to be inaccurate because of the methods used to obtain some of the data for these estimates or because this information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other inherent limitations and uncertainties.

World Wide Web addresses contained in this offering memorandum are for explanatory purposes only and they (and the content contained therein) do not form a part of, and are not incorporated by reference into, this offering memorandum.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

This offering memorandum incorporates by reference, and should be read and construed in conjunction with, the following information:

Table of Documents Incorporated by Reference

Document		Pages Incorporated
A.	The following sections of the Deutsche Telekom Interim Group Report for January 1 to September 30, 2019:	
	Condensed Consolidated Interim Financial Statements	31-56
	Responsibility Statement	57
	Review Report	58
	(together, the "2019 Interim Report Excerpts")	
B.	The following sections of the Deutsche Telekom Annual Report for the 2018 Financial Year:	
	Consolidated Financial Statements	145-263
	Responsibility Statement	264
	Independent Auditor's Report	265-269
	(together, the "2018 Annual Report Excerpts")	
C.	The following sections of the Deutsche Telekom Annual Report for the 2017 Financial Year:	
	Consolidated Financial Statements	145-247
	Responsibility Statement	248
	Independent Auditor's Report	249-254
	(together, the "2017 Annual Report Excerpts")	

The information contained in each document incorporated by reference herein is given as of the date of such document. Such information shall be deemed to be incorporated in, and form part of, this offering memorandum, save that any statement contained in a document which is deemed to be incorporated by reference herein shall be deemed to be modified or superseded for the purpose of this document to the extent that a statement contained or incorporated herein modifies or supersedes such earlier statement (whether expressly, by implication or otherwise). Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this offering memorandum.

You may obtain a copy of the 2019 Interim Report Excerpts, the 2018 Annual Report Excerpts and the 2017 Annual Report Excerpts by visiting our website at https://www.telekom.com/en/investor-relations/service/downloads.

Other than the sections specified above and specifically incorporated by reference in this offering memorandum, such documents do not form part of this offering memorandum and the contents of Deutsche Telekom's internet website do not form part of this offering memorandum and, in each case, should not be relied upon for the purposes of forming an investment decision with respect to the Notes.

FORWARD-LOOKING STATEMENTS

This offering memorandum contains forward-looking statements. Forward-looking statements are statements that are not historical facts. Examples of forward-looking statements include statements concerning:

- plans, objectives and expectations relating to future operations, products and services;
- expectations of future financial performance and their underlying assumptions, including, but not limited to, statements describing our expectations of future revenue, adjusted EBITDA AL and free cash flow AL development;
- our prospective share of new and existing markets;
- plans, objectives and expectations for our cost savings and workforce reduction initiatives and the impact of other significant strategic, labor or business initiatives, including acquisitions, dispositions and business combinations, and investments in networks and new spectrum and other expansion initiatives;
- the potential impact of regulatory actions on our financial condition and operations;
- our shareholder remuneration policy and the payment of dividends and/or carrying out of possible share repurchases;
- the possible outcomes and effects of litigation, investigations, contested regulatory proceedings and other disputes;
- future general telecommunications sector and macroeconomic growth rates; and
- our future revenues, expenditures and performance.

Forward-looking statements generally are identified by the words “expect”, “anticipate”, “believe”, “intend”, “estimate”, “aim”, “goal”, “plan”, “will”, “will continue”, “seek”, “outlook”, “guidance” and similar expressions.

Forward-looking statements are based on current plans, estimates and projections. You should consider them with caution. Forward-looking statements speak only as of the date they are made, and we undertake no obligation to update any forward-looking statement in light of new information or future events. Forward-looking statements involve inherent risks and uncertainties, most of which are difficult to predict and are generally beyond our control. We caution you that a number of important factors could cause actual results or outcomes to differ materially from those expressed in, or implied by, forward-looking statements, in particular forward-looking statements related to our expectations of future revenue, adjusted EBITDA AL and free cash flow AL development. These factors include, among others:

- changes in general economic and business conditions, including a deterioration in the economic environment, in the markets in which we and our subsidiaries and associated companies operate;
- the level of demand for telecommunications services in the markets we serve, particularly for wireless telecommunications services, broadband access lines, voice and data traffic, new higher-value products and services and new rate offerings;
- changes in government policies and new legislation;
- regulatory developments and changes, including with respect to the levels of tariffs, terms of interconnection, customer access, international settlement arrangements and the availability and allocation of radio and television spectrum for mobile telecommunications use;
- scarcity and cost of additional wireless spectrum;
- our ability to secure and retain the licenses needed to offer new and existing services and the cost of these licenses and related network infrastructure build-outs, particularly with respect to advanced services;
- competitive forces, including pricing pressures, technological developments and alternative routing developments, all of which affect our ability to gain or retain market share and revenues in the face of competition from existing and new market entrants;

- the effects of our customer acquisition and retention initiatives, particularly in the fixed-line voice telephony business, the mobile telecommunications business and our interconnection business;
- the effects of industry consolidation on the markets in which we operate, particularly with respect to our mobile and leased lines businesses;
- the success of new business, operating and financial initiatives, many of which involve substantial start-up costs and are untested, and of new systems and applications, particularly with regard to the integration of service offerings;
- our ability to achieve cost savings and realize productivity improvements, particularly with respect to our workforce-reduction initiatives, while at the same time enhancing customer service quality;
- our ability to retain and motivate key personnel;
- the impact of other significant strategic or business initiatives, including acquisitions, dispositions and business combinations;
- our ability to attract and retain qualified personnel, particularly in view of our cost reduction efforts;
- concerns over health risks associated with the use of wireless mobile devices and other health and safety risks related to radio frequency emissions;
- risks of infrastructure failures or damage due to external factors, including natural disasters, intentional wrongdoing, sabotage, acts of terrorism or similar events;
- the outcome of litigation, disputes and investigations in which we are involved or may become involved;
- risks and uncertainties relating to our international operations, including continued elevated levels of political uncertainty;
- risks and costs associated with integrating our acquired businesses and with selling or combining businesses or other assets;
- risks and uncertainties related to the development and implementation of our strategy;
- the progress of our domestic and international investments, joint ventures, partnerships and alliances, including the pending T-Mobile/Sprint merger;
- the effects of foreign exchange rate fluctuations, particularly in connection with subsidiaries operating outside the Eurozone;
- our ability to execute large-scale programs to reshape our information technology;
- instability and volatility in worldwide financial markets;
- the availability, terms and deployment of capital, particularly in view of our financing alternatives, actions of the rating agencies, developments in the banking sector and the impact of regulatory and competitive developments on our capital outlays; and
- the level of demand in the market for our debt obligations, and for the debt obligations of our subsidiaries and associated companies, and our shares, as well as for assets that we may decide to sell, which may affect our financing and acquisition strategies.

If these factors or other risks and uncertainties materialize, or if the assumptions underlying any of these statements prove incorrect, our actual performance and future actions may materially differ from those expressed or implied by forward-looking statements. We can offer no assurance that our estimates or expectations will be achieved or that we will be able to achieve our policy aims. When reviewing forward-looking statements contained in this document, investors and others should carefully consider the foregoing factors, as well as other uncertainties and events and their potential impact on our operations and businesses. You should refer to "*Risk Factors*" in this offering memorandum, for additional information on these and other risks and uncertainties.

LIMITATION ON ENFORCEMENT OF U.S. LAWS AGAINST THE ISSUER, ITS MANAGEMENT AND OTHERS

Deutsche Telekom is a stock corporation (*Aktiengesellschaft*) organized under the laws of the Federal Republic of Germany. The members of Deutsche Telekom's supervisory and management boards are citizens or residents of countries other than the United States and their assets may be located outside the United States. As a result, you may not be able to effect service or process within the United States on such persons or upon Deutsche Telekom, or to enforce judgments of courts of the United States against them, whether or not predicated upon the civil liability provisions of the securities laws of the United States or any state or territory within the United States.

Under German law, a stock corporation may indemnify its employees, and, under certain circumstances, German labor law requires a stock corporation to do so. However, a stock corporation may not, as a general matter, indemnify members of the board of management or the supervisory board. Certain limited exceptions may apply if the indemnification is in the legitimate interest of the stock corporation. Deutsche Telekom's articles of incorporation do not contain provisions regarding the indemnification of its directors and officers. A German stock corporation may purchase directors' and officers' insurance. Deutsche Telekom has obtained liability insurance for members of its supervisory board (the "Supervisory Board") and its board of management (the "Board of Management") and certain of its officers. This includes insurance against liabilities under the Securities Act.

The United States and Germany do not currently have a treaty providing for reciprocal recognition and enforcement of judgments in civil and commercial matters. In general, the enforcement of a final judgment of a United States court requires a declaration of enforceability by a German court in a special proceeding. Therefore, a final judgment for the payment of money rendered by a federal or state court in the United States based on civil liability, whether or not predicated solely upon United States federal securities laws, may not be enforceable, either in whole or in part, in Germany. In addition, awards of punitive damages in actions brought in the United States or elsewhere are likely to be unenforceable in Germany.

SPECIAL NOTE ON NON-GAAP FINANCIAL MEASURES

In this offering memorandum, we have presented EBITDA, EBITDA AL, adjusted EBITDA, adjusted EBITDA AL, free cash flow, free cash flow AL, cash capex and net debt, which are non-GAAP financial measures. A non-GAAP financial measure is generally defined as one that purports to measure historical or future financial performance, financial position or cash flows but excludes or includes amounts that would not be so adjusted in the most comparable GAAP measure (which for these purposes we mean the most comparable measure presented in accordance with International Financial Reporting Standards, or IFRS, as adopted by the European Union). Our non-GAAP financial measures are not governed by IFRS and other companies may not compute these non-GAAP measures using the same method as Deutsche Telekom. Therefore, these measures may not be comparable with measures with the same or similar title that are reported by other companies.

The non-GAAP measures in this offering memorandum should not be viewed in isolation as an alternative to profit (loss) from operations, net profit (loss), net cash from operating activities, the financial liabilities reported in our consolidated balance sheet or other financial information presented in accordance with IFRS. We urge you to review the reconciliations of the non-GAAP measures to IFRS financial measures and other financial information contained in this offering memorandum. We also urge you not to rely on any single financial measure to evaluate our business but instead to form your view on our business with reference to our audited annual consolidated financial statements incorporated by reference in this offering memorandum and the other information we present in this offering memorandum.

EBITDA

We define EBITDA as profit (loss) from operations (EBIT) plus depreciation, amortization and impairment losses. We base our definition of EBITDA on profit (loss) from operations because this method of computation allows EBITDA to be derived in a uniform manner on the basis of a measure of earnings that is published for the operating segments and the Group as a whole. For a reconciliation of EBITDA to profit from operations, see "*Development of Our Business—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

Special Factors

EBITDA at the Group and segment levels was affected by a number of special factors relating to our operating activities in the reporting period as well as the prior-year periods. We believe that these special factors make it more difficult to compare EBITDA at the Group and segment levels with corresponding figures for prior periods. Adjustments are made irrespective of whether the relevant income and expenses are reported in profit (loss) from operations, profit (loss) from financial activities or income taxes.

We have grouped the special factors affecting EBITDA into the following five categories.

- Staff-related measures comprise expenses related to staff reduction initiatives or other programs to reduce headcount, including severance payments and early retirement.
- Non-staff-related restructuring comprises expenses relating to restructuring programs or other costs unrelated to our operations, such as costs associated with terminating contracts.
- Effects on earnings from business combinations and other transactions.
- Reversal of impairment losses.
- Other includes items that are unrelated to our operations.

EBITDA AL

Effective from the beginning of the 2019 financial year, we have taken into account the effects of the mandatory first-time application of accounting standard IFRS 16 "Leases" when determining our financial performance indicators. We also seek to promote as much comparability with our previous performance indicators as possible. Accordingly, our operational performance, previously measured on the basis of EBITDA, is as of January 1, 2019 measured on the basis of EBITDA after leases ("EBITDA AL"). We define EBITDA AL as EBITDA (as defined under the heading "*EBITDA*"

above), adjusted for depreciation of the right-of-use assets and for interest expenses on recognized lease liabilities. For a reconciliation of EBITDA AL to profit from operations, see “*Development of Our Business—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*”.

Special Factors

Parallel to EBITDA, EBITDA AL at the Group and segment levels was affected by a number of special factors relating to our operating activities in the reporting period as well as the prior-year periods. We believe that these special factors make it more difficult to compare EBITDA AL at the Group and segment levels with corresponding figures for prior periods. Adjustments are made irrespective of whether the relevant income and expenses are reported in profit (loss) from operations, profit (loss) from financial activities or income taxes.

We have grouped the special factors affecting EBITDA AL into the same five categories as those described under the heading “*EBITDA—Special Factors*” above.

Adjusted EBITDA

We define adjusted EBITDA as EBITDA excluding the effect of the special factors described under the heading “*EBITDA*” above.

Prior to effectiveness of IFRS 16 as of January 1, 2019, our senior operating decision-makers used adjusted EBITDA as a performance indicator for managing our business activities, assessing our operating performance and measuring the performance of our operating segments. They believe that adjusted EBITDA permits them to better evaluate and compare developments over several reporting periods because the items excluded in calculating adjusted EBITDA have, in their view, little or no bearing on our underlying daily operating performance. However, adjusted EBITDA should be viewed in addition to, and not as a substitute for, the information prepared in accordance with IFRS that is contained in this offering memorandum. For a reconciliation of adjusted EBITDA to profit from operations, see “*Development of Our Business—Reconciliation of EBITDA* AL/EBITDA *and Adjusted EBITDA AL/adjusted EBITDA*”.

Adjusted EBITDA AL

We define adjusted EBITDA AL as EBITDA AL excluding the effect of the special factors described under the heading “*EBITDA*” above.

For all periods following the effectiveness of IFRS 16 as of January 1, 2019, our senior operating decision-makers use adjusted EBITDA AL as a performance indicator for managing our business activities, assessing our operating performance and measuring the performance of our operating segments. They believe that adjusted EBITDA AL permits them to better evaluate and compare developments over several reporting periods because the items excluded in calculating adjusted EBITDA AL have, in their view, little or no bearing on our underlying daily operating performance. However, adjusted EBITDA AL should be viewed in addition to, and not as a substitute for, the information prepared in accordance with IFRS that is contained in this offering memorandum. For a reconciliation of adjusted EBITDA AL to profit from operations, see “*Development of Our Business—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/adjusted EBITDA*”.

Free Cash Flow (before dividend payments and spectrum investment)

We define free cash flow as net cash from operating activities:

- less net cash outflows for investments in intangible assets (excluding goodwill and before spectrum investment) and property, plant and equipment;
- plus proceeds from the disposal of intangible assets (excluding goodwill) and property, plant and equipment.

Prior to effectiveness of IFRS 16 as of January 1, 2019, our management used free cash flow as an indication of the cash generating ability of our businesses and our ability to pay for discretionary and non-discretionary expenditures not included in the measure, such as payments pursuant to our shareholder remuneration policy, debt repayments or acquisitions. However, free cash flow should not be used to determine the financial position of the Group or considered as a substitute for any IFRS financial measure. You should not assume that free cash flow is freely

available for discretionary application by management, since a number of expenditures not included in the measure are non-discretionary. For a reconciliation of free cash flow to net cash from operating activities, see "*Development of Our Business—Condensed Consolidated Statement of Cash Flows and Reconciliation of Free CashFlow AL/Free Cash Flow*".

Free Cash Flow AL (before dividend payments and spectrum investment)

Effective from the beginning of the 2019 financial year, we have taken into account the effects of the mandatory first-time application of accounting standard IFRS 16 "Leases" when determining our financial performance indicators. We also seek to promote as much comparability with our previous performance indicators as possible. Accordingly, as of January 1, 2019, we measure free cash flow on the basis of free cash flow after leases ("free cash flow AL"). We define free cash flow AL as free cash flow (as defined under the heading "*Free Cash Flow*" above), adjusted for repayments of lease liabilities.

For all periods following the effectiveness of IFRS 16 as of January 1, 2019, our management uses free cash flow AL as an indication of the cash generating ability of our businesses and our ability to pay for discretionary and non-discretionary expenditures not included in the measure, such as payments pursuant to our shareholder remuneration policy, debt repayments or acquisitions. However, free cash flow AL should not be used to determine the financial position of the Group or considered as a substitute for any IFRS financial measure. You should not assume that free cash flow AL is freely available for discretionary application by management, since a number of expenditures not included in the measure are non-discretionary. For a reconciliation of free cash flow AL to net cash from operating activities, see "*Development of Our Business—Condensed Consolidated Statement of Cash Flows and Reconciliation of Free Cash Flow AL/Free Cash Flow*".

Cash Capex

We define cash capex as net cash from investing activities, limited to cash outflows for investments in intangible assets (excluding goodwill) and property, plant and equipment. Our definition of cash capex generally includes spectrum investments. Nonetheless, for certain purposes, we exclude spectrum investments from cash capex, in which case we indicate the measure as "cash capex (before spectrum investment)" in this offering memorandum. In particular, cash capex (before spectrum investment) is relevant for cash outflows as a component of free cash flow AL/free cash flow. For a reconciliation of cash capex to net cash from investing activities, see "*Other Disclosures–Notes to the Consolidated Statement of Cash Flows*" to the Consolidated Financial Statements in our 2019 Interim Report Excerpts, Note 34 "*Notes to the Consolidated Statement of Cash Flows*" to the Consolidated Financial Statements in our 2018 Annual Report Excerpts, and Note 30 "*Notes to the Consolidated Statement of Cash Flows*" to our Consolidated Financial Statements to our 2017 Annual Report Excerpts, each incorporated by reference in this offering memorandum.

Net Debt

We define net debt as total financial liabilities minus accrued interest, other liabilities, cash and cash equivalents, available-for-sale financial assets/financial assets held for trading, derivative financial assets, and other financial assets. Other financial assets include all cash collateral posted for negative fair values of derivatives as well as other interest-bearing financial assets. For a reconciliation of net debt to financial liabilities, see "*Development of Our Business—Financial Liabilities*".

SUMMARY

Deutsche Telekom

With approximately 182 million mobile customers, 28 million fixed-network and 21 million broadband lines (each as of September 30, 2019), we are one of the leading integrated telecommunications companies worldwide. We have an international focus and are represented in more than 50 countries. For the first three quarters of 2019, we generated 69.3 % of our net revenue, amounting to EUR 41.0 billion, outside of our home market of Germany.

We have organized our business activities into the following five operating segments:

- Germany, which comprises all fixed-network and mobile activities for consumers and business customers in Germany, and also provides wholesale telecommunications services for carriers and our Group's other operating segments;
- the United States, which comprises all mobile activities in the U.S. market conducted through our majority owned subsidiary T-Mobile US, Inc. ("T-Mobile US");
- Europe, which comprises:
  - all fixed-network and mobile operations in Greece, Romania, Hungary, Poland, the Czech Republic, Croatia, Slovakia, Austria (including UPC Austria), North Macedonia, and Montenegro;
  - information and communication technology ("ICT") solutions for business customers in most of these countries;
  - our Deutsche Telekom Global Carrier ("TGC") business, which mainly provides wholesale telecommunications services for our Group's other operating segments and for third parties;
- Systems Solutions offers business customers integrated solutions for fixed and mobile communications, IT infrastructure, digitalization and security, and in addition to global partnerships, we provide our customers with guidance to implement digital business models; and
- Group Development, which actively manages and aims to increase the value of selected Group subsidiaries and equity investments.

Group units that cannot be allocated directly to one of the operating segments described above are reported in our Group Headquarters & Group Services segment, which comprises our sixth reportable segment.

Our registered address is Friedrich-Ebert-Allee 140, 53113 Bonn, Germany, and our telephone number is +49-228-181-0.

For more detailed information about our business, please refer to the sections entitled "*Description of Our Business and Operations*" and "*Development of Our Business*" in this offering memorandum.

Our Risks and Challenges

Our business is subject to many material risks and challenges. For a detailed discussion of these risks as well as other considerations relevant to an investment in the Notes, see "*Risk Factors*" and other information included in the offering memorandum.

Our key risks and challenges include the following:

- ***Worldwide Economic Conditions:*** Recent moderate economic growth in Germany, Europe and the United States and uncertainties about prospects for future growth, including a further financial or debt crisis or a potential slowdown in consumer spending, could adversely affect our customers' purchases of our products and services in each of our operating segments, which could have a negative impact on our operating results and financial condition.

- ***Political Uncertainty:*** Continued elevated levels of political uncertainty could have unpredictable consequences for the markets in which we operate and for the greater economy, potentially leading to declines in business levels and losses across our businesses.

- ***Regulation and Other Government Intervention:*** We are subject to regulatory and legislative action by regulatory authorities, which may increase our costs of providing products or services, require us to change our business operations, products, or services or subject us to material adverse impacts if we fail to comply with such regulations.

- ***Spectrum:*** The scarcity and cost of additional wireless spectrum and regulations relating to spectrum use may adversely affect our business strategy, financial condition and operating results.

- ***Competition:*** We face intense competition in all areas of our business, which could lead to reduced prices for our products and services and a decrease in market share in certain service areas, thereby adversely affecting our revenues and net profit.

- ***Business Combinations and Acquisitions:*** We are exposed to risks in connection with business combinations and acquisitions or dispositions of businesses and assets, which could jeopardize the achievement of our targets and materially harm our results of operations and our share price.

- ***T-Mobile US and Sprint Merger:*** We are exposed to risks in connection with the announced merger of T-Mobile US and Sprint. The conditions to the closing of the transaction may not be satisfied or our completion of the merger may be delayed. If the merger is completed, we may be unable to realize the synergies and other benefits we expect from it, and our financial condition, results of operations and share price could be adversely affected. The merger may also lead to downgrades in our credit ratings, which could adversely affect our and the combined company's respective businesses, cash flows, financial condition and operating results.

- ***Market Acceptance and Technological Change:*** We may not realize either the expected level of demand for our products and services, or the expected level or timing of revenues generated by those products and services, as a result of lack of market acceptance or technological change, which could adversely affect our cash flows and results of operations.

- ***Litigation:*** We are continuously involved in disputes and litigation with government agencies, competition authorities, competitors and other parties. The ultimate outcome of such legal proceedings is generally uncertain. When finally concluded, they may have a material adverse effect on our results of operations and financial condition.

- ***Cyber-security:*** If our efforts, or those of third party service providers, to maintain the privacy and security of our customer, confidential, or sensitive information are not successful at preventing a significant data breach or cyber-attack, we could incur substantial additional costs, become subject to litigation, enforcement actions or regulatory investigation, and suffer reputational damage.

Selected Financial Data

The following tables present selected consolidated financial and operating information. This selected consolidated financial and operating information should be read together with the section of this offering memorandum entitled "*Development of Our Business*", and our consolidated financial statements and the notes that are incorporated by reference in this offering memorandum.

This selected consolidated financial information is extracted or derived from our consolidated financial statements as of and for the year ended December 31, 2018 and 2017 (together, the "Consolidated Financial Statements") prepared in accordance with International Financial Reporting Standards as adopted by the EU ("IFRS") or from our condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019 prepared in accordance with IFRS applicable to interim financial reporting adopted by the EU (the "Condensed Consolidated Interim Financial Statements"). The Consolidated Financial Statements have been audited by PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft ("PwC"). The Condensed Consolidated Interim Financial Statements have been reviewed by PwC. The Consolidated Financial Statements and the Condensed Consolidated Interim Financial Statements are incorporated by reference in this offering memorandum.

Where financial information in the following tables is labelled "audited", this means that it has been taken or derived from the Consolidated Financial Statements mentioned above. The label "unaudited" is used in the following tables to indicate financial information that has not been taken or derived from the audited Consolidated Financial Statements but was taken or derived either from the Condensed Consolidated Interim Financial Statements or from our internal reporting system, or has been calculated based on figures from the aforementioned sources.

Certain financial information (including percentages) in the following tables has been rounded according to established commercial standards. As a result, the aggregate amounts (sum totals or sub totals or differences or if numbers are put in relation) in the following tables may not correspond in all cases to the aggregate amounts of the underlying (unrounded) figures appearing elsewhere in this offering memorandum. Furthermore, these rounded figures may not add up exactly to the totals contained in the relevant tables. Financial information presented in parentheses denotes the negative of such number presented. In respect of financial information set out in this offering memorandum, a dash ("—") signifies that the relevant figure is a true zero or is not available, while a zero ("0") signifies that the relevant figure is available but has been rounded to zero. As of January 1, 2018, the Company adopted IFRS 9 Financial Instruments and IFRS 15 Revenue from Contracts with Customers using the modified retrospective approach. As a result, the figures as of and for the financial year ended December 31, 2018 may not be comparable to the results presented as of and for the financial years ended December 31, 2017 and 2016. As of January 1, 2019, the Company adopted IFRS 16 Leases using the modified retrospective approach. As a result, the figures as of and for the nine months ended September 30, 2019 may not be comparable to the results presented as of and for the nine months ended September 30, 2018 and the financial years ended December 31, 2018, 2017 and 2016.

The following tables also present certain non-GAAP financial measures. For further information on our non-GAAP financial measures, see "*Special Note on Non-GAAP Financial Measures*".

	As of and for the first nine months ended September 30,		As of and for the year ended December 31,		
	2019[1]	2018	2018[2]	2017	2016
	(billions of €, except as otherwise indicated)				
	(unaudited)		(audited, except as otherwise indicated)		
Income Statement Data					
Net revenue	59.2	55.4	75.7	74.9	73.1
Domestic (%)[3]	30.7	32.5	32.2	32.8	33.7
International (%)[3]	69.3	67.5	67.8	67.2	66.3
Profit from operations	7.7	7.1	8.0	9.4	9.2
Profit (loss) attributable to owners of the parent (net profit (loss))	3.2	2.6	2.2	3.5	2.7
Cash Flow Data					
Net cash from operating activities	17.5	13.5	17.9	17.2	15.5
Net cash used in investing activities	(10.2)	(11.7)	(14.3)	(16.8)	(13.6)
Net cash used in financing activities	(4.6)	(2.9)	(3.3)	(4.6)	(1.3)
Ratios and Selected Data					
Cash capex[3, 4]	(11.2)	(9.4)	(12.5)	(19.5)	(13.6)
Number of employees averaged over the period (full-time employees excluding trainees) (thousands)[3]	214	216	216	216	221
Net revenue per employee (thousands of euro) [3, 5]	277.0	256.0	349.7	346.2	331.4
Earnings per share—basic and diluted (euro)[6]	0.68	0.55	0.46	0.74	0.58
Adjusted weighted average number of ordinary shares outstanding (basic) (millions)[7]	4,743	4,742	4,742	4,703	4,625
Total number of ordinary shares at the reporting date (millions)[3]	4,761	4,761	4,761	4,761	4,677
Dividend per share (euro)[8]	n.a.	n.a.	0.70	0.65	0.60
Dividend per share (U.S. dollar)[3, 9]	n.a.	n.a.	0.74	0.78	0.63

n.a. – not applicable

1 The new IFRS 16 "Leases" accounting standard has been applied as of January 1, 2019. Prior-year comparatives were not adjusted. For more information, please refer to the section "Accounting policies," in the notes to our condensed interim financial statements as of and for the nine-month period ended September 30, 2019, incorporated by reference in this offering memorandum.

2 The new accounting standards IFRS 15 "Revenue from Contracts with Customers" and IFRS 9 "Financial Instruments" took effect as of January 1, 2018. Prior-year figures were not adjusted. For more information, see "*Accounting Policies*" in the notes to our condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019, incorporated by reference in this offering memorandum.

3 Unaudited.

4 Cash outflows for investments in intangible assets and property, plant and equipment in accordance with the statement of cash flows.

5 Calculated on the basis of the average number of employees for the year, excluding trainees, apprentices and student interns.

6 Basic earnings per share is based on the time-weighted number of all ordinary shares outstanding.

7 Adjusted weighted average number of ordinary shares outstanding is determined by deducting the weighted average number of treasury shares held by Deutsche Telekom from the total number of ordinary shares outstanding.

8 Dividends per share are presented on the basis of the year in respect of which they are declared, not the year in which they are paid.

9 Dividend amounts have been translated into U.S. dollars (using exchange rates published by the European Central Bank) using the applicable rate on December 31 for each of the years indicated. As a result, the actual U.S. dollar amount at the time of payment may vary from the amount shown here.

	As of September 30,	As of December 31,		
	2019	2018	2017	2016
	(billions of €)			
	(unaudited)	(audited)		
Data from the Statement of Financial Position				
Total assets	174.3	145.4	141.3	148.5
Total financial liabilities	69.7	62.3	57.5	64.7
Shareholders' equity	45.1	43.4	42.5	38.8

The following tables present information concerning the contribution of our reportable segments – comprising our Germany, United States, Europe, System Solutions and Group Development operating segments, and our non-operating Group Headquarters & Group Services segment – to net revenue for the periods indicated.

	Q1-Q3 2019	Q1-Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited)			
Total revenue[1]	**59,169**	**55,395**	**3,774**	**6.8**
Germany	16,217	16,088	129	0.8
United States	29,629	26,504	3,125	11.8
Europe	8,943	8,752	191	2.2
Systems Solutions	4,961	5,094	(133)	(2.6)
Group Development	2,068	1,607	461	28.7
Group Headquarters & Group Services	1,961	2,096	(135)	(6.4)
Intersegment revenue	(4,610)	(4,746)	136	2.9

1 The net revenue figures presented above for the first three quarters of the 2019 and 2018 financial years correspond to the figures presented in the column under the heading "Total revenue" in the table "*Segment information in the three quarters*" contained in the section "*Other Disclosures—Segment Reporting*" in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019, incorporated by reference in this offering memorandum, with the segment revenue figures presenting revenue of the respective segments prior to the elimination of intersegment revenue.

	2018	2017	Change 2018/2017		2016
	(millions of €)		(%)		(millions of €)
	(audited)		(unaudited)		(audited)
Total revenue	**75,656**	**74,947**	**709**	**0.9**	**73,095**
Germany[1,2]	21,700	21,931	(231)	(1.1)	21,774
United States	36,522	35,736	786	2.2	33,738
Europe[2]	11,885	11,589	296	2.6	11,454
Systems Solutions[2]	6,936	6,918	18	0.3	6,993
Group Development[2]	2,185	2,263	(78)	(3.4)	2,347
Group Headquarters & Group Services[1,2]	2,735	2,935	(200)	(6.8)	3,460
Intersegment revenue	(6,307)	(6,425)	118	1.8	(6,670)

1 We assigned Vivento Customer Services GmbH, a provider of call center services, to our Germany operating segment as of January 1, 2018. Previously it was part of our Group Headquarters & Group Services segment. Comparative figures have been adjusted retrospectively. For further information on changes in the organizational structure, please refer to the section "*Group organization*", page 31 et seq. and Note 35 "Segment reporting" in the notes to consolidated financial statements, of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

2 Since January 1, 2017, we have reported on the Group Development operating segment and within the Group Headquarters & Group Services segment on the Board of Management department Technology and Innovation. Comparative figures have been adjusted retrospectively.

The Offering

The following summary contains basic information about the Notes and is not intended to be complete. It does not contain all of the information that is important to you. For a more complete understanding of the Notes, please refer to the section of this offering memorandum entitled "Description of the Notes".

Notes Offered .... $1,250,000,000 aggregate principal amount of Notes due January 21, 2050.

Issuer .... Deutsche Telekom AG.

Fiscal and Paying Agency Agreement .... The Notes will be issued under a fiscal and paying agency agreement (the "Agreement"), among Deutsche Telekom and Citibank as fiscal agent. The Agreement is more fully described under "*Description of the Notes*".

Date Interest Starts Accruing .... January 21, 2020.

Issue Price .... 98.934% of the principal amount of the Notes.

Maturity Date .... January 21, 2050.

Interest Rate .... 3.625% per annum.

Interest Payment Dates .... Every January 21 and July 21, commencing on July 21, 2020.

If any payment with respect to the Notes is due on a day that is not a Business Day (as defined below), we will make the required payment on the next succeeding Business Day, and no additional interest will accrue in respect of the payment made on that next succeeding Business Day.

Additional Amounts .... The Issuer may be required to withhold amounts from payments on the principal or interest on the Notes for taxes or any other governmental charges. If Germany requires a withholding of this type, the Issuer will, subject to some exceptions (as more fully described below under "*Description of the Notes—Additional Amounts*"), pay Additional Amounts in respect of those payments of principal and interest so that the amount you receive after such taxes and governmental charges will equal the amount that you would have received if no such taxes and governmental charges had been applicable.

Optional Redemption ... The Issuer may redeem the Notes, in whole or in part, under the circumstances described in "*Description of the Notes—Optional Redemption*".

The Issuer will give notice to DTC of any redemption it proposes to make at least 30 days, but not more than 60 days, before the redemption date. Notice by DTC to participating institutions and by these participants to street name holders of indirect interests in the Notes will be made according to arrangements among them and may be subject to statutory or regulatory requirements.

Optional Tax Redemption .... In the event of various tax law changes after the date of this offering memorandum and other limited circumstances that would require the Issuer to pay Additional Amounts or deduct or withhold tax on any payment to the Issuer to enable the Issuer to make any payments in relation to the Notes, subject to certain exceptions, the Issuer may redeem the Notes at any time at its option, as a whole or in part, upon not less than 30 nor more than 60 days' prior notice, at a redemption price equal to 100% of the principal amount of the notes then outstanding plus accrued and unpaid interest (and all Additional Amounts, if any) to (but excluding) the redemption date.

Limitation on Liens ...... So long as any of the Notes remain outstanding, the Issuer may not become obligated on any present or future Capital Market Indebtedness (as defined under "*Description of the Notes—Limitation on liens*") that is secured by a lien on the whole or any part of its present or future assets, unless an equivalent or higher-ranking lien on the same property is granted to the holders of the Notes.

Substitution of Issuer; Consolidation, Merger and Sale of Assets .... The Issuer, without the consent of the holders of the Notes, is generally permitted to consolidate or merge into, or sell, transfer, lease or convey all or substantially all of their respective assets to, any corporation and the Issuer may at any time substitute for the Issuer any Subsidiary (as defined under "*Description of the Notes—Substitution of Issuer; Consolidation, Merger and Sale of Assets*") of the Issuer as principal debtor under the Notes, under the circumstances described in "*Description of the Notes—Substitution of Issuer; Consolidation, Merger and Sale of Assets*".

Cross-Default .... None.

Calculation of Interest .... Interest on the Notes will be calculated on the basis of a 360-day year consisting of twelve 30-day months.

Business Day .... A "Business Day" means a day (other than a Saturday or Sunday) on which commercial banks are open for business (including dealings in foreign exchange and foreign currency) in New York City.

Securities Codes ....

CUSIP (Rule 144A):	251566AA3
CUSIP (Regulation S):	D2035MYV8
ISIN (Rule 144A):	US251566AA37
ISIN (Regulation S):	USD2035MYV82
Common Code (Rule 144A):	206681519
Common Code (Regulation S):	206681748

Denomination .... Minimum denominations of $150,000 and integral multiples of $1,000 in excess thereof.

Regular Record Dates For Interest …… The Business Day immediately preceding the relevant interest payment date.

Defeasance .... The Notes are subject to the provisions on defeasance that are described under "*Description of the Notes—Discharge and Defeasance*" and "*Description of the Notes—Covenant Defeasance*".

Ranking .... The Notes are not secured by any property or assets of Deutsche Telekom and will rank at least equally with all of their respective other unsecured and unsubordinated indebtedness.

Form of the Notes .... The Notes will initially be issued to investors in book-entry form only. Fully-registered Global Notes (as defined herein) representing the total aggregate principal amount of the Notes will be issued and registered in the name of a nominee for DTC, the securities depositary for the Notes, for credit to accounts of direct or indirect participants in DTC, including Euroclear and

Clearstream. Unless and until Notes in definitive certificated form are issued, the only Holder will be Cede & Co., as nominee of DTC, or the nominee of a successor depositary. Except as described in this offering memorandum, a beneficial owner of any interest in a Global Note will not be entitled to receive physical delivery of definitive Notes. Accordingly, each beneficial owner of any interest in a global Note must rely on the procedures of DTC, Euroclear, Clearstream, or their participants, as applicable, to exercise any rights under the Notes.

Governing Law .... The Notes and the Agreement will be governed by, and construed in accordance with, the laws of the State of New York.

Additional Issues .... The Issuer may, from time to time, without notice to or the consent of the Holders, create and issue additional notes, maturing on the same maturity date and having the same terms and conditions as the previously outstanding Notes in all respects (or in all respects except for the issue date and the amount and the date of the first payment of interest thereon) in accordance with applicable laws and regulations and pursuant to the Agreement.

Additional Notes issued in this manner shall be consolidated with and form a single series with previously outstanding Notes. Any Additional Notes shall be issued under a separate CUSIP or ISIN number unless the Additional Notes are issued pursuant to a "qualified reopening" of the original Notes or are otherwise treated as part of the same "issue" of debt instruments as the original Notes for U.S. federal income tax purposes.

Fiscal Agent, Paying Agent, Transfer Agent and Registrar .... Citibank, N.A.

Notices............................ So long as any Notes are represented by a global note and such global note is held on behalf of a clearing system, notices to the holders of Notes may be given by delivery of the relevant notice to that clearing system for communication by it to entitled accountholders or, if any such delivery is not practicable, by publication in a leading English language daily newspaper having general circulation in Europe. Any such notice will be deemed to have been given on the date of first publication or, if published more than once or on different dates, on the first date on which publication is made.

Listing and Admission to Trading .... The Notes will not be listed on any securities exchange.

RISK FACTORS

Before deciding to purchase the Notes, prospective investors should carefully review and consider the following risk factors and the other information contained in this offering memorandum, in particular the information contained in "Legal Proceedings". The occurrence of one or more of these risks alone or in combination with other circumstances may have a material adverse effect on our business, results of operations, financial condition and cash flows, and may affect our ability to fulfill our obligations under the Notes. The order in which the risks are presented does not reflect the likelihood of their occurrence or the magnitude or significance of the individual risks. Investing in the Notes could involve additional risks and uncertainties of which we may not currently be aware, or which we may currently not consider material. An investment in the Notes is only suitable for investors experienced in financial matters who are in a position to fully assess the risks relating to such an investment and who have sufficient financial means to absorb any potential loss stemming therefrom. The following discussion contains a number of forward-looking statements. Please refer to the "Forward-Looking Statements" discussion in this offering memorandum for cautionary information.

Risks Related to our Business

Uncertainties about economic growth in Germany, Europe and the United States and prospects for growth going forward, including potential slowdowns in consumer spending, could adversely affect our customers' purchases of our products and services in each of our operating segments, which could have a negative impact on our operating results and financial condition.

Our business is influenced by general economic conditions in our core markets of Germany, Europe and the United States. We remain subject to the risk of a protracted period of low or negligible global growth as recent economic and political developments have raised questions once again concerning the economic situation going forward. In Europe, potential future changes to monetary policy, renewed doubts about the future of the Eurozone (as well as questions about the EU more generally in light of the continuing economic uncertainty since the Brexit vote in June 2016), insufficient deleveraging in the private and public sectors, continued doubts over the pace of structural and financial reforms and an elevated level of political uncertainty could adversely affect our operations. In some of the European countries in which we operate, such as Greece and Croatia, structural unemployment remained unabatedly high, especially among older persons of working age. In the United States, where we have experienced a large portion of our revenue growth in recent periods, economic data have been strong prompting the Federal Reserve to embark on a course of raising interest rates. Should an economic contraction or a protracted period of stagnation occur, monetary policymakers in Europe and the United States have few tools left to combat these developments. Economic weakness, especially in the emerging economies but also in Europe, could negatively impact global trade and the markets of our operating segments. These trends could also be exacerbated by geopolitical crises, resulting for example, from the rising intercontinental trade tensions, terrorist attacks, continued instability in the Middle East or increased political uncertainty arising from the success of populist movements in European countries.

In particular, this situation poses risks to our operations in some of our core countries. For example, consumers and business customers could increasingly curtail their consumption of our services in an atmosphere of continued economic distress and continued or increasing uncertainty. National austerity measures in response to declining economic output could also have further negative effects on telecommunications consumption, caused by both reduced government demand and declines in disposable income in the private sector. Our operating business also faces the risks of unannounced tax increases or special taxes, particularly in our Southern and Eastern European markets. These developments could, in turn, negatively impact our revenue and earnings development, including in the future growth areas (such as connected car and healthcare, as well as in cutting-edge digital innovation areas such as cloud computing and cyber security) on which we plan to focus, and jeopardize the attainment of our growth targets, such as those relating to data services in mobile telecommunications, or those relating to broadband products and services.

Continued elevated levels of political and economic uncertainty could have unpredictable consequences for the markets in which we operate and for the greater economy, potentially leading to declines in business levels and losses across our businesses.

The last several years have been characterized by increased political and economic uncertainty as Europe in particular has been impacted by the European sovereign debt crisis, uncertainties surrounding the timing and terms of Brexit, the refugee crisis and the increasing attractiveness to voters of populist movements. Although the severity of the European debt crisis appeared to have abated somewhat over recent years as the actions by the European Central Bank, the rescue packages and the economic recovery appeared to have stabilized the situation in Europe, political uncertainty has continued to be at an elevated level in recent periods and could trigger the unwinding of aspects of European integration that have benefitted our businesses. In many European countries, populist or anti-austerity political parties or movements

have garnered increased popular support. In particular, the United Kingdom's upcoming exit from the EU or any potential similar attempts by other EU countries could, depending on the political situation surrounding such an exit, adversely affect European and global economic or market conditions. Against this backdrop, the prospects for national structural reform and further integration among EU member states, both viewed as important tools to reduce the Eurozone's vulnerabilities to future crises, appear to have worsened. Furthermore, overall high global economic growth rates could be impacted by rising political uncertainties surrounding international trade and international relations, which poses a substantial risk for the global economy. These trends may ultimately result in material reductions in our business levels as our customers rein in their spending in light of decreased economic output and increased uncertainty, which would materially adversely affect our operating results and financial condition.

We are exposed to risks in connection with business combinations and acquisitions or dispositions of businesses and assets, which could jeopardize the achievement of our targets and materially harm our results of operations and our share price.

Where it appears strategically advantageous, we may consider business combinations, acquisitions or disposals of businesses or assets from time to time. For example, in April 2018, our subsidiary T-Mobile US announced a business combination with Sprint Corporation ("Sprint"), a large telecommunications provider in the United States, (the "Transactions"). The completion of the Transactions has been approved by the Committee on Foreign Investments in the United States ("CFIUS") and the U.S. Federal Communications Commission ("FCC"), with court approval of the clearance decision of the U.S. Department of Justice ("DOJ") currently pending before the Federal District Court of Washington D.C. The Transactions remain subject to the outcome of certain proceedings (including lawsuits by various state attorneys-general)(see "*Risk Factors Related to the Proposed T-Mobile US and Sprint Merger"*). Furthermore, the credit ratings of Deutsche Telekom are likely to be negatively affected by consummation of the Transactions.

Even though we review the companies, businesses, assets, liabilities or contracts we plan to acquire, it is generally not feasible for these reviews to be complete in all respects. As a result, we may assume unanticipated liabilities or an acquired company may not perform as well as expected. Were we to announce or complete a significant business combination transaction, our share price could decline significantly if investors viewed the transaction as too costly or unlikely to improve our competitive position. In addition, we might have difficulty successfully integrating any entity with which we combine our operations, for example due to unexpectedly high integration costs, which could jeopardize the achievement of qualitative or quantitative targets, including those relating to cost and revenue synergies, and could materially and adversely affect our profitability. Failure to complete announced business combinations, acquisitions or dispositions could also affect investors' perception of our business prospects and management, and thus cause our share price to fall. It could also lead to departures of key employees, or lead to increased costs and reduced profitability if we were to feel compelled to offer such key employees financial incentives to remain. Additionally, the evolving wireless industry is increasingly characterized by the convergence of mobile, video and broadband services. The opportunities for the acquisition of non-wireless assets in the United States pose several challenges relating to the integration of such assets into our processes and systems, such as sales and service and back-office support.

We are subject to regulatory and legislative action by regulatory authorities, which may increase our costs of providing products or services, require us to change our business operations, products, or services or subject us to material adverse impacts if we fail to comply with such regulations.

Our operations worldwide, as well as those of our subsidiaries and affiliates, are subject to sector-specific telecommunications regulations and general competition law, as well as a variety of other regulations. The extent to which telecommunications regulations apply to us depends largely on the nature of our activities in a particular country, with the provision of traditional fixed-line telephony services usually being subject to the most extensive regulation. Regulations can have a very direct and material effect on our overall business, particularly in jurisdictions that favor regulatory intervention.

These regulatory authorities, including the European Commission, the German Federal Network Agency ("GFNA") (*Bundesnetzagentur*), the U.S. Federal Communications Commission and other authorities, regulate the licensing, construction, modification, operation, ownership, sale and interconnection of fixed-line and wireless network communications systems. They also have the authority to assign wireless spectrum (often in cooperation with the relevant ministry or government department) to supervise the efficient use of frequencies, and to impose universal service obligations. We are subject to regulatory oversight by various regulatory authorities in a number of jurisdictions, as well as judicial review and actions, on issues related to the telecommunications industry that include, but are not limited to: network access, including bitstream access, very high-speed digital subscriber line ("VDSL") and vectoring; traffic management; regulation of charges, such as monthly line rental, termination rates and roaming rates; spectrum allocation

and licensing; pole attachments; inter-carrier compensation; Universal Service Fund ("USF"); net neutrality; special access; consumer protection, such as emergency dialing-services; electromagnetic fields and health; price caps, switching or interoperability; consumer privacy; vendor choice, and cyber security. We are also subject to regulations in connection with other aspects of our business, including handset financing and insurance activities. Recent initiatives by the FCC, the European Commission, the GFNA and other regulatory authorities suggest that the regulatory framework in which we operate remains in flux and that we will continue to have to adjust to a constantly changing regulatory environment.

The regulatory authorities having jurisdiction over our activities may adopt regulations or take enforcement or other actions that could adversely affect our business, impose new costs, or require changes in current or planned operations. Furthermore, we could be subject to fines, forfeitures and other penalties (including, in extreme cases, the revocation of our spectrum and other licenses) for failure to comply with governmental regulations, even if any such non-compliance were unintentional. The loss of any licenses, or any related fines or forfeitures, could adversely affect our business, results of operations and financial condition.

For further information regarding the matters discussed in this section and other aspects of the regulatory environments to which our businesses are subject, see "*Regulation*".

Europe

Throughout the EU, national telecommunications laws are based on the Regulatory Framework for Electronic Communications in the EU ("EU Framework"). Since the largest part of our business is undertaken in the EU, our operations are, to a large extent, subject to the EU Framework and related telecommunications regulations. The most significant regulatory impact on our business comes from the EU Framework's special requirements applicable to providers with significant market power. Obligations in relation to network access, price setting, separate accounting for interconnection services, publication and non-discrimination, can be imposed on those operators that are designated by the relevant national regulatory authority ("NRA") as having significant market power in an electronic communications market (see "*Regulation—The EU Regulatory Framework for Electronic Communications—Special Requirements Applicable to Providers with Significant Market Power*"). A review of the EU Framework for telecommunications regulation that is expected to enter into force in EU Member States in late 2020 confirms these basic principles, while foreseeing certain options for a more light-touch regulatory regime for fibre-to-the-home networks (see *"Regulation—The EU Regulatory Framework for Electronic Communications"* for details of the new rules). The revised framework will provide new powers for regulators to impose network access irrespective of significant market power under certain economic conditions such as the presence of high and non-transitory entry barriers. This could lead to situations in which deregulation of our networks is delayed or impeded in cases where we are no longer deemed to have significant market power. At the same time, the new intervention powers may be beneficial in case we want to make use of regulated network access to third party networks to provide our services. Under the Digital Single Market strategy, European Parliament and Council are beginning to debate on a draft regulation for increased transparency of certain online intermediaries including easier possibilities for redress against them. The European Parliament and Council have agreed on rules for online intermediaries with regard to their business customers, particularly including better transparency and easier possibilities for redress against them. This first step of regulating platform-to-business relations is relatively light-touch when compared to telecoms regulation. However, the platform-to-business regulation could affect some of our services, such as our media distribution platforms and result in additional costs due to technical implementation measures needed to comply with increased regulation, among other things. Although the platform-to-business regulation was only adopted in July 2019, the European Parliament and Council have already begun preparations for a 2021 review that is likely to lead to additional rules.

The European Commission has published two directive proposals to update and improve consumer protection and its enforcement, namely a directive on the modernization of consumer law and a directive on collective redress. Different from the EU Telecommunications Framework, these directives apply horizontally, *i.e.* to all sectors of industry. Also, the provisions include the risk of being more burdensome for telecommunications operators. For example, under the proposal EU member states will be empowered to more easily restrict or ban unsolicited visits at customers' homes, potentially affecting our operators' sales channels. Further, certain elements of the proposal on collective redress could lead to automatic imposition of redress payments for all customers in cases of identified breaches of consumer law, including telecom-specific provisions. Whereas the directive on the modernization of consumer law has already been adopted, the proposal for a directive on collective redress is still being negotiated.

In addition, we expect the new regulation on roaming charges and mobile call termination charges described below to have a negative effect on our revenues and our ability to invest in mobile networks.

On November 25, 2015, the EU Parliament and the Council adopted Regulation (EU) 2015/2120 concerning the single market for electronic communications, which contains provisions on the open internet access ("net neutrality"), international roaming and end-user protection, including transparency obligations. With regard to international roaming, as of June 15, 2017, surcharges for roaming services within the EU were eliminated entirely (commonly known as "Roam like at Home"), unless permitted under implementing rules on fair usage policy, which were published by the European Commission on December 15, 2016. To support Roam like at Home regulation, the EU further decreased wholesale roaming charges with effect from June 15, 2017 – so called IOTs – which network operators charge to other network operators when their roaming customers use the other operator's network. The wholesale regulation adopted substantial cuts in the regulated wholesale roaming rates for data, as well as more moderate cuts for the prices of voice and SMS wholesale roaming services. At the end of November 2019, the European Commission published their first report on the review of the roaming market. Although the European Commission's report does not contain proposed legal changes to the current roaming regulation, we expect the European Commission to start a process for changes within Q1 2020. We anticipate that this process will lead to further reductions of the regulated wholesale roaming caps. Additionally, the European Commission plans to include changes regarding zero rating offers used within another member state of the EU, new rules regarding quality of service ("QoS") of retails services and clarifications for machine-to-machine ("M2M") services.

On December 11, 2018, the EU Parliament and the Council adopted Regulation (EU) 2018/1972 establishing the Body of European Regulators for Electronic Communications ("BEREC") and the Agency for Support for BEREC (BEREC Office), amending Regulation (EU) 2015/2120 and repealing Regulation (EC) No 1211/2009. One of the amendments to Regulation (EU) 2015/2120 introduced by Regulation (EU) 2018/1972 is the introduction of price caps for retail charges for regulated intra-EU communications. As of May 15, 2019, the retail price charged to consumers for regulated intra-EU communications shall not exceed EUR 19 cents per minute for calls and EUR 6 cents per SMS. This new rule does not extend to business customers and will be limited in time for five years. We expect it to negatively affect our service revenues, particularly in the European mobile market.

Additionally, Deutsche Telekom's business requires the secure processing and storage of personal data relating to its customers, employees, business partners and others and is therefore increasingly subject to new and complex data protection laws and regulations. For example, Deutsche Telekom is subject to the EU General Data Protection Regulation 2016/679 (the "GDPR") (which became fully applicable in May 2018) as well as other relevant national legislation (e.g., the German Federal Data Protection Act), which introduce a number of new obligations and requirements upon subject companies. These requirements include that appropriate technical and organizational measures are in place to protect the confidentiality and integrity of personal data and that effect is given to an increased number of data subject rights such as the rights of access and erasure.

Additionally, it is expected that Directive 2002/58/EC (the "E-Privacy Directive") will be replaced by the E-Privacy Regulation at some point during the year 2020. The E-Privacy Regulation is currently pending adoption by the legislative bodies of the European Union and is likely to affect our business. There is uncertainty relating to the potential impact of the E-Privacy Regulation generally on our business and how its requirements will relate to the requirements of the GDPR.

Ensuring compliance with data protection laws is an ongoing commitment which involves substantial costs and administrative efforts. Deutsche Telekom has set up a Privacy Working Group dedicated to data protection law compliance. This group aims to ensure the successful implementation of the GDPR's requirements and monitors the ongoing compliance of the Group with GDPR and other relevant data protection laws and regulations. It is possible that despite Deutsche Telekom's efforts, governmental authorities or third parties will assert that Deutsche Telekom's business practices fail to comply with these laws and regulations. If its operations are found to be in violation of any of such laws and regulations, Deutsche Telekom may be subject to significant civil, criminal and administrative damages, penalties and fines, a requirement to compensate any persons affected by such non-compliance, as well as reputational harm, which could have a material adverse effect on its business, financial condition or results of operations.

We also expect various reviews of, and legislative initiatives and court proceedings pertaining to, call termination rates, which will likely result in further reductions of the mobile call termination fees that we may charge in the EU countries in which we operate.

Germany

German telecommunications regulation has a particularly significant impact on our business due to the significant share of our operations that is based or conducted in Germany. German telecommunications regulation is based on the EU Framework, as in all EU Member States, and is mainly derived from the German Telecommunications Act (*Telekommunikationsgesetz*) and implemented by the Federal Network Agency (*Bundesnetzagentur*).

We believe that, for the foreseeable future, the GFNA is likely to view us as a provider with significant market power in the fixed network and in other markets, including most of those in which we held monopoly rights in the past. Additionally, we have been determined to be a provider with significant market power in the German market for mobile voice call termination. There is a significant risk that the strict regulatory provisions of the German Telecommunications Act relating to providers deemed to have significant market power will continue to be applied in the future to our activities in the markets described above. Considering that in many markets our competitors are unlikely to gain significant market power in the near future, we expect that we will have to compete in important markets with providers not subject to those regulatory obligations. Therefore, these competitors may have more flexibility than we have in terms of the selection of services offered and customers served, pricing and the granting of network access. In addition, the national transparency regulation announced in December 2016 to achieve more transparency and greater cost control in telecommunications services also materially affects our operations in Germany. The extensive requirements provide consumers and other end users with the opportunity, for example, to check their Internet speeds in the mobile and fixed networks upon request.

In addition to the regulatory risks described above, there are also uncertainties in Germany arising from the fact that administrative courts can reverse rate rulings made by the GFNA. In such cases, the GFNA must then make a decision again with respect to the rates for past periods. It is generally unclear in such cases whether, to what extent and in which direction rates will be ultimately revised. Nevertheless the GFNA has recently, in May 2018, made a decision regarding unbundled local loop one-time fees after a court had dismissed the original decision, in which wholesale rates increased retroactively.

In connection with the German government's plan to achieve nationwide access to high-speed internet by 2025, Deutsche Telekom, similar to its competitors, is involved in various project subsidized by the German government to build out the national digital infrastructure, especially in underserved areas. In this context, the German government intends to create a statutory claim to high-speed internet access by January 1, 2025. While the details of the contemplated legislation are not currently known, the legislation may have a negative impact on Deutsche Telekom and other companies participating in the state-subsidized projects to build out the national digital infrastructure.

On December 15, 2017, the Federal Network Agency prohibited elements of the MagentaMobil StreamOn add-on option. According to the Federal Network Agency, two aspects of this option breach the EU Regulation on net neutrality and roaming. The ruling stipulated that we must transmit all StreamOn data traffic at the maximum available bandwidth and that this also cannot be deducted from the included data volume contingent when roaming within the EU. We have appealed this ruling and are seeking legal remedy with the Cologne Administrative Court. In its ruling announced on July 15, 2019, the Munster Higher Administrative Court confirmed as part of expedited court proceedings that the GFNA order must be followed for the time being. In consultation with the GFNA, we have modified our MagentaMobil StreamOn product pursuant to the authority's requirements. Nevertheless, the Cologne Administrative Court will review in ordinary court proceedings whether the steps to optimize data traffic as well as the restriction of the offering to Germany are compatible with the EU regulation.(see "*Regulation—Mobile Regulation—Germany"*).

United States

The Federal Communications Commission ("FCC") regulates the licensing, construction, modification, operation, ownership, sale, and interconnection of wireless communication systems, as do some state and local regulatory agencies. In particular, the FCC imposes significant regulation on licensees of wireless spectrum with respect to how radio spectrum is used by licensees, the nature of the services that licensees may offer and how the services may be offered, and the resolution of issues of interference between spectrum bands. Additionally, the Federal Trade Commission ("FTC") and other federal and state agencies have asserted that they have jurisdiction over some consumer protection matters, and elimination and prevention of anticompetitive business practices. T-Mobile US is subject to regulatory oversight by various federal, state and local agencies, as well as judicial review and actions, on issues related to the wireless industry that include, but are not limited to: roaming, interconnection, spectrum allocation and licensing, facilities siting, pole attachments, intercarrier compensation, USF, net neutrality, 911 services, consumer protection, consumer privacy, and cybersecurity. T-Mobile US is also subject to regulations in connection with other aspects of its business, including handset financing and insurance activities.

Enactment of additional state or federal regulations may increase T-Mobile US' costs of providing services (including, through universal service programs, requiring us to subsidize wireline competitors) or require us to change T-Mobile US' services. We cannot assure you that the FCC or any other federal, state or local agencies will not adopt regulations or take enforcement or other actions that would adversely affect our business, impose new costs, or require changes in current or planned operations. For example, under the Obama administration, the FCC established net neutrality and privacy regimes that applied to our operations. Both sets of rules potentially subjected some of our initiatives and practices to more burdensome requirements and heightened scrutiny by federal and state regulators, the public, edge providers, and private litigants regarding whether such initiatives or practices are compliant. While the FCC rules are now largely rolled back under the Trump administration, some state legislators and regulators are seeking to replace them with state laws, perpetuating uncertainty regarding the regulatory environment around these issues.

In addition, states are increasingly focused on the QoS and support that wireless communication providers provide to their customers and several states have proposed or enacted new and potentially burdensome regulations in this area. T-Mobile US also faces potential investigations by, and inquiries from or actions by state public utility commissions.

We cannot assure you that the U.S. Congress will not amend the Communications Act, from which the FCC obtains its authority, and which serves to limit state authority, or enact other legislation in a manner that could be adverse to our business. While the Communications Act generally preempts state and local governments from regulating the entry of, or the rates charged by, wireless communication providers, certain state and local governments regulate other terms and conditions of wireless service, including billing, termination of service arrangements and the imposition of early termination fees, advertising, network outages, the use of handsets while driving, zoning and land use. Further, the FCC and the Federal Aviation Administration regulate the siting, lighting and construction of transmitter towers and antennas. Tower siting and construction are also subject to state and local zoning, as well as federal statutes regarding environmental and historic preservation. The future costs to comply with all relevant regulations are to some extent unknown and regulatory changes could result in higher operating expenses for T-Mobile US in the future.

The California Consumer Privacy Act (the "CCPA"), which passed in June 2018, established new data privacy rights for California consumers, effective in January 2020. We will likely have to incur significant implementation costs to ensure compliance with the CCPA, and we could see increased litigation costs once the law goes into effect. Any failure to establish proper controls and procedures in place to ensure compliance with the CCPA could have an adverse effect on our business. Other states are considering similar legislation, which, if passed, could create more risks and potential costs for us.

Failure to comply with applicable regulations could have a material adverse effect on our business, financial condition and operating results. We could be subject to fines, forfeitures, and other penalties (including, in extreme cases, revocation of our spectrum licenses) for failure to comply with FCC or other governmental regulations, even if any such non-compliance was unintentional. The loss of any licenses, or any related fines or forfeitures, could adversely affect our business, financial condition, and operating results.

We offer highly regulated financial services products. These products expose us to a wide variety of state and federal regulations.

The financing of devices, through T-Mobile US' Equipment Installation Plan and JUMP! On Demand programs, has expanded T-Mobile US' regulatory compliance obligations. Failure to remain compliant with applicable regulations, may increase its risk exposure in the following areas:

- Consumer complaints and potential examinations or enforcement actions by federal and state regulatory agencies, including but not limited to the Consumer Financial Protection Bureau, state attorneys general, the FCC and the FTC; and
- Regulatory fines, penalties, enforcement actions, civil litigation, and/or class action lawsuits. Failure to comply with applicable regulations and the realization of any of these risks could have a material adverse effect on our business, financial condition, and operating results.

The scarcity and cost of additional wireless spectrum and regulations relating to spectrum use may adversely affect our business strategy, financial condition and operating results.

We will need to acquire additional spectrum in order to continue our customer growth, expand and deepen our coverage, maintain our quality of service, meet increasing customer demands and deploy new technologies. We will be at a

competitive disadvantage and possibly experience erosion in the quality of service in certain markets if we fail to gain access to necessary spectrum before network capacity is exhausted.

The continued interest in, and acquisition of, spectrum by existing carriers and others may reduce our ability to acquire spectrum, increase the cost of acquiring spectrum in the secondary market or negatively impact our ability to gain access to spectrum through other means, including government auctions. We may need to enter into spectrum sharing or leasing arrangements, which are subject to certain risks and uncertainties and may involve significant expenditures. Any material delay could adversely impact our ability to implement our plans and efforts to improve our network. In addition, our return on investment in spectrum depends on our ability to attract additional customers and to provide additional services and usage to existing customers. As a result, the return on any investment in spectrum that we make may not be as much as we anticipate or take longer than expected. Additionally, we may be unable to secure the spectrum we need in any auction we may elect to participate in or in the secondary market, on favorable terms or at all.

Certain risks may arise from unfavorable spectrum auction conditions, particularly in Germany, including the use of frequency, excessive starting prices, disproportionately high annual frequency fees and low barriers for newcomers (such as a fourth Mobile Operator in Germany). Nine lawsuits have been filed in opposition to the German auction conditions with unclear outcomes. Should a claimant prevail, the respective auction might be reversed, and could result in a new award procedure by the GFNA taking into account the judicial decision.

In the United States, the FCC may impose conditions on the use of new wireless broadband mobile spectrum that may negatively impact our ability to obtain spectrum economically or in appropriate configurations or coverage areas. Additional conditions that may be imposed by the FCC include heightened build-out requirements, limited license terms or renewal rights, and clearing obligations that may make it less attractive or less economical to acquire spectrum. In addition, rules may be established for future government spectrum auctions that may negatively impact our ability to obtain spectrum economically or in appropriate configurations or coverage areas. If we cannot acquire needed spectrum from the government or otherwise, if competitors acquire spectrum that will allow them to provide services competitive with our services, or if we cannot deploy services over acquired spectrum on a timely basis without burdensome conditions, at reasonable cost, and while maintaining network quality levels, then our ability to attract and retain customers, and our business, financial condition and operating results could be materially adversely affected.

Our fixed-line and wireless network authorizations and licenses are subject to renewal and may be revoked in the event that we violate applicable laws.

Our existing fixed-line and wireless authorizations and licenses are subject to renewal upon the expiration of the relevant periods for which they are granted. While historically regulatory authorities have approved our authorization and license renewal applications, the applicable legal frameworks provide that authorizations or licenses may be revoked for cause and authorization and license renewal applications denied if the competent regulatory authorities determine that a renewal would not serve the public interest. In addition, our authorizations and licenses are subject to our compliance with applicable legal requirements, and in particular in the United States, are subject to our compliance with the terms set forth in the agreement pertaining to national security among Deutsche Telekom, the Federal Bureau of Investigation, the Department of Justice, the Department of Homeland Security and T-Mobile US. Our failure to comply with the legal requirements applicable to us or our subsidiaries, or with the agreement described above could result in fines, injunctions and other penalties, including potential revocation or non-renewal of our spectrum and other authorizations or licenses. If we fail to timely file to renew any authorization or license, or fail to meet any regulatory requirements for renewal we could be denied a license renewal. In Germany, for example, the Federal Network Agency awards spectrum for wireless network services for certain predetermined periods of time, subject to renewal. One-time and regular rates charged by telecommunications services providers to their customers or competitors are also approved only for certain pre-determined periods of time, subject to re-examination after the expiration of that period. In the United States, many of our wireless licenses are subject to interim or final construction requirements and there is no guarantee that the FCC will find our construction, or the construction of prior licensees, sufficient to meet the build-out or renewal requirements. The FCC has pending a rulemaking proceeding to reevaluate, among other things, its wireless license renewal showings and standards and may in this or other proceedings promulgate changes or additional substantial requirements or conditions to its renewal rules, including revising license build out requirements in unbuilt areas. Accordingly, we cannot assure you that the competent regulatory authorities will renew our licenses upon their expiration. If any of our licenses were to be revoked or

not renewed upon expiration, we would not be permitted to provide services under that license, which could have a material adverse effect on our business, results of operations and financial condition.

We face intense competition in all areas of our business, which could lead to reduced prices for our products and services and a decrease in market share in certain service areas, thereby adversely affecting our revenues and net profit.

Germany

In Germany, fixed-line network voice telephony service revenues and prices have continued to decline, primarily due to intense competition and adverse decisions imposed by the NRAs. The market for fixed-network broadband is characterized by a large number of competitors and different infrastructures, and we have observed increasing shares of cable network operators, which are able to provide telecommunications services. In the broadband market, we also observe that the market shares of regional network operators are growing, in particular in Germany, and that they are increasing their market coverage by building out their own infrastructure. In certain regions, our competitors are extending their own fiber-optic network to homes so that they are independent of our network in the local loop. For example, the takeover of UnityMedia by Vodafone has created a de-facto-monopoly on cable TV markets for Vodafone, as it now has easier access to the housing sector. This increased market power could negatively affect the market conditions for all competitors of Vodafone, including Deutsche Telekom, in Germany.

Competitive pressure is also increasing from players that have traditionally operated outside the telecommunications sector, such as major consumer electronics companies and Internet service providers. Furthermore, the switch of mobile operators' focus from pure mobile services towards fixed-line offerings, regulatory actions by the Federal Network Agency and the increasing quality and acceptance of Voice over Internet Protocol ("VoIP") services will increase pressure on our market shares, revenues and margins.

The German markets for Internet access and portal services, especially within the broadband market, have been, and will continue to be, highly competitive and are increasingly saturated. Prices for broadband flat rates have been steadily declining. Our future competitive position in the broadband/fixed-network business in Germany will be affected by pricing, network speed and reliability, services offered, customer support and our ability to be technologically adept and innovative. The regulatory environment can also exert a significant influence on the level of competition. We expect that our competitors will continue to pursue new broadband customers aggressively. In addition, a weaker economy may increase pressure on our revenues and margins in these markets. Furthermore, regulatory decisions have required us to offer to our competitors an IP bitstream access product, which enables our competitors to expand their operations throughout Germany without building their own infrastructure.

Part of the challenge in the fixed-network business in Germany continues to be the improvement of our reputation for customer service while implementing cost-saving measures. If we do not continue to improve our customer service sustainably, there is a risk of a negative impact on customer loyalty that could lead to higher losses of customers.

We also expect market prices in mobile voice telephony and mobile data services to decline further, which could adversely affect our mobile revenue. Among the main reasons for the decrease in prices are providers that are pursuing aggressive pricing policies and are expanding in Germany and other European markets, as resellers and "no-frills" operators, such as "Drillisch", offer discount rates without significant minimum-contract term obligations. With our "Congstar" brand, we also participate in this market. Competition in the German mobile telecommunications segment with established players such as Vodafone and Telefonica is also intense and can be expected to increase further in the future.

As the German market for mobile telecommunications has become increasingly saturated, the focus of competition has been shifting from customer acquisition to customer retention, and increasing the quality and value of existing customers. Accordingly, if we are unable to increase revenues through increased quality and better value to our customers, we may not be able to compensate by increasing our market share. *Europe*

Competition in the European mobile telecommunications markets run by our Europe operating segment is intense and can be expected to increase. Even though partnerships and consolidations in the industry, for example, in Austria, are providing impetus for some stabilization in pricing, new players continue to enter the market through spectrum auctions and wholesale agreements. The largest national telecommunication providers still face serious barriers to participating in M&A deals, such as rising protectionism, government intervention, and continued uncertainty. However, such M&A deals still remain an attractive proposition to investors.

Growing competition results, to a different extent in each regional market, from the market entry of alternative carriers (such as cable TV operators) or low cost carriers (such as Mobile Virtual Network Operators or "MVNOs"), technology shifts (such as IP-based telecommunications networks) and from market consolidation. In addition, the risk remains that smaller competitors will take unforeseen, aggressive pricing measures. In particular, providers such as RCS-RDS in Romania and Play in Poland are positioning themselves through low-price bundled products. In addition, over-the-top ("OTT") players such as WhatsApp, which offer audio, video and other media over the internet without the involvement of a multiple-system operator in the control or distribution of content, are increasingly replacing traditional voice and text messaging solutions.

If prices for mobile telecommunications services continue to decline more than anticipated through competition and/or regulation and this decline is not compensated for by higher usage, we may be unable to achieve our planned objectives, including our strategic targets.

Demand for telecommunications services continues to be affected by the potential of continued economic stagnation and tepid economic growth in European economies. In addition, special taxes levied on telecommunications services, such as those in Romania and Greece, and the costs of spectrum auctions, for instance in Austria, impacted the telecommunications industry in a number of our footprint countries.

As European markets have become increasingly saturated, the focus of competition has been shifting from customer acquisition to customer retention and increasing the quality and value of existing customers. Accordingly, if we are unable to offer increased quality and better value to our customers, our market share and revenues may not grow as we have anticipated in our plans and strategic targets.

Moreover, continued regulatory scrutiny of mergers and acquisitions on competition grounds and governmental scrutiny, especially regarding Chinese investment in the EU, may affect telecom infrastructure transactions, particularly the outcome of the 5G race. The increasing importance of data privacy regulations and the introduction of the European General Data Protection Regulation (Regulation (EU) 2016/679) (the "GDPR") may also have an impact on telecom infrastructure transactions, for example, in connection with the potential ban of some Chinese suppliers.

United States

In the United States, two of our main national competitors – AT&T and Verizon Wireless – are significantly larger than T-Mobile US. Our relative market position in the United States entails particular risks, especially in connection with our market shares, brand positioning, network coverage, including in roaming agreements, and network quality. In particular, our largest competitors' scale could afford them significant structural and competitive advantages in this market and enable them to react more quickly to challenges, to invest more effectively in market opportunities and to spend more on customer acquisition. They may be in a better position to enter into exclusive handset, device, or content arrangements, execute pervasive advertising and marketing campaigns, or otherwise improve their cost position relative to ours. In addition, the refusal of our large competitors to provide critical access to resources and inputs, such as roaming services on reasonable terms, may improve their position within the wireless broadband mobile services industry. This situation presents T-Mobile US with a long-term challenge to compete effectively in terms of pricing, products, coverage and the introduction of new technologies and services.

We expect the consolidation of the U.S. telecommunications market to continue as growth has slowed as a result of high market penetration. The U. S. mobile market continues to be characterized by intense competition among mobile carriers. Competitive factors within the U.S. mobile market that can drive consolidation (as well as put pressure market participants more generally) include dynamic changes in pricing, voice market saturation, service and product offerings, customer experience, network quality, development and deployment of technologies, availability of spectrum licenses and regulatory changes. Customer attrition, also known as churn, may increase as the wireless industry shifts away from service contracts. We also expect that our customers' growing appetite for data services will place increased demands on our network capacity. These competition and capacity issues will continue to put pressure on pricing and margins as companies compete for potential customers. Our ability to compete will depend on, among other things, continued absolute and relative improvement in network quality and customer services, effective marketing and selling of products and services, attractive pricing, and cost management, all of which will involve significant expenses.

We expect joint ventures, mergers, acquisitions and strategic business combinations in the U.S. mobile industry to result in increased competition in the U.S. market. We face intense and increasing competition from other service

providers as industry sectors converge, such as cable, telecom services and content, satellite, and other service providers. Companies like Comcast and AT&T (with acquisitions of DirecTV and Time Warner, Inc.) will have the scale and assets to aggressively compete in a converging industry. Verizon, through its acquisitions of AOL, Inc. and Yahoo! Inc. is also a significant competitor focusing on premium content offerings to diversify outside of core wireless. Further, some of T-Mobile US' competitors now provide content services in addition to voice and broadband services, and consumers are increasingly accessing video content from Internet-based providers and applications, all of which create increased competition in this area. These factors, together with the effects of the increasing aggregate penetration of wireless services in all metropolitan areas and the ability of T-Mobile US' larger competitors to use resources to build out their networks and to quickly deploy advanced technologies, such as 5G, could make it more difficult for it to continue to attract and retain customers, and may adversely affect our competitive position and ability to grow, which would have a material adverse effect on our business, financial condition and operating results. The consolidation and convergence of the U.S. telecommunications market is expected to continue, as fixed and wireless become more integrated and wireless companies acquire content providers.

The incumbent wireless industry is experiencing disruptive innovation on many fronts. For example, Smartphone penetration is near 80 % of the U.S. mobile market. While smartphone use is expected to continue to grow, tablet sales and other "smart" devices, such as watches and Internet-enabled devices embedded in non-communications devices (referred to as "the Internet of things"), have gained traction. Rapid penetration of smartphones and tablets and the associated increases in data usage will require carriers to invest in device subsidization and network improvements.

As price competition for contract customers becomes greater, comprehensive coverage and quality as well as attractive "smartphone" offerings will be key to T-Mobile US' sustained commercial success. In the future, we will require additional spectrum in order to meet the rising demand for capacity. If T-Mobile US cannot acquire sufficient spectrum, the quality of our services may deteriorate due to saturated frequency capacities. The scarcity and cost of additional wireless spectrum, and regulations relating to spectrum use, may adversely affect our business strategy and financial planning. T-Mobile US has won in the FCC 600 MHz auction in 2017 to enhance its portfolio. However, gaining access to that spectrum may take up to three years or more.

Systems Solutions

Our Systems Solutions business is subject to risks associated with the general and regional economies of its customers and the willingness and ability of its customers to invest in information and communications technology services and products. The ICT market is characterized by long sales cycles, intense competition, declining prices and restraint in the awarding of projects, while recent economic development has had little positive impact on the ICT market.

Continued intense cost pressure in the private sector and particularly in the public sector means that the balance between differentiation (softening of price competition) and standardization (cost cutting) remains critical. This creates a potential risk of revenue losses and declining margins for T-Systems.

In addition, the international growth potential of T-Systems may be constrained by its limited brand recognition in some national markets, at least compared to that of competitors who may be more established in the relevant markets, particularly as this relates to maintaining and increasing business with multinational companies outside of Germany. Additionally, the relatively small size of some international T-Systems units may require expensive additional management resources from Germany.

If T-Systems' service offerings, such as dynamic services or cloud computing, and its focus on multinational customers are not successful, T-Systems may lose market share to its competitors, suffer reduced revenues and incur losses.

For more information, see "*Description of Our Business and Operations*" and "*Development of Our Business*".

We may not realize either the expected level of demand for our products and services, or the expected level or timing of revenues generated by those products and services, as a result of lack of market acceptance or technological change, which could adversely affect our cash flows and results of operations.

There is a risk that we will not succeed in making customers sufficiently aware of existing and future value-added services or in creating customer acceptance of these services at the prices we would seek to charge. In addition, market acceptance for these new products and services could be negatively affected by the reluctance of customers to pay

for additional features. In general, the development of new services in the wireless telecommunications industry will require us to anticipate and respond to the continuously changing demands of our customers, which we may not be able to do accurately or in a timely manner. This also includes, for example, effective forecasting and planning and sourcing of device inventory. There is also a risk that we will not be able to bring new services to market as quickly or price-competitively as our competitors. These risks exist, in particular, with respect to our anticipated future growth drivers in the mobile and the fixed-line telecommunications area, which include, among others, the rising customer demand for integrated telecommunications products (fixed mobile convergence); our TV and home automation (Smart Home) offerings; dedicated services enabled by the fifth generation mobile communications standard (5G); connectivity-based solutions for the Internet of Things; as well as our own and partner cloud products. If our new services fail to gain or retain acceptance in the marketplace or if costs associated with these services are higher than anticipated, this could have a material adverse effect on our business, financial condition and operating results.

In order to grow and remain competitive with new and evolving technologies in our industry, we will need to adapt to future changes in technology, continually invest in our network, enhance our existing offerings and introduce new offerings to address our current and potential customers' changing demands. We are investing in an integrated, pan-European IP network in order allow us to meet our customers' demands more quickly, flexibly, and economically. Enhancing our network is subject to risk from equipment changes and migration of customers from existing spectrum bands and meeting various future requirements.

Adopting new and sophisticated technologies may result in implementation issues such as scheduling and supplier delays, unexpected or increased costs, technological constraints, an inability to deliver new product or services in time, regulatory permit issues, customer dissatisfaction and other issues that could cause delays in launching new technological capabilities, which in turn could result in significant costs or reduce the anticipated benefits of the relevant upgrades. Ever shorter innovation cycles confront the telecommunications sector with the challenge of introducing new products and services in increasingly shorter intervals. New technologies are superseding existing technologies, products, or services in part, and in some cases even completely. This could lead to lower prices and revenues in both voice and data traffic. These substitution risks could impact our revenue and earnings, particularly in our Europe and United States operating segments.

Some of our investments (such as in new spectrum licenses) to develop future products and services may involve substantial cash outlays with no certainty of market acceptance.

There is a risk that the return on our investments, particularly in new spectrum licenses and network infrastructure (*e.g.*, for 5G services, fiber-optic-roll-out), may negatively deviate from our plans. In addition to the negative impact on our cash flows, this could result in significant write-downs of the value of spectrum or other licenses or other network-related investments.

Should we face a continuously deteriorating economic climate, we may decide, or be required, to scale back capital expenditures. We believe that we have flexibility in terms of the amount and timing of our capital expenditure program, but a lasting reduction in capital expenditure levels below certain thresholds could affect our future growth, in particular in our mobile operations.

Failure to achieve our planned reduction and restructuring of personnel or our human resources-related cost-savings goals could negatively affect our reputation and the achievement of our financial objectives and profitability.

In 2018, we once again used socially responsible measures to restructure the workforce in the Group, mainly by means of severance payments, partial and dedicated retirement, internal retraining measures, and employment opportunities in public service for civil servants offered by Telekom Placement Services. This restructuring is ongoing. If it is not possible to implement the corresponding measures as planned or at all (for example, due to limited interest in severance payments), this may have negative effects on our financial targets and profitability, as well as our reputation.The successful realization of any staff reduction program depends on a range of factors that are beyond our control, such as general developments in the labor market, the demand for our retrained labor force and the level of acceptance of the various severance offers and other voluntary reduction measures. If planned staff reduction targets are not achieved, this would have a negative effect on our operating expenses and profitability.

We rely on highly-skilled personnel throughout all levels of our business. Our business could be harmed if we are unable to retain or motivate key personnel, hire qualified personnel or maintain our corporate culture.

The market for highly-skilled personnel in our industry is extremely competitive. We believe that our future success depends in substantial part on our ability to recruit, hire, motivate, develop and retain talented and highly-skilled personnel for all areas of our organization. Doing so may be difficult due to many factors, including fluctuations in economic and industry conditions, changes to immigration policy, competitors' hiring practices, employee tolerance for the significant

amount of change within and demands on us and our industry, and the effectiveness of our compensation programs. Our continued ability to compete effectively depends on our ability to retain and motivate our existing employees and to attract new employees. If we do not succeed in retaining and motivating our existing key employees and attracting new key personnel, we may not be able to meet our business plan and, as a result, our revenue growth and profitability may be materially adversely affected.

As a result of dispositions of certain non-core businesses in Germany, there is an increased risk of return of civil servants transferred out of the Group, which could have a negative impact on our staff and cost reduction objectives.

Our employees who have civil servant status can, based on German civil service law, only be completely transferred from us to the buyer of one of our businesses in exceptional cases. Therefore, as a general matter, such transferred civil servants are placed on leave of absence while employed with the transferred business unit. Accordingly, in the event of termination of employment with the transferred business unit, there is a risk that such civil servants will return to the Group. As of December 31, 2018, there were around 1,497 civil servants that could have availed themselves of this right of return to the Group. This risk could be reduced by compensation payments, for example, but it cannot be completely eliminated.

If further Group units employing civil servants are disposed of, the risk of additional civil servants returning after the end of their temporary leave may again increase. For further information regarding general human resources-related matters, see "*Directors, Senior Management and Employees*".

We may be unable to adequately protect our intellectual property. Additionally, we use equipment, software, technology and content in the operation of our business, which may subject us to third-party intellectual property claims and we may be adversely affected by litigation involving our suppliers.

We rely on a combination of patent, service mark, trademark, design and trade secret laws and contractual restrictions to establish and protect our proprietary rights, all of which offer only limited protection. The steps we have taken to protect our intellectual property may not prevent the misappropriation of our proprietary rights. We may not have the ability in certain jurisdictions to adequately protect intellectual property rights. Moreover, others may independently develop trademarks, processes and technologies that are competitive to ours. Unauthorized use of our intellectual property rights may increase the cost of protecting these rights or reduce our revenues. We cannot be sure that any legal actions against such infringers will be successful or will not result in default, damage or reimbursement of other financial costs, *e.g.*, for management resources, even when our rights have been infringed. We cannot assure you that our pending or future patent applications will be granted or enforceable, or that the rights granted under any patent that may be issued will provide us with any competitive advantages. In addition, we cannot assure you that any trademark or service mark registrations will be issued with respect to pending or future applications or will provide adequate protection of our brands, such as use and renewal. Any of these factors could have material adverse effects on our business, results of operations and financial condition.

Third parties may claim we infringe on their intellectual property rights. We are a defendant in numerous intellectual property lawsuits, including patent infringement lawsuits and suits brought by patent assertion entities, which exposes us to the risk of adverse financial impact either by way of significant settlement amounts, license fees or damage awards. We may not have insurance coverage for intellectual property losses, and as such, a charge for an anticipated settlement, or an adverse ruling awarding damages, represent unplanned loss events. As we adopt new technologies and new business systems to follow new communication trends, and provide customers with new products and/or services, we may face additional infringement claims. These claims could require us to cease certain activities or to cease selling the relevant products and services. These claims can be time-consuming and costly to defend, and divert management resources away from other tasks. In addition to litigation directly involving us, our vendors and suppliers can be threatened with patent or trademark litigation and/or subjected to the threat of disruption or blockage of sale, use, or importation of products, posing the risk of supply chain interruption to particular products and associated services exposing us to material adverse operational and financial impacts. For information concerning our disputes in relation to intellectual property rights, see "*Legal Proceedings—Disputes in Relation to Intellectual Property Rights*".

We regularly engage in large-scale programs to reshape our information technology ("IT") and network infrastructure ("NT") to adapt to changing customer needs and organizational requirements. The implementation of any of these programs may require substantial investments, and a failure to effectively plan and monitor them could lead to misallocations of resources and impaired processes with negative consequences for our operations.

Our IT and network resources and infrastructure represent our technical backbone. This infrastructure is the basis for innovative telecommunications products and services that we offer or plan to offer in the future. We have implemented comprehensive programs to adapt our IT systems and infrastructure to changing customer needs in Germany and Europe. We are replacing the various architectures, access types and services with a standardized and modular architecture.

Due to the enormous complexity of the implementation of IT and NT infrastructure, malfunctions, connectivity issues, implementation delays, inadequate planning and management and other unforeseen problems could result in costly process impairments and remediation, and possible extended down-times of IT processes. These problems could result in revenue losses and may hamper the attainment of our goals in terms of cost savings and quality improvements. Furthermore, cyber risks could arise in this area relating to all IT systems and products that require Internet access.

In the United States, our systems for sales processes and service have become less efficient over time, leading to interruptions or outages. We are currently implementing a new customer billing system, which involves moving to a new third-party supported platform and utilization of a phased deployment approach. Post implementation, we plan to operate both the existing and new billing systems in parallel to aid in the transition to the new system until all phases of the conversion are complete. The implementation may cause major system or business disruptions or we may fail to implement the new billing system in a timely or effective manner.

In addition, one of our most important IT programs deals with the long-term development and implementation of a comprehensive IP platform that will support both fixed-line and mobile telephony services. This means that the traditional platform will be completely replaced by an IP-based system. Upon implementation of this joint IP platform, we will be subject to risks inherent in all IT systems connected to the Internet, such as hacker attacks, "spam calls" and other disruptions. These risks could lead to a temporary interruption of our IT resources and, as a result, impair the performance of our technical infrastructure.

If our efforts, or those of third-party service providers, to maintain the privacy and security of our customer, confidential, or sensitive information are not successful at preventing a significant data breach or cyber-attack, we could incur substantial additional costs, become subject to litigation, enforcement actions or regulatory investigation, and suffer reputational damage.

Our business, like that of most retailers and wireless companies, involves the receipt, storage and transmission of confidential information, including sensitive personal information, consumer preferences and payment card information of our customers and other persons who apply to become customers, confidential information about our employees and suppliers, other sensitive information about our company, such as our business plans, transactions and intellectual property ("confidential information") and may include governmental classified information. The methods used to obtain unauthorized access, disable or degrade service, or sabotage systems are constantly changing and evolving, and unauthorized access to confidential information may be difficult to anticipate or detect or prevent, particularly given that the methods of unauthorized access constantly change and evolve. Cyber-attacks, such as denial of service, advanced persistent threats, other malicious attacks, unauthorized access or distribution of confidential information by third parties or employees, errors or breaches by third party suppliers, or other breaches of security could disrupt our internal systems and applications, impair our ability to provide services to our customers, and protect the privacy and confidentiality of our sensitive information. Such attacks against companies are occurring with greater frequency and may be perpetrated by a variety of groups or persons, including those in jurisdictions where law enforcement measures to address such attacks are ineffective or unavailable, and such attacks may be perpetrated by or at the behest of foreign governments.

In addition, we provide confidential, proprietary and personal information to third party service providers when it is necessary to pursue business objectives. We and our third party service providers have been subject to cyber-attacks and unauthorized access to confidential information in the past. While we do not believe these attacks to have been material, we expect to continue to be a target of cyber-attacks, data breaches, or security incidents in the future.

To that end, our procedures and safeguards to prevent unauthorized access to or use of sensitive data and to prevent data loss and defend against attacks seeking to disrupt our services, must be continually evaluated and revised to address, the ever-evolving threat landscape. We cannot assure you that all security measures and preventive actions taken will adequately repel a significant attack, or prevent information security breaches or the misuse of data, unauthorized access by third parties or employees, or exploits against third-party supplier environments. If we are subject to such attacks or security breaches, we may incur significant costs, be subject to regulatory investigations, sanctions and private litigation, experience disruptions to our operations or suffer damage to our reputation that negatively impacts customer confidence. Any future cyber attacks or security breaches may materially adversely affect our business, financial condition and operating results.

Cyber attacks or other breaches of network or information technology security could have an adverse effect on our business.

Cyber attacks or other breaches of our internal network or information technology security may cause equipment failures or disruptions to our operations. Our inability to operate our wireline or wireless networks as a result of such events, even for a limited period of time, may result in significant expenses and/or loss of market share to other communications

providers. In addition, the potential liabilities associated with these events could exceed the insurance coverage we maintain. Cyber attacks – which include the use of malware, computer viruses and other means for disruption or unauthorized access – on companies, including Deutsche Telekom, have increased in frequency, scope and potential harm in recent years. While, to date, we have not been subject to cyber attacks or other cyber incidents which, individually or in the aggregate, have been material to our operations or financial condition, the preventive actions we take to reduce the risk of cyber incidents and protect our information technology and networks may be insufficient to repel a major cyber attack in the future. The costs associated with a major cyber attack on Deutsche Telekom could include expensive incentives offered to existing customers and business partners to retain their business, increased expenditures on cyber security measures, lost revenues from business interruption and litigation. Further, certain of Deutsche Telekom's businesses, including the provisioning of security solutions and infrastructure and cloud services to business customers, could be negatively affected if our ability to protect our own networks is called into question as a result of a cyber attack. Any of these occurrences could have a material adverse effect on our results of operations and financial condition.

Shortcomings in our supply and procurement process could negatively affect our product portfolio, revenues and profits.

As a service provider and an operator and provider of telecommunications and IT products, we cooperate with a variety of suppliers of technical components, such as software, hardware, transmission systems, switching systems, outside plant and terminal equipment.

Although we do not believe that we are materially dependent on any single supplier, our contractors may want to extend delivery times, raise prices and limit supply due to their own shortages or changing business and product strategies. Furthermore, we and our vendors may be subject to litigation, regulatory requirements and limitations, or bans with respect to important technology provided to us by our vendors. Especially in times of economic and political turmoil, the supply chains, credit access and financial stability of our vendors may be negatively affected, which could disturb our commercial relationship with them. Although we have implemented organizational, contractual and procurement strategy measures to counteract such risks, delivery bottlenecks, price increases, changes in the prevailing economic conditions or suppliers' product strategies may have a negative impact on our business processes and results. Our results may be adversely affected by the dependence on individual suppliers or from individual vendors' defaulting on their obligations to us.

System failures due to natural or man-made disruptions and loss of data could result in reduced user traffic and reduced revenues and could harm our reputation and results. We are also exposed to risks relating to the functionality of our existing IT architecture.

System failures, both internal and external, due to natural or man-made disruptions, including wildfires, lightning, flooding, hurricanes and other calamities, technology failures, human error, terrorist attacks, hacker attacks and malicious actions (*e.g.*, theft or misuse of customer data), vandalism, and other similar events, and the resulting loss of data could result in reduced user traffic and reduced revenues, and could harm our reputation and results. Furthermore, insurance premiums could increase or it could become more difficult for us to obtain adequate insurance coverage for business interruptions due to such disasters.

We also face the risk in this area relating to all IT/NT systems and products that require Internet access. For instance, faults between newly developed and existing IT/NT systems could cause interruptions to business processes, products and services, such as smartphones and Entertain-TV. In order to avoid the risk of failures, *e.g.*, arising from natural disasters or fire, we use technical early warning systems and duplicate IT/NT systems. The Computer Emergency Response Team ("CERT") at T-Systems provides security for corporate customers' servers. Our data centers have security certification and meet strict legal data protection provisions and EU regulations, especially those from the new GDPR. All data relating to companies and private persons are protected from external access. We cannot, however, be certain that these measures will be effective under all circumstances, and that disruptions or damages will not occur. Disruption or damage to our infrastructure may result in reduced user traffic and revenues, increased costs and damage to our reputation.

We are continuously involved in disputes and litigation with government agencies, competition authorities, competitors and other parties. The ultimate outcome of such legal proceedings is generally uncertain. When finally concluded, they may have a material adverse effect on our results of operations and financial condition.

We are subject to numerous risks relating to legal and regulatory proceedings, in which we are currently a party or which could develop in the future. Litigation and regulatory proceedings, including patent infringement lawsuits, are inherently unpredictable. Any future legal or regulatory proceedings (or settlements thereof) may have a material adverse effect on our results of operations or financial condition. For information concerning some of the litigation in which we are involved, including with respect to Toll Collect, and inaccuracies in the prospectuses of public share offerings see "*Legal Proceedings*". For information concerning our regulatory environment, see "*Regulation*".

Alleged health risks of wireless communication devices have led to litigation affecting markets with our mobile telecommunications operations subsidiaries, and could lead to decreased wireless communications usage or increased difficulty in obtaining sites for base stations and, as a result, adversely affect the financial condition and results of operations of our wireless services business.

Mobile communications and the electromagnetic fields emitted from wireless mobile devices and cell sites regularly give rise to concerns among the general population regarding potential health risks, including cancer. Lawsuits claiming damages for alleged health problems arising from the use of wireless handsets have been filed against manufacturers and carriers in the industry. Electromagnetic fields may also interfere with various electronic medical devices, including hearing aids and pacemakers. There is continuing public, political and scientific debate of this issue, and research and studies are ongoing. The World Health Organization and the International Commission on Non-Ionizing Radiation Protection ("ICNIRP") regularly reviews the recommendations for the limit values based on current scientific knowledge. However, we cannot provide full assurance that research in the future will not establish links between radio frequency emissions and health risks.

Whether or not such research or studies conclude there is a link between radio frequency emissions and health risks, popular concerns about radio frequency emissions may discourage the use of wireless devices and may result in significant restrictions on the location and operation of cell sites by our mobile telecommunications subsidiaries and the usage of our wireless devices, telephones or products using wireless technology. Such restrictions on use could have material adverse effects on our results of operations. In particular, these concerns may negatively affect projects in our mobile communications business, such as the deployment of mobile networks and the use of mobile terminal devices. In the fixed network business, they may negatively affect sales of, for example, traditional DECT (digital cordless) phones and devices that use WiFi technology. There is a risk of increased regulation of our business, which could include reduced electromagnetic field thresholds or the implementation of precautionary measures in mobile communications, such as amendments to regulations governing the construction of cellular towers or labelling requirements for handsets.

T-Mobile US, like other wireless carriers, faces the potential for significant adverse judgments or settlements from litigation claims of health or safety effects related to the use of handsets, tablets or other personal wireless devices that access our network. For example, a number of coordinated cases seeking damages are currently pending in superior court in Washington D.C. against T-Mobile US, the other major carriers, and handset manufacturers alleging that radiofrequency emissions from cell phones caused brain tumors. Claims may also arise out of physical proximity to wireless network hardware (*e.g.*, cell site antennas). Any such litigation, legislation or adverse actions may result in additional costs and loss of revenues in our mobile communications businesses.

In the United States, state and local governments continue to consider requirements for mandatory labelling of handsets with SAR (Specific Absorption Rate) levels or notices regarding potential health risks of radiofrequency emissions. We may also be subject to potential litigation relating to customer use while driving of handsets and other personal wireless devices that access our network.

Additionally, there are safety risks associated with the use of wireless devices while operating vehicles or equipment. Concerns over any of these risks and the effect of any legislation, rules or regulations that have been and may be adopted in response to these risks could limit our ability to sell our wireless services.

Our financial performance will be impaired if we experience high fraud rates related to device financing, credit cards, dealers, or subscriptions.

Our operating costs could increase substantially as a result of fraud, including device financing, customer credit card, subscription or dealer fraud. If our fraud detection strategies and processes are not successful in detecting and controlling fraud, whether directly or by way of the systems, processes and operations of third parties such as national retailers, dealers and others, the resulting loss of revenue or increased expenses could have a materially adverse impact on our financial condition and results of operations.

Negative media reports on our products and services or our corporate activities could have a material impact on our reputation, standing and brand image.

Negative media reports on our products and services or our corporate activities could have a material impact on our reputation, standing and brand image. Online news and social networks services, such as Facebook and Twitter, have made it possible that such information and opinions can spread faster and more widely. Ultimately, negative reports can impact revenue and brand value.

Developments in the telecommunications sector have resulted, and may in the future result, in substantial write-downs of the carrying value of certain of our assets.

The value of the assets of Deutsche Telekom and its subsidiaries is reviewed periodically. In addition to the regular annual measurements, specific impairment tests may be carried out, for example where changes in the economic, regulatory, business or political environment suggest that the value of goodwill, intangible assets or property, plant and equipment might have decreased. These tests may lead to the recognition of impairment losses that do not, however, result in cash outflows. This could, however, materially adversely affect our results of operations, which can lead to perceptions of financial weakness and damage our prospects and our ability to achieve our strategic plans.

Our forecasts and forward-looking information may prove to be incorrect.

The Board of Management has prepared and published forecasts and targets regarding our anticipated financial performance based on its best estimate of our probable results of operations. These forecasts and targets have not been reviewed by our independent accountants, and were made with respect to conditions as of the date of their publication based on the then-current structure of the Group, without regard to significant acquisitions, dispositions, business combinations or joint ventures we may choose to undertake. In addition, they are based on several assumptions, which our Board of Management believes are reasonable, regarding future market and economic developments. Some assumptions upon which the projections are based, however, will not materialize due to the inevitable occurrence of unanticipated events and circumstances. For example, we may fail to meet our forecasts and targets due to an economic downturn in Europe or North America, changes in exchange or interest rates, the negative outcome of litigation or regulatory matters in which we are involved, adverse competitive and regulatory developments or the materialization of other risks inherent to our business including those summarized in this offering memorandum. Therefore, our actual results of operations will likely vary from our forecasts and targets, and such variances may be both adverse and material. While the Board of Management believes that the forecasts and targets accurately reflect its intentions and expectations regarding future results of our operations, those results cannot be guaranteed.

Our stated strategies in general, and acquisitions in particular, may be adapted or modified to respond to opportunities and changing conditions.

We may adapt or modify our stated strategies to respond to opportunities and changing conditions. We may embark on capital expenditure programs and pursue acquisitions, joint ventures or full or partial dispositions or combinations of businesses where we perceive opportunity for profitable growth, cost savings or other benefits for the Group, which may also include asset sales. Transactions may be conducted using newly issued shares of Deutsche Telekom or its affiliates, cash or a combination of cash and shares, and may individually or in the aggregate be material to our financial and business condition or results of operations. As a result, such transactions may affect the trading prices of our securities. As in the past, discussions with third parties in this regard may be commenced, on-going or discontinued at any time and from time to time.

Even though we conduct a review of the companies, businesses, assets, liabilities or contracts we plan to acquire, it is generally not feasible for these reviews to be complete in all respects. As a result, we may assume unanticipated liabilities, or an acquired company may not perform as well as expected. In addition, we might have difficulty integrating any entity with which we combine our operations. Failure to complete announced business combinations or failure to integrate acquired businesses successfully into ours could materially and adversely affect our financial condition and results of operations. It could also affect investors' perception of our business prospects and management, and could also lead to departures of key employees, or lead to increased costs and reduced profitability if we felt compelled to offer such employees financial incentives to remain.

Potential breaches of compliance requirements or the identification of material weaknesses in our internal control over financial reporting may have an adverse impact on our corporate reputation, financial condition and the trading price of our securities.

In general, compliance requirements for publicly-traded companies and, in particular, the investigation of potential breaches and corporate misconduct are increasing and leading to major financial implications for the companies concerned. At the same time, the legal framework governing the monitoring of companies is becoming more comprehensive, which increases liability risks for executive bodies and associated costs.

While we believe that we have established an appropriate compliance organization to detect, assess, reduce and manage these risks, and to involve public authorities when appropriate, the global and diverse nature of our operations and business relationships means that these risks and their related consequences will continue to exist. Although our organization is set up to take prompt measures to effectively remediate any identified shortcomings in our internal controls over financial reporting, activities of this kind may involve significant effort and expense, and disclosure of any failures, material weakness or other conditions may result in a deterioration of our corporate image and negative market reactions.

Liquidity, credit, currency, interest rate, exchange rate, rating and tax risks have had, and may continue to have, an adverse effect on our revenue and cost development.

With regard to our assets, liabilities and planned transactions, we are particularly exposed to liquidity risk, credit risk, and the risk of changes in exchange and interest rates. While our financial risk management aims to contain these risks in connection with ongoing operational and finance activities, there can be no assurance that it will be able to do so in all instances.

We are exposed to liquidity risk, which is the risk arising from our potential inability to meet all payment obligations when they become due or only being able to meet them at excessive cost. With the aim of ensuring our solvency and financial flexibility at all times, we maintain a liquidity reserve in the form of credit lines and cash as part of our liquidity management. This liquidity reserve is to cover the maturities of the next 24 months at any time. For medium- to long-term financing, we primarily use bonds issued in a variety of currencies and jurisdictions. Our liquidity may become impaired due to reluctance of our counterparties or the market to finance our operations due to actual or perceived weaknesses in our businesses, our business model or our strategy, as well as in our resilience to counter negative economic and market conditions. For example, we could be subject to liquidity risks following the closing of the proposed T-Mobile US and Sprint Merger (see "*Description of Our Business and Operations—Group Organization—Significant Corporate Transactions—T-Mobile US and Sprint Merger*"). Assuming the merger of T-Mobile US and Sprint closes, we may also experience pressure on our liquidity if, for example, the costs of integration of the two companies exceeds our expectations or cash flow generation is lower than we expect.

We may also be affected by recent regulatory guidance and reform proposals in our most important operating markets relating to the use of the London Interbank Offer Rate ("LIBOR"), given that some of our variable-rate indebtedness uses LIBOR as a benchmark for establishing the relevant rate. These reforms and other pressures may cause LIBOR to disappear entirely or to perform differently than in the past. The consequence of these developments cannot be entirely predicted, but could include an increase in the cost of our variable rate indebtedness. In addition, any hedging agreements we have and may continue to enter into to limit our exposure to interest rate increases or foreign currency fluctuations may not offer complete protection from these risks or may be unsuccessful, and consequently may effectively increase the interest rate we pay on our debt or the exchange rate with respect to such debt, and any portion not subject to such hedging agreements would have full exposure to interest rate increases or foreign currency fluctuations, as applicable. If any financial institutions that are parties to our hedging agreements were to default on their payment obligations to us, declare bankruptcy or become insolvent, we would be unhedged against the underlying exposures. Any of these risks could have a material adverse effect on our business, financial condition and operating results.

Through our operating business and certain financing activities, we are also exposed to a credit risk, *i.e.*, the risk that a counterparty will not fulfill its contractual obligations.

Our credit rating with Moody's is Baa1, while Fitch and Standard & Poor's rate Deutsche Telekom BBB+. Fitch gives Deutsche Telekom a "stable" outlook, Moody's a "negative" and Standard & Poor's a "CreditWatch negative". A decrease in our credit ratings below certain thresholds by various rating agencies would result in an increase in the interest rates on certain of our bonds and medium-term notes due to step-up provisions and could raise the cost of our debt refinancing activities generally. For more information, see "*Development of Our Business—Condensed Consolidated Statement of Cash Flows and Reconciliation of Free Cash Flow—Step-Up Provisions*".

We are exposed to currency risks from our investing, financing and operating activities. Risks from foreign currency fluctuations are hedged if they affect our cash flows (*i.e.*, if the cash flow is not denominated in the functional currency of the respective Group company). Foreign-currency risks that do not influence our cash flows (*i.e.*, the risks resulting from the translation of statements of assets and liabilities of foreign operations into our reporting currency) are generally not hedged, however. We may nevertheless also hedge such foreign-currency risks under certain circumstances. There can be no guarantee that our hedging strategies will succeed. Currency risks may have a negative impact on our results of operations when amounts in local currencies are translated into euros, particularly in connection with U.S. dollar-denominated results.

Our interest rate risk mainly results from interest-bearing liabilities and exists primarily in the Eurozone and the United States. Interest-rate risks arise as a result of fluctuations in interest rates affecting the level of interest payments due on indebtedness at floating rates and the cost of new debt when financing or refinancing takes place. We manage our interest rate risk for debt denominated in euros and U.S. dollars separately. As part of the interest rate management, the maximum portion of floating rate debt is determined. Group treasury primarily issues financial instruments and – if needed – concludes derivative financial instruments to adjust the mix of the debt portfolio (*i.e.*, mix of fixed and floating rate debt). The Board of Management decides on the interest rate management strategy on a yearly basis and the Supervisory Board is informed regarding adherence to the strategy once a year.

In many countries, we are subject to the applicable legal tax provisions. Risks can arise from changes in local taxation laws or case law and different interpretations of existing provisions. If we have incorrectly described, disclosed, calculated, assessed, or remitted amounts that were due to governmental authorities, we could be subject to additional taxes, fines, penalties, or other adverse actions, which could materially impact our business, financial condition and operating results. If federal, state, and/or local municipalities were to significantly increase taxes on our network, operations, or services, or seek to impose new taxes, it could have a material adverse effect on our business, financial condition and operating results.

Risks Related to the Proposed T-Mobile US and Sprint Merger

The closing of the Transactions is subject to many conditions, including the receipt of approvals from various governmental entities, which may not approve the Transactions, may delay the approvals for, or may impose conditions or restrictions on, jeopardize or delay completion of, or reduce the anticipated benefits of, the Transactions, and if these conditions are not satisfied or waived, the Transactions will not be completed.

On April 29, 2018, our subsidiary, T-Mobile US, and Sprint announced their intent to merge in an all-stock transaction at a fixed exchange ratio of 0.10256 T-Mobile shares for each Sprint share or the equivalent of 9.75 Sprint shares for each T-Mobile US share. In order to close, the Transactions faced regulatory reviews at the DOJ (antitrust review), the FCC (public interest review) and CFIUS (national security review), as well as regulatory reviews on the state level. CFIUS and the FCC approved the Transactions in December 2018 and October 2019, respectively, while court approval of the DOJ's clearance decision is pending before the Federal District Court of Washington D.C. The FCC and DOJ clearance are subject to commitments including build-out obligations, a pricing commitment, divestiture of Sprint's pre-paid brand Boost and customers as well as an agreement with DISH to use T-Mobile's post-merger network for 7 years after the closing of the Transactions. Except for the Public Utility Commission of California, all necessary regulatory approvals on the state level have been obtained. On June 11, 2019, a coalition of state attorneys general sued to block the Transactions before the Federal Southern District Court of New York. The trial began on December 9, 2019. A decision is expected in early 2020.

Deutsche Telekom, T-Mobile US and Sprint are subject to various uncertainties, contractual restrictions and/or requirements due to the Transactions that could disrupt our, T-Mobile US' or the combined company's business and adversely affect our business, assets, liabilities, prospects, outlook, financial condition and results of operations.

Uncertainty about the effect of the Transactions on employees, customers, suppliers, vendors, distributors, dealers and retailers may have an adverse effect on us. These uncertainties may impair T-Mobile US' ability to attract, retain and motivate key personnel during the pendency of the Transactions and, if the Transactions are completed, for a period of time thereafter, as existing and prospective employees may experience uncertainty about their future roles with T-Mobile US or the combined company. If key employees depart because of issues related to the uncertainty and anticipated difficulty of integration or a desire not to remain with T-Mobile US or the combined company, our business could be negatively impacted whether or not the Transactions are ultimately consummated. Additionally, these uncertainties could cause customers, suppliers, distributors, dealers, retailers and others who deal with T-Mobile US to seek to change or cancel existing business relationships with T-Mobile US or fail to renew existing relationships with T-Mobile US. Suppliers, distributors and content and application providers may also delay or cease developing new products that are necessary for the operations of T-Mobile US' business due to the uncertainty created by the Transactions. Competitors may also target T-Mobile US' or Sprint's existing customers by highlighting potential uncertainties and integration difficulties that may result from the Transactions.

The Business Combination Agreement also restricts each of T-Mobile US and Sprint, without the other's consent, from taking certain actions outside of the ordinary course of business while the Transactions are pending, including, among other things, certain acquisitions or dispositions of businesses and assets, entering into or amending certain contracts, repurchasing or issuing securities, making capital expenditures and incurring indebtedness, in each case subject to certain exceptions. These restrictions may have a significant negative impact on T-Mobile US' business, results of operations and financial condition. Given the materiality to us of T-Mobile US, any of these events could have a material adverse effect on our business, results of operations and financial condition. In addition, the Business Combination Agreement provides that none of the parties to the Transactions are required to take any of the actions described in the Business Combination Agreement to bring about the consummation of the Transactions if, among other things, that action would cause a loss, cost or diminution in value of $7 billion or more to T-Mobile US, Sprint or their respective subsidiaries following closing of the Transactions.

In addition, management and financial resources have been diverted and will continue to be diverted toward the completion of the Transaction. T-Mobile US has incurred, and expects to incur, significant costs, expenses and fees for professional services and other transaction costs in connection with the Transaction.

The Business Combination Agreement contains provisions that restrict the ability of T-Mobile US' Board to pursue alternatives to the Transactions.

The Business Combination Agreement contains non-solicitation provisions that restrict T-Mobile US' ability to solicit, initiate, knowingly encourage or knowingly take any other action designed to facilitate, any inquiries regarding, or the making of, any proposal the consummation of which would constitute an alternative transaction for purposes of the Business Combination Agreement.

We have executed a written consent voting all of our shares of T-Mobile US common stock in favor of the Transactions, constituting our approval of the Transactions.

Subsequent to the execution of the Business Combination Agreement, we held approximately 63.5 % of T-Mobile US common stock and entered into a support agreement (the "Support Agreement"), pursuant to which we delivered a written consent in favor of the Transactions on October 30, 2018. The written consent constitutes receipt by T-Mobile US of the requisite approval of the Transactions by its stockholders.

Although we expect that the Transactions will result in synergies and other benefits to us, those benefits may not be realized fully or at all or may not be realized within the expected time frame.

Our ability to realize the anticipated benefits of the Transactions will depend, to a large extent, on the combined company's ability to integrate the businesses of T-Mobile US and Sprint in a manner that facilitates growth opportunities and achieves the projected stand-alone cost savings and revenue growth trends identified by each company without adversely affecting current revenues and investments in future growth. In addition, some of the anticipated synergies are not expected to occur for a significant time period following the completion of the Transactions and will require substantial capital expenditures in the near term to be fully realized. Even if the combined company is able to integrate the two companies successfully, the anticipated benefits of the Transactions may not be realized fully or at all or may take longer to realize than expected. We expect that such Synergies result from savings in operating costs (opex) for the larger company, as well as in investments (capex). This means that these savings can be realized largely independently of market developments. Sales synergies are not included. The main areas in which synergies are to be achieved are:

- Integration of the mobile communications networks of T-Mobile US and Sprint, resulting in the operation of a single network while simultaneously increasing the customer base;

- Savings in network build-out and the build-out of a nationwide 5G network;

- Savings in sales and marketing costs, store fittings, advertising, customer support, repairs, and logistics; and

- Increased efficiency in internal IT systems and billing.

Downgrades of our, T-Mobile US' and/or Sprint's ratings could adversely affect our, T-Mobile US', Sprint's and/or the combined company's respective businesses, cash flows, financial condition and operating results.

The credit ratings impact the cost and availability of future borrowings, and, as a result, our and T-Mobile US' cost of capital. The ratings reflect each rating organization's opinion of our and T-Mobile US' financial strength, operating performance and ability to meet the debt obligations or, following completion of the Transactions, obligations to the combined company's creditors. Each of the rating organizations reviews our ratings and those of T-Mobile US periodically, and there can be no assurance that our or T-Mobile US' current ratings will be maintained in the future. Deutsche Telekom expects an S&P downgrade by one notch to BBB upon the successful closing of the Transaction. Downgrades in our or T-Mobile US' ratings could adversely affect our, T-Mobile US' and/or the combined company's respective businesses, cash flows, financial condition and operating results. As noted above, the Business Combination Agreement also contains certain conditions relating to a minimum credit rating of T-Mobile US on the closing date of the Transactions.

Risks Related to the Notes

Our credit ratings may not reflect all risks of an investment in the Notes.

The credit ratings ascribed to us and our outstanding debt securities are intended to reflect our ability to meet the payment obligations under our outstanding debt securities, and may not reflect the potential impact of all risks related to structure and other factors on the value of our outstanding debt securities or the Notes. In addition, actual or anticipated changes in our credit ratings will generally affect the market value of debt securities we have issued.

Many factors may adversely affect the trading market, value or yield of the Notes.

The Notes are a new issue of securities for which there is currently no public market. There is no established trading market for the Notes. The Notes are not listed or admitted for trading on any securities exchange, and we have no plans to effect such listing or admission. There can be no assurance that any market for the Notes will develop or continue or, if one does develop, that it will be maintained, that any market for the Notes will be liquid or that holders will be able to sell their Notes when desired, or at all, or at prices they find acceptable. The liquidity of, and trading market for, the Notes may also be hurt by general declines in the market for similar securities.

In addition to our own creditworthiness, many other factors may affect the trading market for, and market value of, the Notes. These factors include:

- the method of calculating principal, premium and interest;
- the time remaining to the maturity;
- the outstanding amount of our debt securities — our debt covenants and fiscal agency agreements for our debt securities do not limit the amount of debt securities we may issue or guarantee;
- redemption or repayment features; and
- the level, direction and volatility of market interest rates generally — the conditions of the financial markets and prevailing interest rates have fluctuated in the past and are likely to fluctuate in the future, which could have an adverse effect on the market prices of the Notes, regardless of our prospects and financial performance and condition.

In addition, if you decide to sell the Notes, there may be a limited number of buyers (if any) or there may be a surplus of debt securities of other issuers available with similar credit, maturity and other structural characteristics. This may affect the price you receive for the Notes or your ability to sell them at all. You should not purchase the Notes unless you understand and know you can bear the related investment risks.

An investment in the Notes involves risks relating to changes in the interest rate environment.

A holder of a Note, which pays interest at a fixed rate, is exposed to the risk that the price of such Note could fall as a result of changes in the market interest rate. While the nominal interest rate of the Notes specified herein is fixed during the life of such Notes, the current interest rate on the capital markets ("market interest rate") typically changes on a daily basis. As the market interest rate changes, the price of the Notes would typically change in the opposite direction. If the market interest rate increases, the price of the Notes would typically fall, until the yield of such Notes is approximately equal to the market interest rate. If the market interest rate falls, the price of the Notes would typically increase, until the yield of such Notes is approximately equal to the market interest rate. Changes in the market interest rate are typically relevant to holder intending to sell their Notes prior to the maturity date, or in the case the Notes are redeemed by the Issuer prior to the stated maturity.

Notes may not be a suitable investment for all investors.

Each potential investor in Notes must determine the suitability of that investment in light of its own circumstances. In particular, each potential investor should:

- have sufficient knowledge and experience to make a meaningful evaluation of the relevant Notes, the merits and risks of investing in the relevant Notes and the information contained or incorporated by reference in this offering memorandum or any applicable supplement;
- have access to, and knowledge of, appropriate analytical tools to evaluate, in the context of its particular financial situation and the investment(s) it is considering, an investment in the Notes and the impact the Notes will have on its overall investment portfolio;
- have sufficient financial resources and liquidity to bear all of the risks of an investment in the relevant Notes, including where the currency for principal or interest payments is different from the potential investor's currency;

- understand thoroughly the terms of the relevant Notes and be familiar with the behavior of financial markets; and
- be able to evaluate (either alone or with the help of a financial adviser) possible scenarios for economic, interest rate and other factors that may affect its investment and its ability to bear the applicable risks.

Redemption may adversely affect your return on our debt securities.

The Notes are, or may become, redeemable at our option and we may choose to redeem them at times when prevailing market interest rates are lower than the interest rates on the Notes. In addition, the Notes are subject to mandatory redemption and we may be required to redeem them at times when prevailing interest rates are relatively low. As a result, you may not be able to reinvest the redemption proceeds in a comparable security at an effective interest rate as high as that of the Notes. Our redemption right may also adversely affect your ability to sell the Notes as their redemption date approaches.

Deutsche Telekom's business development is dependent on its subsidiaries' operating results and, as a result, the inability of Deutsche Telekom's subsidiaries to transfer sufficient profits or pay sufficient dividends could prevent Deutsche Telekom from meeting its obligations. In addition, direct creditors of Deutsche Telekom's subsidiaries will generally have superior claims to cash flows from those subsidiaries.

Almost all of the Group's net revenue is generated by Deutsche Telekom's subsidiaries and the vast majority of Deutsche Telekom's assets are its investments in its subsidiaries. Deutsche Telekom depends upon earnings and cash flows from its subsidiaries to meet its obligations under its debt securities, including the Notes. Certain subsidiaries of Deutsche Telekom are or may be subject to contractual restrictions or regulatory requirements that would limit their ability to pay dividends. Furthermore, insofar as Deutsche Telekom acts as a lender to subsidiaries in which there are third-party shareholders, it may face conflicts of interest in its capacities as lender and shareholder, and may indirectly benefit shareholders who do not participate in extending such financing.

In addition, Deutsche Telekom has the ability to restructure its remaining operations to cause operating assets currently held directly by Deutsche Telekom to be held by one or more subsidiaries. For example, in the past, Deutsche Telekom transferred its fixed-line operations in Germany into a wholly owned subsidiary, Telekom Deutschland GmbH. Because the creditors of any subsidiary of Deutsche Telekom would generally have a right to receive payment that comes before the parent company's right to receive payment from the assets of that subsidiary, holders of the Notes will be effectively subordinated to creditors of those subsidiaries insofar as cash flows from those subsidiaries are relevant to servicing Deutsche Telekom's debt securities. The Notes do not limit the amount of liabilities that Deutsche Telekom or its subsidiaries may incur.

The Notes do not contain financial covenants, change in control provisions or similar limitations on our flexibility.

The Notes do not contain any covenants or other provisions designed to protect holders of the Notes against a reduction in the creditworthiness of Deutsche Telekom. They also generally do not contain covenants or other provisions that would prohibit us from increasing our indebtedness or prohibit us or our affiliates from engaging in other transactions that might adversely affect holders of the Notes, including transactions involving a change in control over the relevant issuer or a business combination, acquisition or divestiture. We may at any time be engaged in discussions concerning, or otherwise acting in furtherance of, such transactions, which may be material.

The Notes will be subject to specific restrictions on transfer.

The Notes are being offered in reliance upon an exemption from registration under the Securities Act and applicable state securities laws of the United States. As such, the Notes may be transferred or resold only in a transaction registered under or exempt from the Securities Act and applicable U.S. state securities laws. These restrictions on transfer may have a material adverse effect on the ability of any holder of the Notes to transfer such Notes.

Investors may experience difficulties in enforcing civil liabilities.

Deutsche Telekom AG is incorporated in Germany. The majority of its directors and management (and certain of the parties named in this document) reside outside the United States, and all, or a substantial portion of, Deutsche Telekom AG's and such persons' assets are located outside the United States. As a result, it may not be possible for investors to effect service of process upon Deutsche Telekom AG or such persons within the United States, or to enforce against Deutsche Telekom AG or such persons in the United States judgments obtained in the U.S. courts, including judgments predicated upon the civil liability provisions of the federal securities laws of the United States.

Corporate Disclosure in Germany may differ from that in the United States.

There may be less publicly available information about German public companies, such as Deutsche Telekom, than is regularly made available by public companies in the United States and in other jurisdictions. In 2010, we delisted our American Depositary Shares from the New York Stock Exchange and deregistered with the U.S. Securities and Exchange Commission ("SEC") all of our securities, including our equity securities and all classes of debt securities issued by Deutsche Telekom.

USE OF PROCEEDS

We estimate the net proceeds from the sale of the Notes to be approximately $1,231,275,000 after deducting from the gross proceeds underwriting commissions and other expenses of the offering payable by us. We intend that the net proceeds will be used for general corporate purposes.

CAPITALIZATION AND INDEBTEDNESS

The following table sets forth, on a consolidated basis, the cash and cash equivalents, current financial indebtedness, non-current financial indebtedness, shareholders' equity and capitalization of Deutsche Telekom and its consolidated subsidiaries in accordance with IFRS, as adopted for use in the EU by the European Commission, as of September 30, 2019 and as adjusted to reflect the proposed sale of the Notes in this offering.

	As of September 30, 2019	
	Actual	**As adjusted**
	(millions of €)	
	(Unaudited)	
Cash and cash equivalents	**6,461**	**7,592**[4, 5]
Current financial indebtedness		
Bonds and other securitized liabilities	6,730	6,730
Liabilities to banks	1,858	1,858
Liabilities to non-banks from promissory notes	0	0
Other interest-bearing liabilities	2,831	2,831
Other non-interest-bearing liabilities	1,340	1,340
Lease Liabilities	4,146	4,146
Total current financial indebtedness[1]	**16,905**	**16,905**
Non-current financial indebtedness		
Bonds and other securitized liabilities	47,989	49,137[4, 6]
Liabilities to banks	4,023	4,023
Liabilities to non-banks from promissory notes	357	357
Other interest-bearing liabilities	2,422	2,422
Other non-interest-bearing liabilities	132	132
Lease Liabilities	16,167	16,167
Total non-current financial indebtedness[1, 2]	**71,090**	**72,238**
Shareholders' equity:		
Issued capital	12,189	12,189
Capital reserves	54,992	54,992
Other shareholders' equity[3]	(22,044)	(22,044)
Total shareholders' equity	**45,137**	**45,137**
Total capitalization	**126,671**	**126,688**[7]

1 Composed of "Bonds and other securitized liabilities", "Liabilities to banks", "Liabilities to non-banks from promissory notes", "Other interest-bearing liabilities", "Other non-interest-bearing liabilities", and "Lease Liabilities" as stated in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019. All current and non-current financial indebtedness is unsecured.

2 In accordance with Postreform II (§ 2 (4) of the Post Transformation Act – *Postumwandlungsgesetz*), the Federal Republic is guarantor of all of Deutsche Telekom's liabilities which were outstanding at January 1, 1995. At September 30, 2019, this figure was a nominal EUR 1.8 billion.

3 Composed of "Treasury shares", "Retained earnings including carryforwards", "Total other comprehensive income", "Net profit (loss)" and "Non-controlling interests" as stated in the condensed consolidated interim financial statements as of and for the three-month period ended September 30, 2019.

4 The Euro equivalent of the Notes offered hereby is based on a U.S. dollar/Euro exchange rate of USD 1.0889 = EUR 1.00 as of September 30, 2019, as published by the European Central Bank.

5 After deducting from the gross proceeds from the proposed sale of the Notes in this offering underwriting commission and other expenses relating to the offering payable by Deutsche Telekom. See "*Use of Proceeds*".

6 For simplification purposes, the adjusted figure reflects the respective liabilities at their aggregate principal amount, not their values as calculated (in accordance with IFRS) using the effective interest rate method.

7 The adjustment has been calculated before consideration of potential tax effects (in particular deferred taxes).

On December 9, 2019, the Group issued a bond under its debt issuance program, with EUR 0.6 billion aggregate principal amount of 1.750 % Notes due 2049. There has been no other material change in the capitalization of Deutsche Telekom since September 30, 2019.

DESCRIPTION OF OUR BUSINESS AND OPERATIONS

Group Organization

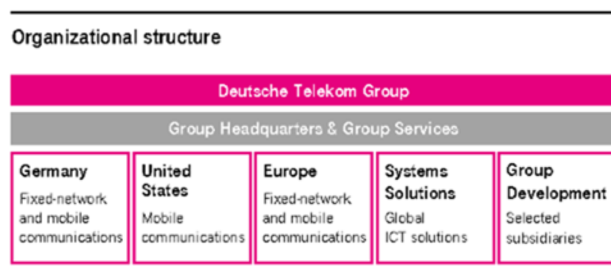
Overview of Business Activities

With 182 million mobile customers, 28 million fixed-network and 21 million broadband lines customers, we are one of the leading integrated telecommunications companies worldwide. We offer our consumers fixed-network/broadband, mobile, internet, and internet-based TV products and services, as well as information and communication technology ("ICT") solutions for our business and corporate customers. We have an international focus and are represented in more than 50 countries. For the first three quarters of 2019, we generated 69.3 % of our net revenue, amounting to EUR 41.0 billion, outside of our home market of Germany. As of September 30, 2019, we had 211,884 employees ("FTEs").

The fixed-network business includes all voice and data communications activities based on fixed-network and broadband technology. This includes the sale of terminal equipment and other hardware, as well as the sale of services to resellers. Our mobile communications business offers mobile voice and data services to consumers and business customers; in addition, we sell mobile devices and other hardware. We also sell mobile services to resellers and to companies that buy network services and market them to third parties (mobile virtual network operators, or "MVNOs"). Drawing on a global infrastructure of data centers and networks, our corporate customer arm, T-Systems, operates ICT systems for multinational corporations and public-sector institutions.

Organization

Our financial reporting conforms with our Group strategy and is based on the following organizational structure. Our Group is divided into five operating segments, plus the Group Headquarters & Group Services segment, each of which we describe in detail below:



- *Germany:* This 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 our Group's other operating segments. Separate sales entities for consumers and business customers allow the operating segment to take a customer-centric sales approach. The bundling of customer service activities places a further focus on customer satisfaction and quality assurance. Build-out of mobile and fixed networks is managed by the Technology business unit in the Germany operating segment. We believe that our Germany operating segment offers its customers an individual service and product portfolio that is innovative while at the same time secure and simple.

- *United States:* This operating segment combines all mobile activities in the U.S. T-Mobile US is the third largest mobile provider in the United States and its mobile network offers the highest transmission speeds as well as high network coverage. T-Mobile's success on the U.S. mobile market has been due largely to the various "Un- carrier" initiatives launched in the last few years. T-Mobile US expects the acquisition of online TV provider Layer3, TV completed on January 22, 2018, to further strengthen its TV and video portfolio. Layer3 TV has been included in Deutsche Telekom's consolidated financial statements as a fully consolidated subsidiary since the acquisition date. On April 29, 2018, T-Mobile announced that it had entered into a Business Combination Agreement with Sprint Corp. On June 18, 2018, T-Mobile filed the Public Interest Statement and applications for approval of the merger with Sprint with the FCC was granted its

formal approval on October 16, 2019. As a result of the merger, we expect that T-Mobile will be able to rapidly launch a nationwide 5G network, accelerate innovation, and increase competition in the U.S. wireless, video, and broadband industries (*see “Description of Our Business and Operations—Group Organization—Significant Corporate Transactions—T-Mobile US and Sprint Merger”*).

- *Europe:* This segment comprises all fixed-network and mobile operations of the national companies in Greece, Romania, Hungary, Poland, the Czech Republic, Croatia, Slovakia, Austria, Albania, Macedonia, and Montenegro. The acquisition of cable network operator UPC Austria on July 31, 2018 has helped us to transform our subsidiary in Austria into an integrated provider. UPC Austria has been included in Deutsche Telekom’s consolidated financial statements as a fully consolidated subsidiary since the acquisition date. Following approval of the acquisition of Tele2 Netherlands by the European Commission on November 27, 2018, the transaction was completed on January 2, 2019. The acquisition of Tele2 Netherlands is part of our long term strategy to establish a stronger, more sustainable provider of convergent fixed-network and mobile services in the Dutch market. Tele2 Netherlands has been fully included in our consolidated financial statements since the acquisition date. In addition to the consumer business, most of the national companies also offer ICT solutions for business customers. As part of our international wholesale business, Deutsche Telekom Global Carrier (“TGC”) sells wholesale telecommunications services to our operating segments as well as to third parties.

- *Systems Solutions:* As a leading ICT service provider, our Systems Solutions operating segment offers business customers a portfolio of integrated products and solutions. With offerings for fixed and mobile communications, IT infrastructure, digitalization and security, in addition to global partnerships, we offer our customers help and guidance to implement digital business models. In 2019 we executed a comprehensive transformation program, initially launched in 2018, under which we realigned our organization and workflows, adjusted capacities, developed a new strategy for our portfolio, and created three offering clusters. Ten portfolio units and one emerging business unit look after not only our traditional IT and telecommunications businesses, but also our growth areas (public cloud, Internet of Things (“IoT”), digital solutions, security, SAP, classified ICT, health, and road charging).

- *Group Development*: This segment comprises the entities T-Mobile Netherlands and Deutsche Funkturm (“DFMG”). We intend to actively manage these entities and investments and increase their value, with the aim of giving them the level of entrepreneurial freedom they need and thus promoting their further strategic development. The management teams maintain a healthy dialog with the segment management and the relevant supervisory and advisory boards. Deutsche Telekom Capital Partners (“DTCP”) and the Group functions of Mergers & Acquisitions and Strategic Portfolio Management have also been assigned to Group Development. In March 2018, our financial stake in BT plc (“BT”) was transferred to the Group’s own trust company, Deutsche Telekom Trust e.V., as capital funding to cover Deutsche Telekom’s future pension obligations. Our stake in Ströer SE & Co. KGaA, which was formerly part of the Group Development segment, has also been transferred to Deutsche Telekom Trust e.V. as of August 2019.

- *Group Headquarters & Group Services:* Group Headquarters & Group Services comprises all Group units that cannot be allocated directly to one of the operating segments. The segment also reports on our new Technology and Innovation Board department. As the organization that sets the direction and provides momentum, it defines strategic aims for the Group, ensures they are met, and becomes directly involved in selected Group projects. Group Services provides services to the entire Group; in addition to typical services such as financial accounting, human resources services, and operational procurement, Group Services also includes agency services, which are provided by our personnel service provider, Vivento Customer Services GmbH (“Vivento”). Vivento is a provider of call center services and was integrated into our Germany operating segment as of January 1, 2018; previously it was part of our Group Headquarters & Group Services segment. On the one hand, Vivento is in charge of securing external employment opportunities for employees, mainly civil servants, predominantly in the public sector. On the other, it also seeks to strategically place these employees internally, with the aim of retaining professional expertise within the Group, so as to reduce the use of external staff. Further units in our Group Headquarters & Group Services segment are Group Supply Services (GSUS) for our real estate management and our strategic procurement, and MobilitySolutions, which is a full-service provider for fleet management and mobility services.

Our Technology and Innovation Board department unites the cross-segment network, innovation and IT activities of our Germany, Europe and Systems Solutions operating segments. These include Deutsche Telekom IT, which focuses on the

Group's internal national IT projects, and our central innovation unit, Product Innovation and Customer Experience ("PIC"), which works closely with our operating segments to develop new business areas and create products by focusing on the product and customer experience. Additional units are Network Infrastructure ("NWI"). Strategy & Technology Innovation ("ST&I") and Pan-Net. NWI manages and operates a global network to offer voice and data communication services to wholesale customers. ST&I ensures efficient and customized research and provision of technologies, platforms, and services for mobile and fixed-network communications. Pan-Net is responsible for the shared pan-European network and for developing and providing services for our European national companies. The new Innovation Hub ("IHUB"), established on October 1, 2018, pools the expertise required for future innovation projects within the Technology and Innovation Board department to ensure flexible innovation development. This Board department is part of the Group Headquarters & Group Services segment.

Business-to-business ("B2B") telecommunications services are to be realigned in 2020. Consistent with our efforts to implement the Group's strategy pillar "Lead in business productivity," the plan is to set up a new B2B telecommunications services unit within the Germany operating segment. The new unit will consist of the TC Services and Classified ICT portfolio units currently assigned to the Systems Solutions operating segment. The goal is to improve efficiency for our business customers and simplify our operational business. In parallel, the portfolio units Security and IoT will be spun off into independent legal entities (limited liability companies under German law (GmbHs)) to strengthen Deutsche Telekom's position in both areas. We believe that the establishment of independent entities will allow us to benefit from simpler decision-making processes and improve our ability to better respond to market trends.

For more information on our operating segments please refer to "*Description of Our Business*", "*Development of Our Business*" and Note 35 "*Segment reporting*" to the consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

The principal subsidiaries of Deutsche Telekom AG are listed in the notes to the consolidated financial statements as of and for the year ended December 31, 2018 in the section "*Summary of accounting policies*" under "*Principal subsidiaries*". In addition to Deutsche Telekom AG, 61 German and 213 foreign subsidiaries are fully consolidated in our consolidated financial statements as of and for the year ended December 31, 2018 (December 31, 2017: 60 and 186). In addition, 9 associates and 6 joint ventures are included using the equity method (December 31, 2017: 9 and 7).

Significant Corporate Transactions

T-Mobile US and Sprint Merger

On April 29, 2018, together with their respective majority shareholders Deutsche Telekom AG and Softbank K.K. ("Softbank"), T-Mobile US and Sprint concluded a binding agreement to combine their companies. Sprint Corporation, including its consolidated subsidiaries, is a communications company in the U.S. offering a comprehensive range of wireless and wireline communications products and services that are designed to meet the needs of individual consumers, businesses, government subscribers and resellers. Its services are provided through ownership of extensive wireless networks, an all-digital global wireline network and a Tier 1 Internet backbone. Sprint offers wireless and wireline services to subscribers in all 50 U.S. states, Puerto Rico, and the U.S. Virgin Islands under the Sprint corporate brand, which includes the retail brands of Sprint ®, Boost Mobile ®, Virgin Mobile ®, and Assurance Wireless ® on the wireless networks utilizing various technologies including third generation ("3G") code division multiple access ("CDMA"), and fourth generation ("4G") services utilizing Long Term Evolution ("LTE"). Sprint utilizes these networks to offer its wireless subscribers differentiated products and services through the use of a single network or a combination of these networks.

Under the Business Combination Agreement, T-Mobile US will acquire all of the shares in Sprint. In return for every 9.75 Sprint shares, Sprint's existing shareholders will receive one new T-Mobile US share without any additional cash contribution. On completion of the Transactions, Deutsche Telekom will hold around 42% of T-Mobile US' shares and Softbank around 27% of T-Mobile US' shares, while the free float will account for about 31%. Deutsche Telekom and Softbank have further agreed to conclude a proxy agreement upon the closing of the Transactions which provides for Deutsche Telekom being able to vote all shares in T-Mobile US held by Softbank. This arrangement in respect of the T-Mobile US shares, along with the relevant corporate governance rules, means that Deutsche Telekom will continue to consolidate T-Mobile US in its financial statements.

After the Transactions, T-Mobile US plans to achieve cost and capital expenditure synergies of around USD 43 billion in cash (after integration costs) within three to four years. Around USD 15 billion has been budgeted for

integration costs. The ratio of net debt to adjusted EBITDA (see "*Special Note on Non-GAAP Financial Measures*") for Deutsche Telekom is expected to exceed the target corridor of 2.25x to 2.75x for leverage as a result of the Transactions. However, we expect strong cash flow generation at T-Mobile US in the coming years, which would return the ratio to the target corridor within three years after closing. Following the announcement of the Transactions, the rating agency Moody's maintained Deutsche Telekom's rating at BBB+, but downgraded the stable outlook to negative. Standard & Poor's maintained it at BBB+ with CreditWatch negative, while Fitch confirmed the current BBB+ rating and stable outlook.

The completion of the Transactions was approved by CFIUS and the FCC, in December 2018 and October 2019, respectively. On July 26, 2019, T-Mobile US entered into a consent decree with the DOJ pursuant to which the DOJ is waiving its right under U.S. law to file a suit against the Transactions. We are currently awaiting confirmation by the U.S. federal court in Washington D.C. In parallel to the entering into of the consent decree, multiple agreements were signed with the U.S. TV satellite operator DISH Networks to implement the conditions for the merger.

The Transactions are still subject to approval by antitrust and other authorities (including lawsuits by various state attorneys-general (see "*Risk Factors Related to the Proposed T-Mobile US and Sprint Merger*")), to the occurrence of material adverse effects as described in the Business Combination Agreement and to other closing conditions. One of the conditions relating to material adverse changes provides that none of the parties to the Transactions are required to take any of the actions described in the Business Combination Agreement to bring about the consummation of the Transactions, Sprint or their respective subsidiaries following closing of the Transactions. The Business Combination Agreement also contains representations and warranties and covenants customary for a transaction of this nature.

Sprint and SoftBank, and T-Mobile US and Deutsche Telekom, are each subject to restrictions on their ability to solicit alternative acquisition proposals and to provide information to, and engage in discussion with, third parties regarding such proposals, except under limited circumstances to permit Sprint's and T-Mobile's boards of directors to comply with their respective fiduciary duties. Subject to certain exceptions, each of the parties has agreed to use its reasonable best efforts to take or cause to be taken actions necessary to consummate the Transactions, including with respect to obtaining required government approvals. The Business Combination Agreement also contains certain termination rights for both Sprint and T-Mobile. For example, in the event that T-Mobile terminates the Business Combination Agreement in connection with a failure to satisfy the closing condition related to the specified minimum credit ratings noted above, then in certain circumstances, T-Mobile may be required to pay Sprint $600 million. In light of the above and further subject to the resolution of related legal proceedings, including suits filed by the attorneys general of 13 states and the District of Columbia filed against T-Mobile US, Deutsche Telekom, Sprint, and Softbank Group Corp, we expect to close the transaction in early 2020.

Other Significant Corporate Transactions

In March 2018, Deutsche Telekom exercised its right of first refusal as invited by the Greek privatization authority Hellenic Republic Asset Development Fund ("HRADF") and acquired a 5% stake in its Greek subsidiary OTE. The transaction closed on May 30, 2018, with Deutsche Telekom acquiring additional shares in the amount of EUR 0.3 billion, and subsequently holding around 45% of the shares in OTE.

In December 2017, T-Mobile Austria agreed to acquire Austria's leading cable operator, UPC Austria. The European Commission approved the deal on July 9, 2018 and the transaction closed on July 31, 2018. A purchase price of EUR 1.8 billion was paid in cash. The UPC Austria group has been fully included in our consolidated financial statements since the acquisition date. In line with our strategy, this acquisition will allow us to offer convergent product bundles to our customers on the European market.

On November 27, 2018, the European Commission unconditionally approved the acquisition of telecommunications provider Tele2 Netherlands Holding N.V. by T-Mobile Netherlands Holding B.V. and the transaction closed 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 on the Dutch market.

On January 15, 2019, OTE concluded an agreement concerning the sale of its stake in Telekom Albania to the Bulgarian company Albania Telecom Invest AD for a purchase price of EUR 50 million. The transaction was approved by the authorities and completed on May 7, 2019.

On August 14, 2019, Deutsche Telekom transferred its 11.34 % stake in Ströer SE & Co. KGaA (worth EUR 0.4

billion), to the Group's own trust, 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.

The Telecommunications Market

Demand for high-speed broadband – over the fixed and mobile networks – remains high. According to estimates by Analysys Mason, data traffic over the fixed network grew by 38% worldwide in 2018. In the same period, estimates by Dialog Consult put the average data volume per fixed-line connection and month in Germany at 90 gigabytes – more than quadruple the level seen five years ago. Analysys Mason estimates that mobile data traffic grew worldwide in 2018 by 67%, almost representing a fifteen-fold increase in five years. For the telecommunications industry, these developments present both a challenge and the opportunity to monetize the strong growth in volume.

Worldwide, revenues in the market for information and communications technologies (ICT) ICT grew by 4.1% in 2018 to EUR 3.26 trillion. The high-tech Federal Association for Information Technology, Telecommunications and New Media ("Bitkom"), which is an association of high tech industry participants, and the European Information Technology Observatory ("EITO") expect the telecommunications market segment (services and equipment) to record an increase of 3.3% worldwide to EUR 1.82 trillion and the information technology ("IT") market segment to record an increase of 5.1% for 2018. In the European Union, revenues in the telecommunications market segment increased by 1.3% in 2018. Revenues with telecommunications equipment rose by 3.2%, while revenues with telecommunications services grew only slightly by 0.6%. In the Central and Eastern European Countries (excluding Russia), revenues from telecommunications equipment and services grew by 3.7% in 2018. In 2018, telecommunications revenues in Europe continued to grow at a slower pace overall than in other major industrial nations: The United States posted growth of 2.6% and China of 3.1%. While telecommunications policy in the EU is designed to relentlessly drive price competition by way of regulatory intervention, outside of the EU the focus is much more on encouraging investments.

The telecommunications industry is characterized by intense competition. Consumers benefit from a greater range of products to choose from. Each of our markets is occupied by three or four mobile operators with their own network infrastructure. On top of this, we are seeing mobile providers becoming established in many markets using the network infrastructure of the mobile network operators. Competition is also intense in the fixed network market. Established telecommunications companies are competing with cable network operators, city network operators, and resellers, who predominantly make use of regulated wholesale products. Added to this are internet companies with OTT communication services that further intensify the competitive pressure.

The rapid technological transformation in the telecommunications sector calls for high investments to build out next-generation network infrastructure. The rollout of 5G networks is fast approaching and the telecommunications networks are continually being upgraded with optical fiber. Established telecommunications companies like Deutsche Telekom are investing a substantial portion of their revenues in building out network infrastructure and acquiring spectrum.

Alongside the supply of basic broadband infrastructure, looking ahead we expect the focus to be on connecting billions of things, appliances, machines, and sensors of all kinds to create an IoT. In the next few years, connectivity will not be restricted to millions of smartphones and computers – billions of appliances worldwide will also communicate with each other. The network infrastructures of the gigabit society must enable the transportation of growing data volumes in parallel with providing intelligent features and services that offer the best support for the diverging challenges generated by future applications, such as connected automated driving, IoT, Industry 4.0, e-health, and smart grids. The demands of these applications can vary a great deal with respect to real-time requirements, latency, availability, bandwidth, mobility, security, and energy efficiency, to name a few. For this reason, steps must be taken to ensure quality-assured services are possible both now and in the future. The infrastructures for the gigabit society will comprise an intelligent, application-specific mix of technologies at both a network and features level.

Germany

According to EITO, revenue from IT products and services, telecommunications, and consumer electronics increased by 2.1% to around EUR 138.2 billion in Germany in 2018. This was primarily attributable to the 2.5% growth in information technology. Telecommunications revenues (telecommunications services, hardware, and infrastructure systems) increased by 1.4% to around EUR 58.4 billion.

The number of broadband lines in Germany grew by 3.0% in 2018 to around 34.1 million, according to EITO.

For 2019, the number of broadband lines is expected to grow by a further 2.3% to 34.9 million. Companies with their own infrastructure benefited the most from this market growth, along with resellers and regional providers. High-bandwidth lines are increasingly marketed in cable and VDSL/vectoring networks. The offerings in this area are supported by innovative hybrid connection technologies. The availability of high bandwidths in Germany and the large choice of HD content and video-on-demand services are stimulating customer growth in IPTV business. Convergent offers comprising fixed-network and mobile communications (fixed-mobile, convergence, fixed mobile convergence ("FMC") offer customers many advantages and help increase customer retention. The trend towards FMC offerings continued in 2018, with more and more providers expanding their portfolios. We launched our first convergent offering, MagentaEINS (corresponding to our MagentaOne outside Germany), on the market in fall 2014. Since then, we have been gradually enhancing the service both in the area of traditional communication and add-on services such as smart home, cloud computing, and security applications.

In the German mobile market, service revenues in 2018 increased by 1.4% against 2017 to approximately EUR 20.0 billion. This moderate revenue growth was driven largely by the continued rise in data usage, which offset the aforementioned regulatory effects as well as sustained price and competitive pressure. The use of mobile data is growing exponentially, the percentage of voice and data rate plans is rising steadily. Traditional voice and text messaging services are increasingly being replaced by free IP messaging services like WhatsApp and social networks like Facebook. Connected products such as smartphones and tablets, as well as watches, shoes, bicycles, and much more, are growing ever more popular, pushing up demand for mobile broadband speeds and for large data volumes in the rate plan portfolios.

Digitalization is continuing to progress, and as a result there is growing demand by the industry for even more connectivity to allow machines and production sites to be networked and to tap efficiencies in value chains. Extensive IT and cloud solutions, as well as intelligent approaches to machine-to-machine communication are needed in order to meet these demands.

United States

The mobile communications market in the United States continues to be divided between four major nationwide providers – AT&T, Verizon Wireless, T-Mobile US, and Sprint – and various regional network operators. In addition there are a number of mobile virtual network operators, which rely on the networks of one or more of the four national carriers to transport their voice and data traffic. The two largest national network operators are AT&T and Verizon Wireless, followed by T-Mobile US and Sprint.

The market continues to be very dynamic. Comcast, Charter, DISH, TracFone, and Google have successfully entered or are on the verge of entering the wireless market, demonstrating the intensity of current competition in the sector. For example, the cable companies Comcast and Charter have both begun offering mobile services to their customers. Both Comcast's and Charter's mobile services leverage their respective existing Wi-Fi networks, falling back on Verizon's network when out of their respective Wi-Fi footprints. Both offerings have slowly churned subscribers away from the traditional wireless providers, exerting new and unique competitive pressures and blurring market boundaries. DISH, which holds licenses to vast swathes of airwaves, has announced near-term plans for both a Narrowband IoT network and a 5G network (DISH has license obligations to build out much of its spectrum by 2020).

AT&T's USD 85.4 billion acquisition of Time Warner, Inc. closed, but is still making its way through the courts. AT&T beat an antitrust challenge by the DOJ in court, with the decision on the appeal forthcoming. The consolidation and convergence of the U.S. telecommunications market is expected to continue, as fixed and wireless become more integrated and wireless companies acquire content providers. On April 29, 2018, T-Mobile US and Sprint announced their intention to merge. The completion of the Transactions has been approved by CFIUS and the FCC, with court approval of the DOJ's clearance decision currently pending before the Federal District Court of Washington D.C. The Transactions remain subject to the outcome of certain proceedings (including lawsuits by various state attorneys-general)(see "*Risk Factors Related to the Proposed T-Mobile US and Sprint Merger*").

The FCC has issued a public notice requesting input from industry and analysts on the status of competition in the mobile wireless services market. Metrics are sought on total number of wireless connections, data usage trends, spectrum holdings, innovation and 5G, network quality, and market definition, etc. Although specific metrics are forthcoming, data consumption and smartphone penetration are steadily on the rise, and, with the advent of mobile 5G services, data consumption is expected to spike. For example, smartphone data usage is expected to surpass fixed broadband usage in 2018. With over 400 million mobile devices, there are more wireless devices in the United States than people – in fact, about 1.2 devices for every person in the country. More than 68% of these devices are data-

intensive smartphones.

In the United States, 5G commercialization is moving at a swift pace. One of the four national service providers began deploying a 5G fixed wireless Internet service at the beginning of October 2018. Another announced plans to deploy 5G based on the 3rd Generation Partnership ("3GPP"), a leading mobile standards body, 5G standard by the end of the 2018. The other two providers planned to launch mobile 5G services in early 2019.

For its part, the FCC has taken various steps to encourage investment in the wireless space. For example, to help providers prepare for the deployment of next generation networks, the FCC has cleared regulatory hurdles, and preempted several state and local obstacles, in efforts to streamline the impending build-out required to realize true 5G mobile networks. The FCC held a 28 GHz auction from November 2018 through January 2019. This was the first time that 5G spectrum in such a high frequency band (known as millimeter wave ("mmWave") had been auctioned in the United States. On March 14, 2019, a second mmWave auction began in which a total of 1.55 GHz of spectrum in the 24 GHz band was available. T-Mobile US also participated in this auction. Over the course of the two auctions for 28 GHz and 24 GHz spectrum, T-Mobile US paid around USD 843 million for a total of 367 MHz, thus securing itself a solid mmWave holding in preparation for 5G. A third auction for spectrum in the 37 GHz, 39 GHz, and 47 GHz bands started on December 10, 2019. In addition, the FCC is planning to auction spectrum in the 3.5 GHz Band in June 2020 ("Auction 105"). While T-Mobile US expects to participate in the auction, there is no certainty that it will be successful in acquiring additional spectrum.

Europe

In 2018, the traditional telecommunications markets continued last year's growth trend in the highly competitive market environment of our Europe operating segment. Steady growth in broadband and TV services offset declining revenues from voice telephony in fixed-network business. Growth rates for mobile data usage remained high, especially due to the wide range of video services available. Overall, mobile business developed positively, making it a driver of growth in the traditional telecommunications markets. The continued levying in 2018 of special taxes on telecommunications services in some countries had a negative impact, for example in Greece and Hungary.

Compared with 2017, expenses for the acquisition of spectrum and extension of existing mobile licenses in 2018 remained at a moderate level. Spectrum award proceedings were held primarily in Hungary. In 2018, several merger and takeover transactions were concluded in the countries of our Europe operating segment (for instance T-Mobile Austria and UPC Austria, Digi/Invitel and the sale of Telenor to PPF in Hungary, and Vodafone/Cyta in Greece).

The trend towards convergent product bundles combining fixed-network and mobile communications ("FMC") continues, for example with "Kombinieren & Sparen" (combine & save) in Austria, Love in Poland, and MagentaOne and CosmoteOne in our subsidiaries with integrated telecommunications infrastructure. These offers are enjoying strong growth and for some providers, already address the majority of consumers. Streaming video services like Netflix and Amazon Prime Video continue to be of limited significance in Southern and Eastern Europe: According to Ampere Analysis, the household penetration rate there was 6% in 2018 compared with 30% in Western Europe. In the business customer segment, the advance of digitalization prompted massive growth in M2M/IoT applications. We participate in this growth with our smart city projects, for instance in Hungary, Romania, and Greece.

Systems Solutions

In the ICT industry in our core market of Western Europe, the volume addressed by our portfolio in the Systems Solutions operating segment increased by 5.3% in 2018 to EUR 185 billion. However, this trend impacted the business areas of the market in very different ways.

In the telecommunications ("TC") segment, the market was dominated by continued price erosion in telecommunications services and by intense competition. The focus in this segment continues to be on the substitution of elements of the portfolio and demand for stable, intelligent and secure network solutions with increasingly large bandwidths. Growth in ICT security (cyber security), IoT, cloud computing, and unified communications is leading to a long-term stabilization of the markets served by our operating segment. Substitution effects between fixed-network and mobile operations continue to intensify. The migration to all-IP solutions, *e.g.*, the combination of Internet access, Voice over IP, IP VPN, and Unified Communications, continues to increase.

In terms of IT services, demand has grown further for cloud services and cyber security services, as has the importance of digitalization, intelligent networks, the Internet of Things (including Industry 4.0), and communication

between machines. The advance of digitalization and the shift towards cloud solutions also transformed demand in the systems integration business. Traditional project business – application development and the associated integration – stagnated. By contrast, the market for consultation and integration services for cloud solutions grew by almost 25%.

The market for outsourcing computing and desktop services ("CDS") grew marginally by 0.1% in 2018 to EUR 54 billion. Two contrasting trends played a role in this context: business from long-term, rather traditional outsourcing contracts declined by 4%, while the market for cloud computing grew by 13%.

Competitive and price pressure persisted in all submarkets of our Systems Solutions operating segment. This was caused in part by competitors such as BT Global Services and Orange Business Services in the telecommunications market, and IBM, Atos, and Capgemini in the IT segment; in addition, the IT segment in particular came under price pressure from cloud providers such as Amazon Web Services, Google, and Microsoft. This effect is further intensified by providers of services rendered primarily offshore. We are positioning ourselves in this environment as a digital enabler, a cloud transformer, and an ICT operator, with a focus on quality, data security, and end-to-end responsibility for the transformation, integration, and operation of ICT services. Furthermore, we are increasingly entering into strategic partnerships with our competitors with the aim of offering our customers innovative solutions.

Group Strategy

The strategies and expectations referred to in the following discussions are considered forward-looking statements and may be strongly influenced or changed by shifts in market conditions, new initiatives we implement and other factors. We cannot provide assurance that the strategies and expectations referred to in these discussions will come to fruition. Please refer to "Forward-Looking Statements" and "Risk Factors" for descriptions of some of the factors relevant to these discussions and other forward-looking statements in this offering memorandum.

Development of the Group's Strategy

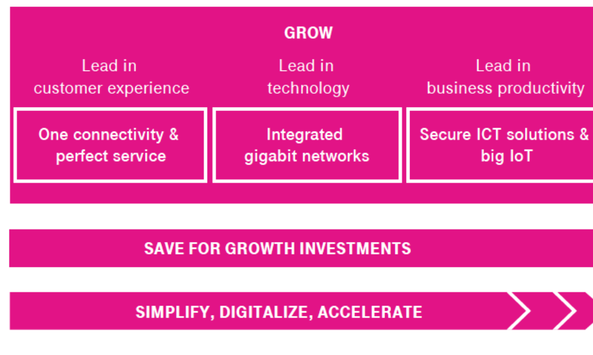
Our Corporate Strategy: Leading European Telco

Since 2014, we have been aligning all of our corporate activities with our Leading European Telco strategy — with the aim of becoming Europe's leading telecommunications provider.

This strategy has proved very successful: In terms of market capitalization, we are Europe's highest value telecommunications company (as of December 31, 2019). In 2018, we increased revenue, adjusted EBITDA, and free cash flow once again. At the same time, we see our Group as facing new challenges:

- The parallel build-out of broadband and mobile infrastructure (optical fiber and 5G) calls for high investments and innovative approaches to implementation. This situation is intensified by sustained public and political pressure on our build-out strategy, predominantly in Germany.
- Innovative technologies like artificial intelligence are increasingly becoming part of everyday life. Voice-controlled assistants and chatbots, to name just a couple of examples, are permanently changing the face of the customer experience, our working environment, and our responsibility in the digital society.
- Businesses need simple, end-to-end solutions for connecting their production operations and managing ever increasing data streams. Providers like Google and Microsoft are also entering the global connectivity field.
- On top of this, our direct competitors in the telecommunications industry are digitalizing more and more elements of their core business, improving efficiency, and enhancing the customer experience.

We are tackling these challenges head on. We continue to systematically implement our Leading European Telco strategy. As the graphic below shows, our claim to leadership ranges over three dimensions: customer experience, technology, and business customer productivity. From this we derive three specific action areas with which we are creating the foundation for future organic growth. We believe that only if we grow can we sustainably secure our earnings performance and continue to meet the high demands of our investors. This growth target is supported by two areas of operation which provide the framework for our internal activities.



Strategic Areas of Operation

One connectivity & perfect service

We intend to offer our customers a seamless and technology-neutral telecommunications experience. We therefore market fixed-network and mobile communications in one convergent product (fixed-mobile convergence or FMC). By September 30, 2019, some 4.6 million customers in Germany had opted for MagentaEINS; this corresponds to growth of around 300,000 additional MagentaEins customers as compared with the end of 2018. Our portfolio of convergent products, MagentaOne, was highly popular with consumers across all of our national companies. As of September 30, 2019, we had 4.4 million FMC customers; this corresponds to significant growth of 33.4 % or 1.1 million additional FMC customers compared with the end of 2018. In order to continue on this path of growth, we work continuously to improve and expand our convergent offer.

Our offer also includes attractive TV content across all screens and on any device. In 2018, we realigned our TV service in Germany under the MagentaTV brand, overhauling the user interface and adding additional content. We aggregate linear television with extensive features, access to content from some of the biggest video-on-demand providers (Sky, Netflix, Maxdome, and Amazon Prime Video), exclusive TV series, and a wide range of sports content on a single platform. Customers can now access our TV content irrespective of their internet provider. The success of this product embodies our strategy: In 2018, we won 0.2 million new TV customers in Germany. In the same period, the number of TV customers at our national companies in Europe grew in organic terms by 0.1 million. By standardizing our technical platforms and expanding our services to selected markets, we believe we have consolidated our leading position.

As a premium provider, we strive to set ourselves apart from our competitors with seamless customer service: In 2018, we presented several service improvement initiatives in Germany, including improved self-service options, callback services, a service for optimizing home Wi-Fi, and installation packages for the home network. We believe our top rating in the connect hotline test (number 1 spot among German broadband providers in 2018) shows that we are on the right track. In 2018, we introduced the Team of Experts initiative in the United States with the aim of giving customers even more personal service and systematically removing frustration factors in customer service. We believe this is one of the reasons why we won 4.9 million new mobile customers in the United States in 2018. At our national companies in Europe, we are currently focusing on increasing the level of digitalization in customer interaction; for example, using our specially developed service app. Following a successful international rollout, this app aims to improve both the customer experience (e.g., with self-administration of contracts) and the monetization of our offerings (e.g., with customer-specific approaches).

We measure customer satisfaction using the globally recognized TRI*M method. Based on this performance indicator, we aim to improve our customer contact processes, and our products and services. At the same time, this performance indicator helps us to determine the loyalty of our customers towards the Company. The results are presented as a performance indicator, the TRI*M index, which ranges between minus 66 (negative) and plus 134 points (positive). At the end of 2018, the indicator came in at 67.7 points versus 67.2 points at the start of 2018, with both values based on the same set of adjusted parameters introduced at the beginning of 2018. Our goal for the coming years is to achieve a steady overall improvement in customer satisfaction.

Integrated gigabit networks

Convergent products require integrated networks. We are therefore systematically building out and interlinking our fixed and mobile networks, so that we can offer our customers an optimized connection. As part of this, we are also striking out in new directions, for example, with innovative technologies like fixed-network substitution using mobile technology to offer speeds of over 1 Gbit/s, or the use of artificial intelligence to ensure infrastructure is built out in line with demand, as well as exploring new partnerships and joint ventures. Integrated management also improves the capacity utilization of our infrastructure and increases efficiency in operations and maintenance.

Fiber optic-based fixed networks are the basis for an integrated network experience. We already operate the largest fiber-optic network in Germany with around 500,000 kilometers of fiber-optic cable. In 2018, we added some 60,000 kilometers. We are currently investing over EUR 5 billion annually in building out and operating networks across Germany, with over EUR 4 billion of this attributable to the Germany operating segment. We continued to build out our network in 2018 by deploying vectoring. We are able to offer high-speed internet to about 28 million households using this technology – around 14 million of these are already benefiting from speeds of up to 250 Mbit/s. At the same time, we are pressing ahead with the transition to fiber-optic technology: By 2022, for example, we intend to supply around 3,000 business parks with fiber to the office and thus offer gigabit connections to around 80% of companies in business parks across Germany. In addition, existing customers are gradually being migrated to IP-based solutions and in consultation with the customers themselves. The migration of the German mass market was completed in 2019 as planned. We have already completed the migration to IP lines in five national companies (Hungary, Croatia, Slovakia, Macedonia, and Montenegro) and will continue to move forward with our migration efforts in Greece on a step-by-step basis.

We have regularly come out on top in independent network tests. In 2018, we won three big network tests by connect, Chip, and Computer Bild – in Germany. Independent certification organization TÜV rated our mobile network as offering the best "quality to the customer." In our Europe operating segment, six national companies were rated as "best in test overall" by the P3 communications network experts, as was T-Mobile Netherlands. Furthermore, T-Mobile US was once again the winner in OpenSignal tests in August 2018. We intend to remain a quality leader and hence are further rolling out our LTE networks. In Germany, we aim to cover approximately 99% of the population with LTE by the end of 2020; in our European national companies, coverage is to reach around 98% on average.

With the fifth-generation mobile communications standard (5G), we intend to create a highly-reliable mobile network with extremely low latency and high data throughput. To this end, we plan to decouple network functions from the access medium (*e.g.*, optical fiber, copper, or air). By distributing computing power in the network (mobile edge computing) and creating dedicated network layers for individual applications (network slicing), 5G creates the basis for future technologies such as virtual reality, autonomous driving, and the Internet of Things. Our goal is to work with policy-makers and industry to build the most powerful digital infrastructure for Germany – in cities and rural areas alike.

Spectrum

The table below provides an overview of the main spectrum awards through auctions as well as license extensions in Germany and at our international subsidiaries. It also indicates spectrum to be awarded in the near future in various countries.

Main spectrum awards

	Expected start of award procedure	Expected end of award procedure	Frequency ranges (MHz)	Award process	Acquired spectrum (MHz)	Spectrum investment
Germany		Completed	2,100 / 3,400-3,700	Auction (SMRA[1])	20 MHz/90 MHz	€ 2.17 billion[2]
Greece	Q2 2020	Q3 2020	700 / 1,500 / 3,600 / 26,000	Auction (SMRA[1]), expected	tbd	tbd
Croatia		Completed	2,100 / 2,600	Assignment on application	2x 20 MHz in the 2,600 MHz band	Annual fees, no one-time charge
Croatia	Q1 2020	Q2 2020	700 / 3,400–3,800 / 26,000	tbd	tbd	tbd
Netherlands	Q2 2020	Q3 2020	700 / 1,500 / 2,100	SMRA-clock hybrid auction expected, details tbd	tbd	tbd
North Macedonia		Completed	1,800	Extension of licenses	2x 10 MHz	No extension fees
North Macedonia	Q4 2019	Q1 2020	2,100	Sealed-bid tender[3]	tbd	tbd
North Macedonia	Q2 2020	Q3 2020	700 / 3,400-3,800	Auction, details tbd	tbd	tbd
Austria		Completed	3,400-3,800	Regional auction (CCA[4])	1x 110 MHz	€ 57 million
Austria	Q1 2020	Q2 2020	700 / 1,500 / 2,100	Auction (CCA[4]), expected	tbd	tbd
Poland	Q2 2020	Q3 2020	800 / 3,600-3,800	Auction, details tbd	tbd	tbd
Poland	Q3 2021	Q4 2022	700 / 3,600-3,800	Auction, details tbd	tbd	tbd
Romania	Q2 2020	Q2 2020	700 / 800 / 1,500 / 2,600 / 3,400–3,800 / 26,000	Auction, details tbd	tbd	tbd
Slovakia	Q3 2019	Q4 2019	700 / 900 / 1,500 / 1,800	Auction (SMRA[1]), expected	tbd	tbd
Czech Republic	Q4 2019	Q1 2020	700 / 3,400-3,600	Auction (SMRA[1]), expected	tbd	tbd
Hungary	Q4 2019	Q4 2019	700 / 2,100 / 2,600 / 3,400–3,800	Auction, details tbd	tbd	tbd
United States		Completed	28,000	Auction (SMRA[1])	367 MHz (all in 24 / 28	$ 843 million
United States		Completed	24,000	Auction (CCA[4])	See above	See above
United States	Q4 2019	Q1 2020	37,000 / 39,000 / 47,000	Auction (CCA[4])	tbd	tbd
United Sates	Q2 2020	Q3 2020	3.550-3.700	Auction (Clock Auction)	tbd	tbd

[1] Simultaneous electronic multi-round auction with ascending, parallel bids for all available frequency ranges.
[2] Annual installment plan until 2030 agreed, starting in 2019, provided we take on additional build-out obligations.
[3] Sealed-bid tender: auction in which bidders submit their offers in sealed envelopes.
[4] Combinatorial clock auction: three-stage, multi-round auction for spectrum from all available frequency ranges.

Secure ICT solutions & big IoT

Our international network solutions remained popular among German business customers in 2018. Secure, reliable global connectivity is essential to the advancing digitalization of critical processes in companies and industry associations. We believe that we remain a dependable partner to German industry owing to our portfolio of international communications solutions that combine the strengths of our national network infrastructure with our international network assets.

Our business with “traditional” IT outsourcing services for international corporate customers has been in decline for a number of years now, mainly due to persistent intense competition. For this reason, our Systems Solutions operating segment is currently undergoing a radical transformation comprising four key goals: a shift to portfolio-based business management, the integration of our sales organization, the reduction of interdisciplinary costs by streamlining processes and hierarchy levels, and a significant increase in the level of automation in service provision with a higher share of offshore/nearshore services. We believe we made significant progress with the transformation in 2018 and implemented the new portfolio-based organization in 2019 as planned. We also intend to tailor our IT and cloud offers even more closely to the needs of our SME customers in the future. In 2018, we generated revenue of some EUR 700 million in this

area in our Germany operating segment, up once again by around 20% against 2017. As we expect this business to grow significantly over the coming years, we are expanding our IT and cloud ecosystem for SMEs together with market-leading technology partners.

For us, the biggest growth driver in the business customer environment is the IoT. Over the next few years, we expect billions of new devices – means of production such as machines or tools, everyday objects like cars or fridges, but also public infrastructure like street lights or park benches – to be connected to the Internet. Our Narrowband-IoT networks ("NB-IoT") alongside M2M connectivity create the basis for cost-effective and energy-efficient networking. In addition, we intend to provide our customers – *e.g.*, in the automotive, healthcare and public sectors – with the platforms to manage these devices and use the data collected for their business. As a leading network operator in the NB-IoT environment, we also operate networks in ten countries, offering coverage nationwide in the Netherlands, Austria, Slovakia, and the United States. At present, we work with over 500 customers in Europe, helping them to prepare and roll out their NB-IoT-based hardware and applications. These customers include, for example, Ista (smart submetering), BMW (paperless displays), the City of Hamburg (smart parking), Veolia and Geotermia Zakopane in Poland (smart metering), and Dual Inventive (rail track monitoring).

We supplement these offers with our comprehensive cybersecurity portfolio. Telekom Security, which was established in early 2017, is today one of Germany's leading provider of cybersecurity solutions. Looking ahead at the medium term, our goal is to also take on a leading role in Europe. Since cyberattacks pose a growing threat to companies and our customers' need for data privacy and security is increasing, we expect growth rates in this business area to remain consistently high over the next few years.

Supporting Areas of Operation

The supporting areas of operation provide the framework for our internal activities.

Save for growth investments

Future growth requires adequate investment. To this end, we are investing in our own innovativeness as well as integrating new developments from outside our Company. We believe that strict cost discipline enables us to generate the funds we need to finance this investment and safeguard our competitiveness. We therefore intend to systematically continue on this path of cost transformation. In the long term, we seek to be Europe's leading telecommunications provider in terms of efficiency.

We manage our investment portfolio with the aim of enhancing value. Business areas that cannot be adequately developed within the Group are disposed of, while our growth ambitions are bolstered by means of equity investments and acquisitions. Since 2018, we can also offer convergent products from a single source in Austria and the Netherlands since the acquisition of cable provider UPC Austria by T-Mobile Austria as well as the acquisition of Tele2 Netherlands by T-Mobile Netherlands closed on July 31, 2018 and January 2, 2019, respectively.

We aim to strengthen our position in the U.S. mobile market through the business combination of T-Mobile US and Sprint, agreed in April 2018. Not only is the planned combination of business activities under the all-new, larger T-Mobile US consistent with our strategy of successfully developing our U.S. business, we believe it will also bolster the customer-oriented Un-carrier strategy and allow us roll out 5G technology across the United States more seamlessly.

Simplify, digitalize, accelerate

Simplicity in our offers and in our organization makes the digital transformation of our core business easier. In this way, we increase our implementation speed – both in the interaction with customers and in the implementation of new, strategic initiatives. This is why we want to become simpler, more digital, and ultimately more agile.

There are two main thrusts to our pursuit of simplicity. First, we want to offer our customers intuitive products and easy to understand rates. Our convergent products such as MagentaEINS are a first step in this direction. Going forward, we want to significantly further reduce product complexity. Second, we want our internal operation to be as efficient as possible, *i.e.*, in terms of time and costs. Hence we will scrutinize our organization, processes, and decision- making procedures and further optimize them wherever possible.

The digitalization of our core business is helping us to improve customer experience and increase our efficiency. Our innovative service app lets our customers in Germany and Europe view their data and contracts at any time and get the

most benefit from our extensive services. We believe this app to be very successful so far, for example, our customers rate the MeinMagenta app for iOS with 4.4 out of 5 stars on the apple store. Long term, our plan is to digitalize all value creation stages in their entirety. To this end, we are implementing more agile IT solutions and systematically expanding our expertise in innovative technologies like artificial intelligence. Data-based analyses are already helping us to maintain our hardware more proactively, understand customer needs better, and manage our networks more efficiently. Innovation that works: For example, a 2018 study by Berlin University of Applied Sciences and CEBIT rated our chatbot at T-Mobile Austria – Tinka – the best chatbot out of all the DAX 30 and MDAX companies.

However, simplicity and digitalization also call for new organizational forms, new skills, and a cultural shift. Given this, in 2018 we introduced the principle of end-to-end customer responsibility, particularly in areas close to the market, and implemented an agile organizational structure. We target and systematically develop our employees' abilities in line with the challenges being faced in the digital age and promote diversity as a source of change, innovation, and creativity across our entire Company. Future Work offers our employees modern, open office environments that encourage flexibility and new ways of working together.

Finance Strategy

We presented our updated finance strategy for the years 2018 through 2021 at our Capital Markets Day in late May 2018. Our forecast for growth through to 2021 remains at the same high level we anticipated at our Capital Markets Day in 2015.

Part of our finance strategy is to achieve our target financial ratios – relative debt (ratio of net debt to adjusted EBITDA between 2.25x and 2.75x) and equity ratio of 25% to 35% along with a liquidity reserve that covers our maturities of the coming 24 months at least. With these clear statements, we intend to maintain our rating in a corridor from A- to BBB and safeguard undisputed access to the capital market.

We seek to maintain a reliable dividend policy for shareholders, which is subject to approval by the relevant bodies and the fulfillment of other legal requirements. For the 2018 financial year, we proposed a dividend of EUR 0.70 per dividend-bearing share, which also served as a baseline for the dividend going forward. Starting from the 2019 financial year, we intend our dividend to reflect relative growth in earnings per share with a lower limit fixed at EUR 0.60 per dividend-bearing share. In terms of adjusted earnings per share, for 2018 we continue to expect a figure of around EUR 1.00 per share as announced at the Capital Markets Day in 2015 and expect this to rise to around EUR 1.20 per share through 2021.

We also plan to take share buy-backs into consideration, both of Deutsche Telekom AG shares and shares in T-Mobile US. However, no shares will be bought back in the first three years after the successful closing of the business combination of T-Mobile US and Sprint.

We expect our total capital expenditure to remain high in the next few years. We intend to use the scope for investment to further roll out our broadband infrastructure and to accelerate the transformation of the Company to an IP-based production model. In mobile communications, we intend our infrastructure build-out to focus on the LTE and 5G standards and, in the fixed network, on optical fiber and vectoring. The finance strategy is intended to support the transformation of our Group into the Leading European Telco. In order to generate a sustainable increase in value, we intend to earn our cost of capital in the medium term. We aim to achieve this goal in part by optimizing the utilization of our non-current assets. We also intend to achieve our target of earning our cost of capital through strict cost discipline and improved cross-functional collaboration. Additionally, we plan to focus our performance management on unadjusted EBIT. By taking capital expenditure into consideration, we can align EBIT more closely with the ROCE concept and support our rigorous focus on the efficient allocation of capital at the Deutsche Telekom Group.

DEVELOPMENT OF OUR BUSINESS

You should read the following discussion in conjunction with our annual consolidated financial statements as of and for the year ended December 31, 2018 and 2017, including the notes to those consolidated financial statements, as well as condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019, including the notes to those condensed consolidated interim financial statements, which are incorporated by reference in this offering memorandum. Our consolidated financial statements and condensed consolidated interim financial statements prepared in accordance with IFRS are dependent upon and sensitive to accounting methods, assumptions and estimates that we use as bases for the preparation of our consolidated financial statements and condensed consolidated interim financial statements. For more information on these critical accounting estimates, see "Summary of accounting policies—Judgments and estimates" in the notes to our consolidated financial statements. For more information on EBITDA, EBITDA AL, adjusted EBITDA, adjusted EBITDA AL, free cash flow, free cash flow AL, cash capex and net debt, please see "Special Note on Non-GAAP Financial Measures", which appears elsewhere in this offering memorandum.

The strategies and expectations referred to in the following discussions are considered forward-looking statements and may be strongly influenced or changed by shifts in market conditions, new initiatives we implement and other factors. We cannot provide assurance that the strategies and expectations referred to in these discussions will come to fruition. Forward-looking statements are based on current plans, estimates and projections, and therefore, you should not place too much reliance on them. Forward-looking statements speak only as of the date they are made, and we undertake no obligation to update any forward-looking statements in light of new information or future events. Forward-looking statements involve inherent risks and uncertainties, most of which are difficult to predict and are generally beyond our control. We caution you that a number of important factors could cause actual results or outcomes to differ materially from those expressed in, or implied by, the forward-looking statements. Please refer to "*Forward-Looking Statements*" and "*Risk Factors*" for descriptions of some of the factors relevant to these discussions and other forward-looking statements in this offering memorandum.

Consolidated Results of Operations

The following tables present information concerning our consolidated income statements for the periods indicated.

	For the nine months ended September 30,		
	2019[1]	2018	2019/2018
	(millions of €)		(% change)
		(unaudited)	
Net revenue	**59,169**	**55,395**	**6.8**
Of which: interest income calculated using the effective interest method	264	222	18.9
Other operating income	846	1,077	(21.4)
Changes in inventories	79	23	n.a.
Own capitalized costs	1,779	1,759	1.1
Goods and services purchased	(26,540)	(27,190)	2.4
Personnel costs	(12,576)	(12,245)	(2.7)
Other operating expenses	(2,282)	(2,119)	(7.7)
Impairment losses on financial assets	(268)	(307)	12.7
Gains (losses) from the write-off of financial assets measured at amortized cost	(39)	(45)	13.3
Other	(1,975)	(1,767)	(11.8)
Depreciation, amortization and impairment losses	(12,811)	(9,645)	(32.8)
Profit (Loss) from operations (EBIT)	**7,665**	**7,053**	**8.7**
Finance costs	(1,784)	(1,396)	(27.8)
Interest income	248	193	28.5
Interest expense	(2,033)	(1,589)	(27.9)
Share of profit (loss) of associates and joint ventures accounted for using the equity method	107	(527)	n.a.
Other financial income (expense)	190	(175)	n.a.
Profit (loss) from financial activities	**(1,488)**	**(2,098)**	**29.1**
Profit (loss) before income taxes	**6,178**	**4,956**	**24.7**
Income taxes	(1,662)	(1,427)	(16.5)
Profit (loss)	**4,516**	**3,529**	**28.0**
Profit (loss) attributable to owners of the parent (net profit (loss))	3,213	2,597	23.7
Profit (loss) attributable to non-controlling interests	1,303	932	39.8

n.a. – not applicable

1 The new IFRS 16 "Leases" accounting standard has been applied as of January 1, 2019. Prior-year comparatives were not adjusted. For more information, please refer to the section "Accounting policies," in the notes to our condensed interim financial statements as of and for the nine-month period ended September 30, 2019, incorporated by reference in this offering memorandum.

	For the years ended December 31,				
	2018[1]	2017	2016	2018/2017	2017/2016
	(millions of €)			(% change)	
	(audited, except as otherwise indicated)			(unaudited)	
Net revenue	**75,656**	**74,947**	**73,095**	0.9	**2.5**
Of which: interest income calculated using the effective interest method	305	n.a.	n.a.	n.a.	n.a.
Other operating income	1,491	3,819	4,180	(61.0)	(8.6)
Changes in inventories	(14)	21	(12)	n.a.	n.a.
Own capitalized costs	2,433	2,292	2,112	6.2	8.5
Goods and services purchased	(38,160)	(38,161)	(37,084)	(0.0)	(2.9)
Personnel costs	(16,436)	(15,504)	(16,463)	(6.0)	5.8
Other operating expenses	(3,134)	(3,444)	(3,284)	9.0	(4.9)
Impairment losses on financial assets	(394)	n.a.	n.a.	n.a.	n.a.
Gains (losses) from the write-off of financial assets measured at amortized cost	(120)	n.a.	n.a.	n.a.	n.a.
Other	(2,620)	(3,444)	(3,284)	23.9	(4.9)
EBITDA[2]	**21,836**	**23,969**	**22,544**	**(8.9)**	**6.3**
Depreciation, amortization and impairment losses	(13,836)	(14,586)	(13,380)	5.1	(9.0)
Profit from operations (EBIT)[2]	**8,001**	**9,383**	**9,164**	**(14.7)**	**2.4**
Finance costs	(1,817)	(2,197)	(2,492)	17.3	11.8
Interest income	277	320	223	(13.4)	43.5
Interest expense	(2,094)	(2,517)	(2,715)	16.8	7.3
Share of profit (loss) of associates and joint ventures accounted for using the equity method	(529)	76	(53)	n.a.	n.a.
Other financial income (expense)	(502)	(2,269)	(2,072)	77.9	(9.5)
Profit (loss) from financial activities	**(2,848)**	**(4,390)**	**(4,617)**	**35.1**	**4.9**
Profit before income taxes	**5,153**	**4,994**	**4,547**	**3.2**	**9.8**
Income taxes	(1,824)	558	(1,443)	n.a.	n.a.
Profit (loss)	**3,329**	**5,551**	**3,104**	**(40.0)**	**78.8**
Profit (loss) attributable to owners of the parent (net profit (loss))	2,166	3,461	2,675	(37.4)	29.4
Profit (loss) attributable to non-controlling interests	1,163	2,090	429	(44.4)	n.a.

n.a. – not applicable

1 The new accounting standards IFRS 15 "Revenue from Contracts with Customers" and IFRS 9 "Financial Instruments" took effect as of January 1, 2018. 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 our consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

2 Unaudited.

One of the factors that causes period-to-period changes in our revenues and expenses is movement in exchange rates. In the following discussion, we use the term "exchange rate effects" to explain the variability caused by these movements. We calculate the effects of changes in exchange rates by multiplying the revenue and expense amounts in local currencies by the exchange rates in effect for the prior year to derive a constant currency revenue or expense amount. We then subtract this figure from the euro-denominated amount obtained from multiplying the current-year revenue and expense amounts in local currency by the current-year exchange rates. The difference between the two amounts is the currency or exchange rate effect.

Factors Affecting the Comparability of Results

Initial Application of IFRS 16

The new accounting standard IFRS 16 "Leases" took effect as of 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 required in the past 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 to use the underlying leased asset which is equivalent to the present value of the future lease payments plus initial direct costs, directly attributable expenditure, advance payments and

restoration costs, minus incentive payments received. The lease liability is subsequently 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 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.

The new standard already has had a material effect on our consolidated financial statements for the first three quarters of 2019, 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, in each case as set forth in further detail in the discussions that follow. For more information, see "*Accounting Policies*" in the notes to our condensed consolidated interim financial statements as of and for the period ended September 30, 2019, incorporated by reference in this offering memorandum.

The new standard affects us as lessee especially in relation to leases of cellular telephony sites (land, space in cell towers, or rooftop surface areas), network infrastructure, and buildings used for administrative or technical purposes. It requires payment obligations from existing operating leases to be discounted and recognized as lease liabilities which, as financial liabilities, increase net debt. At the same time, the lessee recognizes a right-of-use asset. Operating expenses previously recognized in connection with operating leases will in the future be recognized as depreciation charges on right-of-use assets and as interest expenses for discounted obligations from operating leases, as appropriate. This will significantly increase EBITDA without any attendant change in underlying economic performance. In the statement of cash flows, the principal repayment portion of the lease payments from existing operating leases will reduce net cash from/used in financing activities and no longer affect net cash from operating activities. The interest portion of the payments will remain in net cash from operating activities and thus also in free cash flow.

Since expenses and cash outflows for leases are substantial elements of our earnings performance and solvency, effective from the beginning of the 2019 financial year we have taken into account the effects of the mandatory first-time application of the IFRS 16 accounting standard when determining our financial performance indicators. We also seek to promote as much comparability with our previous performance indicators as possible. Our operational performance is now measured on the basis of "EBITDA after leases" (EBITDA AL) (previously EBITDA). EBITDA AL is calculated by adjusting EBITDA for depreciation of the right-of-use assets and for interest expenses on recognized lease liabilities. The "free cash flow" financial performance indicator has been replaced by "free cash flow after leases" (free cash flow AL). Free cash flow AL is determined by adjusting free cash flow for repayments of lease liabilities. To improve comparability of our performance indicators with the EBITDA and free cash flow indicators reported in the financial statements of T-Mobile US in accordance with U.S. GAAP, which continues to differentiate between operating and finance leases, expenses and repayments for finance leases at T-Mobile US will not be taken into account when determining EBITDA AL and free cash flow AL.

Reconciliations of the definitions of the former financial performance indicators "EBITDA" and "free cash flow" with the new "AL" (after leases) indicators can be found below under the headings "Development of Business in the Group—Results of Operation of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA" and "*Condensed Consolidated Statement of Cash Flows and Reconciliation of Free Cash Flow AL/Free Cash Flow*", respectively.

The published prior-year figures have not been adjusted retroactively following the first-time application of IFRS 16. To enable comparability with the new performance indicators, pro forma comparatives were determined for the prior year. These were reached using approximate calculations of the key effects of IFRS 16 for the prior year, before applying the calculations for the current year. Changes to the organizational structure within the Group were also taken into consideration.

Initial Application of IFRS 15

The new accounting standard IFRS 15 "Revenue from Contracts with Customers" took effect as of January 1, 2018. Prior-year figures were not adjusted.

IFRS 15 introduces an amended model for determining and recognizing revenue. The effects of the new regulations on our operating segments differ depending on the underlying business model and, for the most part, neutralize each other. For example, in our Germany operating segment – where the sale of subsidized handsets in combination with service contracts is still customary – the amortization of capitalized contract assets reduces revenue to a minor extent. In our United States operating segment – where customers are predominantly offered payment-by-installment models or leased models – the application of IFRS 15 has a positive impact on revenue and EBITDA, mainly from the capitalization

of customer acquisition costs and their distribution over the average customer retention period. At Group level, the application of IFRS 15 had an insignificant effect on revenue and a positive effect on EBITDA.

Without the effect of IFRS 15, revenue for the year ended 2018 would have amounted EUR 75.6 billion, EUR 0.1 billion lower than reported. This effect on revenue development was attributable mainly to amortization of the contract assets/liabilities recognized in the statement of financial position over the (remaining) contract period in the 2018 financial year. This amortization is recognized as a reduction or an increase in revenue. These items also include reimbursements for handset subsidies granted by third-party retailers in the indirect sales channel. These reimbursements are a component of the commissions paid to the relevant third-party retailers. We no longer recognize these handset subsidies as an expense, but as a reduction of the service revenues over the contract term. Under other business models, revenue was increased due to the capitalization and subsequent amortization of expenses for sales commissions (contract costs) under goods and services purchased. These expenses were previously recognized as revenue-reducing effects.

Adjusted for the effects of IFRS 15, goods and services purchased and personnel costs for the year ended 2018 would have been EUR 38.5 billion and EUR 16.5 billion, respectively, representing a combined total that is EUR 0.4 billion higher than the combined unadjusted total. This effect is attributable the capitalization of expenses for sales commissions, which, under IAS 18/IAS 11, would have been recognized immediately in profit or loss either under goods and services purchased (dealer commissions) or personnel costs (employee commissions). This effect was only partially offset by the amortization of capitalized expenses for sales commissions.

For more information, see "*Accounting Policies*" in the notes to our consolidated financial statements as of and for the year ended December 31, 2018, incorporated by reference in this offering memorandum.

Changes in Reportable Segments

As of January 1, 2018, we assigned Vivento Customer Services GmbH, a provider of call center services which was previously part of our Group Headquarters & Group Services segment, to our Germany operating segment. Comparative figures for the first quarter of 2017 have been adjusted retrospectively in segment reporting.

Effects of Changes in the Composition of the Group and Other Transactions

Our business development in each of the periods presented was affected by changes in the composition of our Group, the most important of which are described below.

- *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 completed 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.

- *Sale of Telekom Albania.* On January 15, 2019, Hellenic Telecommunications Organization S.A. ("OTE") concluded an agreement concerning the sale of its stake in Telekom Albania to the Bulgarian company Albania Telecom Invest AD for a purchase price of EUR 50 million. The transaction was consummated on May 7, 2019. The gain on deconsolidation resulting from the sale is immaterial from the Group's perspective.

- *Acquisition of UPC Austria GmbH.* On December 22, 2017, T-Mobile Austria agreed to acquire a 100 percent stake in UPC Austria GmbH and its subsidiaries, taking into account non-controlling interests. The European Commission approved the deal on July 9, 2018 and the transaction was completed on July 31, 2018.

- *Toll Collect*. The Federal Republic of Germany exercised its option as of September 1, 2018 to purchase 100 percent of the shares in the operating company, Toll Collect GmbH, when the operating agreement expired on August 31, 2018. Following the acquisition of Toll Collect GmbH by the Federal Republic of Germany, the consortium Toll Collect GbR – comprising Deutsche Telekom AG, Daimler Financial Services AG, and Compagnie Financière et Industrielle des Autoroutes S.A. (Cofiroute) – continues to exist with an unchanged ownership structure.

- *Acquisition of Layer3 TV Inc.* On November 9, 2017, T-Mobile US signed an agreement to acquire 100 percent of the shares in online TV provider Layer3 TV, Inc. The agreement includes a cash purchase price of around USD 325 million. The transaction was completed on January 22, 2018.

- *Sale of shares in Scout24 AG.* With accounting effect from June 23, 2017, we placed our entire direct stake of 9.26 percent in Scout24 AG in the market at a price of EUR 32.20 per share. The sale resulted in proceeds of EUR 0.3 billion. Income from divestitures of EUR 0.2 billion attributable to the sale was disclosed under other operating income in our consolidated financial statements as of and for the year ended December 31, 2017.

- *Sale of DeTeMedien GmbH.* On June 14, 2017, we completed the sale of all our shares in DeTeMedien GmbH to a consortium of medium-sized publishers. By agreement, the purchase price remains confidential. It comprises a cash component as well as other elements, including a settlement of the dispute with the buyers, who for several years have pursued legal proceedings concerning the level of charges for subscriber data. In addition, the publishers have assumed the obligation to publish subscriber directories.

- *Sale of Strato AG.* In December 2016, we reached an agreement with United Internet AG on the sale of hosting service provider Strato AG. The sale is in line with our strategy of selling off or finding partners for business areas that cannot be developed adequately within the Deutsche Telekom Group and, in doing so, potentially increasing their value. The sale was completed at a purchase price of EUR 0.6 billion effective midnight March 31, 2017 after approval was given by the German Federal Cartel Office (*Bundeskartellamt*). Income from divestitures of EUR 0.5 billion attributable to the sale was disclosed under other operating income in our consolidated financial statements as of and for the year ended December 31, 2017.

- *Sale of the EE joint venture*. After the British Competition and Markets Authority (CMA) had approved the sale of the EE joint venture to the UK company BT unconditionally and without remedies in January 2016, we and the French telecommunications provider Orange consummated the transaction on January 29, 2016 at a purchase price of GBP 13.2 billion. In return for our stake in the EE joint venture, we received a financial stake of 12.0 percent in BT and a cash payment of GBP 15.7 million. The sale generated income of EUR 2.5 billion in 2016. Around EUR 0.9 billion of this amount resulted from effects recognized directly in equity in prior years. In addition, on January 25, 2016, the shareholders received a final dividend totaling GBP 0.3 billion from the former EE joint venture, in which we participated with our capital share at that date of 50 percent. The financial stake in BT received in connection with this transaction was disclosed as available-for-sale financial assets under other financial assets. In March 2018, we transferred our financial stake in BT to Deutsche Telekom Trust e.V., where it will be used as plan assets to cover our pension obligations.

For more information on the effects of changes in the composition of the Group, please refer to the "*Significant Events and Transactions—Changes in the Composition of the Group*" in the notes to our condensed consolidated interim financial statements as of and for the period ended September 30, 2019, and to the "*Summary of Accounting Policies*" in the section on "*Changes in the Composition of the Group and Other Transactions*" in the notes to each of the consolidated financial statements as of and for the period ended December 31, 2018 and December 31, 2017, in each case incorporated by reference in this offering memorandum.

Development of Business in the Group

The new IFRS 16 "Leases" accounting standard has been applied since January 1, 2019. The presentation of the financial position of the Group and the results of operations of the Group are materially influenced by the application of this standard. Since the start of the 2019 financial year, we have taken the effects of the mandatory first-time application into account when determining our financial performance indicators.

Results of Operations of the Group

Net Revenue

The following tables present information concerning the contribution of our reportable segments to net revenue for the periods indicated.

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited)			
Net revenue[1]	**59,169**	**55,395**	**3,774**	**6.8**
Germany	16,217	16,088	129	0.8
United States	29,629	26,504	3,125	11.8
Europe	8,943	8,752	191	2.2
Systems Solutions	4,961	5,094	(133)	(2.6)
Group Development[2]	2,068	1,607	461	28.7
Group Headquarters & Group Services	1,961	2,096	(135)	(6.4)
Intersegment revenue	(4,610)	(4,746)	136	2.9

1 Segment revenue figures present revenue of the respective segments prior to the elimination of intersegment revenue.

2 Since the conclusion of its acquisition on January 2, 2019, Tele2 Netherlands has been allocated to the Group Development operating segment and included in Deutsche Telekom's consolidated financial statements as a fully consolidated subsidiary.

	2018	2017	Change 2018/2017		2016
	(millions of €)		(millions of €)	(%)	(millions of €)
	(audited)		(unaudited)		(audited)
Net revenue	**75,656**	**74,947**	**709**	**0.9**	**73,095**
Germany[1,2]	21,700	21,931	(231)	(1.1)	21,774
United States	36,522	35,736	786	2.2	33,738
Europe[2]	11,885	11,589	296	2.6	11,454
Systems Solutions[2]	6,936	6,918	18	0.3	6,993
Group Development[2]	2,185	2,263	(78)	(3.4)	2,347
Group Headquarters & Group Services[1,2]	2,735	2,935	(200)	(6.8)	3,460
Intersegment revenue	(6,307)	(6,425)	118	1.8	(6,670)

1 We assigned Vivento Customer Services GmbH, a provider of call center services, to our Germany operating segment as of January 1, 2018. Previously it was part of our Group Headquarters & Group Services segment. Comparative figures have been adjusted retrospectively. For more information on changes in the organizational structure, please refer to the section "Group organization," page 31 et seq. and Note 35 "Segment reporting" in the notes to consolidated financial statements, as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

2 Since January 1, 2017, we have reported on the Group Development operating segment and within the Group Headquarters & Group Services segment on the Board of Management department Technology and Innovation. Comparative figures have been adjusted retrospectively.

In the first three quarters of 2019, we generated net revenue of EUR 59.2 billion, reflecting an increase of EUR 3.8 billion, or 6.8 percent, compared to the same period in 2018. Even adjusted for positive net exchange rate effects of EUR 1.6 billion – mainly from the translation of U.S. dollars into euros – as well as positive effects of changes in the composition of the Group in the amount of EUR 0.6 billion resulting from the acquisitions of UPC Austria and Tele2 Netherlands, revenue increased by EUR 1.5 billion, or 2.7 percent.

In the first three quarters of 2019, our United States operating segment again provided the largest contribution to the net revenue of the Group, at 50.1 percent. This was an increase of 2.3 percentage points compared with the same period in 2018. As a result, the proportion of net revenue generated internationally increased from 67.5 percent to 69.3 percent in the first three quarters of 2019.

- *United States.* In our United States operating segment, revenue increased by 11.8 percent or, adjusted for exchange rate effects, by 5.2 percent. This increase was primarily due to higher service revenues from the rise in the average branded customer base, triggered in particular by the continued growth in existing and greenfield markets as well as the growing success in new customer segments (e.g. Military, Unlimited 55+, Business) along with low customer churn.

- *Germany.* In our German home market, revenue increased slightly by 0.8 percent compared to the prior-year level, due in particular to the strong performance in mobile business, which benefited from higher service and terminal equipment revenues, as well as higher IT and broadband revenues which almost completely offset the general decrease in fixed-network revenues attributable primarily to voice components.

- *Europe.* In our Europe operating segment, revenue increased by 2.2 percent compared to the prior year period; adjusted for exchange rate effects, inclusion of UPC Austria and the sale of Telekom Albania, revenue increased

marginally by 0.5 percent. Factors contributing to these results were growth in revenue from our broadband, TV and wholesale business. Mobile revenue remained at a consistently high level.

- *System Solutions.* In the Systems Solutions operating segment, revenue decreased by 2.6 percent compared to the prior year period. While revenues in our growth areas, public cloud and health portfolio units increased, this growth was not sufficient to offset the declines in traditional IT and telecommunications businesses.

- *Group Development.* Revenue generated by our Group Development operating segment increased significantly by 28.7 percent compared to the same period in the previous year. This improvement was mainly due to a positive development in operations in the Netherlands and in the GD Towers unit, due in particular to the revenue contributions from Tele2 Netherlands taken into account since the beginning of 2019.

- *Group Headquarters & Group Services.* In the first three quarters of 2019, revenue in our Group Headquarters & Group Services segment decreased by 6.4 percent compared with the same period in the prior year. This decrease was mainly due to lower intragroup revenue at Deutsche Telekom IT from the licensing of the Group-wide ERP system, which does not impact earnings at the Group level. We also note that as of January 2016, the costs of intragroup development services that are newly commissioned from Deutsche Telekom IT in Germany are no longer charged internally.

In 2018, we generated net revenue of EUR 75.7 billion, which was 0.9 percent, or EUR 0.7 billion, higher than in 2017. Adjusted for negative exchange rate effects, which totaled EUR 1.6 billion, and for the slightly positive effects of changes in the composition of the Group, revenue increased by EUR 2.3 billion, or 3.1 percent.

- *United States*. In 2018, our United States operating segment in particular contributed to the positive revenue trend with an increase of 2.2 percent or, adjusted for exchange rate effects, of a substantial 6.8 percent. This increase was due primarily to higher service revenues from the rise in the average branded customer base, triggered in particular by the continued growth in existing and greenfield markets as well as the growing success in new customer segments along with lower customer churn.

- *Germany.* In our Germany operating segment, revenue declined by 1.1 percent compared with 2017. Adjusted for the effects of IFRS 15, revenue was at a comparable level with 2017, with revenue from mobile business rising year-on-year. Higher IT and broadband revenues almost compensated for the decrease in fixed-network revenue.

- *Europe*. In our Europe operating segment, revenue increased by 2.6 percent compared with 2017; adjusted for exchange rate effects and without the inclusion of UPC Austria as of July 31, 2018, it increased by 1.5 percent. Revenues in business customer operations and in mobile business had a positive effect. Fixed-network revenue also increased slightly compared with 2017, mainly due to the positive revenue effect from TV and broadband business. These increases were partially offset by a decline in wholesale business.

- *Systems Solutions.* In our Systems Solutions operating segment, revenue remained on par with the 2017 level with an increase of 0.3 percent. Revenues rose in our growth business, while declining as expected in our traditional IT business, notably in the international corporate customer business. This development was due to the general market contraction in the core market of Western Europe, as well as to deliberate portfolio decisions.

- *Group Development.* Revenue generated by our Group Development operating segment decreased by 3.4 percent compared with 2017, a decline attributable in part to forgone revenue following the deconsolidation of Strato as of March 31, 2017. Positive effects on revenue at T-Mobile Netherlands resulted from high mobile handset sales; however, these were more than offset by negative regulatory effects.

- *Group Headquarters & Group Services*. In 2018, revenue in our Group Headquarters & Group Services segment decreased by 6.8 percent compared with the prior year. This decline was mainly due to the fact that, as of January 2016, the costs of intragroup development services that are newly commissioned from Deutsche Telekom IT in Germany are no longer charged internally. Other reasons for the decrease were lower revenues from land and buildings, largely due to the ongoing optimization of space, and the forgone revenue from DeTeMedien following the completion of its sale in June 2017. Higher intragroup revenue at Deutsche Telekom IT from the licensing of the Group-wide ERP system had a positive effect.

In 2017, we generated net revenue of EUR 74.9 billion, which was an increase of 2.5 percent, or EUR 1.9 billion, compared to 2016. Excluding the negative net exchange rate effects of EUR 0.6 billion – in particular from the translation of U.S. dollars into euros – and slightly negative effects of changes in the composition of the Group of EUR 0.1 billion – mainly from the sale of Strato AG – revenue even increased by EUR 2.6 billion, or 3.6 percent, compared to 2016. In the 2017 financial year, our United States operating segment provided the largest contribution, at 47.7 percent, to net revenue of the Group. This was an increase of 1.5 percentage points compared with 2016, due in particular to ongoing strong customer additions. By contrast, the contributions by our other operating segments and the Group Headquarters & Group Services segment decreased. The proportion of net revenue generated internationally continued to increase, from 66.3 percent in 2016 to 67.2 percent in 2017.

- *United States.* Our United States operating segment contributed to this positive trend with revenue growth of 5.9 percent. T-Mobile US' successful "Un-carrier" initiatives and the success of the MetroPCS brand gave a strong boost to the number of new customers and thus also to service revenues. Terminal equipment revenues continued to rise, in part due to the stronger focus on offering terminal equipment under installment plans.

- *Germany.* In our German home market, there was a slight positive trend in revenue, with an increase of 0.7 percent compared to 2016. This was partly due to a rise in mobile revenues and, primarily, growth in non-contract handset revenues. Increased IT and broadband revenues also had a positive impact on fixed-network revenue, although it was not sufficient to offset the overall decline in revenue in the fixed-network business.

- *Europe.* In the Europe operating segment, revenue also increased slightly, by 1.2 percent compared with 2016. Revenue development in our growth areas mobile data, broadband, TV and ICT and an increase in terminal equipment revenue had a positive effect. By contrast, lower roaming charges in many countries and ongoing intense competition in the telecommunications footprint markets put further pressure on revenue.

- *System Solutions.* In the Systems Solutions operating segment, revenue decreased by 1.1 percent compared to 2016. This decline was primarily attributable to the completion in 2016 of the set-up phase for the toll collection system in Belgium. Excluding this toll collection effect from 2016, however, our telecommunications business would have posted revenue growth. By contrast, revenue from our traditional IT business continued to decrease due to the general downward trend in market prices and to a decline in order entry, especially at the international level. Our strategic growth areas cloud, Internet of Things, and our new Telekom Security unit made a positive contribution.

- *Group Development.* Revenue generated in our Group Development operating segment decreased by 3.6 percent in 2017 compared with 2016, which was largely attributable to the revenue lost as a result of the sale of Strato AG as of March 31, 2017. By contrast, revenue growth at T-Mobile Netherlands had a positive impact.

- *Group Headquarters & Group Services.* In our Group Headquarters & Group Services segment, revenue declined by 15.1 percent compared to 2016, mainly due to the fact that since January 2016, the costs of intragroup development services newly commissioned from Deutsche Telekom IT in Germany were no longer charged internally.

Profit from Operations

In the first three quarters of 2019, profit from operations was EUR 7.7 billion, an increase of EUR 0.6 billion, or 8.7 percent, compared with the same period in the prior year. Positive net exchange rate effects of EUR 0.5 billion and positive net effects of changes in the composition of the Group of EUR 0.1 billion partly contributed to this trend. At EUR 12.8 billion, depreciation, amortization and impairment losses were EUR 3.2 billion higher than in the same period of the prior year due in particular to the depreciation charge of EUR 2.7 billion for right-of-use assets required to be recognized for the first time in accordance with IFRS 16 "Leases". 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 were slightly higher at EUR 0.5 billion higher when compared with the first three quarters of 2018, mainly due to high investment volumes in past years.

Profit from operations in the first three quarters of 2019 was also impacted by a 21.4 percent decline in other operating income, primarily driven by the non-recurrence of current assets, income from the disposal of real estate previously recognized as non-current assets and disposal groups held for sale and income from insurance compensation

mainly comprising compensation payments received by T-Mobile US in the first three quarters of 2018 for damage caused by hurricanes in 2017.

In 2018, profit from operations decreased by EUR 1.4 billion, or 14.7 percent, to EUR 8.0 billion when compared with the prior year. The following provides further details regarding the factors (other than net revenue) that contributed to profit from operations in 2018. For further information, see "*Selected Notes to the Consolidated Income Statement*" in the notes to our consolidated financial statements as of and for the period ended December 31, 2018, incorporated by reference in this offering memorandum.

- *Other operating income*. In 2018, other operating income was EUR 1.5 billion compared to EUR 3.8 billion in 2017. Income from the reversal of impairment losses on non-current assets mainly comprised the partial reversal of impairment losses on spectrum licenses at T-Mobile US in the third quarter of 2017, which increased their carrying amount by EUR 1.7 billion before deferred taxes. 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. Total income of EUR 0.2 billion was recorded in 2017 from transactions for the exchange of spectrum licenses completed between T-Mobile US and other telecommunications companies. Income from insurance compensation mainly comprised compensation payments received by T-Mobile US for damage caused by hurricanes. Miscellaneous other operating income decreased by EUR 0.9 billion year-on-year. The main items included 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.

- *Changes in inventories*. Changes in inventories were negative EUR 14 million in 2018 compared with EUR 21 million in the prior year, mainly due to changes in the operating segment System Solutions.

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

- *Goods and services purchased*. In 2018, goods and services purchased were EUR 38.2 million reflecting no significant year-on-year change.

- *Personnel costs*. Personnel costs increased by 6.0 percent to EUR 16.4 billion year-on-year, due to restructuring expenses in connection with the early retirement arrangements for civil servants and increases in salaries under collective agreements concluded in 2018. The main collective agreements were concluded between Deutsche Telekom and union representatives on April 12, 2018 and apply with retroactive effect as of February 1, 2018 for a term of 26 months. By contrast, decreases in headcount in Germany had a decreasing effect on personnel costs.

- *Other operating expenses*. In 2018, other operating expenses decreased by EUR 0.3 billion compared to 2017 and amounted to EUR 3.1 billion. Miscellaneous other operating expenses comprise a large number of low-value individual items, including other administrative expenses and fees totaling EUR 181 million (2017: EUR 217 million).

- *Depreciation, amortization and impairment losses*. Depreciation, amortization and impairment losses were EUR 13.8 billion overall for 2018, a decrease of EUR 0.8 billion year-on-year. This decline was due in particular to the non-recurrence of impairment losses recognized in 2017 on goodwill in the Systems Solutions operating segment of EUR 1.2 billion and in the Europe operating segment in the national companies in Poland, Romania, and Albania of EUR 0.8 billion in total. 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. Impairment losses amounting to EUR 35 million were recognized on property, plant and equipment and intangible assets in the 2018 financial year in connection with the sale of the shares in Telekom Albania agreed in January 2019. Depreciation and amortization expenses were EUR 0.7 billion higher than in the prior-year period. This was attributable in particular to the United States and Germany operating segments and the Group Headquarters & Group Services segment. We also recorded higher depreciation and amortization in 2018 compared with 2017 as a result of the high level of investment in building and expanding our mobile networks and fixed-network infrastructure, as well as for the forward-looking migration to IP as part of our integrated network strategy.

In the 2017 financial year, profit from operations increased to EUR 9.4 billion, a slight increase of EUR 0.2 billion, or 2.4 percent, compared to 2016. The overall development was driven by a number of offsetting factors. Positive special factors included a partial reversal of impairment losses on spectrum licenses at T-Mobile US, increasing the carrying amount by EUR 1.7 billion as of September 30, 2017, EUR 0.5 billion income from divestitures in connection with the sale of Strato AG in March 2017, EUR 0.2 billion income from the sale of the remaining shares in Scout24 AG, and EUR 0.2 billion income from a settlement agreement concluded with BT in July 2017. Special factors in connection with staff-related measures and non-staff-related restructuring expenses amounted to EUR 0.6 billion, EUR 1.1 billion lower than the expenses reported in the prior-year period. In contrast, depreciation, amortization and impairment losses increased by EUR 1.2 billion, including impairment losses recognized on goodwill in the Systems Solutions operating segment of EUR 1.2 billion and in the Europe operating segment in our national companies in Poland, Romania, and Albania of EUR 0.8 billion in total. In addition, impairment losses on property, plant, and equipment totaling EUR 0.1 billion were recognized. Depreciation of property, plant and equipment and amortization of intangible assets were slightly lower than in 2016.

The following provides further details regarding the factors (other than net revenue) that contributed to profit from operations in the 2017 financial year. For further information, see Notes 16 to 22 to our consolidated financial statements as of and for the year ended December 31, 2017, incorporated by reference in this offering memorandum.

- *Other operating income*. Other operating income in 2017 was EUR 3.8 billion, a decrease of EUR 361 million, or 8.6 percent, compared to 2016. Income from the reversal of impairment losses on non-current assets mainly comprised the partial reversal in the third quarter of 2017 of impairment losses on spectrum licenses at T-Mobile US, increasing their carrying amount by EUR 1.7 billion before deferred taxes. Income from the disposal of non-current assets decreased by EUR 0.3 billion compared with 2016, attributable to income of EUR 0.5 billion recognized in 2016 from transactions for the exchange of spectrum licenses between T-Mobile US and two telecommunications companies. Total income of EUR 0.2 billion was recorded in 2017 from transactions for the exchange of spectrum licenses completed between T-Mobile US and telecommunications companies. Miscellaneous other operating income in 2017 decreased by EUR 1.6 billion compared to 2016, mainly comprising 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. In 2016, income from the sale of stakes accounted for using the equity method included EUR 2.5 billion from the sale of the stake in the EE joint venture. Around EUR 0.9 billion of this amount was accounted for by effects recognized directly in equity in previous years.

- *Changes in inventories*. Changes in inventories increased by EUR 33 million, from negative EUR 12 million in 2016 to positive EUR 21 million in 2017, primarily attributable to higher inventories as a result of new projects under construction in our Systems Solutions operating segment.

- *Own capitalized costs*. Own capitalized costs amounted to EUR 2.3 billion in 2017, an increase of EUR 180 million, or 8.5 percent, compared to 2016, and mainly related to investments in network build-out and the development of platforms for cell sites.

- *Goods and services purchased*. Expenses relating to goods and services purchased increased by EUR 1.1 billion, or 2.9 percent, compared to 2016, primarily arising from higher costs for merchandise and purchased services due to higher average prices and a larger customer base, partially offset by lower costs for raw materials and supplies.

- *Personnel costs*. Expenses relating to personnel costs decreased by EUR 959 million, or 5.8 percent, compared to 2016, due to the high restructuring expenses in connection with the early retirement arrangements for civil servants in 2016 and the lower average headcount in Germany in 2017, partially offset by the higher average salaries of employees.

- *Other operating expenses*. Other operating expenses increased by EUR 160 million, or 4.9 percent, compared to 2016. Miscellaneous other operating expenses comprised a large number of low-value individual items, including other administrative expenses and fees totaling EUR 217 million compared to EUR 189 million in 2016.

- *Depreciation, amortization and impairment losses*. Depreciation, amortization and impairment losses increased by EUR 1.2 billion, or 9.0 percent, compared to 2016. The increase mainly resulted from impairment losses of

EUR 1.2 billion recognized on goodwill in the Systems Solutions operating segment and EUR 0.8 billion in total on the goodwill of the national companies in Poland, Romania, and Albania in the Europe operating segment. Furthermore, impairment losses of EUR 0.1 billion were recognized on property, plant and equipment following scheduled and ad hoc impairment testing at the cash-generating units. Impairment losses on property, plant and equipment related mainly to the asset category of land and equivalent rights, and buildings including buildings on land owned by third parties and technical equipment and machinery. Depreciation and amortization generally were slightly lower than in 2016, while depreciation and amortization relating primarily to the build-out of the 4G/LTE network in the United States operating segment increased. This was partially offset by lower depreciation in connection with terminal equipment leased as part of the "JUMP! On Demand" program.

EBITDA AL/EBITDA

We define EBITDA as profit (loss) from operations plus depreciation, amortization and impairment losses. See below for a reconciliation of EBITDA and, where applicable, EBITDA AL as well as adjusted EBITDA AL/adjusted EBITDA to profit from operations. Because our performance measures EBITDA and adjusted EBITDA are closely related, with adjusted EBITDA consisting of EBITDA adjusted to reflect certain special factors, the discussion of EBITDA that follows (which is limited to a discussion of the developments regarding those special factors that are taken into account in calculating adjusted EBITDA) must be considered together with the developments included in the discussion of adjusted EBITDA under "*Adjusted EBITDA/EBITDA AL*" below.

The mandatory first-time application of the new IFRS 16 "Leases" accounting standard as of January 1, 2019 requires payment obligations from existing operating leases to be discounted and recognized as lease liabilities; as financial liabilities, they increase net debt. At the same time, the lessee recognizes a right-of-use asset. Operating expenses previously recognized in connection with operating leases will in the future be recognized as depreciation charges on right-of-use assets and as interest expenses for discounted obligations from operating leases, as appropriate. This has the effect of significantly increasing EBITDA without any attendant change in underlying economic performance.

Since expenses and cash outflows for leases are substantial elements of our earnings performance and solvency, effective as of the beginning of the 2019 financial year we have taken into account the effects of the mandatory first-time application of the IFRS 16 accounting standard when determining our financial performance indicators. We also seek to promote as much comparability with our previous performance indicators as possible. Our operational performance, as of 2019, is measured on the basis of "EBITDA after leases" (EBITDA AL, previously EBITDA). EBITDA AL is calculated by adjusting EBITDA for depreciation of the right-of-use assets and for interest expenses on recognized lease liabilities.

The comparative figures for the first three quarters of 2018 have not been adjusted retroactively following the first-time application of IFRS 16. To enable comparability with the new performance indicators, appropriate pro forma comparatives were determined for the 2018 figures. These were reached using approximate calculations of the key effects of IFRS 16 for the prior year.

In the first three quarters of 2019, EBITDA AL increased by EUR 1.0 billion, or 6.1 percent year-on-year, to EUR 17.5 billion, with special factors changing from negative EUR 1.0 billion to negative EUR 1.2 billion. Net expenses incurred in connection with staff-related measures and non-staff-related restructuring expenses decreased by EUR 0.1 billion compared with the prior-year period to negative EUR 0.8 billion. In addition, expenses of EUR 0.4 billion incurred in connection with the approval process for the business combination of T-Mobile US and Sprint were recorded as special factors in the first three quarters of 2019. The transfer as of August 14, 2019 of our stake of about 11 percent in Ströer SE & Co. KGaA to Deutsche Telekom Trust e.V. as plan assets resulted in income from divestitures of EUR 0.1 billion, which we classified as a special factor.

In the 2018 financial year, EBITDA decreased to EUR 21.8 billion, a decrease of EUR 2.1 billion, or 8.9 percent, compared to the prior year due to a EUR 3.2 billion decrease in special factors to negative EUR 1.5 billion. The decline was attributable to a EUR 0.6 billion rise in expenses for staff-related measures and expenses for non-staff-related restructuring totaling EUR 1.3 billion. The prior year included a partial reversal of impairment losses on spectrum licenses at T-Mobile US, increasing the carrying amount by EUR 1.7 billion. Other positive factors in 2017 were income of EUR 0.5 billion from the divestiture of Strato, EUR 0.2 billion from the sale of further shares in Scout24 AG, and EUR 0.2 billion from the settlement agreement with BT.

In the 2017 financial year, our EBITDA increased by EUR 1.4 billion, or 6.3 percent, compared to 2016 to EUR 24.0 billion. Special factors were positive on balance, increasing by EUR 0.6 billion compared with 2016 to EUR 1.7 billion. These factors included a partial reversal of impairment losses on spectrum licenses at T-Mobile US, increasing the

carrying amount by EUR 1.7 billion as of September 30, 2017. Other positive factors were income from divestitures in connection with the sale of Strato AG completed as of March 31, 2017 (EUR 0.5 billion), income from the sale of the remaining shares in Scout24 AG (EUR 0.2 billion), and income from a settlement agreement concluded with BT in July 2017 (EUR 0.2 billion). Special factors in connection with staff-related measures and non-staff-related restructuring expenses amounted to EUR 0.6 billion, EUR 1.1 billion lower than the expenses reported in 2016. Special factors in 2016 included income of EUR 2.5 billion from the sale in early 2016 of our stake in the EE joint venture and income in the amount of EUR 0.5 billion from transactions for the exchange of spectrum licenses between T-Mobile US and two telecommunications companies.

Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA

The following table presents a reconciliation of the performance measures EBITDA and, where applicable, EBITDA AL as well as adjusted EBITDA AL/adjusted EBITDA to profit from operations as reported by the Group for the periods indicated:

	Q1-Q3 2019	2018	2017	2016
	(millions of €)			
	(unaudited, except as otherwise indicated)			
Profit from operations	**7,665**	**8,001**[1]	**9,383**[1]	**9,164**[1]
Depreciation, amortization and impairment losses	(12,811)	(13,836)[1]	(14,586)[1]	(13,380)[1]
EBITDA	**20,476**	**21,836**[1]	**23,969**[1]	**22,544**[1]
Depreciation of right-of-use assets[2]	(2,354)	n.a.	n.a.	n.a.
Interest expenses on recognized lease liabilities[2]	(599)	n.a.	n.a.	n.a.
EBITDA AL	**17,523**	**n.a.**	**n.a.**	**n.a.**
Special factors – Germany	**(354)**	**(598)**	**(308)**	**(905)**
Staff-related measures	(340)	(565)	(221)	(857)
Non-staff-related restructuring	(23)	(46)	(26)	(38)
Effects of deconsolidations, disposals and acquisitions	0	0	0	8
Other	9	13	(61)	(18)
Special factors – United States	**(441)**	**(160)**	**1,633**	**406**
Staff-related measures	(6)	(15)	(7)	(11)
Effects of deconsolidations, disposals and acquisitions	(435)	(145)	(11)	417
Impairment losses	0	0	1,651	0
Special factors – Europe	**(110)**	**(122)**	**(130)**	**(93)**
Staff-related measures	(95)	(90)	(93)	(100)
Non-staff-related restructuring	0	0	(3)	(4)
Effects of deconsolidations, disposals and acquisitions	(10)	(14)	18	25
Other	(5)	(19)	(53)	(14)
Special factors – Systems Solutions	**(236)**	**(266)**	**(229)**	**(252)**
Staff-related measures	(101)	(194)	(132)	(136)
Non-staff-related restructuring	(4)	(4)	(2)	(5)
Other	(130)	(68)	(94)	(111)
Special factors – Group Development	**109**	**(27)**	**893**	**2,547**
Staff-related measures	(16)	(6)	1	(35)
Non-staff-related restructuring	0	0	(5)	(3)
Effects of deconsolidations, disposals and acquisitions	126	(21)	708	2,585
Other	0	(1)	189	0
Special factors – Group Headquarters & Group Services	**(146)**	**(322)**	**(119)**	**(579)**
Staff-related measures	(167)	(288)	(107)	(499)
Non-staff-related restructuring	(32)	(59)	(49)	(31)
Effects of deconsolidations, disposals and acquisitions	4	(44)	63	(19)
Other	49	69	(26)	(29)
Special factors – Group	**(1,178)**	**(1,497)**	**1,740**	**1,125**
Staff-related measures	(726)	(1,159)	(559)	(1,638)
Non-staff-related restructuring	(59)	(109)	(85)	(81)
Effects of deconsolidations, disposals and acquisitions	(315)	(223)	778	3,015
Impairment losses	0	0	1,651	0
Other	(77)	(6)	(45)	(171)
Adjusted EBITDA AL	**18,701**	**n.a.**	**n.a.**	**n.a.**
Adjusted EBITDA	**n.a.**	**23,333**	**22,230**	**21,420**

n.a. – not applicable

[1] Audited.

[2] Excluding finance leases at T-Mobile US.

Adjusted EBITDA AL/Adjusted EBITDA

The following tables present the contribution of our reportable segments to adjusted EBITDA AL/adjusted *EBITDA* as reported by the Group for the periods indicated:

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited)			
Adjusted EBITDA AL/Adjusted EBITDA[1]	**18,701**	**17,501**	**1,200**	**6.9**
Germany	6,515	6,361	154	2.4
United States	8,424	7,547	877	11.6
Europe	3,022	2,878	144	5.0
Systems Solutions	363	327	36	11.0
Group Development	774	674	100	14.8
Group Headquarters & Group Services[1]	(362)	(201)	(161)	(80.1)
Reconciliation	(35)	(87)	52	59.8

[1] Prior-year comparatives were calculated on an appropriate pro forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.

	2018	Proportion of Adjusted EBITDA	2017	Proportion of Adjusted EBITDA	Change 2018/2017		2016
	(millions of €)	(%)	(millions of €)	(%)	(millions of €)	(%)	(millions of €)
	(unaudited)						
Adjusted EBITDA	**23,333**	**100.0**	**22,230**	**100.0**	**1,103**	**5.0**	**21,420**
Germany[1,2]	8,610	36.9	8,412	37.8	198	2.4	8,161
United States	10,088	43.2	9,316	41.9	772	8.3	8,561
Europe [2]	3,880	16.6	3,749	16.9	131	3.5	3,866
Systems Solutions[2]	429	1.8	509	2.3	(80)	(15.7)	530
Group Development[2]	921	3.9	915	4.1	6	0.7	943
Group Headquarters & Group Services[1, 2]	(515)	(2.2)	(661)	(3.0)	146	22.1	(594)
Reconciliation	(79)	(0.3)	(11)	(0.0)	(68)	n.a.	(48)

n.a. – not applicable

[1] We assigned Vivento Customer Services GmbH, a provider of call center services, to our Germany operating segment as of January 1, 2018. Previously it was part of our Group Headquarters & Group Services segment. Comparative figures have been adjusted retrospectively.

[2] Since January 1, 2017, we have included in our segment reporting the Group Development operating segment and, within the Group Headquarters & Group Services segment, the Board of Management department Technology and Innovation. Comparative figures have been adjusted retrospectively.

In the first three quarters of 2019, adjusted EBITDA AL increased by EUR 1.2 billion, or 6.9 percent year-on-year to EUR 18.7 billion. Positive net exchange rate effects of EUR 0.5 billion and positive net effects of changes in the composition of the Group of EUR 0.1 billion contributed to this development. Excluding these effects, adjusted EBITDA AL increased by EUR 0.6 billion, or 3.5 percent. All operating segments made a positive contribution to this development. Adjusted EBITDA AL of our United States operating segment had a noticeably positive effect due to higher service revenue. Our Germany operating segment contributed to this result due to a positive revenue trend, lower personnel costs and the successful implementation of further efficiency enhancement and digitalization measures with 2.4 percent higher adjusted EBITDA AL. Adjusted EBITDA AL in our Europe operating segment increased by 5.0 percent. Even adjusted for the inclusion of UPC Austria and the sale of Telekom Albania, and assuming constant exchange rates, adjusted EBITDA AL grew by 2.3 percent. Successfully implemented efficiency enhancement measures in our Systems Solutions operating segment are also positively influencing adjusted EBITDA AL. The increase in adjusted EBITDA AL in our Group Development operating segment was driven by revenue growth and efficient management of costs as well as by the earnings contributed by Tele2 Netherlands, acquired in early 2019.

In 2018, adjusted EBITDA increased year-on-year by EUR 1.1 billion, or 5.0 percent, to EUR 23.3 billion. Negative exchange rate effects, primarily from the translation of U.S. dollars into euros, decreased the carrying amount by EUR 0.5 billion. Excluding these effects, adjusted EBITDA increased by as much as EUR 1.6 billion, or 7.2 percent. Adjusted EBITDA in our United States operating segment recorded an increase in its adjusted EBITDA contribution of 8.3 percent, primarily due to higher revenue as well as the positive effect of the application of IFRS 15. Positive trends were also recorded by our Germany and Europe operating segments as a result of lower personnel costs and the successful

implementation of our efficiency and digitalization initiatives. These positive trends were realized without taking into account the acquisition of UPC Austria as of July 31, 2018 in the Europe operating segment. The decrease in adjusted EBITDA in our Systems Solutions operating segment was mainly attributable to the higher costs involved in establishing operations in growth areas, especially in the Internet of Things and the healthcare market, and to higher expenses resulting from the ongoing migration to all IP. Adjusted EBITDA in our Group Development operating segment remained stable with only a 0.7 percent increase in its adjusted EBITDA contribution.

Adjusted EBITDA in the 2017 financial year increased by EUR 0.8 billion, or 3.8 percent, compared to 2016 to EUR 22.2 billion. This development was primarily driven by our United States operating segment, which recorded an increase in its adjusted EBITDA contribution of 8.8 percent, mainly as a result of the continued success of the “Un-carrier” initiatives. Adjusted EBITDA also grew in our Germany operating segment by 2.8 percent compared with 2016, driven by efficiency enhancement measures while revenue increased slightly. Adjusted EBITDA declined due to higher market investments and revenue-driven cost increases at the B2B/ICT business customer unit in our Europe operating segment. Slight revenue growth and increased cost efficiency had an offsetting effect. Adjusted EBITDA in our Systems Solutions operating segment also recorded a downward trend; however, this was largely due to the non-recurrence of revenue from the completion in 2016 of the set-up phase for the toll collection system in Belgium, as well as the tense situation in the ICT market. In the Group Development operating segment, adjusted EBITDA declined mainly due to the forgone earnings following the sale of Strato AG. A positive trend at T-Mobile Netherlands had a contrasting effect.

Adjusted for negative net exchange rate effects and slightly negative effects of changes in the composition of the Group of EUR 0.2 billion, adjusted EBITDA increased by EUR 1.0 billion, or 4.9 percent.

Profit before Income Taxes

In the first three quarters of 2019, profit before income taxes was EUR 6.2 billion, an increase of EUR 1.2 billion compared with the prior-year period with loss from financial activities decreasing from EUR 2.1 billion to EUR 1.5 billion. With the application of IFRS 16, the subsequent measurement of recognized lease liabilities added EUR 0.7 billion to finance costs, causing finance costs to increase by EUR 0.4 billion compared with the prior year period while favorable refinancing terms had a reducing effect on finance costs compared with the prior-year period. Other financial income/expense increased by EUR 0.4 billion, primarily due to positive measurement effects from embedded derivatives at T-Mobile US. The share of profit/loss of associates and joint ventures accounted for using the equity method also increased by EUR 0.6 billion. In the first half of 2018, this item was negatively impacted by a valuation effect of EUR 0.6 billion due to the settlement agreed in connection with conclusion of the Toll Collect arbitration proceedings.

In the 2018 financial year, profit before income taxes increased slightly from EUR 5.0 billion to EUR 5.2 billion. At EUR 2.8 billion, the loss from financial activities was EUR 1.5 billion lower than in 2017, offsetting the effects of the reduction in profits from operations. The high loss in the 2017 financial year was due in particular to the EUR 1.5 billion impairment of our financial stake in BT that was recognized in profit or loss. In March 2018, we transferred our financial stake in BT to Deutsche Telekom Trust e.V., where it will be used as plan assets to cover our pension obligations. With effect from the beginning of 2018, changes in the value of our stake are recognized directly in equity (other comprehensive income) and no longer as profit/loss from financial activities in the income statement. Future dividend income from the stake in BT will not be recognized in profit/loss from financial activities.

Finance costs decreased by EUR 0.4 billion. This was essentially due to the fact that T-Mobile US has increasingly been financed internally within the Group since 2017, and that refinancing terms continue to be favorable. The share of profit/loss of associates and joint ventures accounted for using the equity method decreased to negative EUR 0.5 billion. This was mainly attributable to the settlement agreement reached to end the Toll Collect arbitration proceedings, which had a negative effect of EUR 0.6 billion. In contrast, the profit distribution of Toll Collect GmbH, EUR 0.1 billion of which is attributable to Deutsche Telekom, had a positive effect. Losses from financial instruments increased losses from financial activities by EUR 0.4 billion, primarily as a result of the remeasurement of derivatives, in particular at T-Mobile US. In 2017, losses from financial instruments were impacted by negative effects totaling EUR 0.8 billion.

In the 2017 financial year, profit before income taxes increased from EUR 4.5 billion in 2016 to EUR 5.0 billion. This was due to the positive trend in profit from operations, as well as to a year-on-year decrease in the loss from financial activities by EUR 0.2 billion to EUR 4.4 billion. As in 2016, impairments of our financial stake in BT, which in 2017 totaled EUR 1.5 billion recognized in profit and loss, were one of the main factors affecting profit/loss from financial activities. These impairments comprised both the share price effect and the exchange rate effect. In 2016, the impairment amounted to EUR 2.2 billion. Negative remeasurement effects from the exercise and measurement of embedded

derivatives at T-Mobile US – mainly relating to the early repayment of financial liabilities to third parties outside of the Group – increased the loss from financial activities. As in 2016, we received dividend payments amounting to EUR 0.2 billion from our financial stake in BT in 2017. The 2016 figure included a final dividend of EUR 0.2 billion received in connection with the sale of our stake in the former EE joint venture. Finance costs decreased by EUR 0.3 billion to EUR 2.2 billion.

Net Profit

In the first three quarters of 2019, net profit increased year-on-year from EUR 2.6 billion to EUR 3.2 billion. Tax expense amounted to EUR 1.7 billion in the first three quarters of 2019 compared with EUR 1.4 billion for the prior-year period. Profit attributable to non-controlling interests increased from EUR 0.9 billion to EUR 1.3 billion, with this increase mainly attributable to our United States operating segment.

Compared to 2017, net profit decreased by EUR 1.3 billion to EUR 2.2 billion in 2018. After recording a tax benefit of EUR 0.6 billion in 2017, which was primarily attributable to the reduction in the U.S. federal tax rate from 35 percent to 21 percent and to related non-cash deferred tax benefits of EUR 2.7 billion, we recorded a tax expense of EUR 1.8 billion in 2018. Profit attributable to non-controlling interests decreased by EUR 0.9 billion to EUR 1.2 billion compared with 2017. In particular, the recognized deferred tax benefit as well as the partial reversal of impairment losses on spectrum licenses in 2018 in our United States operating segment contributed to this trend.

In the 2017 financial year, net profit increased compared to 2016 by EUR 0.8 billion to EUR 3.5 billion. After recording a tax expense of EUR 1.4 billion in 2016, in 2017 we recorded a tax benefit of EUR 0.6 billion, mainly attributable to the reduction in the U.S. federal tax rate from 35 percent to 21 percent, which resulted in a non-cash deferred tax benefit of EUR 2.7 billion at T-Mobile US. Profit attributable to non-controlling interests increased by EUR 1.7 billion compared with 2016 to EUR 2.1 billion. Alongside positive business performance and the partial reversal of impairment losses on spectrum licenses acquired previously in the United States operating segment, the increase in profit attributable to non-controlling interests was driven in particular by the deferred tax benefit recognized.

Financial Position of the Group

The following tables present information concerning our consolidated statement of financial position as of the dates indicated.

	September 30, 2019[1]		December 31, 2018		Change
	(millions of €)	(% of balance sheet total)	(millions of €)	(% of balance sheet total)	(millions of €)
	(unaudited)		(audited, except as otherwise indicated)	(unaudited)	
Assets					
Current assets	**24,563**	**14.1**	**21,870**	**15.0**	**2,693**
Cash and cash equivalents	6,461	3.7	3,679	2.5	2,782
Trade and other receivables	9,919	5.7	9,988	6.9	(69)
Other current assets [3,9]	8,005	4.6	8,058	5.5	(53)
Non-current assets and disposal groups held for sale	177	0.1	145	0.1	32
Non-current assets	**149,764**	**85.9**	**123,505**	**85.0**	**26,259**
Intangible assets	69,645	40.0	64,950	44.7	4,695
Property, plant and equipment	49,982	28.7	50,631	34.8	(649)
Right-of-use assets	18,474	10.6	n.a.	n.a.	n.a.
Investments accounted for using the equity method	397	0.2	576	0.4	(179)
Other non-current assets[4,9]	11,265	6.5	7,348	5.1	3,917
Total assets	**174,327**	**100**	**145,375**	**100**	**28,952**
Liabilities and shareholders' equity					
Current liabilities	**35,249**	**20.2**	**29,144**	**20.0**	**6,105**
Financial liabilities[2]	14,148	8.1	10,527	7.2	3,621
Lease liabilities	4,146	2.4	n.a.	n.a.	n.a.
Trade and other payables	8,896	5.1	10,735	7.4	(1,839)
Current provisions[5,9]	2,697	1.5	3,144	2.2	(447)
Liabilities directly associated with non-current assets and disposal groups held for sale	0	0	36	0.02	(36)
Other current liabilities[6,9]	5,362	3.1	4,702	3.2	660
Non-current liabilities	**93,941**	**53.9**	**72,794**	**50.1**	**21,147**
Financial liabilities[2]	55,510	31.8	51,748	35.6	3,762
Lease liabilities	16,167	9.3	n.a.	n.a.	n.a.
Non-current provisions[7,9]	10,191	5.8	8,793	6.0	1,398
Other non-current liabilities[8,9]	12,073	6.9	12,252	8.4	(179)
Shareholders' equity	**45,137**	**25.9**	**43,437**	**29.9**	**1,700**
Total liabilities and shareholders' equity	**174,327**	**100**	**145,375**	**100**	**28,952**

n.a. – not applicable

1 The new IFRS 16 "Leases" accounting standard has been applied since January 1, 2019. Prior year comparatives were not adjusted. For more information, see "Accounting Policies" in the notes to our condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019, incorporated by reference in this offering memorandum.

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

3 Other current assets includes "Contract assets", "Current recoverable income taxes", "Other financial assets", "Inventories" and "Other assets" as presented in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019.

4 Other non-current assets includes "Capitalized contract costs", "Other financial assets", "Deferred tax assets" and "Other assets" as presented in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019.

5 Current provisions includes "Other provisions" as presented in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019.

6 Other current liabilities includes "Income tax liabilities", "Other liabilities" and "Contract liabilities" as presented in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019.

7 Non-current provisions includes "Provisions for pensions and other employee benefits" and "Other provisions" as presented in the condensed consolidated interim financial statements as of and for the nine-month period ended September 30, 2019.

8 Other non-current liabilities includes "Deferred tax liabilities", "Other liabilities" and "Contract liabilities" as presented in the condensed consolidated interim financial statements as of and for the nine-month period ended October 31, 2019.

9 Unaudited.

	December 31, 2018		December 31, 2017		Change Dec. 31, 2018/ Dec. 31, 2017	December 31, 2016	
	(millions of €)	(% of balance sheet total)	(millions of €)	(% of balance sheet total)	(millions of €)	(millions of €)	(% of balance sheet total)
	(audited, except as otherwise indicated)	(unaudited)	(audited, except as otherwise indicated)	(unaudited)	(unaudited)	(audited, except as otherwise indicated)	(unaudited)
Assets							
Current assets	**21,870**	**15.0**	**20,392**	**14.4**	**1,478**	**26,638**	**17.9**
Cash and cash equivalents	3,679	2.5	3,312	2.3	367	7,747	5.2
Trade and other receivables	9,988	6.9	9,723	6.9	265	9,362	6.3
Contract assets	1,765	1.2	n.a.	n.a.	n.a.	n.a.	n.a.
Non-current assets and disposal groups held for sale	145	0.1	161	0.1	(16)	372	0.3
Other current assets[1, 7]	6,293	4.3	7,196	5.1	(903)	9,157	6.2
Non-current assets	**123,505**	**85.0**	**120,943**	**85.6**	**2,562**	**121,847**	**82.1**
Intangible assets	64,950	44.7	62,865	44.5	2,085	60,599	40.8
Property, plant and equipment	50,631	34.8	46,878	33.2	3,753	46,758	31.5
Investments accounted for using the equity method	576	0.40	651	0.5	(75)	725	0.5
Other non-current assets[2, 7]	7,348	5.1	10,548	7.5	(3,200)	13,765	9.3
Total assets	**145,375**	**100**	**141,334**	**100.0**	**4,041**	**148,485**	**100.0**
Liabilities and shareholders' equity							
Current liabilities	**29,144**	**20.0**	**27,366**	**19.4**	**1,778**	**33,126**	**22.3**
Financial liabilities	10,527	7.2	8,358	5.9	2,169	14,422	9.7
Trade and other payables	10,735	7.24	10,971	7.8	(236)	10,441	7.0
Current provisions[3, 7]	3,144	2.2	3,372	2.4	(228)	3,068	2.1
Liabilities directly associated with non- current assets and disposal groups held for sale	36	0.0	0	n.a.	36	194	0.1
Other current liabilities[4,7]	4,702	3.2	4,664	3.3	38	5,001	3.4
Non-current liabilities	**72,794**	**50.1**	**71,498**	**50.6**	**1,296**	**76,514**	**51.5**
Financial liabilities	51,748	35.6	49,171	34.8	2,577	50,228	33.8
Non-current provisions[5, 7]	8,793	6.1	11,530	8.2	(2,737)	11,771	7.9
Other non-current liabilities[6, 7]	12,253	8.4	10,798	7.6	1,455	14,515	9.8
Shareholders' equity	**43,437**	**29.9**	**42.470**	**30.0**	**967**	**38,845**	**26.2**
Total liabilities and shareholders' equity	**145,375**	**100**	**141,334**	**100.0**	**4,041**	**148,485**	**100.0**

n.a. – not applicable

1 Other current assets includes "Current recoverable income taxes", "Other financial assets", "Inventories" and "Other assets" as presented in the consolidated financial statements for the years ended December 31, 2018 and December 31, 2017.

2 Other non-current assets includes, with respect to December 31, 2018 and December 31, 2017, "Capitalized contract costs", "Other financial assets", "Deferred tax assets" and "Other assets" as presented in the consolidated financial statements for the year ended December 31, 2018, and, with respect to December 31, 2016 "Other financial assets", "Deferred tax assets" and "Other assets" as presented in the consolidated financial statements for the year ended December 31, 2017.

3 Current provisions includes "Other provisions" as presented in the consolidated financial statements for the years ended December 31, 2018 and December 31, 2017.

4 Other current liabilities includes, with respect to December 31, 2018 and December 31, 2017, "Income tax liabilities", "Other liabilities" and "Contract liabilities" as presented in the consolidated financial statements for the year ended December 31, 2018, and, with respect to December 31, 2016, "income tax liabilities" and "Other liabilities" as presented in the consolidated financial statements for the year ended December 31, 2017.

5 Non-current provisions includes "Provisions for pensions and other employee benefits" and "Other non-current provisions" as presented in the consolidated financial statements for the years ended December 31, 2018 and December 31, 2017.

6 Other non-current liabilities includes, with respect to December 31, 2018 and December 31, 2017, "Deferred tax liabilities", "Other liabilities" and "Contract liabilities" as presented in the consolidated financial statements for the year ended December 31, 2018, and, with respect to December 31, 2016, "Deferred tax liabilities" and "Other liabilities" as presented in the consolidated financial statements for the year ended December 31, 2017.

7 Unaudited.

Comparison as of September 30, 2019 to December 31, 2018

Total assets. As of September 30, 2019, total assets amounted EUR 174.3 billion, an increase of about EUR 29.0 billion against December 31, 2018. The recognition of right-of-use assets and current and non-current lease liabilities resulting from the mandatory first-time application of the IFRS 16 “Leases” had a significant impact. The transfer of the stake of around 11 percent in Ströer SE & Co. KGaA to Deutsche Telekom as plan assets as of August 14, 2019 to cover existing pension obligations had an offsetting effect.

Current assets and non-current assets. Current assets increased by EUR 2.7 billion and non-current assets increased by EUR 26 billion as of September 30, 2019 compared against December 31, 2018.

Cash and cash equivalents. Cash and cash equivalents increased to EUR 6.5 billion as of September 30, 2019 compared to EUR 3.7 billion as of December 31, 2018.

Trade and other receivables. Trade and other receivables decreased slightly from the 2018 year-end level by EUR 0.1 billion.

Intangible assets and property, plant and equipment. The total carrying amounts of intangible assets and property, plant and equipment increased by EUR 4.0 billion compared to December 31, 2018. Capital expenditure totaling EUR 13.4 billion had an increasing effect. In the Germany operating segment, additions of EUR 2.2 billion were related to the 5G licenses acquired in Germany. The acquisition of FCC mobile licenses for a total of EUR 1.0 billion in the United States operating segment also increased the carrying amount. Investments primarily to upgrade and build out the network in our United States operating segment and in connection with the broadband/fiber-optic rollout, the IP transformation, and mobile infrastructure in the Germany and Europe operating segments increased the carrying amount of property, plant and equipment. Effects of changes in the composition of the Group totaling EUR 1.0 billion, mainly due to the acquisition of Tele2 Netherlands in the Group Development operating segment, and positive exchange rate effects totaling EUR 2.6 billion, particularly from the translation of U.S. dollars into euros, also increased the carrying amount. Depreciation of property, plant and equipment and amortization of intangible assets reduced the carrying amounts by EUR 10.1 billion and disposals by EUR 0.3 billion.

Rights-of-use assets. Following the first-time application of IFRS 16 as of January 1, 2019, rights-of-use assets or lease assets were recognized in the amount of EUR 18.5 billion as of September 30, 2019. As of December 31, 2018, these had been reported in the amount of EUR 2.5 billion under property, plant and equipment as assets from finance leases. Please refer to the chapter “Initial Application of IFRS 16”.

Other current and non-current assets. As of September 30, 2019, other assets increased, primarily due to the rise in current and non-current other financial assets, due in part to positive effects from the measurement of embedded derivatives at T-Mobile US and to the change in approach of capitalizing grants receivable from funding projects for the broadband build-out in Germany upon conclusion of the contract (EUR 1.3 billion).

Current and non-current financial liabilities. Current and non-current financial liabilities increased by EUR 7.4 billion compared with the end of 2018. This was largely attributable to the euro bonds issued by Deutsche Telekom in 2019 with a total volume of EUR 3.9 billion and pound sterling bonds with a total volume of GBP 0.4 billion (EUR 0.5 billion). In addition, OTE issued a euro bond with a volume of EUR 0.4 billion. A loan of EUR 0.5 billion was issued by the European Investment Bank. Scheduled repayments of U.S. dollar bonds totaling USD 1.8 billion (EUR 1.6 billion) among other things had an offsetting effect. Financial liabilities increased in connection with the spectrum licenses acquired in Germany. In place of a lump-sum payment, government representatives agreed to permit the Group to pay the purchase price in annual installments through 2030. After deducting the first installment, which was already paid, and collateral, financial liabilities increased by EUR 2.0 billion. The transition to 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.

Lease liabilities. The current and non-current lease liabilities to be recognized since the first-time application of IFRS 16 amounted to EUR 20.3 billion in the first three quarters of 2019.

Trade and other payables. Trade and other payables decreased by EUR 1.8 billion due to the reduction in the level of liabilities, mainly in the United States, Europe, and Germany operating segments. In the United States operating segment, the decline resulted from lower liabilities for mobile phones compared to December 31, 2018. In the operating segments Europe and Germany, seasonal effects reduced the carrying amount.

Current and non-current provisions. Provisions (current and non-current) for pensions and other employee benefits increased by EUR 1.2 billion overall compared with December 31, 2018 to EUR 6.7 billion, due in part to interest rate adjustments and the decline in the price of the BT share, which has been transferred to plan assets. The transfer of the stake of around 11 percent in Ströer SE & Co. KGaA to plan assets as of August 14, 2019 had an offsetting effect.

Other liabilities. Current and non-current other liabilities were reduced in particular by liabilities of EUR 2.2 billion from straight-line leases, mainly for cell sites in the United States operating segment that were no longer required to be reported under IFRS 16. In connection with the change in approach for the accounting treatment of contractual grants receivable from funding projects for the broadband build-out in Germany, non-financial other liabilities of EUR 0.9 billion were recognized for existing build-out obligations.

Shareholders' equity. Shareholders' equity increased by EUR 1.7 billion as of December 31, 2018 to EUR 45.1 billion as of September 30, 2019, due in particular to profit of EUR 4.5 billion. Non-cash effects from currency translation of EUR 1.2 billion, capital increases from share-based payments of EUR 0.4 billion, and income taxes relating to components of other comprehensive income of EUR 0.6 billion increased shareholders' equity. The transition to IFRS 16 as of January 1, 2019 also increased the carrying amount by EUR 0.3 billion. The acquisition of Tele2 Netherlands resulted in transactions with owners which increased shareholders' equity by EUR 0.5 billion, and effects of EUR 0.2 billion from changes in the composition of the Group. The carrying amount was reduced by dividend payments for the 2018 financial year to Deutsche Telekom AG shareholders in the amount of EUR 3.3 billion and to other shareholders of subsidiaries in the amount of EUR 0.2 billion. Shareholders' equity was also reduced by EUR 1.5 billion due to the remeasurement of defined benefit plans and by a total of EUR 1.0 billion due to losses from hedging instruments, mainly in connection with forward-payer swaps concluded for future borrowings at T-Mobile US.

Comparison of December 31, 2018 to December 31, 2017

Total assets. Total assets amounted to EUR 145.4 billion, an increase of EUR 4.0 billion against December 31, 2017. The mandatory first-time application of the new accounting standards IFRS 9 and IFRS 15 as of January 1, 2018 resulted in remeasurement and reclassification effects recognized directly in equity. For example, as of January 1, 2018, assets increased on account of contract assets of EUR 1.8 billion to be capitalized for the first time in accordance with IFRS 15 and contract costs to be capitalized of EUR 1.2 billion. By contrast, reclassifications and remeasurements were made from trade and other receivables, decreasing them by EUR 0.3 billion compared to December 31, 2017. Liabilities and shareholders' equity also increased as of the date of first-time application of IFRS 9 and IFRS 15 as a result of the initial recognition of current and non-current contract liabilities amounting to EUR 2.5 billion. At the same time, current and non-current other liabilities decreased by a comparable amount.

Cash and cash equivalents. Cash and cash equivalents increased by EUR 0.4 billion to EUR 3.7 billion as of December 31, 2018.

Trade and other receivables. Trade and other receivables increased by EUR 0.3 billion to EUR 10.0 billion, mainly due to higher receivables in both the United States and Germany operating segments. In the United States operating segment, this increase was the result of the higher volume of receivables for terminal equipment sold under installment plans and the larger customer base. Exchange rate effects from the translation of U.S. dollars into euros also contributed to the increase, which was partially offset in particular by reclassification and remeasurement effects from the mandatory first-time application of the new accounting standards IFRS 9 and IFRS 15.

Non-current assets and disposal groups held for sale. The carrying amount of the non-current assets and disposal groups held for sale decreased by EUR 0.02 billion in 2018 compared with the previous year.

Other current assets. Other current financial assets decreased by EUR 0.5 billion to EUR 2.8 billion, due, among other factors, to the remeasurement as of the reporting date of derivatives. Exchange rate effects from the translation of U.S. dollars into euros had an offsetting effect. Inventories decreased by EUR 0.2 billion to EUR 1.8 billion, mainly due to the reduction in the stock levels of terminal equipment (in particular higher-priced smartphone models) in the United States operating segment; exchange rate effects, mainly from the translation of U.S. dollars into euros, had an offsetting effect. Income tax receivables increased by EUR 0.3 billion.

Intangible assets. Intangible assets grew by EUR 2.1 billion to EUR 65.0 billion, mainly due to additions totaling EUR 4.0 billion. These additions mainly comprised capital expenditures in the United States, Europe, and Germany operating segments as well as in the Group Headquarters & Group Services segment. Exchange rate effects of EUR 1.7 billion, particularly from the translation of U.S. dollars into euros, and effects of changes in the composition of the Group in the amount of EUR 1.5 billion resulting from the acquisition of the Austrian cable operator UPC Austria in the Europe

operating segment and the online TV provider Layer3 TV in the United States operating segment, also increased the carrying amount. Depreciation and amortization of EUR 4.3 billion and impairment losses of EUR 0.7 billion reduced the carrying amount. In the Europe operating segment, the annual impairment test resulted in impairment losses on goodwill of EUR 0.6 billion in total in our national companies in Poland and Romania. The first-time application of IFRS 15 as of January 1, 2018 produced effects that reduced the carrying amount by EUR 0.1 billion.

Property, plant and equipment. Property, plant and equipment increased by EUR 3.8 billion to EUR 50.6 billion. Additions of EUR 11.3 billion, primarily in the United States and Germany operating segments, increased the carrying amount. These additions included, in particular, capital expenditure in connection with the modernization of the T-Mobile US network as well as for broadband and fiber-optic build-out, the IP transformation, and mobile infrastructure in the Germany operating segment. They also included EUR 0.9 billion for capitalized higher-priced mobile handsets in connection with the JUMP! On Demand business model at T-Mobile US, under which customers do not purchase the device but lease it. Changes in the composition of the Group, particularly the acquisition of UPC Austria and Layer3 TV, also increased the carrying amount by EUR 1.4 billion. Exchange rate effects, primarily from the translation of U.S. dollars into euros, increased the carrying amount by EUR 0.6 billion. By contrast, depreciation, amortization and impairment losses of EUR 8.8 billion overall, and disposals of EUR 0.6 billion reduced the carrying amount. Of these disposals, EUR 0.3 billion was attributable to terminal equipment returned by customers under the JUMP! On Demand model.

Other non-current assets. Other non-current financial assets decreased by EUR 4.1 billion to EUR 1.6 billion. On March 23, 2018, we transferred our 12 percent financial stake in BT, which was worth EUR 3.1 billion at the time, to the Group's own trust, Deutsche Telekom Trust e.V., where it will serve as plan assets to cover pension entitlements. The impairment loss on the exchange-traded stake in BT – which was recognized in other comprehensive income for the period from January 1, 2018 until the date of transfer – reduced the carrying amount by EUR 0.7 billion. Negative effects from the remeasurement of derivative financial instruments as of date also reduced the carrying amount.

Current liabilities and non-current liabilities. As of December 2018, current liabilities increased by EUR 1.8 billion and non-current liabilities increased by EUR 1.3 billion.

Current and non-current financial liabilities. Compared with 2017, our current and non-current financial liabilities for 2018 increased by EUR 4.7 billion, compared with the prior year, to EUR 62.3 billion in total. This was mainly due to the euro bonds with a total volume of EUR 3.4 billion issued by Deutsche Telekom International Finance B.V., U.S. dollar bonds with a total volume of EUR 1.5 billion (USD 1.75 billion), and pound sterling bonds with a total volume of EUR 0.3 billion (GBP 0.3 billion), as well as to the bonds issued by T-Mobile US with a volume of EUR 2.0 billion (USD 2.5 billion). In addition, OTE issued a euro bond with a volume of EUR 0.4 billion. The settlement agreed in the Toll Collect arbitration proceedings increased financial liabilities by EUR 0.6 billion. Payment of the first tranche of EUR 0.2 billion in 2018 reduced financial liabilities. The early repayment of T-Mobile US' debt instruments in the amount of EUR 2.7 billion (USD 3.4 billion) and regular repayments in the Group of euro bonds of EUR 1.1 billion and U.S. dollar bonds of EUR 0.7 billion (USD 0.85 billion) also decreased the carrying amount of financial liabilities. The initial recognition and measurement of forward-payer swaps with a total volume of USD 9.6 million in the United States operating segment gave rise to a remeasurement loss recognized directly in equity of EUR 0.4 billion.

Trade and other payables. Trade and other payables decreased from EUR 11.0 billion at the end of 2017 to EUR 10.7 billion in 2018. A decline in liabilities in the United States operating segment was offset by a slight increase in liabilities in the Germany operating segment. Exchange rate effects from the translation from U.S. dollars into euros had an increasing effect.

Current and non-current provisions. Current and non-current provisions decreased substantially against the 2017 level by EUR 3.0 billion to EUR 11.9 billion, of which EUR 5.5 billion (December 31, 2017: EUR 8.4 billion) related to provisions for pensions and other employee benefits. The decrease was mainly due to the transfer of our stake in BT and the associated netting of these plan assets with the defined benefit obligations. At EUR 6.4 billion, other provisions were slightly lower than in 2017.

Other non-current liabilities. As of December 31, 2018, other liabilities declined, in particular, as a result of loan repayments to CTA Holding GmbH, Bonn, of EUR 5.4 billion. Loans of EUR 4.0 billion taken out from Deutsche Telekom International Finance B.V., Maastricht, had an offsetting effect.

Shareholders' equity. Shareholders' equity increased from EUR 42.5 billion as of December 31, 2017 to EUR 43.4 billion as of December 31, 2018. This increase was attributable in particular to the net profit of EUR 3.3 billion and

to the transition to IFRS 9 and 15. The cumulative effect of this was an increase of EUR 1.5 billion in retained earnings (including shares attributable to non-controlling interests) recognized directly in equity as of January 1, 2018. Currency translation effects of EUR 1.0 billion recognized directly in equity and capital increases from share-based payments of EUR 0.4 billion, especially in our United States operating segment, also increased shareholders' equity. By contrast, the carrying amount was reduced in particular by dividend payments for the 2017 financial year to our shareholders in the amount of EUR 3.1 billion and to non-controlling interests in the amount of EUR 0.2 billion. In addition, transactions with owners further reduced shareholders' equity by EUR 1.4 billion. These transactions include EUR 0.9 billion for T-Mobile US' share buy-back program, EUR 0.3 billion for the acquisition of another 5 percent stake in the Greek subsidiary OTE, and EUR 0.2 billion for the T-Mobile US shares acquired by Deutsche Telekom in the first quarter of 2018. Furthermore, the subsequent measurement in other comprehensive income of equity instruments held reduced the carrying amount by EUR 0.6 billion; this figure includes the impairment loss of EUR 0.7 billion on the exchange-traded stake in BT that was recognized in other comprehensive income for the period from January 1, 2018 through March 23, 2018.

Comparison of December 31, 2017 to December 31, 2016

Total assets. Total assets as of December 31, 2017 amounted to EUR 141.3 billion, a decrease of EUR 7.2 billion compared with December 31, 2016, largely attributable to the repayment of financial liabilities. Exchange rate effects, in particular from the translation of U.S. dollars into euros, also contributed to the decline.

Cash and cash equivalents. Cash and cash equivalents decreased by EUR 4.4 billion year-on-year due in part to the outflows for the spectrum license purchased in the United States amounting to EUR 5.2 billion.

Trade and other receivables. Trade and other receivables increased by EUR 0.4 billion to EUR 9.7 billion.

Receivables increased slightly as of the end of 2017 in each of the Europe, Group Development, and Germany operating segments. In the United States operating segment, receivables remained more or less unchanged from the prior-year level. The higher volume of receivables for terminal equipment sold under installment plans in connection with the market launch of higher-priced smartphones had an increasing effect. This increase was offset in particular by exchange rate effects from the conversion of U.S. dollars into euros and factoring agreements concluded in the 2017 financial year on revolving monthly sales of trade receivables due.

Non-current assets and disposal groups held for sale. Non-current assets and disposal groups held for sale decreased by EUR 0.2 billion to EUR 0.2 billion. The sale of Strato AG completed in March 2017 had a decreasing effect of EUR 0.1 billion. In addition, the transaction completed by T-Mobile US in March 2017 on the exchange of spectrum licenses also reduced this item by EUR 0.1 billion. Further transactions on the exchange of spectrum licenses were agreed and completed in the United States operating segment in the course of the 2017 financial year.

Other current assets. Other current financial assets, included under other current assets in the relevant table under "*Financial Position of the Group*" above, decreased by EUR 2.4 billion to EUR 3.3 billion. This decline was mainly attributable to the utilization of a cash deposit of EUR 2.0 billion placed with the FCC in June 2016 in connection with the spectrum auction concluded in April 2017 in the United States operating segment. Exchange rate effects from the translation of U.S. dollars into euros also contributed to the decline. Inventories increased by EUR 0.4 billion to EUR 2.0 billion, primarily due to higher inventories of terminal equipment (in particular new, higher-priced smartphone models) as of December 31, 2017 in our United States and Germany operating segments. Exchange rate effects from the translation of U.S. dollars into euros decreased the carrying amount of other current assets.

Intangible assets. Intangible assets increased by EUR 2.3 billion to EUR 62.9 billion, mainly due to additions totaling EUR 11.6 billion. In particular, investments in new mobile spectrum licenses in the United States operating segment at the spectrum auction that ended in April 2017 had an increasing effect of EUR 7.2 billion. In addition, the partial reversal recognized as of September 30, 2017 of impairment losses on spectrum licenses previously acquired by T-Mobile US increased the carrying amount by EUR 1.7 billion. By contrast, in the Systems Solutions operating segment, the unexpected decline in order entry prompted intra-year impairment testing of the assets assigned to this unit. An impairment loss on goodwill of EUR 1.2 billion was recognized as of September 30, 2017 as a result. In the Europe operating segment, the annual impairment test resulted in impairment losses on goodwill of EUR 0.8 billion in total in our national companies in Poland, Romania, and Albania. Negative exchange rate effects of EUR 4.5 billion, primarily from the translation of U.S. dollars into euros, and amortization of EUR 4.1 billion, decreased the carrying amount. The reclassification of intangible assets worth EUR 0.3 billion to non-current assets and disposal groups held for sale also reduced the carrying amount.

Property, plant and equipment. Property, plant and equipment increased by EUR 0.1 billion compared to December 31, 2016 to EUR 46.9 billion. Additions of EUR 11.5 billion resulted from investments in intensifying the network build-out in the United States operating segment and investments in the Germany and Europe operating segments in the broadband and fiber-optic roll-out, the IP transformation, and mobile infrastructure. This also included EUR 1.0 billion for capitalized higher-priced mobile handsets in connection with the "JUMP! On Demand" business model introduced at T-Mobile US, under which customers do not purchase the device but lease it. Of the additions, 69 percent related to investments intended to increase operating capacities. Exchange rate effects of EUR 1.9 billion, primarily from the translation of U.S. dollars into euros, reduced the carrying amount, as did depreciation of EUR 8.3 billion, impairment losses of EUR 0.1 billion, and disposals of EUR 1.0 billion. Of these disposals, EUR 0.7 billion was attributable to terminal equipment returned by customers under the "JUMP! On Demand" model.

Other non-current assets. As of December 31, 2017, other non-current assets included the following significant effects compared with the end of 2016. The carrying amount of other non-current financial assets decreased by EUR 2.2 billion to EUR 5.7 billion, largely attributable to the impairment losses of EUR 1.5 billion recognized in profit and loss in 2017 on the exchange-traded shares in BT, and to the exercise and remeasurement of early repayment options embedded in bonds issued by T-Mobile US. Deferred tax assets decreased by EUR 1.2 billion compared with the 2016 financial year, due in part to the remeasurement of deferred taxes undertaken as a result of the reduction in the applicable U.S. federal tax rate as of the 2018 financial year.

Current liabilities and non-current liabilities. As of December 31, 2017, current liabilities decreased by EUR 5.8 billion and non-current liabilities decreased by EUR 5.0 billion.

Current and non-current financial liabilities. Current and non-current financial liabilities decreased by EUR 7.1 billion compared with the end of 2016 to EUR 57.5 billion. This is primarily the result of the early repayment of T-Mobile US' debt instruments in the amount of EUR 9.5 billion (translated into euros) and regular repayments of bond liabilities of EUR 3.3 billion. New bonds of EUR 10.2 billion (translated into euros) were issued in 2017. In our United States operating segment, the mandatory convertible preferred stock issued by T-Mobile US in December 2014 was converted into T-Mobile US ordinary shares in December 2017. In connection with this conversion, EUR 0.8 billion were reclassified from financial liabilities to capital reserves, and associated conversion rights of a further EUR 0.9 billion embedded in these preferred shares were reclassified from financial liabilities to capital reserves.

Trade and other payables. Trade and other payables increased by EUR 0.5 billion compared with the end of 2016 to EUR 11.0 billion, mainly due to higher inventories of terminal equipment (in particular new higher-priced smartphone models) in our United States and Germany operating segments. Exchange rate effects from the translation from U.S. dollars into euros had an offsetting effect.

Current and non-current provisions. Current and non-current provisions increased slightly against the prior-year level by EUR 0.1 billion to EUR 14.9 billion, of which EUR 8.4 billion (December 31, 2016: EUR 8.5 billion) related to provisions for pensions and other employee benefits. The slight decrease in pension provisions was mainly due to the positive yield development from plan assets at fair value that resulted in an actuarial gain of EUR 0.1 billion recognized under other comprehensive income. At EUR 6.5 billion, other provisions were slightly higher than in the 2016 financial year.

Other non-current liabilities. Other non-current liabilities decreased by EUR 3.7 billion compared with the 2016 financial year, to EUR 10.8 billion and included deferred tax liabilities, which decreased by EUR 3.0 billion compared with the end of 2016 to EUR 7.0 billion. The decrease was mainly attributable to our United States operating segment, where the reduction in the applicable U.S. federal tax rate from 35 percent to 21 percent as of the 2018 financial year prompted a remeasurement of the surplus amount of deferred tax liabilities. Other liabilities also decreased due to the decline in liabilities to the German Federal Post and Telecommunications Agency (*Bundesanstalt für Post und Telekommunikation*) resulting from the early retirement model, and to exchange rate effects, in particular from the translation of U.S. dollars into euros.

Shareholders' equity. Shareholders' equity increased from EUR 38.8 billion as of December 31, 2016 to EUR 42.5 billion as of December 31, 2017, due to profit after taxes of EUR 5.6 billion. Shareholders' equity increased by EUR 1.7 billion overall in connection with the conversion of mandatory convertible preferred stock into ordinary shares of T-Mobile US in our United States operating segment in December 2017, including the transfer of the conversion rights embedded in these preferred shares. In addition, in connection with the option granted to our shareholders to have their dividend entitlements for 2016 converted into shares, a capital increase of EUR 1.4 billion was carried out involving the contribution of the dividend entitlements. Dividend payments for the 2016 financial year to Deutsche Telekom shareholders of EUR 2.8 billion and to non-controlling interests of EUR 0.1 billion had an offsetting effect. As of December 31, 2017, ordinary shares in the amount of USD 0.4 billion (around EUR 0.4 billion) had been purchased under the share buy-back program announced at T-Mobile US in December 2017. Under the program, T-Mobile US may, until

the end of 2018, buy back ordinary shares of the company for a total amount of up to USD 1.5 billion. Currency translation effects recognized directly in equity reduced shareholders' equity by EUR 2.2 million.

Financial Liabilities

The following table sets forth the composition and maturity structure of our financial liabilities as of September 30, 2019.

	September 30, 2019			
	Total	Due within 1 year	Due > 1 year ≤ 5 years	Due > 5 years
	(millions of €)			
	(unaudited)			
Bonds and other securitized liabilities	54,719	6,730	16,706	31,282
Liabilities to banks	5,881	1,858	2,568	1,455
Liabilities to non-banks from promissory note bonds	357	0	53	305
Other interest-bearing liabilities	5,253	2,831	1,119	1,304
Other non-interest-bearing liabilities	1,472	1,340	129	4
Derivative financial liabilities	1,975	1,388	159	428
Financial liabilities	**69,658**	**14,148**	**20,732**	**34,778**

The following table sets forth the reconciliation of net debt to financial liabilities as of the dates indicated.

	Sept. 30,	December 31,		
	2019	2018	2017	2016
	(millions of €)			
	(unaudited)	(audited, except as otherwise indicated)		
Financial liabilities (current)[1]	14,148	10,527	8,358	14,422
Financial liabilities (non-current)[1]	55,510	51,748	49,171	50,228
Lease Liabilities	20,314	n.a.	n.a.	n.a.
Financial liabilities and Lease Liabilties	**89,971**	**62,275**	**57,529**	**64,650**
Accrued interest	(731)	(719)	(692)	(955)
Other	(775)	(928)	(781)	(1,029)
Gross debt[2]	**88,465**	**60,628**	**56,056**	**62,666**
Cash and cash equivalents	6,461	3,679	3,312	7,747
Available-for-sale financial assets/ financial assets held for trading	n.a.	0	7	10
Derivative financial assets	2,927	870	1,317	2,379
Other financial assets	270	654	629	2,571
Net debt[2]	**78,807**	**55,425**	**50,791**	**49,959**

n.a. – not applicable

1 Financial liabilities (current/non-current) included finance lease liabilities in accordance with IAS 17 for the last time as of December 31, 2018 (EUR 2.5 billion). The new IFRS 16 "Leases" accounting standard has been applied since January 1, 2019. Prior-year comparatives were not adjusted. For more information, please refer to section "Accounting policies" in the interim financial statements as of and for the nine-month period ended September 30, 2019, incorporated by reference in this offering memorandum.

2 Unaudited

Net debt as of September 30, 2019 increased by EUR 23.4 billion to EUR 78.8 billion compared with the end of 2018. The recognition of lease liabilities in connection with the first-time application of the IFRS 16 accounting standard contributed to the increase in net debt by EUR 15.6 billion. Further, dividend payments (EUR 3.6 billion), including to other shareholders of subsidiaries, additions to liabilities in connection with leases (EUR 4.5 billion), the acquisition of spectrum (EUR 3.2 billion), exchange rate effects (EUR 1.7 billion), and the acquisition of Tele2 Netherlands (EUR 0.4 billion) also increased this item. The main factor reducing net debt was free cash flow of EUR 7.6 billion.

Net debt increased by EUR 4.6 billion in the 2018 financial year, from EUR 50.8 billion at the end of 2017 to EUR 55.4 billion at the end of 2018. The increases in net debt arose due to the dividend payment (including to non-controlling interests) of EUR 3.3 billion, the acquisition of UPC Austria (EUR 1.8 billion), additions to liabilities in connection with finance leases (EUR 1.0 billion), exchange rate effects (EUR 1.1 billion), T-Mobile US' share buy-back program (EUR 0.9 billion), payment obligations arising out of the Toll Collect settlement (EUR 0.6 billion), further acquisitions of shares in T-Mobile US and OTE (EUR 0.4 billion), and other effects of EUR 1.3 billion which include, among other factors, liabilities for the acquisition of media broadcasting rights and financing options under which the payments for trade payables become due at a later point in time by involving banks in the process. Remeasurement losses

from forward payer swaps recognized directly in equity are also included. Offsetting these effects was a decrease in net debt due to free cash flows of EUR 6.2 billion.

In the 2017 financial year, our net debt increased by EUR 0.8 billion to EUR 50.8 billion compared to December 31, 2016, mainly due to the acquisition of mobile spectrum for EUR 7.4 billion, dividend payments (including to non-controlling interests) of EUR 1.6 billion, finance leases of EUR 1.0 billion, embedded derivatives at T-Mobile US of EUR 0.6 billion and other effects of 1.3 billion, which included, among other factors, liabilities for the acquisition of media broadcasting rights and financing options, under which the payments for trade payables become due at a later point in time by involving banks in the process. Offsetting these effects were decreases in net debt due to free cash flow of EUR 5.5 billion, the sale of Strato AG (negative EUR 0.6 billion), the sale of Scout24 AG (negative EUR 0.3 billion), the conversion of mandatory convertible preferred stock into ordinary shares of T-Mobile US (negative EUR 1.7 billion) and exchange rate effects of negative EUR 2.9 billion.

Off-Balance Sheet Assets and Financial Instruments

Until December 31, 2018, in addition to the assets recognized in the statement of financial position, we carried assets off balance-sheet, primarily relating to leased property. Upon the mandatory adoption of IFRS 16 "Leases" as of January 1, 2019, we have recognized the right-of-use assets for the leases in the statement of financial position. For more information, please refer to Note 37 "*Leases*" and Note 38 "*Other financial obligations*" in the notes to the consolidated financial statements as of and for the year ended December 31, 2018 and Note 33 "*Leases*" and Note 34 "*Other financial obligations*" in the notes to the consolidated financial statements as of and for the year ended December 31, 2017, in each case incorporated by reference in this offering memorandum.

Off-balance-sheet financial instruments mainly relate to the sale of receivables by means of factoring. Total receivables sold as of December 31, 2018 amounted to EUR 4.7 billion (December 31, 2017: EUR 4.7 billion). This mainly related to factoring agreements in the United States and Germany operating segments. The agreements are used in particular for active receivables management.

Furthermore, in 2018, we chose financing options totaling EUR 0.2 billion (2017: EUR 0.3 billion) which extended the period of payment for trade payables from operating and investing activities by intermediation of banks in the process. Upon payment, these trade payables are included under cash flows used in/from financing activities. As a result, these payables are recognized as financial liabilities in the statement of financial position.

In 2018, we leased network equipment for a total of EUR 1.0 billion (2017: EUR 1.0 billion), primarily in the United States operating segment. This lease is recognized as a finance lease. In the statement of financial position, we therefore also recognize this item under financial liabilities and the future repayments of the liabilities in net cash from/used in financing activities.

Finance Policy

Our finance policy is established each year by the Board of Management and overseen by the Supervisory Board. Group Treasury is responsible for implementing the finance policy and for ongoing risk management.

The following table sets forth the ratings of the Company as of the dates indicated:

	Standard & Poor's	**Moody's**	**Fitch**
Long-term rating			
December 31, 2016	BBB+	Baa1	BBB+
December 31, 2017	BBB+	Baa1	BBB+
December 31, 2018	BBB+	Baa1	BBB+
September 30, 2019	BBB+	Baa1	BBB+
Outlook[1]	**CreditWatch negative**	**Negative**	**Stable**
Short-term rating	**A-2**	**P-2**	**F2**

[1] Following the announcement of the business combination of T-Mobile US and Sprint on April 29, 2018. Standard & Poor's has stated that the CreditWatch placement indicates that a one-notch downgrade (*i.e.*, to BBB) is likely if the business combination closes in the absence of operating performance significantly ahead of its base case and other material leverage-reduction measures.

A securities rating is not a recommendation to buy, sell or hold securities and is subject to revision or withdrawal at any time by the assigning rating organization. Each rating should be evaluated independently of any other rating. The same remarks hold true with regard to rating agency outlook statements.

Condensed Consolidated Statement of Cash Flows and Reconciliation of Free Cash Flow AL/Free Cash Flow

The following table presents information concerning our condensed consolidated statement of cash flows and reconciliation of free cash flow and, where applicable, free cash flow AL, for the periods indicated.

	Q1 – Q3 2019	**Q1 – Q3 2018**	**2018**	**2017**	**2016**
			(millions of €)		
	(unaudited)		**(audited, except as otherwise indicated)**		
Cash generated from operations	**19,294**	**14,990**	**19,663**	**19,706**	**18,116**
Interest received (paid)[1]	(1,763)	(1,449)	(1,715)	2,509	(2,583)
Net cash from operating activities	**17,531**	**13,542**	**17,948**	**17,196**	**15,533**
Cash outflows for investments in intangible assets (excluding goodwill and before spectrum investment) and property, plant and equipment **(cash capex – excluding goodwill and before spectrum investment)**[1]	(10,043)	(9,143)	(12,223)	(12,099)	(10,958)
Proceeds from disposal of intangible assets (excluding goodwill) and property, plant and equipment1	108	381	525	400	364
Free cash flow (before dividend payments and spectrum investment)[1]	**7,596**	**4,779**	**6,250**	**5,497**	**4,939**
Principal portion of repayment of lease liabilities[2]	(2,346)	(166)	n.a.	n.a.	n.a.
Free cash flow AL (before dividend payments and spectrum investment)[1]	**5,250**	**4,613**	n.a.	n.a.	n.a.
Net cash used in investing activities	**(10,236)**	**(11,655)**	**(14,297)**	**(16,814)**	**(13,608)**
Net cash used in financing activities	**(4,563)**	**(2,939)**	**(3,259)**	**(4,594)**	**(1,322)**
Effect of exchange rate changes on cash and cash equivalents	51	(26)	(17)	(226)	250
Changes in cash and cash equivalents associated with non-current assets and disposal groups held for sale	0	0	(8)	3	(3)
Net increase (decrease) in cash and cash equivalents	2,782	(1,078)	367	(4,435)	850
Cash and cash equivalents	**6,461**	**2,235**	**3,679**	**3,312**	**7,747**

n.a. – not applicable

1 Unaudited.

2 Excluding finance leases at T-Mobile US.

For information on the statement of cash flows, see the notes to the consolidated statement of cash flows in the condensed consolidated interim financial statements as of and for the period ended September 30, 2019, Note 34 "*Notes to the consolidated statement of cash flows*" to the consolidated financial statements as of and for the year ended December 31, 2018 and Note 30 "*Notes to the consolidated statement of cash flows*" to the consolidated financial statements as of and for the year ended December 31, 2017.

Cash Capex

Cash capex increased by EUR 1.9 billion to EUR 11.2 billion in the first three quarters of 2019. Mobile spectrum licenses were acquired for total cash of EUR 1.2 billion. EUR 1.0 billion of this related to the FCC licenses acquired in the United States operating segment in two auctions for the 28 GHz and 24 GHz spectrum, and EUR 0.1 billion each to spectrum acquired in the Germany operating segment, where payment by annual installments through 2030 has been agreed for the 5G licenses worth EUR 2.2 billion acquired in 2019, and the Europe operating segment. The prior-year figure included EUR 0.2 billion for the acquisition of mobile spectrum licenses, predominantly for the United States operating segment. Adjusted for investments in mobile spectrum licenses, cash capex increased by EUR 0.9 billion. This amount 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.

In the 2018 financial year, cash capex decreased by EUR 7.0 billion to EUR 12.5 billion, mainly due to spectrum licenses. Mobile spectrum licenses were acquired for a total of EUR 0.3 billion, compared with a total of EUR 7.4 billion in 2017. In both 2017 and 2018, these payments related almost exclusively to the United States operating segment. Cash capex (excluding spectrum investment) increased by EUR 0.1 billion year-on-year in the Europe operating segment due to

the network upgrade/expansion. By contrast, in the United States operating segment, this item decreased by EUR 0.2 billion, primarily due to currency translation effects. Adjusted for exchange rate effects, and excluding capital expenditure on mobile spectrum licenses, cash capex was substantially higher than in the 2017 financial year. Interest payments (including capitalized interest) of EUR 3.6 billion (2017: EUR 4.0 billion, 2016: EUR 3.6 billion) were made in the 2018 financial year. Capitalized interest was reported within cash capex in net cash used in investing activities, together with the associated assets.

In the 2017 financial year, cash capex (including spectrum investments) increased by EUR 5.9 billion to EUR 19.5 billion compared to 2016, mainly due to spectrum licenses acquired for a total amount of EUR 7.3 billion in the United States operating segment. In the prior-year period, the United States and Germany operating segments in particular had acquired mobile spectrum licenses for EUR 2.7 billion in total. Excluding spectrum investment, cash capex increased by EUR 1.1 billion year-on-year, mainly in the United States, Germany, and Europe operating segments. Cash outflows related to network modernization and the continued network build-out, including build-out of the 4G/LTE network and the broadband/fiber-optic build-out.

Free Cash Flow AL/Free Cash Flow

As of January 1, 2019, due to the mandatory first-time application of IFRS 16 “Leases”, the principal repayment portion of the lease payments from existing operating leases reduce net cash flow from/used in financing activities and no longer affect net cash from operating activities. The interest portion of the payments remain in net cash from operating activities, thus in free cash flow. Since expenses and cash outflows for leases are substantial elements of our earnings performance and solvency, effective the start of the 2019 financial year, we have taken into account the effects of the mandatory first-time application of the IFRS 16 accounting standard when determining our financial performance indicators. The “free cash flow” financial performance indicator has been replaced by “free cash flow after leases” (free cash flow AL). Free cash flow AL is defined as free cash flow adjusted for the effects of the application of IFRS 16, which includes the repayment of lease liabilities (“free cash flow AL”).

As of September 30, 2019, free cash flow AL in the Group before dividend payments and spectrum investment increased by EUR 0.6 billion year-on-year to EUR 5.3 billion. Net cash from operating activities increased by EUR 4.0 billion year-on-year to EUR 17.5 billion. Due to the first-time application of the IFRS 16, the principal repayment portion of lease payments is presented in net cash used in/from financing activities. These payments totaling EUR 2.3 billion were taken into account in the calculation of free cash flow AL. The strong performance of our operating segments, in particular the United States, significantly increased net cash from operating activities. Factoring agreements, especially in the Systems Solutions operating segment, resulted in positive effects of EUR 0.1 billion on net cash from operating activities compared with the prior-year period. In addition, in the prior-year period, dividends received in the amount of EUR 0.2 billion had an increasing effect. Net cash from operating activities was reduced by a EUR 0.3 billion increase in net interest payments and a EUR 0.1 billion increase in tax payments.

In the 2018 financial year, free cash flow of the Group before dividend payments and spectrum investment increased from EUR 5.5 billion in 2017 to EUR 6.2 billion, with net cash from operating activities increasing by EUR 0.8 billion to EUR 17.9 billion. Exchange rate effects weighed on the continuing positive business trend in the United States operating segment. In addition, positive effects from factoring agreements – in particular in the Systems Solutions and Germany operating segments – on net cash from operating activities were EUR 0.3 billion lower than in the 2017 financial year. A EUR 0.1 billion increase in income tax payments compared with the 2017 payments also had a negative impact. Furthermore, the comparable figure in the 2017 financial year included a EUR 0.1 billion higher dividend payment from BT (totaling EUR 0.2 billion), while the profit of EUR 0.1 billion distributed by Toll Collect GmbH was a key component in 2018. A decrease of EUR 0.8 billion in net interest payments compared with 2017, mainly due to the fact that T-Mobile US has increasingly been financed internally since 2017 and that refinancing terms continue to be favorable, had a positive effect on the trend in net cash from operating activities.

In the 2017 financial year, free cash flow of the Group before dividend payments and spectrum investment grew from EUR 4.9 billion in 2016 to EUR 5.5 billion, with net cash from operating activities increasing by EUR 1.7 billion to EUR 17.2 billion. Cash outflows for investments in intangible assets (excluding goodwill and before spectrum investment) and property, plant and equipment increased by EUR 1.1 billion. The increase in net cash from operating activities was mainly attributable to the positive business development of our United States operating segment. In the 2017 financial year, factoring agreements were concluded for monthly revolving sales of trade receivables, mainly in the United States and Germany operating segments. Their effect on net cash from operating activities amounted to EUR 0.3 billion and was thus EUR 0.5 billion lower than in the prior year. In 2016, cash inflows from the cancellation of, or changes in, the terms

of interest rate derivatives had a negative effect of EUR 0.3 billion. A year-on-year increase of EUR 0.1 billion in cash outflows for income taxes also had a negative impact. The dividend payments received from BT amounted to EUR 0.2 billion compared with the prior year in which dividend payments amounted to EUR 0.1 billion from BT and EUR 0.2 billion from the former joint venture EE. By contrast, net interest payments that were EUR 0.1 billion lower year-on-year had a positive impact on net cash from operating activities. The EUR 1.1 billion increase in cash capex compared with 2016 primarily related to the United States, Germany and Europe operating segments (before spectrum investment). Cash outflows related to network modernization and the continued network build-out, including roll-out of the 4G/LTE network and the broadband/fiber-optic build-out.

Step-Up Provisions

An improvement of our long-term senior unsecured debt ratings to A3 by Moody's and A- by Standard & Poor's or above would result in a 50 basis point decrease in interest rates due to the step-up provisions of certain bonds of the Group having an aggregate principal amount of approximately EUR 3.5 billion at September 30, 2019.

A lowering of our long-term senior unsecured debt ratings below Baa1 by Moody's and BBB+ by Standard & Poor's would result in a 50 basis point increase in interest rates due to the step-up provisions of certain bonds of the Group having an aggregate principal amount of approximately EUR 1.0 billion at September 30, 2019.

Lines of Credit

As of September 30, 2019, we had standardized bilateral lines of credit with 21 banks, totaling EUR 12.6 billion. As of September 30, 2019, these credit lines had not been utilized. According to the loan agreements, the terms and conditions depend on our credit rating. The bilateral credit agreements have an original maturity of 36 months and, after each period of 12 months, will be automatically extended for a further 12 months to renew the maturity of 36 months, if the lender does not object to such extension.

Our bilateral lines of credit do not include any financial covenants or material adverse change clauses. However, in the event we are taken over by a third-party, the individual lenders under these bilateral lines of credit and certain loan agreements to which we are also a party have the right to terminate the credit line and, if necessary, serve notice on it or demand repayment of the loans. A takeover is assumed when a third party, which can also be a group acting jointly, acquires control over us.

Research and Development

Research and development expenditure includes pre-production research and development, such as the search for alternative products, processes, systems, and services. However, we do not include under this item expenses for the development of system and user software aimed at enhancing productivity and making our business process more effective. In 2018, research and development expenditure in the Group amounted to EUR 57.7 million (2017: EUR 57.7 million).

In 2018, our investment in internally generated intangible assets to be capitalized increased year-on-year to EUR 284.2 million compared with EUR 235.7 million for the 2017 financial year. These investments predominantly related to internally developed software, mainly in our Group Headquarters & Group Services segment and our Systems Solutions operating segment. About 3,100 employees worked in the Group's R&D units in 2018.

In 2017, our investments in internally generated intangible assets to be capitalized also increased year-on-year to EUR 235.7 million compared with EUR 129.5 million for 2016. These investments predominantly related to internally developed software, mainly in our Group Headquarters & Group Services segment and our Systems Solutions operating segment. About 3,000 employees worked in the Group's R&D areas in 2017.

Development of Business in the Operating Segments

The following presents a discussion of the development of our business and operations in our individual operating segments, Germany, United States, Europe, System Solutions and Group Development, as well as our non-operating segment, Group Headquarters & Group Services, in the first quarter of 2019 and in the 2018 and 2017 financial years.

Germany

Our Germany operating segment comprises all fixed-network and mobile activities for consumers and business customers in Germany. In addition, it provides wholesale telecommunications services for the Group's other operating segments. For more information on our segments, see "*Description of our Business and Operations—Group Organization—Organization*".

Customer Development

The following table provides information on our fixed-line and mobile operations in our Germany operating segment as of the dates indicated.

	Sept. 30, 2019	Dec. 31, 2018	Change Sept. 30, 2019/ Dec. 31, 2018	Sept. 30, 2018	Change Sept. 30, 2019/ Sept. 30, 2018
	(in thousands)		(%)	(in thousands)	(%)
	(unaudited)			(unaudited)	
Total					
Mobile customers[1]	**45,598**	**44,202**	**3.2**	**43,646**	**4.5**
Contract customers	25,138	25,435	(1.2)	25,179	(0.2)
Prepay customers	20,460	18,767	9.0	18,466	10.8
Fixed-network lines,[2]	17,996	18,625	(3.4)	18,809	(4.3)
Of which: retail IP-based	17,158	15,356	11.7	14,493	18.4
Retail broadband lines	13,683	13,561	0.9	13,504	1.3
Of which: optical fiber	8,231	7,236	13.8	6,896	19.4
Television (IPTV, satellite)	3,544	3,353	5.7	3,291	7.7
Unbundled local loop lines (ULLs)	4,770	5,236	(8.9)	5,402	(11.7)
Wholesale broadband lines	7,282	6,722	8.3	6,495	12.1
Of which: optical fiber	5,719	4,970	15.1	4,685	22.1

1 We count our mobile communications customers by the number of SIM cards activated and not churned. Our customer figures include the SIM cards with which machines can communicate with one another ("M2M"). In general, one SIM card corresponds to one customer. Twin cards (more than one SIM card with the same number and without any additional charge) are also accounted for as one customer. We count contract customers as customers for the length of their contracts and count prepay customers as customers as long as they continue to use our services, and then for a prescribed period thereafter, which differs by country. Generally, in the case of payment default or voluntary disconnection, the customers are cancelled or "churned" or, in case of no action on the part of the customer at the end of the period, the contract is prolonged.

2 In addition to the fixed-network lines of our consumers and business customers in Germany, this category includes lines provided by our Germany operating segment to our Systems Solutions operating segment, which are then sold to end customers, and lines used within the Group.

	Dec. 31, 2018	Dec. 31, 2017[1]	Change	
	(in thousands)		(in thousands)	(%)
	(unaudited)			
Total				
Mobile customers[2]	44,202	43,125	1,077	2.5
Contract customers	25,435	25,887	(452)	(1.7)
Prepay customers	18,767	17,238	1,529	8.9
Fixed-network lines[3, 4]	18,625	19,239	(614)	(3.2)
Of which: retail IP-based	15,356	11,996	3,360	28.0
Broadband lines[5]	13,561	13,209	352	2.7
Of which: optical fiber	7,236	5,803	1,433	24.7
Television (IPTV, satellite)	3,353	3,139	214	6.8
Unbundled local loop lines (ULLs)	5,236	6,138	(902)	(14.7)
Wholesale broadband lines	6,722	5,639	1,083	19.2
Of which: optical fiber	4,970	3,783	1,187	31.4

1 Adjusted to reflect changes in our reportable segments as of January 1, 2018. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".

2 We count our mobile communications customers by the number of SIM cards activated and not churned. Our customer figures include the SIM cards with which machines can communicate with one another ("M2M"). In general, one SIM card corresponds to one customer. Twin cards (more than one SIM card with the same number and without any additional charge) are also accounted for as one customer. We count contract customers as customers for the length of their contracts and count prepay customers as customers as long as they continue to use our services, and then for a prescribed period thereafter, which differs by country. Generally, in the case of payment default or voluntary disconnection, the customers are cancelled or "churned" or, in case of no action on the part of the customer at the end of the period, the contract is prolonged.

3 In addition to the fixed-network lines of our consumers and business customers in Germany, this category includes lines provided by our Germany operating segment to our Systems Solutions operating segment, which are then sold to end customers, and lines used within the Group.

4. The baseline as of January 1, 2018 increased (by 62,000) due to the inclusion of new products launched in the Business Customer portfolio. Prior-year comparatives were not adjusted.

5 The baseline as of January 1, 2018 increased (by 53,000) due to the inclusion of new products launched in the Business Customer portfolio. Prior-year comparatives were not adjusted.

	Dec. 31, 2017	Dec. 31, 2016[1]	Change	
	(in thousands)		(in thousands)	(%)
	(unaudited)			
Total				
Mobile customers[3]	43,125	41,849	1,276	3.0
Contract customers	25,887	25,219	668	2.6
Prepay customers	17,238	16,630	608	3.7
Fixed-network lines[1]	19,239	19,786	(547)	(2.8)
Of which: retail IP-based	11,996	9,042	2,954	32.7
Broadband lines[2]	13,209	12,922	287	2.2
Of which: optical fiber	5,803	4,250	1,553	36.5
Television (IPTV, satellite)	3,139	2,879	260	9.0
Unbundled local loop lines (ULLs)	6,138	7,195	(1,057)	(14.7)
Wholesale broadband lines	5,639	4,377	1,262	28.83
Of which: optical fiber	3,783	2,555	1,228	48.1

1 We count our mobile communications customers by the number of SIM cards activated and not churned. Our customer figures include the SIM cards with which machines can communicate with one another ("M2M"). In general, one SIM card corresponds to one customer. Twin cards (more than one SIM card with the same number and without any additional charge) are also accounted for as one customer. We count contract customers as customers for the length of their contracts and count prepay customers as customers as long as they continue to use our services, and then for a prescribed period thereafter, which differs by country. Generally, in the case of payment default or voluntary disconnection, the customers are cancelled or "churned" or, in case of no action on the part of the customer at the end of the period, the contract is prolonged.

2 In addition to the fixed-network lines of our consumers and business customers in Germany, this category includes lines provided by our Germany operating segment to our Systems Solutions operating segment, which are then sold to end customers, and lines used within the Group.

3 As of January 1, 2017, reporting of contract customers in business customer operations excludes test cards (minus 41,000). In addition, there was a one-time effect in business customer operations from a change in the way prepay customers were reported (plus 180 thousand). Prior-year figures have not been adjusted.

Total

As of September 30, 2019, we continue to be the market leader in Germany both in terms of fixed-network and mobile revenues. We attribute this success to our high-performance networks in both fixed network and mobile

communications and our broad product portfolio. Our MagentaEINS customer base benefited from the popularity of our convergent MagentaEINS, comprising fixed-network and mobile components, and totaled 4.6 million at the end of the third quarter of 2019 (December 31, 2018: 4.3 million; December 31, 2017: 3.0 million).

In mobile communications, we won a total of 1,396,000 customers in the first three quarters of 2019 (a total of 452,000 of which were contract customers under our Telekom and congstar brands), following gains of 1.1 million customers (an increase of 2.5 percent) in 2018 and 1.1 million customers (an increase of 3.0 percent) in 2017, primarily by contract customers as a result of strong demand for mobile rate plans with integrated data volumes. As of the end of the third quarter of 2019, the number of branded contract customers with resellers (service providers) decreased, primarily due to the volatile developments at some of our service providers. The number of prepay customers increased by 1,693,000 in the first three quarters of 2019. In 2018, business fluctuation at one of our service providers, due in part to deregistration of inactive SIM cards, had a negative impact overall on customer development By September 30, 2019, we had migrated 24.4 million retail and wholesale lines to IP (corresponding to a migration rate of 97 percent of all lines). The level of migration was 21.9 million (corresponding to 86 percent) as of December 31, 2018 and 17.3 million (corresponding to 69 percent) as of December 31, 2017.

Additionally, we continued to record strong demand for our fiber-optic products in the first three quarters of 2019, with the number of these lines increasing by around 1,744,000, over the period to a total of 14 million, following increases of 2.6 million, to a total of 12.2 million over the 2018 financial year and 2.8 million, to a total of 9.6 million over the 2017 financial year. With progress made in fiber-optic rollout and innovative vectoring technology, we also drove the marketing of higher bandwidths.

Mobile Communications

In the first three quarters of 2019, we recorded net gains of 1,396,000 mobile customers (an increase of 3.2 percent). Of these mobile customers, 452,000 were contract customers under the Telekom and congstar brands, following gains of 329,000 (an increase of 0.8 percent) over the 2018 financial year and 676,000 (an increase of 0.4 percent) over the 2017 financial year. We attribute these gains to our high-performance networks and our broad product portfolio for high-value contract customers. The contract customer business of resellers (service providers) decreased by 9.2 percent over the first three quarters of 2019, primarily due the volatile developments at some of our service providers, after decreasing by 8.9 percent over the course of the 2018 financial year, in part from the deregistration of inactive sim cards, and remaining at the prior year level over the course of the 2017 financial year. The number of prepay customers increased by 1,693,000 or 9.0 percent, over the first three quarters of 2019 following an increase of 1,529,000 or 8.9 percent over the 2018 financial year following an increase of 608,000, or 3.7 percent, over the 2017 financial year.

Fixed Network

Due to the persistently challenging development in the fixed-network market, primarily owing to aggressive pricing offers of competitors, we are pursuing new paths in marketing. Our focus is on convergent offerings and their further development – for instance, MagentaTV with exclusive access to a wide range of additional content in the Megathek library and via other popular streaming services – as well as TV lines and fiber-optic lines. In connection with this marketing campaign, the number of our broadband lines increased by 122,000 or 0.9 percent, over the course of the first three quarters of 2019, increased by 352,000 or 2.7 percent over the 2018 financial year and 287,000, or 2.2 percent, over the 2017 financial year. The number of our TV customers increased by 191,000, or 5.7 percent, in the first three quarters of 2019, by 214,000 or 6.8 percent over the 2018 financial year and by 260,000, or 9.0 percent, over the 2017 financial year. In the traditional fixed network, the number of lines decreased by 629,000, or 3.4 percent, over the first three quarters of 2019, by 614,000 or 3.2 percent over the 2018 financial year and by 547,000, or 2.8 percent, over the 2017 financial year.

Our MagentaZuhause rate plans offer a comprehensive product portfolio for the fixed network based on IP technology and rate plan-specific bandwidths. MagentaZuhause Hybrid bundles fixed-network and mobile technology in a single router. As of September 30, 2019, 523,000 customers, primarily based in rural areas, have selected this rate plan (December 31, 2018: 458,000, December 31, 2017: 370,000; December 31, 2016: 294,000).

Wholesale

As of September 30, 2019, the total number of lines in the wholesale sector was 7,282,000 compared with 6,722,00 at the end of 2018 following a stable 2017. Fiber-optic lines accounted for 47.5 percent of all lines in the first three quarters of 2019 (5.9 percentage points higher than at the end of 2018), 41.6 percent of all lines at the end of 2018

(9.5 percentage points higher than the end of 2017) and 32.1 percent of all lines at the end of 2017 (10.0 percentage points higher than at the end of 2016). This accelerated growth was driven largely by high demand for our contingent model.

By contrast, the number of unbundled local loop lines decreased by 466,000 or 8.9 percent compared with the end of 2018. At the end of the 2018 financial year, they had decreased by 902,000 or 14.7 percent following a decrease of 65,000 over the 2017 financial year. This trend is due firstly to the move to higher-quality fiber-optic lines, and secondly to retail customers switching to cable operators. In addition, wholesale customers are migrating their retail customers to their own fiber-optic lines. In wholesale, the number of lines stood at around 12.1 million as of September 30, 2019.

As of the 2018 financial year, we no longer provide information relating to the wholesale unbundled lines in our reporting of the wholesale section of our Germany operating segment. Over the 2017 financial year, we had strong growth for wholesale unbundled lines of 1.3 million or 31.5 percent. The growth was primarily attributable to the strong demand in connection with our contingent model, which consists of long-term contracts with defined advance payment and minimum purchase requirements as well as reduced monthly charges for VDSL, thereby allowing resellers to provide offers to their own consumers without having to invest in fiber-optic lines of their own.

Development of Operations

	Q1 - Q3 2019	**Q1 - Q3 2018**	**Change**	
	(millions of €)		**(millions of €)**	**(%)**
	(unaudited)			
Total revenue	**16,217**	**16,088**	**129**	**0.8**
Consumers	8,604	8,556	48	0.6
Business Customers[1]	4,562	4,483	79	1.8
Wholesale	2,798	2,789	9	0.3
Other[1]	253	261	(8)	(3.1)
Profit from operations (EBIT)	2,992	2,985	7	0.2
Depreciation, amortization and impairment losses	(3,188)	(2,964)	(224)	(7.6)
EBITDA	6,181	5,949	232	3.9
Depreciation of right-of-use assets[1]	(17)	u.a.	u.a.	u.a.
Interest expenses on recognized lease liabilities[1]	(3)	u.a.	u.a.	u.a.
EBITDA AL[1]	6,161	5,880	281	4.8
Special factors affecting EBITDA AL[1, 2]	(354)	(481)	127	26.4
Adjusted EBITDA AL[1]	**6,515**	**6,361**	**154**	**2.4**
Cash capex	**(3,351)**	**(3,242)**	**(109)**	**(3.4)**

u.a. - unavailable

1 Prior-year comparatives were calculated on a pro-forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.

2 For more information on special factors affecting EBITDA AL, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2018	2017	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[1]	**21,700**	**21,931**	**(231)**	**(1.1)**
Consumers	11,543	11,797	(254)	(2.2)
Business Customers[2]	6,082	6,017	65	1.1
Wholesale	3,720	3,747	(27)	(0.7)
Other[2]	355	370	(15)	(4.1)
Profit from operations (EBIT)[1]	3,969	4,276	(307)	(7.2)
Depreciation, amortization and impairment losses	(4,042)	(3,828)	(214)	(5.6)
EBITDA	8,012	8,104	(92)	(1.1)
Special factors affecting EBITDA[3]	(598)	(308)	(290)	(94.2)
Adjusted EBITDA	**8,610**	**8,412**	**198**	**2.4**
Cash capex	**(4,240)**	**(4,214)**	**(26)**	**(0.6)**

1 Audited.
2 As of July 1, 2017, a share of revenue previously recognized under "Other" was assigned to Business Customers on account of a reorganization. Prior-year comparatives were not adjusted.
3 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2017	2016[1]	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[2]	**21,931**	**21,774**	**157**	**0.7**
Consumers	11,797	11,739	58	0.5
Business Customers	6,017	5,923	94	1.6
Wholesale	3,747	3,742	5	0.1
Other[3]	370	370	0	0.0
Profit from operations (EBIT)[2]	4,276	3,552	724	20.4
Depreciation, amortization and impairment losses	(3,828)	(3,703)	(125)	(3.4)
EBITDA	8,104	7,256	848	11.7
Special factors affecting EBITDA[4]	(308)	(905)	604	66.6
Adjusted EBITDA	**8,412**	**8,161**	**251**	**3.1**
Cash capex	**(4,214)**	**(4,031)**	**(183)**	**(4.5)**

1 Adjusted to reflect changes in our reportable segments as of January 1, 2017. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".
2 Audited.
3 As of July 1, 2017, a share of revenue previously recognized under "Other" was assigned to Business Customers on account of a reorganization. Prior-year comparatives were not adjusted.
4 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

Total Revenue

2019 First Three Quarters

Total revenue increased slightly year-on-year by 0.8 percent. This increase was mainly due to an increase of 2.6 percent in mobile business which in turn resulted from higher service and terminal equipment revenue. In the fixed network, IT and broadband revenues were higher than in the first three quarters of 2018 and almost completely offset the decrease in fixed-network revenue (primarily from voice components).

Revenue from Consumers grew by 0.6 percent year-on-year. Volume-driven declines in revenue from voice components continue to strongly impact on traditional fixed-network business. By contrast, revenue from broadband business increased. Mobile business also grew by 2.1 percent.

Revenue from Business Customers increased by 1.8 percent. Mobile revenue increased by 3.6 percent and IT revenue by 22.3 percent compared with the prior-year quarter. In the fixed network, by contrast, a decline was recorded in traditional voice telephony, due largely to the increasing number of customers moving to flat-rate plans in connection with the migration to IP.

Wholesale revenue in the first three quarters of 2019 increased slightly by 0.3 percent when compared with the prior-year period, due to the revenue contributions from our contingent model and a regulation-induced price increase in ULL monthly charges, offset the general revenue declines in ULL and voice business.

2018 Financial Year

Total revenue decreased by 1.1 percent year-on-year in 2018. Adjusted for the effects of the IFRS 15 accounting standard, the application of which was mandatory from January 1, 2018, total revenue developed in line with the prior year. In mobile business, revenue declined by 2.0 percent year-on-year; excluding the effects of IFRS 15, revenue increased compared with the prior year. Higher IT and broadband revenues had a positive impact on fixed-network revenue. This was sufficient to almost completely offset the year-on-year decrease in fixed-network revenues (primarily from voice components).

Revenue from Consumers declined by 2.2 percent year-on-year; adjusted for the effects of IFRS 15, the decline was only marginal. Volume-related revenue decreases continued to affect traditional fixed-network business. By contrast, revenue from broadband business increased.

Revenue from Business Customers grew by 1.1 percent; this growth was even slightly stronger once adjusted for the effects of IFRS 15. Mobile revenues increased by 2.6 percent and IT revenues by 22.1 percent compared with 2017. In the fixed network, by contrast, a decline was recorded in traditional voice telephony, due largely to the increasing number of customers moving to flat-rate plans.

Wholesale revenue was down slightly year-on-year. Adjusted for the effects of IFRS 15, revenue would have grown.

2017 Financial Year

Total revenue increased by 0.7 percent year-on-year in 2017, due mainly to a 2.5 percent rise in mobile revenues and a 10.8 percent growth in non-contract handset revenues. Higher IT and broadband revenues also had a positive impact on fixed-network revenue. This was not quite sufficient to completely offset the decrease of 0.9 percent in fixed- network revenue compared with 2016.

Revenue from Consumers grew by 0.5 percent year-on-year. Volume-related revenue decreases continued to drive the traditional fixed-network business. By contrast, revenue from broadband business increased by 1.1 percent, while revenue from mobile business increased by 2.3 percent, primarily due to successful terminal equipment sales.

Revenue from Business Customers increased by 1.6 percent, with mobile revenues increasing by 2.7 percent and IT revenues by 19.5 percent compared with 2016. In the fixed network, by contrast, a decline was recorded in traditional voice telephony, due largely to the increasing number of customers moving to flat-rate plans.

Wholesale revenue remained at the prior-year level in 2017. Adjusted for regulatory price effects (from December 1, 2016), there was a positive trend, thanks primarily to higher revenues with unbundled lines, in particular as part of our contingent model.

Adjusted EBITDA AL/Adjusted EBITDA, EBITDA AL/EBITDA

2019 First Three Quarters

In the first three quarters of 2019, adjusted EBITDA AL increased by 2.4 percent to EUR 6.5 billion year-on-year due to the reasons mentioned below in relation to the increase in EBITDA AL in the first three quarters of 2019.

EBITDA AL amounted to EUR 6.2 billion, an increase of 4.8 percent compared with the first three quarters of 2018. This was attributable largely to reduced personnel costs, mainly as a result of the lower headcount, a decline in expenses for socially responsible instruments in connection with the staff restructuring as well as the positive contributions from the development of revenue. The successful implementation of further efficiency and digitalization measures also had a positive effect.

2018 Financial Year

In 2018, adjusted EBITDA totaled EUR 8.6 billion in the 2018 financial year, an increase of 2.4 percent compared with the 2017 financial year. This year-on-year increase was attributable largely to the lower headcount and the successful implementation of our efficiency and digitalization initiatives. EBITDA amounted to EUR 8.0 billion, a decline

of 1.1 percent compared with 2017, due mainly to higher special factors for expenses in connection with our staff restructuring.

<u>2017 Financial Year</u>

In 2017, adjusted EBITDA increased by 3.1 percent, compared with 2016 to EUR 8.4 billion in 2017, driven mainly by efficiency enhancement measures in all functions while revenue increased slightly. EBITDA amounted to EUR 8.1 billion, an increase of 11.7 percent against the prior year, due mainly to lower special factors for expenses in connection with our staff restructuring.

Profit from Operations

<u>2019 First Three Quarters</u>

In the first three quarters of 2019, profit from operations increased by 0.2 percent year-on-year to EUR 3.0 billion due to higher depreciation, amortization and impairment losses on account of sustained high investments in our network infrastructure.

<u>2018 Financial Year</u>

In 2018, profit from operations decreased by 7.2 percent to EUR 4.0 billion. In addition to the effects described above in relation to the increase of adjusted EBITDA in 2018, depreciation, amortization and impairment losses increased on account of sustained high investments in our network infrastructure.

<u>2017 Financial Year</u>

In 2017, profit from operations increased by 20.4 percent year-on-year to EUR 4.3 billion. The increase in the level of EBITDA more than offset the slight increase in depreciation, amortization and impairment losses.

Cash capex

<u>2019 First Three Quarters</u>

In the first three quarters of 2019, cash capex increased by 3.4 percent compared with the first three quarters of 2018. As part of our integrated network strategy, we again made significant investments in the broadband and fiber-optic rollout, our IP transformation, and our mobile infrastructure.

<u>2018 Financial Year</u>

In 2018, cash capex increased by 0.6 percent year-on-year. As part of our integrated network strategy, we again made significant investments in the broadband and fiber-optic roll-out, our IP transformation, and our mobile infrastructure.

<u>2017 Financial Year</u>

In 2017, cash capex increased year-on-year by 4.5 percent. As part of our integrated network strategy, we made significant investments in the broadband and fiber-optic roll-out, our IP transformation, and our mobile infrastructure.

United States

Our United States operating segment combines all mobile activities in the U. S. market. For more information on our segments, see "*Description of our Business and Operations—Group Organization—Organization*".

Customer Development

The following tables provide information on our mobile operations in the United States.

	Sept. 30, 2019	Dec. 31, 2018	Change Sept. 30, 2019/ Dec. 31, 2018	Sept. 30, 2018	Change Sept. 30, 2019/ Sept 30, 2018
	(in thousands)		(%)	(in thousands)	(%)
			(unaudited)		
United States					
Mobile customers[1]	84,183	79,651	5.7	77,249	9.0
Branded customers[1]	66,503	63,656	4.5	62,163	7.0
Branded postpaid	45,720	42,519	7.5	41,161	11.1
Branded prepay[1]	20,783	21,137	(1.7)	21,002	(1.0)
Wholesale customers	17,680	15,995	10.5	15,086	17.2

1 On July 18, 2019, we entered into an agreement whereby certain T-Mobile US branded prepaid products will now be offered and distributed by a current MVNO partner. As a result, we included a base adjustment to reduce branded prepaid customers by 616,000 in the first three quarters of 2019. Prospectively, new customer activity associated with these products is recorded within wholesale customers.

	Dec. 31, 2018	Dec. 31, 2017[1]	Change	
	(in thousands)		(in thousands)	(%)
	(unaudited)			
United States				
Mobile customers	79,651	72,585	7,066	9.7
Branded customers[1]	63,656	58,715	4,941	8.4
Branded postpaid[1]	42,519	38,047	4,472	11.8
Branded prepay[1]	21,137	20,668	469	2.3
Wholesale customers[2]	15,995	13,870	2,125	15.3

1 Due to certain acquisitions by T-Mobile US at the beginning of 2018, the number of branded postpaid customers as of the first quarter of 2018 included an adjustment of 13,000 and the number of branded prepay customers as of the first quarter of 2018 included an adjustment of 9,000.

2 T-Mobile US believes current and future regulatory changes have made the Lifeline program offered by T-Mobile US' wholesale partners uneconomical. T-Mobile US will continue to support its wholesale partners offering the Lifeline program, but has excluded the Lifeline customers from the reported wholesale subscriber base resulting in the removal of 4,528,000 reported wholesale customers in 2017.

	Dec. 31, 2017	Dec. 31, 2016[1]	Change	
	(in thousands)		(in thousands)	(%)
	(unaudited)			
United States				
Mobile customers	72,585	71,455	1,130	1.6
Branded customers[2]	58,715	54,240	4,475	8.3
Branded postpaid[2]	38,047	34,427	3,620	10.5
Branded prepay[2]	20,668	19,813	855	4.3
Wholesale customers[2,3]	13,870	17,215	(3,345)	(19.4)

1 Adjusted to reflect changes in our reportable segments as of January 1, 2017. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".

2 On September 1, 2016 T-Mobile US sold its marketing and distribution rights to certain of T-Mobile US' existing co-branded customers to a current wholesale partner for nominal consideration (the "MVNO Transaction"). Upon the sale, the transaction resulted in the transfer of 1,365,000 branded postpaid customers and 326,000 branded prepay customers to wholesale customers. Prospectively from September 1, 2016, net customer additions for these customers are included within wholesale customers.

3 T-Mobile US believes current and future regulatory changes have made the Lifeline program offered by T-Mobile US' wholesale partners uneconomical. T-Mobile US will continue to support its wholesale partners offering the Lifeline program, but has excluded the Lifeline customers from the reported wholesale subscriber base resulting in the removal of 4,528,000 reported wholesale customers as of the beginning of the second quarter of 2017.

At September 30, 2019, the United States operating segment (T-Mobile US) had 84.2 million customers, compared to 79.7 million customers at December 31, 2018. Net customer additions were 5.1 million in the first three quarters of 2019, compared to 4.6 million net customer additions in the first three quarters of 2018. At December 31, 2018, T-Mobile US had 79.7 million customers, compared to 72.6 million customers at December 31, 2017. Net customer additions were 7.0 million for the year ended December 31, 2018, compared to 5.7 million net customer additions for the year ended December 31, 2017. At December 31, 2017, T-Mobile US had 72.6 million customers compared to 71.5 million customers at December 31, 2016. Net customer additions were 5.7 million for the year ended December 31, 2017 – excluding Lifeline customer activity beginning in the second quarter of 2017 – compared to 8.2 million net customer additions for the year ended December 31, 2016.

Branded Customers

For the first three quarters of 2019, branded postpaid net customer additions were 3.2 million compared to 3.1 million branded postpaid net customer additions for the first three quarters of 2018. The increase in branded postpaid net customer additions was primarily due to higher branded postpaid phone net customer additions primarily due to lower churn and higher branded postpaid other net customer additions primarily due to higher gross customer additions from connected devices and wearables, specifically the Apple watch, partially offset by higher deactivations from a growing customer base.

In the first three quarters of 2019, branded prepay net customer additions were 262,000 compared to 325,000 branded prepay net customer additions in the first three quarters of 2018. The decrease in net customer additions was due primarily to continued promotional activity in the marketplace, partially offset by lower churn.

For the year ended December 31, 2018, branded postpaid net customer additions were 4,459,000 compared to 3,620,000 branded postpaid net customer additions for the year ended December 31, 2017. The increase in branded postpaid net customer additions was due primarily to higher gross customer additions from wearables, specifically the Apple watch, lower churn, continued growth in existing and greenfield markets, and the growing success of new customer segments such as T-Mobile ONE Unlimited 55+, T-Mobile ONE Military and T-Mobile for Business. These increases were partially offset by the impact from more aggressive service promotions and the launch of "Un-carrier Next – All Unlimited" (with taxes and fees) in the first quarter of 2017.

Branded prepay net customer additions were 460,000 for the year ended December 31, 2018, compared to 855,000 branded prepay net customer additions for the year ended December 31, 2017. The decrease was due primarily to increased competitive activity in the marketplace, partially offset by lower migrations to branded postpaid plans.

For the year ended December 31, 2017, branded postpaid net customer additions were 3,620,000 compared to 4,097,000 branded postpaid net customer additions for the year ended December 31, 2016. The decrease was primarily due to higher deactivations from a growing customer base, a decrease in the number of qualified branded prepay customers migrating to branded postpaid plans, and lower gross customer additions from increased competitive activity in the marketplace.

For the year ended December 31, 2017, branded prepay net customer additions were 855,000 compared to 2,508,000 branded prepay net customer additions for the year ended December 31, 2016. The decrease was due primarily to higher MetroPCS brand deactivations from a growing customer base and increased competitive activity in the marketplace. Additional decreases resulted from the optimization of T-Mobile US' third-party distribution channels.

Wholesale Customers

In the first three quarters of 2019, wholesale net customer additions were 1,700,000 compared to 1.2 million for the first three quarters of 2018. The increase was due primarily to higher gross additions from the continued success of our M2M partnerships.

For the year ended December 31, 2018, wholesale net customer additions were 2,125,000 compared to 1,183,000 for the year ended December 31, 2017. The increase was due primarily to lower deactivations driven by the removal of Lifeline program customers during 2017.

Following the 2017 financial year, T-Mobile US announced that it believes current and future regulatory changes have made the Lifeline program offered by T-Mobile US' wholesale partners uneconomical. T-Mobile US will continue to support its wholesale partners offering the Lifeline program, but has excluded the Lifeline customers from the reported wholesale subscriber base resulting in a removal of 4,528,000 reported wholesale customers beginning in the second quarter of 2017. No further Lifeline adjustments are expected in future periods. Taking the aforementioned approach into consideration wholesale net customer additions were 1,183,000 for the year ended December 31, 2017, compared to wholesale net customer additions of 1,568,000 for the year ended December 31, 2016. The decrease was due primarily to lower gross customer additions, partially offset by lower customer deactivations. Net customer activity for Lifeline was also excluded beginning in the second quarter of 2017.

Development of Operations

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
		(unaudited)		
Total revenue	**29,629**	**26,504**	**3,125**	**11.8**
Profit from operations (EBIT)	4,285	3,591	694	19.3
Depreciation, amortization and impairment losses	(5,681)	(3,901)	(1,780)	(45.6)
EBITDA	9,965	7,492	2,473	33.0
Depreciation of right-of-use assets[1, 2]	(1,520)	u.a.	u.a.	u.a.
Interest expenses on recognized lease liabilities[1, 2]	(462)	u.a.	u.a.	u.a.
EBITDA AL[1]	7,983	7,488	495	6.6
Special factors affecting EBITDA AL[1, 3]	(441)	(59)	(382)	n.a.
Adjusted EBITDA AL[1]	**8,424**	**7,547**	**877**	**11.6**
Cash capex	**(5,314)**	**(3,653)**	**(1,661)**	**(45.5)**

u.a. - unavailable

1 Prior-year comparatives were calculated on a pro-forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.

2 Excluding finance leases at T-Mobile US.

3 For more information on special factors affecting EBITDA AL, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2018	2017	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[1]	**36,522**	**35,736**	**786**	**2.2**
Profit from operations (EBIT)[1]	4,634	5,930	(1,296)	(21.9)
Depreciation, amortization and impairment losses	(5,294)	(5,019)	(275)	(5.5)
EBITDA	9,928	10,949	(1,021)	(9.3)
Special factors affecting EBITDA[2]	(160)	1,633	(1,793)	n.a.
Adjusted EBITDA	**10,088**	**9,316**	**772**	**8.3**
Cash capex	**(4,661)**	**(11,932)**	**7,271**	**60.9**

n.a. – not applicable

1 Audited.

2 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2017	2016[1]	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[2]	**35,736**	**33,738**	**1,998**	**5.9**
Profit from operations (EBIT)[2]	5,930	3,685	2,245	60.9
Depreciation, amortization and impairment losses	(5,019)	(5,282)	263	5.0
EBITDA	10,949	8,967	1,982	22.1
Special factors affecting EBITDA[3]	1,633	406	1,227	n.a.
Adjusted EBITDA	**9,316**	**8,561**	**755**	**8.8**
Cash capex	**(11,932)**	**(5,855)**	**(6,077)**	**n.a.**

n.a. – not applicable

1 Adjusted to reflect changes in our reportable segments as of January 1, 2017. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".

2 Audited.

3 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

Total Revenue

2019 First Three Quarters

Total revenue for the United States operating segment of EUR 29.6 billion in the first three quarters of 2019 increased by 11.8 percent, compared to EUR 26.5 billion in the first three quarters of 2018. In U.S. dollars, T-Mobile US' total revenues increased by 5.2 percent year-on-year due primarily to an increase in service revenue driven by growth in the average branded customer base from the continued growth in existing and greenfield markets including the growing success of new customer segments and rate plans such as T-Mobile ONE Unlimited 55+, T-Mobile ONE Military, T-Mobile for Business, and T-Mobile Essentials, along growth in wearables and other connected devices, specifically the Apple watch, partially offset by lower branded postpaid phone Average Revenue per User (ARPU).

2018 Financial Year

Total revenue for the United States operating segment of EUR 36.5 billion in 2018 increased by 2.2 percent, compared to EUR 35.7 billion in 2017. In U.S. dollars, T-Mobile US' total revenues increased by 6.8 percent year-on-year due primarily to growth in service revenue from increases in T-Mobile US' average branded customer base primarily from the continued growth in existing and greenfield markets, the growing success of new customer segments such as T-Mobile ONE Unlimited 55+, T-Mobile ONE Military, and T-Mobile for Business, along with lower postpaid churn in 2018, and higher connected devices, partially offset by lower branded postpaid Average Revenue per User (ARPU). Additionally, the increase in equipment revenues from a higher average revenue per device sold due to an increase in the high-end device mix and a positive impact from IFRS 15 since January 1, 2018, partially offset by a decrease in the number of devices sold and lower volumes of purchased leased devices at the end of the lease term, also contributed to the increase in total revenues.

2017 Financial Year

Total revenue for the United States operating segment of EUR 35.7 billion in 2017 increased by 5.9 percent compared to EUR 33.7 billion in 2016. In U.S. dollars, T-Mobile US' total revenues increased by 8.1 percent year-on- year due primarily to service revenue growth resulting from increases in T-Mobile US' average branded customer base from strong customer response to T-Mobile US' "Un-carrier" initiatives and success of the MetroPCS brand.

Additionally, equipment revenues increased due primarily to a higher average revenue per device sold, an increase from the purchase of leased devices at the end of the lease term, and increased proceeds from liquidation of returned customer handsets, partially offset by a decrease in lease revenues due to T-Mobile US' continued focus on equipment installment plan sales.

Adjusted EBITDA AL/Adjusted EBITDA, EBITDA AL/EBITDA

2019 First Three Quarters

In euros, adjusted EBITDA AL increased by 11.6 percent to EUR 8.4 billion in the first three quarters of 2019, compared to EUR 7.5 billion in the first three quarters of 2018. In U.S. dollars, adjusted EBITDA AL increased by 5.0 percent during the same period. The adjusted EBITDA AL increase was primarily due to higher service revenues, as mentioned above. These increases were partially offset by higher employee-related costs, costs related to managed services, commissions and costs primarily related to an increase in amortization expense related to costs that were capitalized upon the adoption of IFRS 15 on January 1, 2018.

EBITDA AL included special factors of negative EUR 441 million for the first three quarters of 2019 compared to special factors of negative EUR 59 million for the first three quarters of 2018. The change in special factors was primarily due to expenses associated with the proposed Sprint transaction in the first three quarters of 2019, and a purchase and investment gain in the first quarter of 2018. Overall, EBITDA AL increased by 6.6 percent to EUR 8.0 billion in the first three quarters of 2019, compared to EUR 7.5 billion in the first three quarters of 2018, due to the factors described above, including special factors.

2018 Financial Year

In euros, adjusted EBITDA increased by 8.3 percent to EUR 10.1 billion in 2018, compared to EUR 9.3 billion in 2017. In U.S. dollars, adjusted EBITDA increased by 13.6 percent during the same period. The adjusted

EBITDA increase was primarily due to higher total revenues as mentioned above, the positive impact of the reimbursements from our insurance carriers, net of costs of USD 247 million incurred related to hurricanes in 2018, compared to costs of USD 294 million incurred related to hurricanes in 2017, as well as from the positive impact from IFRS 15 and lower losses on equipment sales. These increases were partially offset by higher employee-related costs, costs related to managed services, higher lease, employee-related and repair and maintenance costs associated with network expansion, higher commissions, and lower gains on the disposal of spectrum.

EBITDA for 2018 included special factors of negative EUR 0.2 billion compared to special factors of EUR 1.6 billion for 2017. Special factors in 2018 mainly included costs related to the proposed Sprint transaction. The decrease in special factors was primarily due to a spectrum impairment reversal in 2017. Overall, EBITDA decreased by 9.3 percent to EUR 9.9 billion in 2018, compared to EUR 10.9 billion in 2017, due to the factors described above, including special factors.

2017 Financial Year

Adjusted EBITDA increased by 8.8 percent to EUR 9.3 billion in 2017, compared to EUR 8.6 billion in 2016. In U.S. dollars, adjusted EBITDA increased by 10.7 percent in 2017, compared to 2016. Adjusted EBITDA increased due primarily to an increase in branded postpaid and prepay service revenues resulting from strong customer response to T- Mobile US' "Un-carrier" initiatives, the ongoing success of promotional activities, and the continued strength of the MetroPCS brand, partially offset by higher commissions, employee-related costs, promotional costs, higher costs associated with network expansion, and the negative impact from hurricanes in Texas, Florida and Puerto Rico. The negative impact in 2017 from lost revenue, assets damaged or destroyed and other hurricane-related costs incurred was approximately EUR 250 million. As of December 31, 2017, T-Mobile US had not recognized any potential insurance recoveries related to those hurricane losses as it continued to assess the damage and hold discussions with its insurance carriers.

EBITDA in 2017 included special factors of EUR 1.6 billion compared to special factors of EUR 0.4 billion in 2016. The increase in special factors related primarily to a spectrum impairment reversal (reversal of impairment losses on non-current assets) in 2017. Overall, EBITDA increased to EUR 10.9 billion in 2017, compared to EUR 9.0 billion in 2016 due to the factors described above, including the impact of special factors.

Profit from Operations

2019 First Three Quarters

Profit from operations increased to EUR 4.3 billion in the first three quarters of 2019, compared to EUR 3.6 billion in the first three quarters of 2018 driven by higher EBITDA AL. Depreciation and amortization expense increased due to the application of the IFRS 16 accounting standard as of January 1, 2019, which resulted in higher depreciation charges for capitalized right-of-use assets previously recognized as operating expenses for operating leases. Excluding the impact of IFRS 16, depreciation remained relatively unchanged due to a lower number of devices under lease, partially offset by higher depreciation charges related to, and laying the groundwork for, 5G.

2018 Financial Year

In 2018, profit from operations decreased to EUR 4.6 billion compared to EUR 5.9 billion in 2017, driven by lower EBITDA and higher depreciation related to the continued build-out of our 4G LTE network, and the implementation of the first component of our new billing system.

2017 Financial Year

In 2017, profit from operations increased to EUR 5.9 billion compared to EUR 3.7 billion in 2016 driven by higher EBITDA and lower depreciation expense related to devices leased under T-Mobile US' "JUMP! On Demand" program, partially offset by an increase from the continued build-out of T-Mobile US' 4G/LTE network.

Cash Capex

2019 First Three Quarters

Cash capex increased to EUR 5.3 billion the first three quarters of 2019, compared to EUR 3.7 billion in the first three quarters of 2019. This change was primarily due to the accelerated rollout of our 600 MHz low-band spectrum including laying the groundwork for 5G and an increase in spectrum licenses acquired.

2018 Financial Year

Cash capex decreased to EUR 4.7 billion in 2018, compared to EUR 11.9 billion in 2017. In U.S. dollars, cash capex decreased to USD 5.5 billion compared to USD 13.2 billion in 2017, due primarily to spectrum licenses acquired in 2017. Excluding the effects of spectrum acquisitions, there was a marginal increase in cash capex from 2017 to 2018. Cash capex in 2018 was related to network build and the continued deployment of 600 MHz.

2017 Financial Year

Cash capex increased to EUR 11.9 billion in 2017, compared to EUR 5.9 billion in 2016, due primarily to EUR 7.3 billion of spectrum licenses acquired in 2017, compared with EUR 1.7 billion of spectrum licenses acquired in 2016. Excluding the effects of spectrum acquisitions, cash capex increased by EUR 0.4 billion in 2017, compared to 2016, due primarily to growth in network build as T-Mobile US continued deployment of low band spectrum and begins deployment of 600 MHz spectrum.

Europe

Our 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, Albania, North Macedonia, and Montenegro. For more information on our Europe segment, see "*Description of our Business and Operations—Group Organization—Organization*".

Customer Development

The following table provides information on our fixed-line and mobile operations in our Europe operating segment.

	Sept. 30, 2019	Dec. 31, 2018	Change Sept. 30, 2019/ Dec. 31, 2018	Sept. 30, 2018	Change Sept. 30, 2019/ Sept. 30, 2018
	(in thousands)	(in thousands)	(%)	(in thousands)	(%)
Europe, total					
Mobile customers[1]	46,501	50,542	(8.0)	50,429	(7.8)
Contract customers	27,310	26,665	2.4	26,402	3.4
Prepay customers[1]	19,192	23,877	(19.6)	24,027	(20.1)
Fixed-network lines[2]	9,001	8,963	0.4	8,926	0.8
Of which: IP-based	8,140	7,314	11.3	7,005	16.2
Retail broadband lines	6,587	6,405	2.8	6,293	4.7
Television (IPTV, satellite, cable)	4,919	4,835	1.7	4,782	2.9
Unbundled local loop lines (ULLs)/wholesale PSTN	2,291	2,275	0.7	2,267	1.1
Wholesale broadband lines	435	411	5.8	401	8.5
Greece					
Mobile customers	7,505	7,893	(4.9)	8,123	(7.6)
Fixed-network lines	2,625	2,566	2.3	2,547	3.1
Broadband lines	1,993	1,893	5.3	1,855	7.4
Romania					
Mobile customers	5,051	5,360	(5.8)	5,302	(4.7)
Fixed-network lines	1,608	1,741	(7.6)	1,772	(9.3)
Broadband lines	1,040	1,101	(5.5)	1,108	(6.1)
Hungary					
Mobile customers	5,323	5,330	(0.1)	5,302	0.4
Fixed-network lines	1,690	1,663	1.6	1,651	2.4
Broadband lines	1,209	1,148	5.3	1,126	7.4
Poland					
Mobile customers	10,908	10,787	1.1	10,693	2.0
Fixed-network lines	19	18	5.6	19	0.0
Broadband lines	11	18	(38.9)	20	(45.0)
Czech Republic					
Mobile customers	6,282	6,188	1.5	6,177	1.7
Fixed-network lines	409	318	28.6	276	48.2
Broadband lines	305	251	21.5	227	34.4
Croatia					
Mobile customers	2,359	2,273	3.8	2,331	1.2
Fixed-network lines	914	931	(1.8)	942	(3.0)
Broadband lines	622	618	0.6	620	0.3
Slovakia					
Mobile customers	2,432	2,369	2.7	2,339	4.0
Fixed-network lines	855	853	0.2	851	0.5
Broadband lines	565	543	4.1	533	6.0
Austria					
Mobile customers[1]	5,024	7,194	(30.2)	6,870	(26.9)
Fixed-network lines[2]	548	538	1.9	535	2.4
Broadband lines	597	594	0.5	569	4.9
Other[3]					
Mobile customers	1,617	3,149	(48.7)	3,291	(50.9)
Fixed-network lines	334	333	0.3	333	0.3
Broadband lines	245	238	2.9	234	4.7

1 As of January 1, 2019, the portfolio of M2M SIM cards in Austria was streamlined. 2.4 million customers were deactivated. Prior-year comparatives were not adjusted.

2 Following the acquisition of UPC Austria, we have reported fixed-network lines and broadband customers since the third quarter of 2018. The comparatives for fixed-network lines were adjusted to exclude TV-only customers.

3 "Other": national companies of North Macedonia, Montenegro, and the national company of Albania (sold as of May 7, 2019), as well as the lines of the GTS Central Europe group in Romania.

	Dec. 31, 2018	Dec. 31, 2017[1]	Change	
	(in thousands)	(in thousands)	(in thousands)	(%)
Europe, total				
Mobile customers[2]	50,542	48,842	1,700	3.5
Contract customers	26,665	25,483	1,182	4.6
Prepay customers	23,877	23,359	518	2.2
Fixed-network lines[2]	8,963	8,439	524	7.5
Of which: IP-based	7,314	5,734	1,580	29.4
Retail broadband lines	6,405	5,647	758	15.8
Television (IPTV, satellite, cable)	4,835	4,244	591	13.9
Unbundled local loop lines (ULLs)/wholesale PSTN	2,275	2,265	10	0.4
Wholesale bundled lines	411	389	22	5.7
Greece				
Mobile customers	7,893	7,981	(88)	(1.1)
Fixed-network lines	2,566	2,547	19	0.7
Broadband lines[1]	1,893	1,757	136	7.7
Romania				
Mobile customers	5,360	5,258	102	1.9
Fixed-network lines	1,741	1,865	(124)	(6.6)
Broadband lines[1]	1,101	1,134	(33)	(2.9)
Hungary				
Mobile customers	5,330	5,293	37	0.7
Fixed-network lines	1,663	1,632	31	1.9
Broadband lines[1]	1,148	1,073	75	7.0
Poland				
Mobile customers	10,787	10,454	333	3.2
Fixed-network lines	18	32	(14)	(43.8)
Broadband lines[1]	18	25	(7)	(28.0)
Czech Republic				
Mobile customers	6,188	6,176	12	0.2
Fixed-network lines	318	197	121	61.4
Broadband lines[1]	251	176	75	42.6
Croatia				
Mobile customers	2,273	2,244	29	1.3
Fixed-network lines	931	967	(36)	(3.7)
Broadband lines[1]	618	624	(6)	(1.0)
Slovakia				
Mobile customers	2,369	2,243	126	5.6
Fixed-network lines	853	858	(5)	(0.6)
Broadband lines[1]	543	516	27	5.2
Austria[2]				
Mobile customers	7,194	5,702	1,492	26.2
Fixed-network lines	538	0	538	n.a.
Broadband lines[1]	594	0	594	n.a.
Other[3]				
Mobile customers	3,149	3,490	(341)	(9.8)
Fixed-network lines	333	340	(7)	(2.1)
Broadband lines[1]	238	225	13	5.8

[1] Starting in the second quarter of 2018, we no longer report the number of retail broadband lines from a technical perspective. Instead we report the number of broadband customers. Prior-year comparatives have been adjusted.

[2] Following the acquisition of UPC Austria, we report fixed-network lines and broadband customers in Austria for the first time from the third quarter of 2018.

[3] Other: national companies of Albania, North Macedonia, and Montenegro, as well as the lines of the GTS Central Europe group in Romania.

	Dec. 31, 2017	Dec. 31, 2016[1]	Change	
	(in thousands)		(in thousands)	(%)
Europe Total				
Mobile customers[2]	48,842	47,952	890	1.9
Contract customers	25,483	24,315	1,168	4.8
Prepay customers	23,359	23,637	(278)	(1.2)
Fixed-network lines	8,439	8,531	(92)	(1.1)
Of which: IP-based	5,734	5,016	718	14.3
Retail broadband lines	5,647	5,393	254	4.7
Television (IPTV, satellite, cable)	4,244	4,049	195	4.8
Unbundled local loop lines (ULLs)/wholesale PSTN	2,265	2,259	6	0.3
Wholesale bundled lines	143	123	20	16.3
Wholesale unbundled lines	246	247	(1)	(0.4)
Greece				
Mobile customers	7,981	7,725	256	3.3
Fixed-network lines	2,547	2,564	(17)	(0.7)
Broadband lines	1,843	1,682	161	9.6
Romania				
Mobile customers	5,258	5,722	(464)	(8.1)
Fixed-network lines	1,865	1,969	(104)	(5.3)
Broadband lines	1,182	1,194	(12)	(1.0)
Hungary				
Mobile customers	5,293	5,332	(39)	(0.7)
Fixed-network lines	1,632	1,629	3	0.2
Broadband lines	1,105	1,040	65	6.3
Poland				
Mobile customers	10,454	10,634	(180)	(1.7)
Fixed-network lines	32	20	12	60.0
Broadband lines	15	16	(1)	(6.3)
Czech Republic				
Mobile customers	6,176	6,049	127	2.1
Fixed-network lines	197	140	57	40.7
Broadband lines	167	134	33	24.6
Croatia				
Mobile customers	2,244	2,234	10	0.4
Fixed-network lines	967	1,001	(34)	(3.4)
Broadband lines	783	783	0	0.0
Slovakia				
Mobile customers	2,243	2,225	18	0.8
Fixed-network lines	858	850	8	0.9
Broadband lines	669	638	31	4.9
Austria				
Mobile customers	5,702	4,594	1,108	24.1
Other[3]				
Mobile customers	3,490	3,438	52	1.5
Fixed-network lines	340	358	(18)	(5.0)
Broadband lines	274	279	(5)	(1.8)

1 Adjusted to reflect changes in our reportable segments as of January 1, 2017. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".

2 We count our mobile communications customers by the number of SIM cards activated and not churned. Our customer figures include the SIM cards with which machines can communicate with one another ("M2M"). In general, one SIM card corresponds to one customer. Twin cards (more than one SIM card with the same number and without any additional charge) are also accounted for as one customer. We count contract customers as customers for the length of their contracts and count prepay customers as customers as long as they continue to use our services, and then for a prescribed period thereafter, which differs by country. Generally, in the case of payment default or voluntary disconnection, the customers are cancelled or "churned" or, in case of no action on the part of the customer at the end of the period, the contract is prolonged.

3 Other: national companies of Albania, North Macedonia, and Montenegro, as well as the lines of the GTS Central Europe group in Romania.

Total

2019 First Three Quarters

In the first three quarters of 2019, the markets in the Europe operating segment remained intensely competitive. Despite the market climate, we achieved an increase of 33.4 percent in the number of FMC customers in the first three quarters of 2019, primarily due to our convergent product portfolio, MagentaOne. Significant strides have also been made in the progression of our journey to become an integrated provider of mobile and fixed-network products across our entire segment. Following the successful integration of UPC Austria in May 2019, we added convergent products to our portfolio in Austria under the new Magenta brand. At the end of June 2019, we also began offering our customers in Poland the MagentaOne product bundle, which combines mobile

communications over the fiber-optic-based internet and an entertainment package. We parted ways with our last remaining mobile-only subsidiary, Telekom Albania, on May 7, 2019.

Progress of our broadband/TV operations remains stable primarily due to the large-scale build-out of the network with state-of-the-art fiber-optic-based lines (FTTH, FTTB, and FTTC), in particular in the national companies of Greece and Hungary. As a result, the number of IP lines increased by 11.3 percent to 8.1 million in the first quarter of 2019, primarily due to the migration from traditional PSTN lines to IP technology.

In our mobile business, we recorded growth in the number of high-value contract customers in the first quarter of 2019. The number of prepay customers decreased sharply, mainly due to the streamlining of the portfolio in Austria and the sale of Telekom Albania. In addition, our national company in Greece recorded reductions in its prepay customer base, due in part to the deactivation of inactive prepaid SIM cards. The positive outcome of the 5G spectrum auction in Austria in the first quarter of 2019 marked the achievement of a first major milestone in the rollout of 5G in our Europe operating segment: Our national company in Austria has now put the first 5G cell sites into operation using the spectrum acquired. Successful testing is already underway in other countries. We intend to add more 5G networks following the anticipated spectrum auctions later in 2019 and 2020.

2018 Financial Year

The markets in our Europe operating segment remained intensely competitive throughout the 2018 financial year. Despite the market conditions, we reported substantial growth in 2018 of 49.9 percent in the number of FMC customers (fixed-mobile convergence), partly due to our convergent product portfolio, MagentaOne. The acquisition of UPC Austria as of July 31, 2018 in particular contributed to our aim of becoming an integrated provider of mobile and fixed-network products across our entire segment. We also concluded an agreement with Orange in July 2018 enabled us to offer comprehensive convergent services in Poland, owing to the shared use of Orange's fiber-optic network. In addition to the agreement with Orange, T-Mobile Polska signed another wholesale FTTH agreement with network operator Nexera, covering more than 450 thousand further households to be connected by the end of 2020.

Our broadband and TV operations were consistent revenue drivers, primarily due to the large-scale build-out of our network with state-of-the-art fiber-optic-based lines (FTTH, FTTB, and FTTC). As a result, the number of IP lines increased by 29.4 percent to 7.4 million as of December 31, 2018, primarily due to the migration from traditional PSTN lines to IP technology. Our mobile operations recorded growth overall, with increases in both the number of high-value contract customers and the number of prepay customers compared with the end of 2017 financial year.

2017 Financial Year

In 2017, the European market was dominated by intense competition, however, we were able to meet these challenges due to our convergent product portfolio MagentaOne, which recorded an increase in our FMC customer base of about 58.5 percent in the 2017 financial year. Our TV business also established itself as a consistent revenue driver.

In our mobile communication business we recorded a year-on-year increase in the number of high value contract customers of 4.8 percent or 25.5 million. In 2017, we systematically drove forward the roll out of fast, fiber-optic lines (FTTH, FTTB, and FTTC) in the fixed network, and, as part of our pan-European network strategy, we increased the number of IP lines in the 2017 financial year, primarily due to the migration from traditional PSTN lines to IP technology.

Mobile Communications

In the first three quarters of 2019, the number of mobile customers totaled 46.5 million, a decrease of about 8.0 percent or 4.0 million customers compared with the end of 2018. This decline was primarily attributable to two factors. First, the streamlining of the prepay portfolio at our Austrian subsidiary resulted in the removal of 2.4 million cross-border M2M SIM cards from our customer base. These cards had previously been provided internally to the Germany segment. The second factor contributing to the decline in mobile customers was the sale of our national company in Albania. Excluding these factors, the number of mobile customers would have remained stable compared with 2018. The number of high-value contract customers increased by 2.4 percent compared with December 31, 2018. Overall, our national companies reported positive trends in their contract customer base, with particularly high growth in Poland, Hungary, the Czech Republic, Austria, and Slovakia. Contract customers

accounted for 58.7 percent of the total customer base. Our customers benefited not only from our innovative services and rate plans, but also from extensive coverage with fast mobile broadband – a result of our integrated network strategy. As of September 30, 2019, we already covered 97 percent of the population in the countries of our operating segment with LTE, reaching around 107 million people in total. Customer demand for high data volumes has risen sharply due to the explosion in data traffic driven by video streaming services, for example.

As of the end of December 2018, the number of mobile customers totaled 50.5 million, an increase of 3.5 percent or 1.7 million customers compared with the end of 2017. The number of contract customers continued to grow throughout the fourth quarter of 2018, bringing the total number of customers won in the 2018 financial year to 1.2 million, an increase of 4.6 percent. These additions include the customer base of UPC Austria starting from the third quarter of 2018. Overall, our national companies reported positive trends in their customer base, especially in Poland, Romania, Hungary, Austria, and the Czech Republic. Contract customers accounted for 52.8 percent of the total customer base. Our customers benefited not only from our innovative services/rate plans, but also from greater coverage with fast mobile broadband – a result of our integrated network strategy. As of December 31, 2018, we already covered 97 percent of the population in the countries of our operating segment with LTE, reaching around 109 million people in total. Customer demand for high data volumes has risen sharply due to the explosion in data traffic driven by video streaming services, for example. The number of prepay customers grew by 2.2 percent or 518,000.

As of the end of December 2017, we had a total mobile customer base of 48.8 million – a 1.9 percent increase compared with 2016. The rise was attributable to the positive trend in the high-value contract customer business, especially at our national companies in Poland, Hungary, and the Czech Republic. Overall, we recorded growth in the number of contract customers of about 1.2 million net contract additions, or 4.8 percent, continuing the growth trend. At the end of the 2017 financial year, contract customers accounted for 52.2 percent of the total customer base. Thanks to our continued build-out of our mobile networks with 4G/LTE technology, our customers enjoy better network coverage with fast mobile broadband. As of December 31, 2017, we already covered 94 percent of the population in the countries of our operating segment with LTE, reaching around 106 million people in total. The high level of data volumes used as well as the sales figures for mobile devices provide evidence that our customers actually used these high bandwidths. At the end of December 2017, smartphones accounted for 81 percent of all mobile terminal equipment sales, a further increase against the prior year. This enabled us to entirely offset customer losses in the prepay business. The effects of regulatory prepay registration requirements in Poland had a negative effect on customer development. We recorded a return to slight growth in prepay customers from the third quarter of 2017 compared with the prior quarter.

Fixed Network

In the first three quarters of 2019, our TV and entertainment service grew moderately by 1.7 percent to a total of 4.9 million customers compared with the end of 2018. The growth recorded was partly due to new business in Croatia and partly from the stronger customer growth in Hungary and the Czech Republic. Declining customer numbers in Romania were offset by additions in most of our national companies. With both telecommunication providers and OTT players offering TV services, the TV market is already saturated in many countries of our segment.

The broadband business also recorded growth of 2.8 percent compared with the end of the prior year, to 6.6 million customers. In particular, the customer bases of our national companies in Greece, Hungary and the Czech Republic saw growth, partly resulting from increased investment in innovative fiber-optic-based technologies. For example, we increased household coverage with optical fiber at our four largest national companies to 3.0 million households in the first three quarters of 2019 (December 31, 2018: 2.6 million).

We saw consistent growth in IP-based lines as a percentage of all fixed-network lines in the first three quarters of 2019. As of September 30, 2019, this share amounted to 90.4 percent. At 9.0 million, the number of fixed-network lines in our Europe operating segment remained on the same level with the high level at the end of 2018, also due to the acquisition of UPC Austria.

As of December 31, 2018, our TV and entertainment services saw substantial growth of 13.9 percent, driven primarily by the acquisition of UPC Austria. Without taking into account the effect of the UPC acquisition, customer growth would have been 3.2 percent, with our national companies in Hungary, the Czech Republic, and Slovakia accounting for the majority of these net customer additions. With both telecommunication providers and OTT players offering TV services in the countries of our segment, the TV market there is highly contested. As of the end of the 2018 financial year, the number of broadband customers increased by 15.8 percent to 6.4 million, with the

acquisition of UPC Austria accounting for the majority of these net customer additions. Without taking the UPC acquisition into account, there would have been growth of 5.7 percent. In particular, the customer bases of our national companies in Greece, the Czech Republic, Hungary, and Slovakia saw growth, partly as a result of increased investment in innovative fiber-optic-based technologies. We continued to extend our fiber-optic coverage and, as of December 31, 2018, had reached 7.6 million households.

We saw consistent growth in IP-based lines as a percentage of all fixed-network lines in the 2018 financial year. As of December 31, 2018, this share amounted to 81.8 percent. The acquisition of UPC Austria increased the number of fixed-network lines in our Europe operating segment to 9.1 million overall, an increase of 7.5 percent. Without this effect, development would have remained stable.

As of December 31, 2017, the number of TV customers grew by 4.8 percent compared with the end of 2016 to 4.2 million, with the majority of the net customer additions – 195,000 – at our national companies in Hungary, Slovakia and Greece.

By December 31, 2017, we had already gained 2.2 million FMC customers in total, with demand rising substantially in Greece in particular. We were also successful marketing our MagentaOne Business product to business customers. Overall, we converted five of our national companies to IP technology in 2017.

As of December 31, 2017, we recorded 5.7 million IP-based lines – a 14.3 percent increase compared with the prior year. IP lines accounted for around 67.9 percent of all fixed-network lines at the end of 2017. The number of fixed-network lines in our Europe operating segment decreased slightly compared with 2016 to 8.4 million as of the end of 2017.

In 2017, the number of retail broadband lines increased by 4.7 percent to 5.6 million overall, with fiber-optic-based lines accounting for the majority of net customer additions, once again growing considerably faster than DSL business. Romania, Hungary, and Slovakia were the main contributors to this growth. We continued to increase our overall fiber-optic coverage, with our national companies reaching around 32 percent of households as of December 31, 2017. As a result, we continued our investment in forward-looking, fiber optic-based technologies.

Development of Operations

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited)			
Total Revenue	**8,943**	**8,752**	191	**2.2**
Greece	2,188	2,151	37	1.7
Romania	691	691	0	0.0
Hungary	1,370	1,391	(21)	(1.5)
Poland	1,087	1,135	(48)	(4.2)
Czech Republic	796	773	23	3.0
Croatia	711	717	(6)	(0.8)
Slovakia	574	555	19	3.4
Austria	939	721	218	30.2
Other [1]	732	777	(45)	(5.8)
Profit from operations (EBIT)	1,173	1,127	46	4.1
Depreciation, amortization and impairment losses	(2,072)	(1,726)	(346)	(20.0)
EBITDA	3,244	2,853	392	13.7
Depreciation of right-of-use assets[2]	(275)	u.a.	u.a.	u.a.
Interest expenses on recognized lease liabilities[2,]	(56)	u.a	u.a.	u.a.
EBITDA AL[2]	2,912	2,805	107	3.8
Special factors affecting EBITDA AL[2, 3]	(110)	(73)	(37)	(50.7)
Adjusted EBITDA AL[2]	3,022	2,878	144	5.0
Greece	910	874	36	4.1
Romania	90	111	(21)	(18.9)
Hungary	408	408	0	0.0
Poland	290	289	1	0.3
Czech Republic	328	323	5	1.5
Croatia	278	286	(8)	(2.8)
Slovakia	247	239	8	3.3
Austria	368	252	116	46.0
Other[1]	103	96	7	7.3
Cash Capex	**(1,301)**	**(1,253)**	(48)	**(3.8)**

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The contributions of the national companies correspond to their respective unconsolidated financial statements and do not take consolidation effects at the operating segment level into account.

[1] Other: national companies of North Macedonia, Montenegro, and the national company of Albania (sold as of May 7, 2019), as well as IWS (International Wholesale), consisting of Deutsche Telekom Global Carrier (formerly International Carrier Sales & Solutions (ICSS)) and its national companies, the GTS Central Europe group in Romania, and the Europe Headquarters.

[2] Prior-year comparatives were calculated on a pro forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.

[3] For more information on special factors affecting EBITDA AL, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2018	2017	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total Revenue[1, 2]	**11,885**	**11,589**	**296**	**2.6**
Greece	2,888	2,846	42	1.5
Romania	933	972	(39)	(4.0)
Hungary	1,889	1,808	81	4.5
Poland [1]	1,526	1,509	17	1.1
Czech Republic	1,047	1,011	36	3.6
Croatia	966	955	11	1.2
Slovakia	761	748	13	1.7
Austria	1,055	900	155	17.2
Other [3]	1,031	1,069	(38)	(3.6)
Profit from operations **(**EBIT)[2]	744	462	282	61.0
Depreciation, amortization and impairment losses	(3,013)	(3,157)	144	4.6
EBITDA	3,757	3,619	138	3.8
Special factors affecting EBITDA[4]	(122)	(130)	8	6.2
Adjusted EBITDA	3,880	3,749	131	3.5
Greece	1,180	1,135	45	4.0
Romania	138	166	(28)	(16.9)
Hungary	547	545	2	0.4
Poland	390	419	(29)	(6.9)
Czech Republic	444	406	38	9.4
Croatia	398	386	12	3.1
Slovakia	322	315	7	2.2
Austria	345	266	79	29.7
Other[3]	116	110	6	5.5
Cash Capex	(1,887)	(1,874)	(13)	(0.7)

The contributions of the national companies correspond to their respective unconsolidated financial statements and do not take consolidation effects at the operating segment level into account.

1 The business of T-Systems Polska Sp. z o.o., which, in organizational terms, was previously assigned to the Systems Solutions operating segment, is now disclosed under the Europe operating segment as of September 1, 2017. Figures for prior periods were not adjusted.

2 Audited.

3 Other: national companies of Albania, North Macedonia, and Montenegro, as well as ICSS (International Carrier Sales & Solutions), the ICSS business of the local business units, GTS Central Europe group in Romania, and Europe Headquarters.

4 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2017	2016[1]	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[2]	**11,589**	**11,454**	**135**	**1.2**
Greece	2,846	2,883	(37)	(1.3)
Romania	972	985	(13)	(1.3)
Hungary	1,808	1,673	135	8.1
Poland[3]	1,509	1,488	21	1.4
Czech Republic	1,011	959	52	5.4
Croatia	955	925	30	3.2
Slovakia	748	766	(18)	(2.3)
Austria	900	855	45	5.3
Other[4]	1,069	1,132	(63)	(5.6)
Profit from operations (EBIT)[2]	462	1,184	(722)	(61.0)
Depreciation, amortization and impairment losses	(3,157)	(2,589)	(568)	(21.9)
EBITDA	3,619	3,773	(154)	(4.1)
Special factors affecting EBITDA[5]	(130)	(93)	(37)	(39.8)
Adjusted EBITDA	**3,749**	**3,866**	**(117)**	**(3.0)**
Greece	1,135	1,120	15	1.3
Romania	166	175	(9)	(5.1)
Hungary	545	539	6	1.1
Poland3	419	482	(63)	(13.1)
Czech Republic	406	400	6	1.5
Croatia	386	374	12	3.2
Slovakia	315	302	13	4.3
Austria	266	258	8	3.1
Other[4]	110	215	(105)	(48.8)
Cash capex	**(1,874)**	**(2,600)**	**726**	**27.9**

The contributions of the national companies correspond to their respective unconsolidated financial statements and do not take consolidation effects at the operating segment level into account.

1 Adjusted to reflect changes in our reportable segments as of January 1, 2017. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".

2 Audited.

3 The business of T-Systems Polska Sp. z o.o., which, in organizational terms, was previously assigned to the Systems Solutions operating segment, is now disclosed under the Europe operating segment as of September 1, 2017. Figures for prior periods were not adjusted.

4 Other: national companies of Albania, North Macedonia, and Montenegro, as well as ICSS (International Carrier Sales & Solutions), the ICSS business of the local business units, GTS Central Europe group in Romania, and Europe Headquarters.

5 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

Total Revenue

2019 First Three Quarters

Our Europe operating segment generated total revenue of EUR 8.9 billion in the first three quarters of 2019, a year-on-year increase of 2.2 percent. In organic terms, i.e., assuming constant exchange rates and without the inclusion of UPC Austria as of July 31, 2018 and the sale of Telekom Albania as of May 7, 2019, revenue increased slightly by 0.5 percent.

Fixed-network business was the biggest driver of organic growth in the first three quarters of 2019, with positive revenue effects reported in both our broadband and TV operations – partly as a result of larger customer bases and partly driven by prices. The wholesale business increased compared with the prior year period, driven in part by higher revenue in Romania, especially from the termination of international voice and data traffic. Systems Solutions also reported moderate growth again in the first three quarters of 2019. Despite a slight year-on-year decrease, mobile revenue remained at a consistently high level: rising higher-margin service revenues, especially in Poland, Hungary, Greece and the Czech Republic, were offset by a decrease in revenues from the lower-margin terminal equipment business. In addition, intense competition on the telecommunications markets in some countries of our operating segment had a negative impact on revenue.

In the first three quarters of 2019, revenue from consumers increased by 3.7 percent compared with the prior year period, driven mainly by fixed-network operations. This increase in revenue was as a result of the positive trend in TV and broadband business thanks to our innovative TV and program management activities as well as the continuous rollout of fiber-optic technology in most of our national companies. In addition, strong growth in the number of FMC customers had a positive impact on revenue. Mobile revenue declined slightly, with slightly higher service revenues only partially offsetting lower revenues from terminal equipment business.

Revenue from Business Customers, especially in ICT, remained stable in the first three quarters of 2019, as well as a positive trend in profit margins. In addition to strong core business with fixed-network and mobile communications, there was also above-average growth in ICT/cloud solutions in focus markets such as Poland and the Czech Republic. As a result of the business combination with UPC Austria to form the new Magenta brand, all ten of our European markets are currently one-stop shops for convergent solutions for SMEs (MagentaOne Business). Our expanded partnership with Microsoft in B2B operations is currently underway, providing ICT/cloud solutions for small and medium-sized enterprises (SMEs) as well as for our corporate customers, which we expect will contribute positively to our Business Customers business.

With respect to the developments by country, our national companies in Hungary, Greece, the Czech Republic, Slovakia and Austria made the largest contributions to the organic development of revenue in the first three quarters of 2019. This offset the decline in revenue in Poland in particular. In Romania, revenue decreased year-on-year by about 7.0 percent to EUR 243 million in the first three quarters of 2019. Declines in mobile revenues, for both service revenues and revenues from terminal equipment business were offset by the positive revenue trend in the fixed-network business, which benefited from higher wholesale revenues. The Systems Solutions business also recorded a rise in revenue. This offset the decline in revenue from voice telephony.

2018 Financial Year

Our Europe operating segment generated total revenue of EUR 11.9 billion in the 2018 financial year, a year-on-year increase of 2.6 percent. In organic terms, i.e., assuming constant exchange rates and adjusted for the inclusion of UPC Austria as of July 31, 2018, revenue increased slightly by 1.5 percent. The mandatory first-time application of the IFRS 15 accounting standard as of January 1, 2018 did not have a material effect on the development of revenues at the segmental level.

Our business customer operations made the biggest contribution to organic growth, driven mainly by the good development of ICT business in Hungary. Mobile revenue also increased year-on-year, with most of the countries in our operating segment contributing to this trend. Fixed-network revenue at the segmental level also increased slightly year-on-year in the core voice, broadband and TV businesses, mainly due to the positive revenue effect from broadband and TV business, especially in Greece, Hungary, and Slovakia. These increases were offset by a decline in wholesale business. Intense competition on the telecommunications markets had a negative impact on our revenue in some countries of our operating segment.

Revenue from Consumers increased by 3.4 percent compared with the prior year, driven mainly by mobile business. Revenue from fixed-network business rose, too owing to the trend in TV and broadband operations driven by our innovative TV and program management activities as well as the continuous rollout of fiber-optic technology in most of our national companies. In addition to higher terminal equipment revenues, strong growth in the number of FMC customers had a positive impact on revenue. This offset declining voice telephony revenues.

Revenue from Business Customers, especially in ICT, grew in 2018, increasing 3.7 percent year-on-year. Core business with fixed-network and mobile communications remained stable as a result of our convergent SME solutions (MagentaOne Business), which we sell on the markets. We generated double-digit percentage figures compared with the prior year with our corporate customers in key ICT/cloud computing business as well as in the innovative smart city/IoT fields. In terms of digitalization, in 2018 we showed our customers in countries including Hungary and Croatia new, simpler, and faster ways to manage their contracts with Deutsche Telekom, using self-service apps and portals.

Wholesale revenue declined year-on-year, driven largely by falling levels of minute volumes resulting from the substitution of voice telephony with messenger services as well as negative price effects.

Considered by country, our national companies in Hungary, Greece, Slovakia and Poland made the largest contributions to the organic development of revenue in the 2018 financial year. This more than offset the decline in revenue in Romania in particular, which was attributable to lower fixed-network revenue from voice telephony in particular. A smaller customer base combined with lower prices also had a negative impact on broadband and TV business. B2B/ICT business customer operations made a positive revenue contribution. Mobile business remained stable compared with the prior-year level – the positive effect of the increase in customer numbers was offset by lower prices.

2017 Financial Year

Our Europe operating segment generated total revenue of EUR 11.6 billion in 2017, a slight increase year-on- year of 1.2 percent. Revenue was 0.5 percent higher on the prior-year figure in organic terms, *i.e.*, assuming constant exchange rates and the same organizational structure in 2016 as in 2017, which excludes the Netherlands.

Our national companies increased their revenues from growth areas by a substantial 11.0 percent in 2017, with growth areas accounting for around 33 percent of total segment revenue. Mobile data business made a key contribution to this, growing by 17.2 percent to EUR 1.6 billion. All of the countries in our operating segment contributed to this success, in particular Poland, Hungary, Greece, and Austria. Thanks to our innovative TV and program management, the upward trend continued in TV and broadband business, with TV revenue rising by 6.9 percent to EUR 498 million and broadband revenue rising by 2.9 percent to EUR 711 million in 2017. Our B2B/ICT business customer operations also recorded a year-on-year increase in revenues in 2017, mainly thanks to the particularly strong results from ICT solutions in Europe, primarily in Hungary. Thanks to our innovative and future-oriented business solutions we also recorded double-digit growth rates in revenue from cloud business and from convergent solutions for the SMEs (MagentaOne Business). We laid important groundwork in 2017 to firmly establish ourselves as a preferred digitalization partner for customers.

In addition, we recorded higher revenue from terminal equipment sales and visitors (revenues with third parties from roaming in our home networks). This offset the overall revenue decline at the segment level, which was primarily attributable to voice telephony. From a country perspective, Hungary, Austria, the Czech Republic, and Croatia made the biggest contributions to the organic development of revenue in the 2017 financial year, offsetting declining revenue from Greece, Slovakia, Poland, and Romania in particular, as well as from international wholesale business. Intense competition on the telecommunications markets as well as lower roaming charges in many countries of our operating segment had a negative impact on our organic revenue.

Material Developments Relating to Total Revenue in Respect of Certain Countries in Our Europe Operating Segment

Greece

In the first three quarters of 2019, revenue in Greece grew to EUR 2.2 billion, 1.7 percent higher compared to the prior year period. This was driven primarily by higher mobile revenue and consistently high fixed-network revenue. Broadband business posted particularly strong growth as a result of the ongoing rollout of fiber-optic and vectored lines. TV revenue also increased compared with the prior-year period. In the wholesale business the growth trend continued, while Systems Solutions revenues were above the prior-year level after a decline in the first half of 2019. The FMC offering developed positively, with rising customer numbers and corresponding revenue.

In the 2018 financial year, the revenue in Greece stood at EUR 2.9 billion, a year-on-year increase of 1.5 percent. This was driven primarily by higher mobile revenue and consistently high fixed-network revenue. Broadband business posted particularly strong growth as a result of the marketing of fiber-optic and vectoring lines. The growth trend continued in our B2B/ICT business customer operations and wholesale business. Intense competitive pressure caused TV revenues to decline year-on-year. The FMC offering developed positively, with rising customer numbers and corresponding revenues.

In the 2017 financial year, the revenue in Greece, at EUR 2.8 billion, was only slightly lower than in 2016. We performed well in the fixed-network business, with increased revenues from broadband and TV business as well as with our exclusive TV content. Revenue in the B2B/ICT business also performed well. However, we were not able to entirely offset the negative effects from the wholesale business and voice telephony. Mobile revenues were slightly higher year- on-year, with rising revenues from mobile data services and visitors more than offsetting the primarily price-driven decline in revenue from voice telephony.

Hungary

In the first three quarters of 2019, revenue in Hungary stood at EUR 1.4 billion, a decrease of 1.5 percent year-on-year. In organic terms, revenue remained stable compared with the prior year. Mobile business posted strong year-on-year growth, driven by volume and price-driven increases in service and terminal equipment revenues. Fixed-network business was primarily impacted by a decline in Systems Solutions, in particular as a result of significantly higher revenue generated in the prior-year period, which in the first three quarters of 2019, had not been replicated to the same extent. Higher revenue in broadband and terminal equipment business only partially offset this decline. The success of our FMC offering, MagentaOne, was underscored by continued growth in the FMC customer base and a corresponding rise in revenue.

In 2018 revenue in Hungary grew substantially by 4.5 percent compared with the prior year to EUR 1.9 billion. In organic terms, it increased by 7.8 percent. This growth was driven by rising mobile service revenues and by fixed-network business with sustained clear revenue growth in B2B/ICT business customer operations. Broadband and TV business also made a positive contribution to revenue. Our MagentaOne portfolio of FMC products remained popular among consumers and business customers alike, a trend that is evidenced by growing customer numbers and a corresponding rise in revenue. Both service revenues and terminal equipment business performed well, which was attributable to our high-speed, high-reach mobile network.

In 2017, revenue in Hungary grew by 8.1 percent compared with the prior year to EUR 1.8 billion. In organic terms, it increased by 7.4 percent. This growth was driven by the fixed-network business with clear revenue growth in the B2B/ICT business customer operations. TV business also made a positive contribution to total revenues, as did our FMC offering MagentaOne for consumers and business customers. In mobile business, revenue from mobile data services increased by 23.5 percent compared with the prior year. Revenue from terminal equipment sales also increased significantly, more than offsetting the decline in voice revenue. Our high-speed, high-reach mobile network also contributed to the positive trend in mobile business.

Austria

In the first three quarters of 2019, revenue in Austria totaled EUR 939 million, an increase of 30.2 percent year-on-year. Adjusted for the inclusion of UPC Austria, revenue increased by 0.9 percent, largely a result of an increase in higher-margin service revenues. In addition to the popularity of the existing mobile-based broadband internet solutions among customers, the acquisition of UPC Austria has enabled us to add fixed-network technology to our portfolio and introduce convergent products under our new Magenta brand.

In 2018, we generated revenue of EUR 1,055 million in Austria, an increase of 17.2 percent compared with the prior year. This increase was attributable to the effects of the acquisition of UPC Austria, which now allows us to offer fixed-network technology in addition to the mobile broadband internet services already popular with our customers. In organic terms, adjusted for the inclusion of UPC Austria, revenue would remain on stable when compared with the prior-year level.

In 2017, we generated revenue of EUR 900 million in Austria, a 5.3 percent increase compared with the prior year. This was mainly attributable to the mobile data business which saw a further rise in volume and accounted for a share of total revenue of around 33 percent. Higher voice and visitor revenues and a one-time effect from the first quarter of 2017 also positively influenced the revenue trend. Overall, these positive effects more than offset the decrease in revenue from text messaging services and from sales of mobile terminal equipment.

Poland

In the first three quarters of 2019, revenue in Poland decreased by 4.2 percent compared with the prior-year period to EUR 1.1 billion. In organic terms, revenue declined by 3.1 percent. This decrease was mainly due to lower revenue from mobile terminal equipment business, which could not be offset by the increase in higher margin service revenues. Systems Solutions business generated higher revenues. In traditional fixed-network business, which we are growing, revenue declined compared with the prior year period. The downward trend in revenue was offset by an even larger reduction in direct costs; indirect costs also declined compared with the prior year.

In 2018, revenue increased by 1.1 percent year-on-year to EUR 1.5 billion; in organic terms, it increased by 1.2 percent. This was mainly a result of higher revenue in B2B/ICT business following the integration of our Systems Solutions operations in the prior year. Mobile business remained on a par with the prior-year level; the positive effect of the increase in customer numbers was offset by a negative price effect. Fixed-network business posted a decline in wholesale revenue.

Adjusted EBITDA AL/Adjusted EBITDA, EBITDA AL/EBITDA

2019 First Three Quarters

In the first three quarters of 2019, our Europe operating segment generated adjusted EBITDA AL of EUR 3.0 billion, an increase of 5.0 percent compared with the prior year period. In organic terms assuming constant exchange rates and adjusted for the inclusion of UPC Austria and the sale of Telekom Albania – adjusted EBITDA AL increased by 2.3 percent compared with the prior-year period, thus continuing the positive trend, mainly resulting from increased revenues, especially higher-margin service revenues, and savings in indirect costs. Considering the development by country, the increase in adjusted EBITDA AL in organic terms was largely attributable to the positive trends at our national companies in Greece, Austria, Slovakia, Hungary and the Czech Republic. Contrasting developments occurred in other countries of our Europe operating segment, primarily at the national companies in Romania and Croatia. In Romania, adjusted EBITDA AL decreased by 18.1 percent year-on-year in organic terms, mainly as a result of the lower mobile revenue contribution.

Our EBITDA AL increased by 3.8 percent year-on-year to EUR 2.9 billion, due largely to the effects described for adjusted EBITDA AL. At negative EUR 110 million, special factors were EUR 37 million higher than in the prior year. In organic terms, EBITDA AL grew by 1.0 percent.

2018 Financial Year

Our Europe operating segment generated adjusted EBITDA of EUR 3.9 billion in the 2018 financial year, a year-on-year increase of 3.5 percent. In organic terms – assuming constant exchange rates and adjusted for the inclusion of UPC Austria – adjusted EBITDA increased by 1.8 percent. We ended the 2018 financial year posting year-on-year growth for four quarters in succession. The positive trend in adjusted EBITDA in organic terms was driven both by the growth in revenue and by savings made in indirect costs, especially in Romania, Croatia, the Czech Republic and Greece – in Greece primarily as a result of lower personnel costs. By contrast, in terms of direct costs, market investments and costs relating to the B2B/ICT operations increased. In addition, regulatory effects, including the reduction in EU roaming charges, reduced adjusted EBITDA.

Considering the development by country, the increase in adjusted EBITDA in organic terms was largely attributable to the positive trends at our national companies in Greece, the Czech Republic, Hungary and Austria. Contrasting developments occurred in other countries in our Europe operating segment, primarily at the national

companies in Poland and Romania. In Romania, adjusted EBITDA decreased by 16.9 percent year-on-year, attributable on the one hand to the lower revenue contribution and on the other to higher direct costs resulting in part from higher market investments and regulation-induced higher roaming costs. The decline in adjusted EBITDA was partially offset by improved cost efficiency with regard to staff-related expenses.

EBITDA increased by 3.8 percent year-on-year to EUR 3.8 billion, due primarily to higher adjusted EBITDA. At negative EUR 122 million, special factors were EUR 8 million lower than in the prior year. In organic terms, EBITDA grew by 2.1 percent.

2017 Financial Year

In 2017, our Europe operating segment generated adjusted EBITDA of EUR 3.7 billion, a year-on-year decrease of 3.0 percent. In organic terms, *i.e.*, assuming constant exchange rates and adjusting the comparative period to also include the internal reallocation to the new Board of Management department Technology and Innovation, adjusted EBITDA declined only slightly by 1.0 percent.

The positive revenue effect was offset by higher market investments and revenue-related cost increases in B2B/ICT business customer operations, among other factors. By contrast, increased cost efficiency had a positive effect on adjusted EBITDA at the segment level. From a country perspective, the slight decline in organic adjusted EBITDA was primarily attributable to developments at our national companies in Poland, Romania, and Albania. In Poland in particular, the decrease in revenue from the smaller customer base resulting from the prepay SIM registration requirement and intense competition had a negative effect on adjusted EBITDA. Regulatory effects, such as the reduction in EU roaming surcharges and interconnection rates, as well as higher market investment costs also reduced adjusted EBITDA. These developments were contrasted by increases in adjusted EBITDA in Greece, Slovakia, Croatia, and Austria in particular. Adjusted EBITDA was also impacted by decisions by regulatory authorities and the introduction of special taxes.

EBITDA decreased by 4.1 percent year-on-year to EUR 3.6 billion, due in part to the decline in adjusted EBITDA, and in part to an increase in negative special factors. In organic terms, EBITDA decreased by 2.0 percent.

Material Developments Relating to EBITDA and Adjusted EBITDA in Respect of Certain Countries in Our Europe Operating Segment

Greece

In the first three quarters of 2019, adjusted EBITDA AL in Greece increased by 4.1 percent year-on-year to EUR 910 million. Higher revenue along with savings in indirect costs were partially offset by higher direct costs.

In the 2018 financial year, adjusted EBITDA in Greece increased substantially year-on-year by 4.0 percent to EUR 1.2 billion, driven largely by improved cost efficiency, especially with regard to personnel costs.

In 2017, adjusted EBITDA in Greece increased slightly year-on-year by 1.3 percent to EUR 1.1 billion. Thanks to increased cost efficiency, we more than offset the decline in revenues.

Hungary

In the first three quarters of 2019, adjusted EBITDA AL in Hungary remained stable compared to the prior-year period at EUR 408 million. In organic terms, adjusted EBITDA AL increased by 1.9 percent.

In the 2018 financial year, adjusted EBITDA in Hungary remained relatively stable compared with the prior year at EUR 547 million. In organic terms, adjusted EBITDA increased by 3.7 percent.

In 2017, adjusted EBITDA in Hungary increased by 1.1 percent year-on-year to EUR 545 million. In organic terms, adjusted EBITDA remained almost unchanged.

Austria

In the first three quarters of 2019, adjusted EBITDA in Austria increased by 46.0 percent year-on-year to EUR 368 million. Adjusted for the inclusion of UPC Austria, adjusted EBITDA AL increased by 6.4 percent, as a result of higher revenue as well as savings in indirect costs.

In the 2018 financial year, adjusted EBITDA in Austria was impacted by the increase in revenue, which increased by 29.7 percent year-on-year to EUR 345 million. Adjusted for the acquisition of UPC Austria, adjusted EBITDA would have been 3.3 percent higher year-on-year.

In 2017, adjusted EBITDA in Austria increased by 3.1 percent to EUR 266 million, reflecting the revenue trend.

Poland

In the first three quarters of 2019, adjusted EBITDA AL in Poland stood at EUR 290 million, a decrease of 0.3 percent year-on-year. In organic terms, adjusted EBITDA AL grew by 1.7 percent.

In the 2018 financial year, adjusted EBITDA in Poland stood at EUR 390 million, a decrease of 6.9 percent year-on-year. In organic terms, adjusted EBITDA decreased by 6.7 percent. The positive revenue contribution was offset by higher direct costs – in particular higher interconnection costs and regulation-induced higher roaming costs.

Profit from Operations

2019 First Three Quarters

Profit from operations in our Europe operating segment increased by 4.1 percent in the first three quarters of 2019 to EUR 1.2 billion due mainly to the positive development of EBITDA AL. Whereas previously expenses had been recognized in connection with operating leases, the right-of-use assets recognized in this context since the application of accounting standard IFRS 16 as of January 1, 2019 resulted in particular in higher depreciation charges.

2018 Financial Year

In 2018, profit from operations in our Europe operating segment increased significantly by 61.0 percent to EUR 744 million, driven by the positive development in EBITDA and a 4.6 percent reduction in depreciation, amortization and impairment losses. The cyclical impairment tests carried out at the end of the 2018 financial year resulted in impairment losses recognized on goodwill totaling EUR 0.6 billion in Poland and Romania. In the 2017 financial year, impairment losses on goodwill and on property, plant and equipment had reduced profit from operations by EUR 0.9 billion. Impairment losses amounting to EUR 35 million were recognized on property, plant and equipment and intangible assets in the 2018 financial year in connection with the sale of the shares in Telekom Albania agreed in January 2019.

2017 Financial Year

In 2017, profit from operations in our Europe operating segment decreased by 61.0 percent to EUR 0.5 billion. In addition to the decline in EBITDA, this was primarily due to the EUR 0.6 billion increase in depreciation, amortization and impairment losses, in particular from the impairment of goodwill and property, plant and equipment amounting to EUR 0.9 billion. This resulted from the year-end impairment tests in Poland, Albania and Romania, but mainly relating to Poland. In the prior year, impairment losses on goodwill and on property, plant and equipment, primarily in Romania, reduced profit from operations by EUR 0.2 billion overall.

Cash Capex

2019 First Three Quarters

In the first three quarters of 2019, our Europe operating segment reported cash capex of EUR 1.3 billion, an increase of 3.8 percent year-on-year. This increase was largely a result of cash outflows for the acquisition of spectrum licenses in Hungary and for 5G spectrum in Austria. Additionally, the rollout of broadband and fiber-optic technology in Greece, Austria, Poland and Hungary as part of our integrated network strategy was a key focus of our capital expenditure.

2018 Financial Year

In 2018, our Europe operating segment reported cash capex of EUR 1.9 billion, stable when compared with the prior-year level. Alongside subdued investments at individual national companies, our capital expenditures were focused primarily on building out our broadband and fiber-optic technology in the Czech Republic and Austria as

part of our integrated network strategy. We acquired a small number of spectrum licenses in the 2018 financial year, predominantly in Hungary.

2017 Financial Year

In 2017, our Europe operating segment reported cash capex of EUR 1.9 billion. The decline of EUR 0.7 billion was primarily due to the acquisition of mobile licenses in Poland in the prior year. In 2017, we acquired a small amount of mobile spectrum in Greece. Excluding the effects from the acquisition of spectrum, cash capex increased by 11.8 percent compared with 2016 at segment level. As part of our integrated network strategy, we made significant investments in the broadband and fiber-optic roll-out, our IP transformation, and our mobile infrastructure.

Systems Solutions

As a leading information and communication technology (ICT) service provider, our Systems Solutions operating segment offers business customers integrated solutions for fixed and mobile networks, highly secure data centers, and a comprehensive cloud ecosystem made up of standardized platforms and global partnerships. For more information on our Systems Solutions segment, see "*Description of our Business and Operations—Group Organization—Organization*".

Selected Data

The following tables provide information data related to T-Systems' business development.

		Q1 – Q3 2019	Q1 – Q3 2018	Change	Change (%) Q1 – Q3 2019/ Q1 – Q3 2018
Order Entry	**(millions of €)**	**5,132**	**4,672**	**460**	**9.8 p.p.**

p.p. – percentage points

		2018	2017	Change	Change (%)
Order Entry	**(millions of €)**	**6,776**	**5,241**	**1,535**	**29.3 p.p.**

p.p. – percentage points

		2017	2016[1]	Change	Change (%)
Order Entry	**(millions of €)**	**5,241**	**6,851**	**(1,610)**	**(23.5) p.p.**

p.p. – percentage points
1 Adjusted to reflect changes in our reportable segments as of January 1, 2017. See "*Factors Affecting the Comparability of Results—Changes in Reportable Segments*".

Development of Business

The first three quarters of 2019 were dominated by efforts to establish our realigned Systems Solutions business. We believe that investments in growth areas and innovation fields (such as the public cloud, the Internet of Things (IoT) and digital solutions, security) create the basis for us to continue to focus our segment strategy on a sustainable shift into strategic growth areas. In parallel, we are working to strengthen our telecommunications operations and successfully manage the decline in traditional IT business.

With this in mind, we are executing a comprehensive transformation program, launched in 2018, under which we realigned our organization and workflows, adjusted capacities, developed a new strategy for our portfolio. Ten portfolio units and one emerging business unit look after not only our traditional IT and telecommunications businesses, but also our growth areas (public cloud, IoT, digital solutions, security, SAP, classified ICT, health, and road charging). Consistent with our efforts to implement the Group's strategy pillar "Lead in business productivity," in 2020 the next step will be to combine our telecommunications business with the telecommunications business of our Germany operating segment.

In the first three quarters of 2019, order entry in our Systems Solutions operating segment had increased by 9.8, marking a particularly positive development compared with the already strong prior year. This growth is primarily due to a positive trend in our growth areas, in particular classified ICT, digital solutions and public cloud.

In the 2018 financial year, order entry at our Systems Solutions operating segment increased by 29.3 percent, marking a particularly positive development compared with the prior year. This is due in part to a number of big deals that we closed in traditional IT business in 2018, which compare with a lower volume included in the prior-year figure. Order entry in our growth areas also developed very well in the 2018 financial year.

In the 2017 financial year, order entry at our Systems Solutions operating segment declined markedly by 23.5 percent year-on-year and was well below our expectations for 2017. Although we managed to conclude new contracts in 2017, the level achieved was lower than the prior year, which had included several major deals. One reason for the decline in order entry was the market trend away from traditional IT business and toward cloud computing and digitalization mentioned above, which resulted in shorter terms of contract.

Development of Operations

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited)			
Total Revenue	**4,961**	**5,094**	**(133)**	**(2.6)**
Of which: external revenue	3,898	4,032	(134)	(3.3)
Profit (loss) from operations (EBIT)	(185)	(121)	(64)	(52.9)
Depreciation, amortization and impairment losses	(409)	(296)	(113)	(38.2)
EBITDA	223	175	48	27.4
Depreciation of right-of-use assets[1]	88	u.a.	u.a.	u.a.
Interest expenses on recognized lease liabilities[1]	(8)	u.a.	u.a.	u.a.
EBITDA AL[1]	127	184	(57)	(31.0)
Special factors affecting EBITDA AL[1, 2]	(236)	(143)	(93)	(65.0)
Adjusted EBITDA AL[1]	**363**	**327**	**36**	**11.0**
Cash Capex	**(233)**	**(352)**	**119**	**33.8**

u.a. – unavailable

1. Prior-year comparatives were calculated on a pro forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.
2. For more information on special factors affecting EBITDA AL, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2018	2017[1]	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total Revenue[2]	6,936	6,918	18	0.3
Of which: external revenue	5,497	5,504	(7)	(0.1)
Loss from operations (EBIT)[2]	(291)	(1,356)	1,065	78.5
Depreciation, amortization and impairment losses	(453)	(1,636)	1,183	72.3
EBITDA	163	280	(117)	(41.8)
Special factors affecting EBITDA[3]	(266)	(229)	(37)	(16.2)
Adjusted EBITDA	429	509	(80)	(15.7)
Cash Capex	(462)	(383)	(79)	(20.6)

1. The business of T-Systems Polska Sp. z o.o., which was previously organizationally assigned to the Systems Solutions operating segment, is disclosed under the Europe operating segment as of September 1, 2017. Figures for prior periods were not adjusted.
2. Audited.
3. For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2017[1]	2016[1]	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total Revenue[2]	6,918	6,993	(75)	(1.1)
Of which: external revenue	5,504	5,678	(174)	(3.1)
Loss from operations (EBIT)[2]	(1,356)	(150)	(1,206)	n.a
Depreciation, amortization and impairment losses	(1,636)	(428)	(1,208)	n.a
EBITDA	280	278	2	0.7
Special factors affecting EBITDA[3]	(229)	(252)	23	9.1
Adjusted EBITDA	509	530	(21)	(4.0)
Cash Capex	(383)	(402)	19	4.7

n.a. – not applicable

1 The business of T-Systems Polska Sp. z o.o., which was previously organizationally assigned to the Systems Solutions operating segment, is disclosed under the Europe operating segment as of September 1, 2017. Figures for prior periods were not adjusted.

2 Audited.

3 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

Total Revenue

2019 First Three Quarters

In the first three quarters of 2019, total revenue in our Systems Solutions operating segment amounted to EUR 5.0 billion, a slight decrease when compared to the prior year period. The upward revenue trend in our growth areas public cloud and health was not sufficient to offset the declines in traditional IT operations and in telecommunications business. The general downward trend in traditional IT operations was primarily a result of the decline in our international corporate customer operations and the falling market trend in our core market of Western Europe, as well as of deliberate portfolio decisions (such as the termination of desktop services).

2018 Financial Year

In 2018, total revenue in our Systems Solutions operating segment amounted to EUR 6.9 billion, similar to the level in the prior-year. Revenue in our growth areas developed positively, driven mainly by the public cloud, the Internet of Things, the healthcare industry, and toll collection systems. By contrast, revenue with traditional IT business declined year-on-year. This was primarily a result of the decline in our international corporate customer operations and the general falling market trend in our core market of Western Europe, as well as to deliberate portfolio decisions (such as the termination of end-user services).

2017 Financial Year

In 2017, total revenue in our Systems Solutions operating segment decreased slightly year-on-year to EUR 6.9 billion. The revenue trend differed in the course of the year. It decreased in the first half compared with the prior-year period, due to completion of the set-up phase of the toll collection system in Belgium in 2016. By contrast, revenue rose in the second half. Adjusted for the non-recurring effect from 2016, our telecommunications business grew year-on-year. On the other hand, revenue from our traditional IT business continued to decline. This business is marked by generally lower prices and declining order entry, especially for international business. Our strategic growth areas made a positive contribution, with revenue from cloud computing rising 19.2 percent year-on-year and from the Internet of Things by 4.9 percent. Our Telekom Security unit generated revenue as well.

Adjusted EBITDA AL/Adjusted EBITDA, EBITDA AL/EBITDA

2019 First Three Quarters

In the first three quarters of 2019, adjusted EBITDA AL at our Systems Solutions operating segment increased by EUR 36 million to EUR 363 million, mainly due to effects from our transformation program, a positive development in the Open Telekom Cloud, and enhanced efficiency in traditional IT operations.

EBITDA AL decreased by EUR 57 million year-on-year to EUR 127 million, mainly due to portfolio streamlining activities. As a result of both this and ongoing restructuring measures, special factors increased by EUR 93 million year-on-year.

2018 Financial Year

In 2018, adjusted EBITDA at our Systems Solutions operating segment declined by EUR 80 million to EUR 429 million, which was in line with our expectations. The decrease was attributable primarily to the higher costs involved in establishing operations in growth areas, in particular in the Internet of Things and the healthcare market, and to higher financial burdens in our telecommunications business due to the ongoing migration to all IP.

EBITDA decreased by EUR 117 million year-on-year to EUR 163 million, mainly due to the effects described for adjusted EBITDA. Special factors increased by EUR 37 million year-on-year, attributable primarily to restructuring measures.

2017 Financial Year

In 2017, our Systems Solutions operating segment recorded adjusted EBITDA of EUR 509 million compared with EUR 530 million in the prior year, a decrease of 4.0 percent. Excluding the non-recurring effect from the completion of the set-up phase of the toll collection system in Belgium in 2016, we reported a positive trend in line with our expectations despite a difficult ICT market, the provisions we had to set aside for certain corporate customer contracts, and the all-IP migration for some customer contracts.

EBITDA remained roughly stable at EUR 280 million in 2017, increasing by 0.7 percent year-on-year.

Profit (loss) from Operations

2019 First Three Quarters

In the first three quarters of 2019, loss from operations in our Systems Solutions operating segment decreased by EUR 64 million year-on-year to negative EUR 185 million. This decrease was as a result of the same effects discussed above in respect of the decrease in EBITDA AL in the first three quarters of 2019. Whereas previously expenses had been recognized in connection with operating leases, the right-of-use assets recognized in this context since the application of accounting standard IFRS 16 as of January 1, 2019 resulted in particular in higher depreciation charges.

2018 Financial Year

In 2018, loss from operations decreased significantly year-on-year to negative EUR 291 million, attributable largely to an impairment loss on goodwill of EUR 1.2 billion that had been recognized in the prior year.

2017 Financial Year

In 2017, loss from operations increased substantially by EUR 1.2 billion against the prior year to a loss of EUR 1.4 billion. The decline in order entry prompted impairment testing of the assets in the third quarter of 2017. As a result, an impairment loss on goodwill of EUR 1.2 billion was recognized.

Cash Capex

2019 First Three Quarters

In the first three quarters of 2019, cash capex in the Systems Solutions operating segment stood at EUR 233 million, compared with EUR 352 million in the prior-year period. This decrease was as a result of the non-recurrence of high investments in a new ERP system in 2018. Capital expenditures remain focused on developing our operations in growth areas, such as digital solutions, the Internet of Things, and road charging.

2018 Financial Year

In 2018, cash capex in the Systems Solutions operating segment stood at EUR 462 million, compared with EUR 383 million in the prior year. Capital expenditures remained focused on developing our operations in growth areas, such as digital solutions, the Internet of Things, and toll collection systems. In parallel, we invested in the upgrade of our in-house IT systems.

2017 Financial Year

In 2017, cash capex in the Systems Solutions operating segment stood at EUR 383 million, EUR 19 million lower than the prior year. Our consistently high level of capital expenditure was linked to our strategy of investing in the strategic growth areas of digital transformation, the Internet of Things, healthcare solutions, cloud computing, and cyber security. The continued expansion of the European toll collection system also increased the need for investment.

Group Development

Since the spin-off from T-Mobile Netherlands on January 1, 2019, the cell tower business of T-Mobile Netherlands has been reported under GD Towers, the new unit set up in the Group Development operating segment. This unit comprises Deutsche Funkturm (DFMG) and the cell tower business of T-Mobile Netherlands. Prior-year comparatives were not adjusted.

Customer Development

The following table provides information on our fixed-line and mobile operations in the Netherlands.

	Sept. 30, 2019 (in thousand)	Dec. 31, 2018 (in thousand)	Change Sept. 30, 2019/ Dec. 31, 2018 (%)	Sept 30, 2018 (in thousand)	Change Sept. 30, 2019/ Sept. 30, 2018 (%)
Netherlands					
Mobile customers	5,531	4,021	37.6	4,004	38.1
Fixed-network lines	601	241	n.a.	227	n.a.
Broadband customers	601	241	n.a.	227	n.a.

n.a. – not applicable

	Dec. 31, 2018	Dec. 31, 2017	Change	
	(in thousand)	(in thousand)	(in thousand)	(%)
Netherlands				
Mobile customers	4,021	3,850	171	4.4
Fixed-network lines	241	191	50	26.2
Broadband customers	241	191	50	26.2

As of September 30, 2019, the number of mobile and fixed-network customers increased significantly compared with the end of 2018 due to the customer base acquired in connection with Tele2 Netherlands. There was also clear customer growth in the operating business. Despite intense competition, customer additions were recorded, in particular, in mobile communications thanks to our attractive rate plan portfolio offering large data packages through to unlimited data volumes. The number of fixed-network consumers also increased further as a result of our attractive rate plan portfolio.

In the 2018 financial year, after successfully repositioning itself in the market, T-Mobile Netherlands posted year-on-year growth of 4.4 percent with its mobile services for consumers and business customers. This was driven by a positive response to the rate plan portfolio, made particularly attractive thanks to high-volume and unlimited data packages, as well as growth in the business customer base. Despite intense competition, the number of fixed-network consumers increased by 50,000 as a result of our attractive rate plan portfolio.

In the 2017 financial year, T-Mobile Netherlands' mobile business for both consumers and business customers grew by 2.8 percent thanks to its successful repositioning in the market. This increase was mainly due to the new rate plan portfolio introduced in the first quarter of 2017 and to the enhanced market approach it enabled. The number of customers in the fixed-network consumer portfolio we acquired from Vodafone at the end of 2016 also increased in 2017, by 16.5 percent.

Development of Operations

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	unaudited			
Total Revenue	**2,068**	**1,607**	**461**	**28.7**
Of which: Netherlands	1,398	962	436	45.3
Profit from operations (EBIT)	498	431	67	15.5
Depreciation, amortization and impairment losses	(607)	(244)	n.a	n.a.
EBITDA	1,105	675	430	63.7
Depreciation of right-of-use assets[1]	(166)	u.a.	u.a.	u.a.
Interest expenses on recognized lease liabilities[1]	(23)	u.a.	u.a.	u.a.
EBITDA AL[1]	883	658	225	34.2
Special factors affecting EBITDA AL[1, 2]	109	(16)	n.a	n.a.
Adjusted EBITDA AL[1]	**774**	**674**	**100**	**14.8**
Of which: Netherlands	372	312	60	19.2
Cash Capex	**(291)**	**(201)**	**(90)**	**(44.8)**

u.a. – unavailable

1 Prior-year comparatives were calculated on a pro forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.

2 For more information on special factors affecting EBITDA AL, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2018	2017	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[1]	**2,185**	**2,263**	**(78)**	**(3.4)**
Of which: Netherlands	1,322	1,355	(33)	(2.4)
Profit from operations (EBIT)[1]	560	1,504	(944)	(62.8)
Depreciation, amortization and impairment losses	(334)	(304)	(30)	(9.9)
EBITDA	894	1,808	(914)	(50.6)
Special factors affecting EBITDA[2]	(27)	893	(920)	n.a.
Adjusted EBITDA	**921**	**915**	**6**	**0.7**
Of which: Netherlands	425	421	4	1.0
Cash capex	**(271)**	**(290)**	**19**	**6.6**

n.a. – not applicable

1 Audited.

2 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2017	2016	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[1]	**2,263**	**2,347**	**(84)**	**(3.6)**
Of which: Netherlands	1,355	1,331	24	1.8
Profit from operations (EBIT)[1]	1,504	2,730	(1,226)	(44.9)
Depreciation, amortization and impairment losses	(304)	(760)	456	60.0
EBITDA	1,808	3,490	(1,682)	(48.2)
Special factors affecting EBITDA[2]	893	2,547	(1,654)	(64.9)
Adjusted EBITDA	**915**	**943**	**(28)**	**(3.0)**
Of which: Netherlands	421	358	63	17.6
Cash capex	**(290)**	**(271)**	**(19)**	**(7.0)**

1 Audited.

2 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

2019 First Three Quarters

In the first three quarters of 2019, total revenue in our Group Development operating segment increased by 28.7 percent year-on-year, primarily due to the inclusion of Tele2 Netherlands since the start of 2019. Both business customer and consumer operations contributed to this revenue growth, due to customer growth and a positive trend in business with MVNOs in the Netherlands. The GD Towers unit also recorded a year-on-year increase in revenue, driven by volume-based growth at DFMG.

2018 Financial Year

In 2018, total revenue in our Group Development operating segment decreased by 3.4 percent year-on-year, due to the forgone revenue following the sale of Strato effective March 31, 2017. Revenue at DFMG remained almost unchanged against the prior year. The positive effects on revenue at T-Mobile Netherlands of high mobile handset sales and growing fixed-network business were more than offset by negative effects from the mandatory application of IFRS 15 as of January 1, 2018, as well as by regulatory effects, including lower EU roaming charges and national termination rates.

2017 Financial Year

In 2017, total revenue in our Group Development operating segment decreased by 3.6 percent year-on-year, with the revenue lost following the sale of Strato AG having a negative impact. Revenue at DFMG remained virtually unchanged compared with 2016. The main positive effect was the revenue trend at T-Mobile Netherlands.

Adjusted EBITDA AL/Adjusted EBITDA, EBITDA AL/EBITDA

2019 First Three Quarters

In the first three quarters of 2019, adjusted EBITDA AL increased by 14.8 percent year-on-year to EUR 774 million mainly due to the effects described under EBITDA AL below. The income of EUR 142 million resulting from the transfer of our Ströer Stake was recorded as a special factor and was therefore not included.

In the first three quarters of 2019, EBITDA AL increased from EUR 658 million in the prior-year period to EUR 883 million. In August 2019, we transferred our stake of around 11 percent in Ströer SE & Co. KGaA to the Group's own trust, Deutsche Telekom Trust e.V., to use as plan assets to cover pension obligations. The resulting income of EUR 142 million was recorded as a special factor. The revenue-increasing effects and the inclusion of Tele2 Netherlands as well as the transfer of the EBITDA AL contribution of the Dutch cell tower business to GD Towers also contributed to the increase in EBITDA AL. Initial synergy effects, measures to improve cost management efficiency, and rising customer numbers and revenues from business operations also contributed to the EBITDA AL growth. The GD Towers business continues to post consistent growth due to rising volumes.

2018 Financial Year

In 2018, adjusted EBITDA in our Group Development operating segment was stable compared with the prior-year level. Forgone earnings following the deconsolidation of Strato caused a decline. At T-Mobile Netherlands, adjusted EBITDA increased by 1.0 percent in the 2018 financial year due to positive customer development. Adjusted EBITDA at DFMG increased substantially by 3.7 percent year-on-year.

In 2018, EBITDA decreased year-on-year from EUR 1.8 billion to EUR 0.9 billion. Regular reviews of our investment portfolio prompted us to sell our stake in Strato and our remaining shares in Scout24 AG in 2017. The disposals resulted in income recognized as special factors of around EUR 0.7 billion. In addition, the 2017 financial year had included positive special factors of EUR 0.2 billion originating from a settlement agreement with BT concluded in July 2017.

2017 Financial Year

In 2017, adjusted EBITDA in our Group Development operating segment was 3.0 percent lower year-on-year, with forgone earnings following the sale of Strato AG having a negative impact. In addition, there were non-recurring effects as well as effects from the assignment of DFMG to the Group Development operating segment at the beginning of 2017. Adjusted EBITDA at T-Mobile Netherlands increased by 17.6 percent year-on-year, mainly because of lower market investment expenditure due to a higher proportion of SIM-only contracts, and a significant reduction in overhead costs brought about by the transformation program.

EBITDA in 2017 decreased by EUR 1.7 billion year-on-year to EUR 1.8 billion. We are constantly analyzing our portfolio of shareholdings with a focus on aiming to ensure adequate corporate growth. A consequence of this policy was our sale of Strato AG, effective as of March 31, 2017, and of the remaining shares in Scout24 AG, effective as of June 23, 2017. The disposals resulted in income of around EUR 0.7 billion being recognized as special factors. Positive special factors of EUR 0.2 billion originating from a settlement agreement with BT concluded in July 2017 also had an impact. T-Mobile Netherlands recognized provisions for new consumer credit regulations in its home market. The 2016 figure had included positive net special factors of EUR 2.5 billion, primarily from the sale of our stake in the EE joint venture.

Profit from Operations

2019 First Three Quarters

In the first three quarters of 2019, profits from operations increased by EUR 67 million to EUR 498 million year-on-year. The income from the transfer of our stake in Ströer amounting to EUR 142 million had a positive effect. An increase in depreciation, amortization and impairment losses in connection with the consolidation of Tele2 Netherlands with T-Mobile Netherlands had a negative effect as well as non-recurring effects in the course of the consolidation. GD Towers' high investments in new cell sites also increased depreciation, amortization and impairment losses. Whereas previously, expenses had been recognized in connection with operating leases, the right-of-use assets recognized in this context since the application of accounting standard IFRS 16 as of January 1, 2019 result in particular in higher depreciation charges.

2018 Financial Year

In 2018, profit from operations decreased by EUR 0.9 billion year-on-year to EUR 0.6 billion, due primarily to the same factors described above in respect of the decrease in EBITDA in 2018. Depreciation, amortization and impairment losses were higher than in the prior-year period, mainly due to higher capital expenditure on network capacity and quality at T-Mobile Netherlands.

2017 Financial Year

In 2017, profit from operations decreased by EUR 1.2 billion year-on-year to EUR 1.5 billion, due to the same factors described above in respect of the decrease in EBITDA in 2017. Depreciation, amortization and impairment losses were lower than in the prior year, both due to the impairment loss of EUR 0.4 billion on goodwill recognized in the Netherlands in the previous year, and to the deconsolidation of Strato.

Cash Capex

2019 First Three Quarters

In the first three quarters of 2019, cash capex increased by EUR 90 million, or 44.8 percent, compared with the prior-year period, primarily due to the additional investments required for the integration of Tele2 Netherlands and higher capital expenditure at DFMG in connection with building out mobile infrastructure in Germany.

2018 Financial Year

In 2018, capex at our Group Development operating segment decreased by 6.6 percent year-on-year as a result of lower investments in network build-out at T-Mobile Netherlands.

2017 Financial Year

In 2017, cash capex in our Group Development operating segment increased by 7.0 percent year-on-year, primarily due to the acquisition of Vodafone's fixed-network consumer portfolio by T-Mobile Netherlands and to the expansion of mobile network capacities.

Group Headquarters & Group Services

Group Headquarters & Group Services comprises all Group units that cannot be allocated directly to one of our five operating segments. For more information on our Group Headquarters & Group Services segment, see "*Description of our Business and Operations—Group Organization—Organization*".

Development of Operations

	Q1 - Q3 2019	Q1 - Q3 2018	Change	
	(millions of €)		(millions of €)	(%)
	unaudited			
Total Revenue	**1,961**	**2,096**	**(135)**	**(6.4)**
Profit (loss) from operations (EBIT)	(1,063)	(971)	(92)	(9.5)
Depreciation, amortization and impairment losses	(857)	(615)	(242)	(39.3)
EBITDA	(206)	(356)	150	42.1
Depreciation of right-of-use assets[1]	(255)	u.a.	u.a.	u.a.
Interest expenses on recognized lease liabilities[1]	(47)	u.a.	u.a.	u.a.
EBITDA AL[1]	(508)	(415)	(93)	(22.4)
Special factors affecting EBITDA AL[1, 2]	(146)	(214)	68	31.8
Adjusted EBITDA AL[1]	**(362)**	**(201)**	**(161)**	**(80.1)**
Cash Capex	**(739)**	**(748)**	**9**	**1.2**

u.a. – unavailable

1 Prior-year comparatives were calculated on a pro forma basis for the redefined key performance indicators resulting from the introduction of the IFRS 16 accounting standard.

2 For more information on special factors affecting EBITDA AL, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2018	2017	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[1]	**2,735**	**2,935**	**(200)**	**(6.8)**
Profit (loss) from operations (EBIT)[1]	(1,662)	(1,437)	(225)	(15.7)
Depreciation, amortization and impairment losses	(825)	(657)	(168)	(25.6)
EBITDA	(837)	(780)	(57)	(7.3)
Special factors affecting EBITDA[2]	(322)	(119)	(203)	n.a.
Adjusted EBITDA	**(515)**	**(661)**	**146**	**22.1**
Cash Capex	**(1,078)**	**(1,005)**	**(73)**	**(7.3)**

n.a. – not applicable

1 Audited.

2 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

	2017	2016	Change	
	(millions of €)		(millions of €)	(%)
	(unaudited, except as otherwise indicated)		(unaudited)	
Total revenue[1]	**2,935**	**3,460**	**(525)**	**(15.2)**
Profit (loss) from operations (EBIT)[1]	(1,437)	(1,848)	411	22.2
Depreciation, amortization and impairment losses	(657)	(676)	19	2.8
EBITDA	(780)	(1,172)	392	33.4
Special factors affecting EBITDA[2]	(119)	(579)	460	79.4
Adjusted EBITDA	**(661)**	**(594)**	**(67)**	**(11.3)**
Cash Capex	**(1,005)**	**(936)**	**(69)**	**(7.4)**

1 Audited.

2 For more information on special factors affecting EBITDA, see "*Development of Business in the Group—Results of Operations of the Group—Reconciliation of EBITDA AL/EBITDA and Adjusted EBITDA AL/Adjusted EBITDA*".

2019 First Three Quarters

In the first three quarters of 2019, total revenue in our Group Headquarters & Group Services segment decreased by 6.4 percent compared with the prior-year level. This change was mainly due to lower intragroup revenue at Deutsche Telekom IT from the licensing of the Group-wide ERP system, which however, did not have an impact on earnings at Group level. Further, as of January 2016, the costs of intragroup development services now commissioned from Deutsche Telekom IT in Germany are no longer charged internally.

2018 Financial Year

Total revenue in our Group Headquarters & Group Services segment in 2018 decreased by 6.8 percent year-on-year. This decline was mainly due to the fact that, as of January 2016, the costs of intragroup development services newly commissioned from Deutsche Telekom IT in Germany are no longer charged internally. Other reasons for the decrease were lower revenues from land and buildings, largely due to the ongoing optimization of space, and the forgone revenue from DeTeMedien following the completion of its sale in June 2017. Higher intragroup revenue at Deutsche Telekom IT from the licensing of the Group-wide ERP system had a positive effect.

2017 Financial Year

Total revenue in our Group Headquarters & Group Services segment in 2017 decreased by 15.3 percent year-on- year. This decline was mainly due to the fact that the costs of intragroup development services newly commissioned from Deutsche Telekom IT in Germany have no longer been charged internally since January 2016.Other reasons for the decrease were forgone revenue from DeTeMedien, the sale of which was completed in June 2017, and lower intragroup revenue from land and buildings, essentially due to further optimization of the use of space. In addition, lower intragroup revenue from Telekom Training and Deutsche Telekom IT – due to a reduction in the amounts charged for licenses and a narrower revenue-relevant cost base – had a negative impact. There was a positive effect on revenue from the structural further development of Deutsche Telekom Services Europe (DTSE).

Adjusted EBITDA AL/Adjusted EBITDA, EBITDA AL/EBITDA

2019 First Three Quarters

In the first three quarters of 2019, adjusted EBITDA AL in the Group Headquarters & Group Services segment decreased by EUR 161 million year-on-year, mainly as a result of lower income from real estate sales and lower revenue at Deutsche Telekom IT from the licensing of the Group-wide ERP system. The reduction in headcount at Vivento brought about by ongoing staff restructuring however had a positive effect on adjusted EBITDA AL.

Overall, EBITDA AL was negatively impacted by special factors amounting to EUR 146 million, especially for staff-related measures. Negative net special factors affecting EBITDA AL in the first three quarters of 2018 amounted to EUR 214 million – with expenses for staff-related measures being partially offset by the positive effect of the reversal of provisions for legal risks in connection with the conclusion of the Toll Collect arbitration proceedings.

2018 Financial Year

In 2018, Adjusted EBITDA at our Group Headquarters & Group Services improved by EUR 146 million year-on-year, mainly due to higher revenue at Deutsche Telekom IT from the licensing of the Group-wide ERP system, which did not impact on earnings at Group level. The reduction in headcount brought about by ongoing restructuring of the Vivento workforce also had a positive effect. By contrast, lower revenue from land and buildings had a negative impact on adjusted EBITDA.

Overall, negative net special factors of EUR 322 million affected EBITDA in the 2018 financial year. Expenses for staff-related measures were partially offset by the positive effect of the reversal of provisions for legal risks in connection with the Toll Collect arbitration proceedings. In the prior year, negative net special factors totaled EUR 119 million and mainly comprised expenses for staff-related measures on the one hand and income from the sale of DeTeMedien on the other.

2017 Financial Year

In 2017, adjusted EBITDA at Group Headquarters & Group Services decreased by EUR 46 million compared with 2016, primarily due to lower intragroup revenue from land and buildings, forgone earnings following the sale of DeTeMedien, and higher additions to provisions. By contrast, the following factors had a positive effect on adjusted EBITDA: the establishment of our Board department Technology and Innovation, higher income from the sale of real estate, the reduction in headcount brought about by ongoing restructuring of the Vivento workforce, and lower operating costs at Group Services.

Overall, negative special factors of EUR 121 million impacted EBITDA in 2017, largely due to staff-related expenses. Proceeds from the sale of DeTeMedien had an offsetting effect. Negative special factors of EUR 574 million in 2016 were mainly due to staff-related expenses.

Profit (loss) from Operations

2019 First Three Quarters

In the first three quarters of 2019, profit from operations decreased year-on-year by EUR 92 million mainly due to the effects described above in respect of the decrease in EBITDA AL in the first three quarters of 2019. Whereas previously, expenses had been recognized in connection with operating leases, the right-of-use assets recognized in this context since the application of IFRS 16 as of January 1, 2019 resulted in particular in higher depreciation charges. The increase in other depreciation, amortization and impairment losses was due, in particular, to higher depreciation and amortization caused by increased levels of capitalization at Deutsche Telekom IT. The latter were attributable to the fact that the costs of newly commissioned intragroup development services in Germany are no longer charged internally. This development was partially offset by lower depreciation, amortization and impairment losses from land and buildings as a result of our continued optimization of the real estate portfolio.

2018 Financial Year

In 2018, profit from operations declined by EUR 225 million year-on-year largely as a result of the same effects described above in respect of the decrease in EBITDA in 2018, and a EUR 168 million increase in depreciation, amortization and impairment losses. This increase was due, in particular, to higher depreciation and amortization caused by increased levels of capitalization at Deutsche Telekom IT. The latter were attributable to the fact that the costs of newly commissioned intragroup development services in Germany are no longer charged internally. This development was partially offset by lower depreciation, amortization and impairment losses from land and buildings as a result of our continued optimization of the real estate portfolio.

2017 Financial Year

The improvement in EBITDA in the 2017 financial year was the main cause of the year-on-year decrease of EUR 411 million in loss from operations in 2017, which amounted to a loss of EUR 1.4 billion. Depreciation, amortization and impairment losses were EUR 19 million lower year-on-year, due in particular to lower depreciation and impairment losses on land and buildings as a result of our ongoing efforts to optimize our real estate portfolio.

Cash Capex

2019 First Three Quarters

In the first three quarters of 2019, cash capex decreased by EUR 9 million year-on-year. Lower cash capex for vehicles was offset by higher investments in technology and innovation, primarily for development services.

2018 Financial Year

In 2018, cash capex increased by EUR 73 million year-on-year, due to increased investment in technology and innovation, mainly for development activities. In addition, cash capex for vehicles and the procurement of licenses increased, offset partially by lower investments in real estate-related construction and project services.

2017 Financial Year

In 2017, cash capex increased by EUR 69 million, or 7.4 percent, year-on-year, primarily owing to increased development activities in the Board department Technology and Innovation.

REGULATION

Overview

Our operations worldwide, as well as those of our subsidiaries and affiliates, are subject to sector-specific telecommunications regulations and general competition law, as well as a variety of other regulations. The extent to which telecommunications regulations apply to us depends largely on the nature of our activities in a particular country, with the provision of traditional fixed-line telephony services usually being subject to the most extensive regulation. Regulations can have a very direct and material effect on our overall business, particularly in jurisdictions that favor regulatory intervention.

In recent years, as well as at present, the main areas of focus of regulatory intervention were:

- at the EU level, regulations, directives and other binding legislation, which, for example, regulate network access, traffic management and roaming;
- regulation of charges, such as monthly line rental for the unbundled local loop and termination rates;
- regulation of future wholesale broadband services and investments in new networks and infrastructure, including bitstream access (FTTH and VDSL-Vectoring); and
- Regulation regarding network neutrality and roaming.

The EU Regulatory Framework for Electronic Communications

General

EU Member States are required to enact EU legislation in their domestic law and to take EU legislation into account when applying domestic law. In each EU Member State, a National Regulatory Authority ("NRA") is responsible for enforcing national telecommunications laws that are based on the EU Framework. NRAs generally have significant powers under their relevant telecommunications laws, including the authority to impose obligations regarding network access and interconnection and regarding non-discrimination, including 'functional separation,' and to approve or review the charges and general business terms and conditions of providers with "significant market power" (see "—*Special Requirements Applicable to Providers with Significant Market Power*" below). NRAs also have the authority to assign wireless spectrum (often in cooperation with the relevant national ministry or government department), to supervise the efficient use of frequencies and to impose universal service obligations.

Since much of our business is undertaken in the European Union, a significant portion of our operations is subject to the EU Framework and related telecommunications regulations.

The EU regulatory framework is largely determined by regulations to be applied directly in the EU Member States, by directives to be transposed into national law by the EU Member States and by recommendations and guidelines of the European Commission and the Body of European Regulators for Electronic Communications ("BEREC"), that, while not binding, must be taken into account by the NRAs. In 2016, the European Commission launched the process of a legislative reform of the EU legal framework for telecommunications, comprising ex-ante regulation for network access, universal service regulation radio spectrum policy and consumer rights.

In December 2018, the European Parliament and the Council adopted the revised rules in the form of (i) the Directive on a European Electronic Communications Code (Directive (EU) 2018/1972, the "Code Directive") replacing the former EU Directives on telecommunication, and (ii) a revised Regulation on the European Group of Regulators, (Regulation (EU) 2018/1971, the "BEREC Regulation") replacing the former Regulation on BEREC of 2009 (Regulation (EC) 1211/2009). Member States are at present, transposing the requirements set forth under the Code Directive into national law. The deadline for transposition is December 20, 2020.

With respect to access regulation, the Code Directive, in line with the former EU Directives on telecommunication, foresees that detailed regulatory obligations can be imposed following the finding of significant market power in a relevant market. For so-called "very high capacity networks", the new EU rules provide for lighter regulation and long-term stable regulatory conditions in the case of joint investments with competitors in the form of open co-investment models which ensure competition for end-users. In particular, the deployment of fiber optic networks up to the building (FTTB / FTTH) could be facilitated by the new provisions if regulators use their potential to

primarily rely on market solutions for network access. The European Commission may, taking utmost account of the opinion of BEREC, veto national regulator's plans to accept co-investment commitments.

The new legal framework also gives regulators new powers to impose access obligations on all network undertakings, regardless of their market power (a so-called "symmetric regulation"). The European Commission may, taking utmost account of the opinion of BEREC, oppose such additional measures. The strengthening of regulators' powers to intervene without the finding of significant market power might on the one hand hold the risk of partially impeding potential deregulation of fixed networks but, on the other hand, might facilitate access to networks of other parties in case we require such access

In the field of spectrum, the Code Directive includes more harmonized rules for spectrum allocation, for the conditions that can be attached to spectrum auctions, and for the setting of auction fees. These rules have the potential to increase legal certainty for our mobile operations. Specifically, it foresees a minimum license duration of fifteen years with the presumption of an extension for five years for spectrum for mobile broadband. This can improve legal certainty with regard to spectrum use in some of our markets.

In the field of end-user rights, for the first time, OTT services such as WhatsApp and Skype are in principle included in the legislation, helping to level the playing field. However, numerous exemptions for such number-independent interpersonal communications services apply. The Code Directive stipulates certain additional obligations with respect to end-user rights, which fall into the new Code's scope of application in their entirety, even if only some elements of the bundle constitute an electronic communications service. For example, transparency requirements towards consumers have been expanded further and there are stricter requirements regarding contract terms and switching carriers. At the same time, harmonization of end-user related obligations has increased legal certainty in some areas by barring the adoption of stricter national legislation.

Regarding universal service obligations, the Code Directive on the one hand reduces the amount of universal service obligations and on the other hand increases the quality of the universal service regarding internet access service. According to the Code Directive, every consumer shall have access to an affordable adequate broadband internet access service (formerly "functional IAS") and to voice communications services at a fixed location. Apart from this, existing universal service obligations, like public payphones to the general public, directories and directory enquiry services, may be ensured additionally and have to be reviewed every three years.

The rules contained in the BEREC Regulation are directly applicable in the Member States without requiring transposition into national law. In particular, provisions on the regulation of retail charges for intra-EU voice calls and text messages took effect on May 15, 2019, limiting charges to 19 cents / minute and 6 cents / SMS (net) for 5 years.

On November 25, 2015, the EU Parliament and the Council adopted Regulation (EU) 2015/2120 concerning the single market for electronic communications, which contains provisions on the open internet, access ("net neutrality") international roaming and end-user protection, including transparency obligations. Regulation (EU) 2015/2120 allows for the provision of "Specialized Services" with assured quality when objectively necessary, and Internet access services on a shared IP network. Equal treatment of all data traffic was established as a principle, with the exception of reasonable traffic management being permitted in limited cases, if based not on commercial considerations, but on objectively different technical quality of service requirements of specific categories of traffic, *e.g.*, to prevent potential network overloads. Zero rating, *i.e.*, not charging for certain amounts of data traffic in connection with volume-based rate plans, remains permissible in principle; however, offers making such services available are subject to scrutiny by the NRAs (*see "—Mobile Regulation—Germany"* below regarding StreamOn proceeding*)*.

Regulation (EU) 2015/2120 further confers upon NRAs extensive powers to monitor and intervene, includes provisions on fines and stipulates requirements for the provision of information to consumers concerning an open internet and performance of the internet access service ("IAS"). The information to consumers on IAS performance, which must be published and included in individual contracts, includes, for example, the impact of specialized services on the IAS's performance, minimum and maximum available speed or the normally available speed of IAS. Any significant discrepancy between the contractual information and the individually measured actual performance may trigger remedies for consumers, depending on national provisions. On August 30, 2016, BEREC published Guidelines ("BEREC Guidelines") on the implementation of the net neutrality provisions. These BEREC Guidelines are designed to facilitate the NRAs' tasks under Regulation 2015/2120 by providing a number of clarifications on the concrete application of its provisions. The BEREC Guidelines take a strict approach and their application by NRAs limits our ability to provide specialized services or new service offers over 5G networks. The current revision of the BEREC Guidelines is unlikely to bring relief neither in this nor in regard to zero rating.

With effect from June 15, 2017, surcharges for roaming services within the EU were eliminated entirely (commonly known as "Roam like at Home"), unless permitted under implementing rules on fair usage policy. The final act implementing fair usage rules, which was adopted on December 15, 2016, provides safeguards for operators, allowing them to detect and address potential abuses. For instance, a greater volume of roaming traffic than domestic traffic over the course of a four-month period may be an indicator of improper use, which ultimately may allow operators to apply a small roaming charge.

To support Roam Like At Home regulation, the EU has further decreased wholesale roaming charges effective June 15, 2017 – so called IOTs – which network operators charge to other network operators when their roaming customers use the other operator's network. The wholesale regulation adopted substantial cuts in the regulated wholesale roaming rates for data, as well as more moderate cuts for the prices of voice and SMS wholesale roaming services.

The introduction of Roam like at Home and a general reduction in regulated IOTs had a negative effect on our revenues and raised costs of domestic tariffs offered including roaming services. In addition, the introduction of Roam like at Home also gives rise to arbitrage risks – *i.e.*, risks from the misuse of the international roaming mechanism to circumvent national terms and conditions – for us and our international subsidiaries.

At the end of November 2019, the European Commission published its first report on the review of the roaming market. Although the European Commission could have proposed legal changes to the current roaming regulation, the report does not yet contain such proposals. However, we expect the European Commission to start a process for changes within Q1 2020. This process is likely to lead to further reductions of the regulated wholesale roaming caps. Furthermore, the European Commission plans to include changes regarding zero rating offers used within another member state of the EU, new rules regarding quality of service of retails services and clarifications for machine-to-machine services.

Special Requirements Applicable to Providers with Significant Market Power

The most significant regulatory impact on our business comes from the EU regulatory framework's special requirements applicable to providers with significant market power, which is equivalent to the notion of dominance under EU competition law. As explained in the European Commission's guidelines on market analysis and the assessment of significant market power, single dominance concerns normally may arise in the case of undertakings with market shares of over 40 % (40 – 50 % if other factors indicate significant market power). Obligations in relation to network access, price setting, separate accounting for interconnection services, publication and non-discrimination, can be imposed on those operators that are designated by the relevant NRA as having significant market power in an electronic communications market. Such determinations are based on EU guidelines and EU competition case law. We have been designated as having significant market power primarily in most wholesale fixed-line markets in which we operate, as well as in mobile voice call termination markets.

In particular, an NRA may subject providers with significant market power, and their affiliates, to several rules and obligations specified within the EU regulatory framework and its directives and guidelines, such as:

- The obligation to offer other companies interconnection and unbundled network access as well as access to certain services and facilities on a non-discriminatory basis. This includes full unbundled access to copper-paired wire lines as well as bitstream access and access to other parts of the networks. In particular, unbundling has led to a considerable loss of our market share. For more information regarding the effects of unbundling obligations, see "—*German Fixed-Network Telecommunications Regulation—Local Loop Access*" below.

- Prior approval or retroactive review of charges, insofar as such charges and conditions relate to a market in which the provider holds significant market power.

- The obligation of transparency in relation to interconnection and/or access, requiring operators to make public specified information, such as accounting information, technical specifications, network characteristics, terms and conditions for supply and use, including any conditions limiting access to and/or use of services and applications.

- The obligation of non-discrimination in relation to interconnection and/or access. Obligations of non-discrimination require the operator to apply equivalent conditions in equivalent circumstances to other companies providing equivalent services and to provide services and information to others under the same conditions and of the same quality as it provides for its own services, or those of its subsidiaries or partners.

- The obligation to maintain separate accounting systems with regard to interconnection and access services. This obligation is intended to allow for transparency with respect to various telecommunications services in order to

prevent, among other things, the cross-subsidization of services. In this regard, an NRA may specify the structure of a provider's internal accounting for particular telecommunications services, which can increase costs of compliance.

- The obligation on vertically integrated undertakings to place activities related to the wholesale provision of relevant access products in an independently operating business entity (functional separation). This is an exceptional measure to be employed if the NRA concludes that the respective obligations already imposed have failed to achieve effective competition and that there are important and ongoing competition problems and/or market failures identified in relation to the wholesale provision of certain access product markets.

Fixed and Mobile Termination Rate Recommendation

In October 2014, the European Commission revised the "Recommendation on relevant product and service markets", which, among other things, requires NRAs to analyze the call termination markets to determine whether regulatory remedies are warranted. In 2009, the European Commission issued the Recommendation on the regulatory treatment of fixed and mobile termination rates in the EU (Recommendation 2009/396/EC, the "Recommendation") that defines details for the cost calculation of termination rates by NRAs. With the Recommendation, the European Commission intended to harmonize cost standards for mobile termination rates throughout the EU. Although some NRAs did not follow the Recommendation, which is legally not binding, most European regulators applied the Recommendation, which is known as the "pure LRIC cost standard", and, in these markets, fixed and mobile termination rates therefore decreased significantly. In 2016, the European Commission conducted a public consultation regarding the Recommendation on the regulatory treatment of terminations rates which was intended, on the one hand, to examine the effects of the pure LRIC cost standard, and, on the other hand, to inquire into opportunities associated with pertinent future regulatory measures including a deregulation of the termination market by the European Commission. As a result of the consultation, the European Commission was granted the right to directly set a maximum cap for fixed and mobile termination rates which are binding for all companies offering termination of such calls.

German Fixed-Network Telecommunications Regulation

German telecommunications regulation has a particularly significant impact on our business due to the significant share of our operations that is based or conducted in Germany. German telecommunications regulation is based on the EU regulatory framework, as in all EU Member States, and is mainly derived from the German Telecommunications Act (*Telekommunikationsgesetz*) and implemented by the German Federal Network Agency (*Bundesnetzagentur*, "GFNA") as competent NRA.

We believe that, for the foreseeable future, the GFNA is likely to view us as a provider with significant market power in the fixed network and in other markets, including most of those in which we held monopoly rights in the past. Additionally, we have been determined to be a provider with significant market power in the German market for mobile voice call termination. There is a significant risk that the strict regulatory provisions of the German Telecommunications Act relating to providers deemed to have significant market power will continue to be applied in the future to our activities in the markets described above. Considering that in many markets our competitors are unlikely to gain significant market power in the near future, we expect that we will have to compete in important markets with providers not subject to those regulatory obligations. Therefore, these competitors may have more flexibility than we have in terms of the selection of services offered and customers served, pricing and the granting of network access.

Under the German Telecommunications Act, tariffs for telecommunications access services offered by providers with significant market power and their affiliates can be subject to price regulation, insofar as the tariffs relate to a market in which significant market power has been determined to exist. In particular, network access fees (in relation to both fixed-network and mobile networks) charged by providers with significant market power are subject to approval by the GFNA. Pursuant to the German Telecommunications Act, such approvals are subject to judicial review and can be appealed when deemed to be inadequately low by providers with significant market power, including, subject to certain restrictions, approvals with retroactive effect. In a decision dated November 22, 2016, the German Federal Constitutional Court (Bundesverfassungsgericht) found these restrictions to be partly unconstitutional and ordered the legislator to amend the German Telecommunications Act by July 31, 2018, resulting in a strengthened legal position for providers with significant market power. A corresponding amendment of the German Telecommunications Act entered into force in December 2018. The tariffs of all providers in Germany are, however, subject to generally applicable EU and German laws, including competition and consumer protection laws (see "—*Consumer Protection*" below).

In January 2010, the GFNA determined that we are a provider with significant market power for the access market. The agency included all-IP accesses to this market for the first time and imposed on us the obligation to periodically provide a resale offer on the terms of our retail tariffs for every type of access. In addition, the GFNA

maintained ex-post controls on our offers. In August 2013, the GFNA released a regulatory order enabling for the first time Deutsche Telekom to introduce what is known as "VDSL- Vectoring" technology in areas not in proximity to local exchanges.

In October 2015, the GFNA released its final regulatory order regarding the broadband bitstream access market, reaffirming the obligation for Deutsche Telekom to offer to its competitors what is known as "bitstream access services" at different network layers ("Layer 2" and "Layer 3"). We expect the demand for such regulated access services to further increase. See "*—Broadband Access – IP Bitstream*" below.

On September 1, 2016 the GFNA updated our obligations to provide local loop access, confirming the utilization of the VDSL-Vectoring technology for areas not in proximity to local exchanges but also – as a new element – for areas that are in proximity to local exchanges. See "*—Local Loop Access*" below.

According to provisional tariff decisions of the GFNA in the fourth quarter of 2016, fixed termination rates were reduced by 58 %, effective as of January 1, 2017. The steep decrease is due to the application of a new costing method (known as "pure-LRIC") which was recommended by the European Commission. The final approval confirmed the tariff level of the preliminary ruling. (See also "*—Mobile Regulation—Germany*" below.)

Local Loop Access

We have been offering unbundled local loop ("ULL") access since 1998. We are obliged to publish a reference offer for access to the ULL and prices require ex-ante approval. By allowing competitors to connect to customer access lines within our local networks, unbundling of the local loop allows our competitors to gain direct access to customers without having to build local networks of their own. This allows competitors to use our customer access lines to offer a wide range of local services directly to customers.

Effective July 1, 2019, the GFNA increased the regulated rates received by Telekom Deutschland for leasing the "last mile" of its network. Specifically, the rate for leasing the line from the customer to the cable distribution box was increased from EUR 6.77 per month to EUR 7.05 per month and the rate for the longer section from the customer to the main distribution frame was increased from EUR 10.02 per month to EUR 11.19 per month. The rate for leasing cable duct capacities was increased from EUR 0.04 per month to EUR 0.06 per month. Although these rates remain below the level we sought in our application, the new rates take into account that the costs of building out the "last mile" of the network have risen in the three years since the rates were last set. The rate approvals are valid until June 30, 2022.

In August 2013, the GFNA released a regulatory order authorizing Deutsche Telekom, for the first time, to introduce "VDSL-Vectoring" technology to areas not in proximity to its local exchanges, substantially increasing the potential bandwidth Deutsche Telekom can offer to its retail customers in areas where the technology is applied. The individual bandwidth available depends on local technical conditions. Wholesale customers benefit from the bandwidth increases via regulated broadband wholesale products, *e.g.*, bitstream access products or an additional wholesale product offered at the level of the serving area interfaces within the access network (known as the "KVz alternative product"). Alternatively, competitors can invest in the vectoring technology themselves. However, only one provider is entitled to utilize the vectoring technology within the area served by a given distribution point, and whether this is Deutsche Telekom or one of its competitors, depends on a complex set of rulings and conditions including the "first come first served" principle. Since November 1, 2016, Deutsche Telekom has also been obligated to offer a Layer 2 bitstream access ("BSA") product (see "*—Broadband Access—IP Bitstream*" below). On March 8, 2017, the transfer fees for the L2-BSA were approved for a limited period until March 31, 2021. On December 17, 2018, the fees for the super-vectoring products (L2-VDSL 175 and L2-VDSL 250) were also approved for a limited period until March 31, 2021.

On September 1, 2016, the GFNA issued the final regulatory order for the ULL market after the required consultation with the European Commission. The obligation to provide access to the cable duct between the main distribution frame and the multi-functional street cabinet remains in force. The GFNA also maintained an obligation to provide access to dark fiber for the section between the main distribution frame and the multi-functional street cabinet. However, this access obligation only applies in the event that no cable duct capacity is available. An exception has been imposed for the implementation of vectoring within areas in proximity to a local exchange. In that case, competitors may choose between renting cable ducts or having access to dark fiber. This obligation was limited for two years after the street cabinet has been made accessible for the operator seeking access.

The GFNA has maintained applicable regulations to new fiber-optic ULLs. Under this regime, rates have to be reviewed by the GFNA prior to market launch and then remain subject to ex-post control, with the agency being permitted to initiate proceedings at any time on the basis of complaints raised by competitors.

The GFNA reviewed the specific conditions required for nearshore vectoring by way of a reference offer procedure and announced its decision in its official journal on August 9, 2017. The deadlines for the three planned nearshore build-out tranches have thus now been set. While Telekom has to expand a total of about 95 % of the near-shore areas by February 9, 2020, the complete expansion of competitors took place by February 9, 2019. Deutsche Telekom completed 20 % by February 9, 2019 and a further 20 % by November 9, 2019. A parallel rate approval procedure was also carried out at the GFNA from the end of March 2017 to set the rates for a nearshore ULL substitute product. The decision for this process which in essence permitted the roll-out of nearshore vectoring was also announced on August 9, 2017.

Broadband Access – IP Bitstream

Since 2015 we have been required to offer Layer 2 and Layer 3 wholesale bitstream access products. The rates in the standard offering for the layer 3 product are subject to ex-post control by the GFNA. The rates of the Layer 2 bitstream access product are subject to ex-ante control, but without cost-oriented price control.

In June 2016 the GFNA issued a provisional ruling on our new offer for the Layer 2 access products, reducing the rates we proposed; we have been offering Layer 2 wholesale bitstream access products under these provisional rates since November 1, 2016. The final ruling entered into effect on December 9, 2016, following the required consultation with the European Commission.

On September 21, 2017, we again made an application to the GFNA regarding our Layer 2 rates requesting an increase in the monthly rate as part of contingent models. In its final decision on March 8, 2018, the GFNA confirmed its preliminary decision from December 2017 and approved the majority of rates at the current levels. We had requested an increase in the monthly rate as part of contingent models. As per the preliminary decision, this application was not approved in the final decision. On September 18, 2018, the GFNA published a draft consultation on bitstream charges for supervectoring, which is used to make download bandwidths of up to 250 Mbit/s available. The approved charges are higher than the charges for slower speeds and were adopted unchanged in the final decision on December 18, 2018. The Agency thus consistently acknowledges investments in higher bandwidths.

The GFNA intends to sort Layer 2 bitstream access into market 3a, the market for wholesale local internet access provided at a fixed location. As a result, there is a risk that the fees will be regulated by ex-ante control. The procedure is currently in progress.

Mobile Regulation

Germany

In June 2015, Telekom Deutschland GmbH (“TDG”) purchased spectrum through auction in the 700 MHz, 900 MHz, 1.5 GHz and 1.8 GHz frequency ranges. TDG received the assignment notices from the GFNA for 1.8 GHz in June 2016 and for 900 MHz in July 2016, respectively. We were awarded the assignment for the 1.5 GHz spectrum following our application in June 2017, while TDG had to wait for the availability of the former broadcast spectrum in 700 MHz until spring 2019. TDG was awarded the respective assignment in June 2019 in advance of the planned start of its nation-wide usage.

The coverage requirements stipulate that any successful bidder is obliged to offer an area-wide broadband coverage of at least 50 MBit/s (megabit per second) downlink at the antenna. Within three years after the assignment of the frequencies each holder of a frequency needs to cover at least 98 % of all households nationwide and at least 97 % of all households per federal state providing the performance mentioned above. For the main traffic routes (state highways and ICE rail tracks) area-wide coverage is obligatory (subject to legal and factual restrictions). TDG has regularly sent detailed reports on its network developments and status of fulfillment of license obligations to the GFNA

On May 14, 2018, the GFNA published the decision to auction 2x60 MHz in the 2.1 GHz and additional 1x300 MHz in the 3.6 GHz band (3.4-3.7 GHz). The GFNA’s auction of nationwide frequencies for Germany in the 2.1 GHz and 3.4 to 3.7 GHz bands was held between March 19, 2019 and June 12, 2019. Telekom Deutschland GmbH was admitted to the auction proceedings along with three other companies: Drillisch Netz AG, Telefónica Germany GmbH & Co. OHG, and Vodafone GmbH. All participants purchased spectrum. TDG won 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. In place of a lump-sum payment, government representatives agreed to let TDG pay the purchase price in annual installments from 2019 through 2030. This was granted on the condition that TDG assume additional build-out obligations. These additional licenses double TDG’s spectrum holdings in the 2.1 GHz band and give TDG almost a third of the available spectrum (90 MHz) in what is the optimum band for us, the 3.6 GHz band. Achieving this desired outcome to the auction helps TDG sustain its leading position in the competition to deliver the best quality mobile network in Germany. The three existing network operators

and six service providers had brought legal action in connection with the auction terms and conditions; however, this had no effect on the auction timing. TDG received the assignment notice for its new 3.6 GHz spectrum on September 3, 2019. Two days later, the company began its first 5G networks in five cities Germany.

On June 28, 2019, the GFNA issued the final approval of the fixed-network termination rates ("FTR") both for Telekom Deutschland and for alternative telecommunications operators in the form of a four-year glide path. The following FTRs will apply retroactively from January 1, 2019: 2019 = 0.08 ct/min., 2020 = 0.06 ct/min., 2021 = 0.05 ct/min., and 2022 = 0.03 ct/min. The rates approved by the GFNA will apply until the European Commission enacts an FTR cap to replace the national regulation.

German Federal Network Agency applies further MTR cuts. In a ruling published by the GFNA on November 28, 2019, mobile termination rates ("MTRs") were reduced from 0.95 ct/min. at present to 0.90 ct/min. effective December 1, 2019. In two additional steps to be implemented annually, MTRs will be further reduced to 0.78 ct/ min. and 0.70 ct/min. also effective December 1, 2019. Here, too, we anticipate that the rates approved by the agency will apply until the EU-wide MTR cap required under the new EU legal framework enters into force, likely after a transition period.

Deregulation of mobile termination rates for calls from non-EU countries. The GFNA has deregulated the termination of calls originating outside of the European Economic Area ("EEA") on the mobile network of Telekom Deutschland and other German mobile network operators. As a result, from December 1, 2019, we can decide on the pricing and terms that apply to the charging of calls to network operators outside the EEA. This differentiation between EEA and non-EEA calls is now standard practice in most EU member states, since MTR regulation binds European network operators to low termination rates while the rates charged by network operators outside of the EEA are significantly higher. However, while these rates are freely negotiable, they must not exceed the rates that the network operators in the originating countries charge for comparable services.

StreamOn. On December 15, 2017, the GFNA prohibited elements of the MagentaMobil StreamOn add-on option. According to the GFNA, two aspects of this option breach the EU Regulation (EU) 2015/2120 on net neutrality and roaming. The ruling stipulated that we must transmit all StreamOn data traffic at the maximum available bandwidth and that this also cannot be deducted from the included data volume contingent when roaming within the EU. As such, we appealed against the ruling and are seeking a legal remedy with the Cologne Administrative Court. In its ruling announced on July 15, 2019, the Munster Higher Administrative Court confirmed as part of expedited court proceedings that the GFNA order must be followed for the time being. In consultation with the GFNA, we have modified the MagentaMobil StreamOn product pursuant to its requirements. Nevertheless, the Cologne Administrative Court will review, in ordinary court proceedings, whether the steps to optimize data traffic as well as the restriction of the offering to Germany are compatible with the EU regulation.

Europe

Since mid-2017, we were involved via several of our subsidiaries in national spectrum assignment procedures and license prolongations On May 31, 2017, Slovak Telekom participated in the sale of 3.7 GHz spectrum for regional usage in Slovakia and ensured 40 MHz in the Bratislava region for having capacity for 5G applications at a later stage. In addition to these two cases, our OTE subsidiary Cosmote was able to renew and double its 26 GHz spectrum in 2017 in Greece. In autumn 2017, Cosmote successfully participated in a national spectrum renewal procedure (auction) and ensured another fifteen-year license period for its existing 2x25 MHz in the 1800 MHz band. Finally, Cosmote was granted permission to keep its expiring usage right in the 410 MHz band for a further three years.

In 2019, we successfully participated in the 3.5 GHz auction Austria. The auction concluded on March 7, 2019 and we acquired 110 MHz in all regions. As a result, we are now able to offer high-quality 5G networks nationwide. Austria started with 5G immediately after the auction and was the first Deutsche Telekom subsidiary that provided commercial 5G services to its customers.

Additionally, NRAs are preparing for several awarding procedures in 2020/2021. Most of them will award new spectrum bands (esp. 700, 1,500 MHz and 3.5 GHz) with additional sales of unassigned spectrum and re-sales of existing bands. Further, the 26 GHz is under discussion in some countries. Currently, we expect auctions and awarding procedure for all our subsidiaries to take place in 2020 and 2021.

United States

Our U.S. mobile operations, conducted through our majority owned subsidiary T-Mobile US are regulated by the FCC and by various other federal, state and local governmental authorities. Wireless communications providers must be licensed by the FCC to provide communications services at specified spectrum frequencies within specified

geographic areas and must comply with the rules and policies governing the use of the spectrum as adopted by the FCC. The FCC issues each license for a fixed period of time, typically ten years in the case of cellular, PCS and point-to-point microwave licenses. For Advanced Wireless Services ("AWS") licenses, AWS-1 licenses issued on or before December 31, 2009, have an initial term of fifteen years, while licenses issued after this date, as well as renewals, have ten-year terms, and AWS-3 licenses have an initial term of twelve years and ten years for subsequent terms. 600 MHz licenses have an initial term of twelve years, with an expectation of renewal for ten years for subsequent terms. Licenses in the 24 GHz and 28 GHz bands have a term of 10 years, with a possibility of renewal. While the FCC has generally renewed licenses given to operating companies like T-Mobile US, the FCC has authority to both revoke a license for cause and to deny a license renewal if a renewal is not in the public interest. Furthermore, T-Mobile US could be subject to fines, forfeitures and other penalties for failure to comply with FCC regulations, even if any such non-compliance was unintentional. In extreme cases, penalties could include the revocation of T-Mobile US' licenses. The loss of any licenses, or any related fines or forfeitures, could adversely affect T-Mobile US' business, results of operations and financial condition.

Additionally, the U.S. Congress' and the FCC's allocation of additional spectrum for broadband commercial mobile radio service ("CMRS"), which includes cellular, PCS and specialized mobile radio, could significantly increase competition. We cannot assess the impact that any developments that may occur in the U.S. economy or any future spectrum allocations by the FCC may have on license values. FCC spectrum auctions and other market developments may adversely affect the market value of T-Mobile US' licenses in the future. A significant decline in the value of these licenses could adversely affect the company's financial condition and results of operations. In addition, the FCC periodically reviews its policies on how to evaluate a carrier's spectrum holdings. A change in these policies could affect spectrum resources and competition among T-Mobile US and other carriers.

The U.S. Congress and the FCC have imposed limitations on foreign ownership of CMRS licensees that exceed 20 % direct ownership or 25 % indirect ownership. The FCC has ruled that higher levels of indirect foreign ownership, even up to 100 %, are presumptively consistent with the public interest albeit subject to review. Consistent with that established policy, the FCC has issued a declaratory ruling authorizing up to 100 % ownership of T-Mobile US by Deutsche Telekom. This declaratory ruling and T-Mobile US' licenses are conditioned on Deutsche Telekom's and T-Mobile US' compliance with a network security agreement with the Department of Justice, the Federal Bureau of Investigation and the Department of Homeland Security. Failure to comply with the terms of this agreement could result in fines, injunctions and other penalties, including potential revocation of T-Mobile US' spectrum licenses.

Only the FCC has authority to regulate "rates and entry" by CMRS operators, while both the individual states of the United States and the FCC have authority to regulate "other terms and conditions" of CMRS. The FCC has refrained from regulating rates charged by CMRS operators. However, under its authority to license CMRS operators to serve the public, the FCC has imposed a number of requirements on operators, including, for example, rules regarding the provision of 911 and E-911 services, porting telephone numbers, interconnection, roaming, internet openness or net neutrality and the universal service and Lifeline programs. Many of these and other issues are being considered in ongoing FCC proceedings, and we cannot predict whether or how such actions will affect T-Mobile-US' business, financial condition or results of operations. Our ability to provide services and generate revenues could be harmed by adverse regulatory action or changes to existing laws and regulation. In addition, regulation of companies that offer competing services can impact T-Mobile-US' business indirectly.

Other current U.S. regulatory issues that may significantly impact T-Mobile US' business include:

- *Open Internet/Net Neutrality* ("NN"): Following the issuance of detailed net neutrality rules in 2015, the FCC reversed itself in December 2017 and adopted new, deregulatory rules. The new rules constituted a return to a light-touch regulatory framework that promotes investment and "innovation both within networks and at their edge."

  The rules, which took effect in June 2018, were confirmed when a court upheld the 2018 order in its October 1, 2019 decision. However, the court found the FCC did not show legal authority to issue its state preemption authority. The FCC, however, retains its ability to review and preempt individual state laws on a case-by-case basis. This ruling leaves some uncertainty with respect to individual state laws concerning net neutrality, for example in California, which has already passed a net neutrality related law. California has held off on implementing the law until the resolution of the legal cases on the federal level, which cases have continued after several parties asked for an en banc review of the October 1, 2019 court decision upholding the core of the FCC rules.

- *Spectrum:* Between November 2018 and January 2019, the FCC conducted a 28 GHz spectrum auction ("Auction 101") followed by a 24 GHz spectrum auction ("Auction 102") that concluded in April 2019. These auctions were the first 5G spectrum auctions in higher frequency bands ("mm Wave spectrum"). Between the

two auctions, T-Mobile US was able to acquire 367 MHz of spectrum for USD 842.5 million, giving T-Mobile US a strong foothold in mm Wave spectrum. The FCC is planning to auction spectrum in the 37 GHz, 39 GHz and 47 GHz bands ("Auction 103") beginning on December 10, 2019. In addition, the FCC is planning to auction spectrum in the 3.5 GHz Band in June 2020 ("Auction 105"). While T-Mobile US expects to participate in the auction, there is no certainty that it will be successful in acquiring additional spectrum.

- *T-Mobile US / Sprint Transaction*: T-Mobile US and Sprint Corporation on April 29, 2018 announced their intent to merge in an all-stock transaction at a fixed exchange ratio of 0.10256 T-Mobile shares for each Sprint share or the equivalent of 9.75 Sprint shares for each T-Mobile US share. In order to close, the Transactions face regulatory reviews at the DOJ (antitrust review), the FCC (public interest review), the Committee on Foreign Investment in the United States, or "CFIUS" (national security review), and on the state level. CFIUS and the FCC approved the Transactions in December 2018 and October 2019 respectively, while court approval of the DOJ's clearance decision is pending before the Federal District Court of Washington D.C. The FCC and DOJ clearances are subject to certain commitments including build-out obligations, a pricing commitment, divestiture of the Sprint pre-paid brand Boost and its customers as well as an MVNO agreement with DISH to use the new T-Mobile's network for 7 years after closing of the Transactions. Except for the Public Utility Commission of California, all necessary regulatory approvals on State level have been obtained. On June 11, 2019, a coalition of states attorneys-general sued to block the merger before the Federal Southern District Court of New York. The trial began on December 9, 2019 and a decision is expected in early 2020.

While the Communications Act generally preempts state and local governments from regulating the entry of, or the rates charged by, wireless communication providers, certain state and local governments regulate other terms and conditions of wireless service, including billing, termination of service arrangements and the imposition of early termination fees, advertising, network outages, the use of handsets while driving, zoning and land use. Further, the FCC and the Federal Aviation Administration regulate the siting, lighting and construction of transmitter towers and antennas. Tower siting and construction are also subject to state and local zoning, as well as federal statutes regarding environmental and historic preservation. The future costs to comply with all relevant regulations are to some extent unknown and regulatory changes could result in higher operating expenses for T-Mobile US in the future.

Telecommunications Regulation for other subsidiaries of Deutsche Telekom in Europe

Our subsidiaries with fixed and/or mobile networks in Greece, Hungary, Romania, Slovakia, Croatia, Poland, Czech Republic, Netherlands and Austria are subject to the same EU Regulatory Framework upon which the German regulation regime is based. We also operate fixed and mobile networks in the North Macedonia and in Montenegro. These countries' regulatory frameworks are converging towards the EU Framework. Therefore, all of our subsidiaries in Europe are generally exposed to a set of regulatory rules akin to those in Germany described above. While our fixed networks in Greece, Hungary, Slovakia, Croatia, Macedonia and Montenegro as former incumbent network operators are subject to network access regulation for the benefit of competitors, our operators in Poland, the Czech Republic, the Netherlands and Austria may profit from such obligations imposed upon their local formerly incumbent fixed network operators.

In Greece, end-users have to pay a tax of 12 % on prepaid mobile subscriptions and between 12 % and 20 % on postpaid mobile subscriptions, depending on size of bill). A 5 % tax is imposed on fixed voice /broadband internet connections and a 10 % tax on Pay-TV are also levied on end-users with an aim to reduce the public deficit.

In Hungary, there is a risk that uncertainty over taxation treatments might hamper investments and new business activities. In 2009, the Hungarian government introduced a crisis tax on a few select sectors, including the telecommunication sector. This tax was replaced by a special Telecommunication Tax in 2013 on usage of mobile services which is a heavy financial burden for our subsidiary Magyar Telekom. Additionally, in 2013 the government introduced a utility tax on providers of public utility lines, including telecommunication infrastructure. This amounts to a yearly payment of approximately EUR 100 million (telco and utility tax) only for Magyar Telekom.

Consumer Protection

Deutsche Telekom, as a telecommunications services provider, is subject to a variety of rules and regulations aimed at customer and consumer protection.

Regulation published by Federal Network Agency

In September 2015, the GFNA launched a system that enables consumers to measure the bandwidths available on their fixed-network and mobile lines. In relation to the Telecoms Single Market Regulation the GFNA published a public consultation to determine whether the measured speed levels correspond with the contractually agreed speed

levels. A report on the bandwidths available throughout Germany was published by the GFNA in June 2016, a second report in January 2018, and a third report in March 2019. The GFNA found that measured speeds increased but the ratio between the measured and the contractual agreed maximum speed decreased between these two reports. The results of the public consultation could prompt new legislation regarding the contractual requirements such as new obligations for minimum service quality levels.

In December 2016, the German parliament consented to a regulation submitted by the GFNA and designed to increase transparency and enhance cost control in telecommunications services. This regulation became effective on June 1, 2017, while for certain rules an extended transposition period of twelve months applies. This regulation requires Deutsche Telekom to provide pre-contractual contract summaries, including information about speed and data volume, and include detailed information about termination periods with monthly bills.

Collective Redress

On the November 1, 2018, a law enabling consumers' collective redress claims came into force (*Gesetz zur Einführung einer zivilprozessualen Musterfeststellungsklage*). This may increase the occurrence of legal actions brought by entitled parties including consumer protection agencies. On the EU level, the proposed directive on collective redress will further strengthen the enforcement of consumer rights by consumers.

Data Protection

The European General Data Protection Regulation (Regulation (EU) 2016/679) (the "GDPR") entered into force on May 25, 2018. The new data protection law closes a gap in the regulation of service providers outside of the EU and generally imposes uniform rules for all market participants operating within the EU. The GDPR is designed to ensure a high level of data protection in Europe and, at the same time, to level the playing field for new digital business models. The GDPR will apply directly in the EU Member States and, unlike a Directive, does not need to be transposed into national law. In order to preserve the level playing field created by the GDPR, it is deemed important that the EU Member States do not make excessive use of the freedom granted to them by the Regulation to implement additional dedicated provisions at national level; instead, they should do so only where absolutely necessary. In Germany, in the revised version of the Federal Data Protection Act which has come into force on May 25, 2018, German legislators have responded to some of the criticism leveled at their initial drafts and have reduced the number of special provisions for the non-public sector. To mitigate the risks of high sanctions, Deutsche Telekom started a GDPR implementation project in 2016 which was successfully implemented by May 2018. In October 2019, the German Data Protection Authorities published a concept for the admeasurement of fines in proceedings against undertakings in the scope of application of the GDPR. Based on the concept, fines are in principle calculated on the basis of the annual group turnover of an undertaking which can lead to significant fines even for smaller data breaches. There are no experiences with the practical application of the concept so far.

In addition, telecommunications providers are subject to strict sector-specific rules under the E-Privacy Directive (Directive 2002/58/EC, as amended by Directive 2009/136/EC). The directive, which has been in place since 2002, is currently under scrutiny at EU level and intended to be replaced by a new regulation on e-privacy rules, with the objective to extend its scope beyond telecommunications providers to over-the-top service providers in order to create a level playing field in communications. Until the E-Privacy Directive has been revised or replaced, data stored by telecommunications providers will remain subject to stricter, dedicated rules. Telecommunications providers in Europe thus still have a competitive disadvantage in some areas – one that the new e-Privacy Regulation as a follow-up instrument will likely only partially alleviate. For example, data processing options for telecommunications providers are substantially restricted compared to what would be permissible under the GDPR, making it less likely that big-data applications in the field of telecommunications will be able to realize their full potential. According to the current draft of the planned e-Privacy Regulation as a general rule, it will only be possible to process metadata either with customer approval or anonymized. This continues the strict regulatory regime of the current E-Privacy Directive. The GDPR, in contrast, provides compliant options for processing such data, in particular in pseudonymized form, that do not require customer consent or full anonymization. Unless the upcoming e-Privacy Regulation will include similar options as the GDPR, various service models that may be useful to consumers might be ruled out, such as services for finding parking spaces, avoiding accidents, and tele- monitoring services in the healthcare field.

Following the judgment of the European Court of Justice ("ECJ") dated October 6, 2015, holding the European Commission's Safe Harbor Decision ("Safe Harbor") to be invalid, the European Commission put forward a successor agreement (known as the EU-U.S. Privacy Shield – "Privacy Shield") at the beginning of February 2016 which was adopted by the European Commission in July 2016 and entered into force on August 1, 2016. As in the case of the former Safe Harbor Agreement, the Privacy Shield is intended to enable personal data of EU citizens to be transmitted to and be processed in the United States. The Privacy Shield includes privacy principles which stipulate heightened data protection requirements compared to Safe Harbor, with which U.S. companies must comply if they want to be certified under the Privacy Shield. It cannot be ruled out that the Privacy Shield will be referred to the ECJ again, in particular

with regard to the question of whether indiscriminate access to personal data by U.S. national authorities remains permissible under the Privacy Shield.

IT and Network Security

On May 3, 2016, a new ordinance (*Bestimmung Kritischer Infrastrukturen-Verordnung*, "Critis Ordinance") under the German IT Security Act (*IT-Sicherheitsgesetz*, "*IT-SiG*") entered into force, which sets out the criteria that enable operators of critical infrastructure in the information technology and telecommunications, water, energy and food sectors to identify whether they are subject to the provisions of the IT-SiG. As a result, the provisions of the German Telecommunications Act (*Telekommunikationsgesetz*) applicable to the telecommunications sector has become more stringent, in particular with regard to the reliability of networks and services in accordance with current technological developments. We had already made the necessary adjustments even before the German IT Security Act was amended, and we therefore believe that we satisfy the main obligations for safeguarding public security as required by German law.

On July 6, 2016, the European Parliament approved the EU Network and Information Security Directive on ("IT Security Directive"), based on which online marketplaces, search engine operators and cloud service providers will also have to ensure compliance with minimum requirements for the security of their infrastructure and report incidents. The IT Security Directive must be implemented by the national legislatures of the EU Member States. As the obligations set forth in the IT Security Directive go beyond what is entailed in the IT-SiG, a new law was passed to implement the European Network Security and Information Security Directive, which supplements the IT-SiG and came into force in mid-2017 together with an ordinance amending the Critis Ordinance.

Additionally, on June 27, 2019 the EU Cybersecurity Act ("CSA") came into force. The Act strengthens the mandate of the EU Cyber Security Agency (European Union Agency for Network and Information Security, "ENISA") and establishes an EU-wide framework for the IT security certification of products, services and processes. However, the CSA is directly legally binding within the EU. The certification schemes, however, developed within the framework of the CSA require a European or national regulatory embedding.

At present, and in view of the public debates about the trustworthiness of network component suppliers, a new security catalogue is being discussed in Germany in accordance with §109 (6) of the Telecommunications Act. This should also indirectly address manufacturers of components for critical infrastructures. At the same time, however, an amendment of the IT Security Act is also being sought, which could also result in a direct obligation of vendors. These discussions aim to develop a more secure telecommunications infrastructure and can effectively reduce IT security risks for network operators.

Potential Regulatory Changes

On December 11, 2019, the GFNA published its decision (BK2c-19/025) to abolish all regulatory remedies from the telephone services retail market (Market 1 of EU Market Recommendation of 2007) imposed on Deutsche Telekom by the GFNA's July 7, 2014 decision (BK-2c-13/005). This decision comes as a the result of the last market analysis, stating the telephone services retail market is no longer susceptible to ex ante regulation due to the market's tendency towards effective competition.

LEGAL PROCEEDINGS

The companies in our Group are involved in a number of legal proceedings in the ordinary course of our business. In addition, proceedings involving alleged abuse of a market-dominant position by us and other alleged antitrust violations, as well as other regulatory controversies, are pending before competition and regulatory authorities.

Securities and Corporate Law-Related Proceedings

German prospectus liability suits

Since 2001, around 16,000 purported purchasers of our shares sold pursuant to prospectuses dated May 26, 2000 (third public offering, or "DT3"), have filed more than 2,600 lawsuits in Germany predominantly alleging that the book values of our real property portfolio were improperly established and maintained under German GAAP and that we allegedly failed to adequately disclose detailed information relating to merger negotiations between us and VoiceStream Wireless Corporation (the predecessor of T-Mobile US). 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. These lawsuits are currently pending before the Regional Court (*Landgericht*) in Frankfurt am Main. The aggregate amount of all shareholders' claims filed in Germany in these lawsuits is approximately EUR 80 million plus interest.

On May 16, 2012, the Frankfurt am Main Higher Regional Court (*Oberlandesgericht*) issued its decisions in the model proceedings (*Musterentscheid*) regarding the DT3 offering, holding that, the prospectus did not contain any material errors. Upon appeal, the Federal Court of Justice (*Bundesgerichtshof*), in its decision of October 21, 2014, overruled the Higher Regional Court's decision on the DT3 prospectus holding that the prospectus contained a material error, and remanded the case to the Higher Regional Court. The Federal Court of Justice did not address the question of Deutsche Telekom's liability for damages. On remand, the Higher Regional Court held on November 30, 2016 that Deutsche Telekom could, in principle, be held liable for damages caused by the error in the prospectus. However, it also held that whether Deutsche Telekom was ultimately liable for damages of the individual claimants would have to be decided on a case-by-case basis by the competent courts. Both Deutsche Telekom and some of the individual plaintiffs in the model proceedings have filed appeals against the decision of the Higher Regional Court. We expect a decision in this matter in early 2020.

General Commercial Disputes

Claims relating to charges for the shared use of cable ducts

In 2012, Kabel Deutschland Vertrieb und Service GmbH ("KDG"), now Vodafone Kabel Deutschland GmbH, filed a claim against Telekom Deutschland GmbH to reduce the annual charge for the rights to use cable duct capacities in the future and to gain a partial refund in relation to overpayments made since 2004. According to Vodafone Kabel Deutschland GmbH's latest estimates, its claims amount to around EUR 624 million, plus EUR 9 million for the alleged benefit from additional interest received, plus interest in each case. Claims prior to 2009 are no longer being asserted by Vodafone Kabel Deutschland GmbH. After the Frankfurt am Main Regional Court dismissed the claim in 2013, the Frankfurt am Main Higher Regional Court also rejected the appeal on December 9, 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 am Main Higher Regional Court for further consideration. In its ruling dated December 20, 2018, the Frankfurt am 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 a claim against Telekom Deutschland GmbH on January 23, 2013 demanding that it cease charging the plaintiffs more than a specific and precisely stated amount for the shared use of cable ducts. The claim further sought a refund of around EUR 570 million plus interest. The claim was dismissed in the first instance by the Cologne Regional Court on October 11, 2016. The plaintiffs' appeal of this decision was rejected by the Düsseldorf Higher Regional Court in its March 14, 2018 ruling and further appeal was not permitted. The plaintiffs have lodged an appeal with the Federal Court of Justice against their inability to appeal the decision. We expect a decision from the Federal Court of Justice in early 2020. At present the financial impact of both these proceedings cannot be assessed with sufficient certainty.

Claim for damages in Malaysia

Malaysian communications providers Celcom Malaysia Berhad ("Celcom") and Technology Resources Industries Berhad ("TRI"), have brought actions against eleven defendants, including DeTeAsia Holding GmbH ("DTAH"), a subsidiary of Deutsche Telekom, and certain (former) directors before the High Court in Kuala Lumpur, Malaysia. The plaintiffs are seeking damages of USD 232 million plus interest. DTAH had recovered this amount from Celcom in 2005 following, and on the basis of, an award granted by the ICC arbitral tribunal in DTAH's favor. Celcom in particular

accuses its former directors (including delegated German directors and employees of DTAH or Deutsche Telekom) of breach of fiduciary duties and is claiming compensation in the very amount Celcom was ordered to pay, and indeed paid, under the ICC award. The main proceedings in the court of first instance began in January 2018 and are ongoing.

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.

Disputes in Relation to Radio Frequency Emissions

Beginning in 2000, plaintiffs filed numerous state court class-action lawsuits against T-Mobile US and several other wireless service operators and wireless telephone manufacturers, asserting product liability, breach of warranty and other claims relating to radio frequency transmissions to and from wireless mobile devices. While these lawsuits were dismissed by the United States Supreme Court with final and binding effect in 2011, several new lawsuits have been filed against T-Mobile US and other manufacturers and carriers in the industry claiming damages for alleged health problems as a result of the use of wireless handsets. The plaintiffs claim that the use of wireless handsets and wireless transmission equipment, such as transmission towers, may be linked to various health concerns, including cancer and brain tumors. The corresponding court proceedings are still ongoing. T-Mobile believes these cases lack merit and is vigorously defending itself.

Disputes in Relation to Intellectual Property Rights

Like many other telecommunications and Internet providers, we are exposed to an increasing number of intellectual property disputes, especially patent litigation. Generally, this leads to a higher risk of having to pay license fees and compensation. Some disputes may even result in cease-and-desist orders that could block our access to, and ability to use, key network technologies.

Antitrust Proceedings

In recent years, we have significantly expanded our compliance activities with respect to antitrust law. We and some of our subsidiaries, affiliates and joint ventures are subject to various proceedings under antitrust or competition law or civil follow-on actions. In our opinion, the proceedings listed below are of particular importance to us:

Follow-on Actions for Damages Against Slovak Telekom

On October 15, 2014, the European Commission decided that Slovak Telekom had abused its market power in the Slovak broadband market. The European Commission imposed fines on Slovak Telekom and Deutsche Telekom which were fully paid 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 General Court partially overturned the European Commission’s decision and reduced the fines by a total of EUR 13 million. On February 21, 2019, Slovak Telekom and Deutsche Telekom filed an appeal against the General Court’s ruling with the European Court of Justice. On appeal, Slovak Telekom and Deutsche Telekom are seeking, inter alia, to completely overturn the European Commission decision. Following the European Commission’s decision, competitors filed damage actions against Slovak Telekom with the civil court in Bratislava seeking compensation for alleged damages due to Slovak Telekom’s abuse of its dominant market position, as determined by the European Commission. Three claims, totaling EUR 215 million plus interest are currently pending. It is currently not possible to estimate the financial impact of these claims with sufficient certainty.

T-Mobile US merger with Sprint

The consummation of our Business Combination Agreement to merge T-Mobile US with Sprint is subject to approvals by the regulatory and anti-trust authorities and certain other customary closing conditions. On June 18, 2018, T-Mobile US filed the Public Interest Statement and applications for approval of our merger with Sprint with the FCC. The FCC granted formal approval on October 16, 2019.

In June 2019, the attorneys general of 13 states and the District of Columbia filed a lawsuit against T-Mobile US, Deutsche Telekom, Sprint, and Softbank Group Corp. in the U.S. District Court for the Southern District of New York. Another four U.S. states have since joined the suit, while the attorneys general of Mississippi and Colorado withdrew from the lawsuit following settlement agreements. We believe the lawsuit is without merit.

On July 26, 2019, we entered into a consent decree with the U.S. Department of Justice, which is now awaiting confirmation by the U.S. federal court in Washington D.C. As such, the DOJ is waiving its right under U.S. law to file a suit against the transaction.

In parallel, multiple agreements were signed with the U.S. TV satellite operator DISH Networks to implement the conditions for the merger. Once the legal proceedings are concluded, we expect to close the Transactions in early 2020. See *"Risk Factors—Risks Related to the Proposed T-Mobile US and Sprint Merger"*.

Legal Proceedings related to Regulatory Decisions

StreamOn.

On December 15, 2017, the Federal Network Agency prohibited elements of the MagentaMobil StreamOn add-on option. According to the Federal Network Agency, two aspects of this option breach the EU Regulation (EU) 2015/2120 on net neutrality and roaming. The ruling stipulated that we must transmit all StreamOn data traffic at the maximum available bandwidth and that StreamOn data cannot be excluded from the data volume contingent when roaming within the EU. We appealed against the ruling and are seeking a legal remedy with the Cologne Administrative Court. In its ruling announced on July 15, 2019, the Munster Higher Administrative Court confirmed as part of expedited court proceedings that the Federal Network Agency order must be followed for the time being. In consultation with the Federal Network Agency, we have modified the StreamOn add-on pursuant to the its requirements. Nevertheless, the Cologne Administrative Court will review, in ordinary court proceedings (known as principal proceedings), whether the steps to optimize data traffic as well as the restriction of the offering to Germany are compatible with the EU regulation.

Terminated Proceedings

Toll Collect arbitration proceedings

On May 16, 2018, Daimler Financial Services AG, Deutsche Telekom AG, and the Federal Republic of Germany reached an agreement to cease the Toll Collect arbitration proceedings. The settlement was notarized in early July 2018 and confirmed by the arbitral tribunal, bringing the arbitration proceedings to an end. The agreed settlement amount of around EUR 3.2 billion includes services previously provided to the Federal Republic of Germany. Daimler Financial Services AG and Deutsche Telekom AG have both agreed to make final payments of EUR 550 million each. The payments will be made in three tranches by 2020; the first two tranches have already been paid. The last tranche is due to be paid in August 2020.

DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES

Management and Supervision

The management and supervisory structures, as well as the compensation system for the Board of Management are oriented toward the long-term performance of the Group. The compensation systems for the Board of Management and the Supervisory Board follow the recommendations of the German Corporate Governance Code.

The Supervisory Board

The Supervisory Board advises the Board of Management and oversees its management of business. In accordance with the German Stock Corporation Act (*Aktiengesetz*) and the German Co-Determination Act of 1976 (*Mitbestimmungsgesetz*), our Supervisory Board consists of twenty members, ten of whom represent our shareholders and ten of whom represent our employees. Members of the Supervisory Board may be elected for a term of up to five years and re-election is permitted. The Chairman and the Deputy Chairman are elected by the Supervisory Board in accordance with the rules of the German Co-Determination Act.

Supervisory Board members representing our shareholders are elected at the annual shareholders' meeting. The terms of office of the shareholder representatives expire at the end of the shareholders' meeting at which the shareholders discharge the Supervisory Board members in respect of the fourth financial year following the member's commencement of tenure of office (unless a shorter term is determined by the shareholders' meeting). The financial year in which tenure of office commences is not counted for this purpose.

Supervisory Board members representing our employees are elected by our employees in accordance with the provisions of the German Co-Determination Act. Employees elect ten representatives, made up of regular employees, at least one senior management employee and three union representatives. Civil servants are included in these groups of employee representatives for purposes of these elections.

Pursuant to the German Stock Corporation Act, as amended by the Law on the Equal Participation of Women and Men in Leadership Positions in the Private and the Public Sector (*Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst*), we are required to maintain a fixed minimum of 30 percent of women on our Supervisory Board. With eight women currently serving as members of our Supervisory Board (40 percent), we are complying with the statutory requirement.

A member of the Supervisory Board elected by our shareholders may be removed by a shareholders' resolution by a simple majority of the votes cast. A member of the Supervisory Board elected by our employees may be removed by a majority of at least three-quarters of the votes cast by the relevant class of employees or union representatives who elected the relevant Supervisory Board member and by an additional majority of at least three-quarters of our employees' delegates in accordance with the German Co-Determination Act.

The Supervisory Board is required by law to meet at least twice every six months. To achieve a quorum, at least ten of the members of the Supervisory Board must be present or cast their votes in writing. Except in situations in which a different majority is required by law, such as the appointment of members of the Board of Management or the election of the Chairman and Deputy Chairman, the Supervisory Board makes decisions by simple majority of the votes cast. If, in the event of a deadlock, a second vote again results in a tie, the Chairman of the Supervisory Board can cast the deciding vote.

Composition of the Supervisory Board

The current members of our Supervisory Board and their principal occupations are listed below:

<u>Shareholder representatives</u>

- Prof. Dr. Lehner, Ulrich, Member of the Shareholders' Committee of Henkel AG & Co. KGaA, Düsseldorf; Chairman of the Supervisory Board of Deutsche Telekom AG, Bonn
- Dr. Rolf Bösinger, State Secretary, Federal Ministry of Finance, Berlin
- Hinrichs, Lars, CEO of Cinco Capital GmbH, Hamburg
- Dr. Jung, Helga, Member of the Board of Management of Allianz SE, Munich

- Prof. Dr. Kaschke, Michael, CEO & President of Carl Zeiss AG, Oberkochen

- Kollmann, Dagmar, Entrepreneur, member of several supervisory boards and advisory boards as well as the Monopolies Commission

- Streibich, Karl-Heinz, President acatech – Deutsche Akademie der Technikwissenschaften, Berlin

- Dr. Bräunig, Günther, CEO of KfW

- Krüger, Harald, former Chairman of the Board of Management of Bayerische Motoren Werke Aktiengesellschaft, Munich

- Suckale, Margret, former member of the Board of Executive Directors of BASF SE, Ludwigshafen

Employee representatives

- Schröder, Lothar, Member of the ver.di National Executive Committee, Berlin; Deputy Chairman of the Supervisory Board of Deutsche Telekom AG, Bonn

- Bednarski, Josef, Chairman of the Group Works Council at Deutsche Telekom AG, Bonn

- Greve, Constantin, Chairman of the Central Works Council of Deutsche Telekom AG, Bonn

- Topel, Karin, Chairwoman of the Works Council at Deutsche Telekom Technik GmbH, Bonn, Technical Branch Office Eastern District

- Chatzidis, Odysseus D., Chairman of the European Works Council at Deutsche Telekom AG, Bonn

- Koch, Nicole, Chairwoman of the Works Council of Deutsche Telekom Privatkunden-Vertrieb GmbH, Bonn; Chairwoman of the Works Council at Privatkunden Vertriebsgesellschaft GmbH, Bonn

- Kreusel, Petra Steffi, Senior Vice President, Customer & Public Relations at T-Systems International GmbH, Frankfurt am Main; Deputy Chairwoman of the Group Executive Staff Representation Committee of Deutsche Telekom AG, Bonn; Chairwoman of the Executive Staff Representation Committee of T-Systems International GmbH, Frankfurt am Main

- Sauerland, Frank, Head of the Collective Bargaining Policy Committee, TC/IT National Committee at the ver.di National Executive Board, Berlin

- Seelemann-Wandtke, Nicole, Deputy Chairwoman of the Works Council of the Consumers Unit at Telekom Deutschland GmbH, Bonn

- Spoo, Sibylle, Lawyer, Trade Union Secretary at the ver.di Federal Administration, Berlin

Changes in the composition of the Supervisory Board

The terms of office of Supervisory Board members Lars Hinrichs and Karl-Heinz Streibich ended at the close of the shareholders’ meeting on March 28, 2019. In a resolution passed by the shareholders’ meeting on March 28, 2019, Lars Hinrichs and Karl-Heinz Streibich were elected for a further term of office until the end of the 2023 shareholders’ meeting.

The term of office of Dr. Rolf Bösinger, who was appointed as a member of the Supervisory Board by the Bonn District Court, ended at the close of the shareholders’ meeting on March 28, 2019. In a resolution passed by the shareholders’ meeting on March 28, 2019, Dr. Rolf Bösinger was elected as a shareholders’ representative on the Supervisory Board for a further term of office until the end of the 2023 shareholders’ meeting.

Dr. Ulrich Schröder resigned from his position as a member of the Supervisory Board effective February 6, 2018. He was succeeded by Dr. Günther Bräunig effective March 21, 2018, who was appointed to the Supervisory Board of Deutsche Telekom AG by the Bonn District Court until the end of the next shareholders’ meeting. In a resolution passed by the shareholders’ meeting on May 17, 2018, Dr. Günther Bräunig was elected for a further term of office until the end of the 2023 shareholders’ meeting.

After being appointed to the Supervisory Board of Deutsche Telekom AG by the Bonn District Court until the end of the next shareholders' meeting, succeeding Dr. Wulf H. Bernotat effective September 28, 2017, the shareholders' meeting on May 17, 2018 appointed Margret Suckale to the Supervisory Board of Deutsche Telekom AG until the end of the 2023 shareholders' meeting.

Sari Baldauf left the Supervisory Board of Deutsche Telekom AG effective the end of the shareholders' meeting on May 17, 2018. In her place, Harald Krüger was elected by the shareholders' meeting on May 17, 2018 as a member of the Supervisory Board until the end of the 2023 shareholders' meeting.

At the shareholders' meeting on May 17, 2018, Prof. Ulrich Lehner was elected for a further term of office as a member of the Supervisory Board of Deutsche Telekom AG until the end of the 2022 shareholders' meeting. This further term takes account of the upper age limit set for its members by the Supervisory Board. Following the shareholders' meeting, the Supervisory Board re-elected Prof. Lehner as its Chairman.

Johannes Geismann resigned from his position as a member of the Supervisory Board of Deutsche Telekom AG as of the end of the shareholders' meeting of May 17, 2018. Dr. Rolf Bösinger was court-appointed to the Supervisory Board of Deutsche Telekom AG effective June 1, 2018.

Hans-Jürgen Kallmeier resigned from his position as a member of the Supervisory Board of Deutsche Telekom AG effective midnight, December 31, 2017. He was succeeded by Odysseus D. Chatzidis effective January 3, 2018, who was appointed to the Supervisory Board of Deutsche Telekom AG by the Bonn District Court.

The employees' representatives on the Supervisory Board of Deutsche Telekom AG Josef Bednarski, Monika Brandl, Klaus-Dieter Hanas, Petra Steffi Kreusel, Lothar Schröder, Michael Sommer, and Sibylle Spoo, each of whose term of office expired at the end of the shareholders' meeting on May 17, 2018, were court-appointed to the Supervisory Board at the same time.

Monika Brandl resigned from her position as a member of the Supervisory Board of Deutsche Telekom AG effective June 30, 2018. She was succeeded by Nicole Seelemann-Wandtke effective July 5, 2018, who was appointed to the Supervisory Board of Deutsche Telekom AG by the Bonn District Court.

At the delegates' assembly on November 20, 2018, the employees' representatives Josef Bednarski, Odysseus D. Chatzidis, Nicole Koch, Petra Steffi Kreusel, Lothar Schröder, Nicole Seelemann-Wandtke, Sibylle Spoo, and Karin Topel were re-elected to the Supervisory Board, and Constantin Greve and Frank Sauerland were appointed to the Supervisory Board for the first time. Klaus-Dieter Hanas and Michael Sommer did not stand for re-election and left the Supervisory Board of Deutsche Telekom AG on November 20, 2018.

Basis of Supervisory Board compensation

The compensation received by the members of our Supervisory Board is set forth in § 13 of our Articles of Incorporation. Under the compensation system applicable for the 2018 and 2019 financial years, each member of the Supervisory Board receives fixed annual compensation of EUR 70,000.00. The Chairman of the Supervisory Board receives an additional EUR 70,000.00 and the Deputy Chairman an additional EUR 35,000.00. Members of the Supervisory Board appointed to a Supervisory Board committee also receive additional compensation. Members of the Supervisory Board receive an attendance fee amounting to EUR 1,000.00 for each meeting of the Supervisory Board or its committees that they have attended. Deutsche Telekom also reimburses value-added tax payable on remuneration and expenses.

For additional information, see Note 43 "*Compensation of the Board of Management and the Supervisory Board*" to our consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

The Board of Management

The members of the Board of Management are appointed and discharged by the Supervisory Board in accordance with § 84 of the German Stock Corporation Act and § 31 of the German Co-Determination Act (or, in exceptional cases in accordance with § 85 of the German Stock Corporation Act by a court).

Pursuant to § 111(5) of the German Stock Corporation Act, as amended by the Law on the Equal Participation of Women and Men in Leadership Positions in the Private and the Public Sector, our Supervisory Board is obliged to define individual targets for the representation of women on the Board of Management on a regular basis. In 2015, our Supervisory Board resolved that the current proportion of women on the Board of Management (1 out of 7) was at least

to remain stable until the end of 2015 and that it should increase to at least 2 out of 7 by the end of 2020.

As of December 31, 2018, Board of Management responsibilities have been distributed across eight Board departments. Five of these cover central management areas:

- Chairman of the Board of Management
- Finance
- Human Resources
- Data Privacy, Legal Affairs and Compliance
- Technology and Innovation

In addition, there are three segment-based Board departments:

- Germany
- Europe
- T-Systems

Composition of the Board of Management

Members of the Board of Management	Department
Timotheus Höttges	Chairman of the Board of Management (CEO)
Adel Al-Saleh	T-Systems
Dr. Dirk Wössner	Germany
Thomas Dannenfeldt (until December 31, 2018)	Finance (CFO)
Dr. Christian P. Illek (since January 1, 2019)	
Srini Gopalan	Europe
Dr. Christian P. Illek (until December 31, 2018)	Human Resources
Birgit Bohle (since January 1, 2019)	
Dr. Thomas Kremer	Data Privacy, Legal Affairs and Compliance
Claudia Nemat	Technology and Innovation
Thorsten Langheim	USA and Group Development (since January 1, 2019)

Changes in the composition of the Board of Management and its Structure

Effective January 1, 2018, the Supervisory Board of Deutsche Telekom AG appointed Dr. Dirk Wössner to the Board of Management as the new Board member responsible for Germany and Adel Al-Saleh as the new Board member responsible for T-Systems. At its meeting on February 21, 2018, the Supervisory Board of Deutsche Telekom AG resolved to extend Timotheus Höttges' contract as Chairman of our Board of Management by five years. Timotheus Höttges was reappointed as Chairman of the Board of Management effective January 1, 2019. Also at its meeting on February 21, 2018, the Supervisory Board of Deutsche Telekom AG resolved to appoint Dr. Christian P. Illek as Chief Financial Officer (CFO) effective January 1, 2019. The former CFO, Thomas Dannenfeldt, left Deutsche Telekom AG for personal reasons when his contract expired at the end of 2018.

At its meeting on July 13, 2018, the Supervisory Board of Deutsche Telekom AG resolved to appoint Birgit Bohle as the new Board of Management member responsible for Human Resources and as Labor Director effective January 1, 2019. Birgit Bohle succeeded Dr. Christian P. Illek in this position.

At its meeting on September 4, 2018, the Supervisory Board of Deutsche Telekom AG resolved to appoint Thorsten Langheim as the Board of Management member responsible for USA and Group Development, a newly created Board department, effective January 1, 2019. Deutsche Telekom AG thus has had nine Board departments since the start of 2019.

At its meeting on May 22, 2019, the Supervisory Board of Deutsche Telekom AG resolved to discontinue the Data Privacy, Legal Affairs and Compliance Board department after Dr. Thomas Kremer retires on March 31, 2020. The areas of this Board department have been assigned to other Board departments effective January 1, 2020, and Dr. Thomas Kramer has been responsible for this transition. The areas data privacy, legal affairs and compliance have been assigned to the Board department Human Resources, led by Birgit Bohle.

Basis of Board of Management compensation

In 2010, Deutsche Telekom AG established a new system for the compensation of the Board of Management members, taking into account the provisions specified in the German Act on the Appropriateness of Management Board Remuneration (*Gesetz zur Angemessenheit der Vorstandsvergütung*).

The compensation of Board of Management members is comprised of various components. Under the terms of their service contracts, members of the Board of Management are entitled to annual fixed remuneration and annual variable performance-based remuneration (Variable I), a long-term variable remuneration component (Variable II), as well as fringe benefits and deferred benefits based on a company pension entitlement. The Supervisory Board defines the structure of the compensation system for the Board of Management and reviews this structure and the appropriateness of the compensation at regular intervals.

The fixed annual remuneration is determined for all Board of Management members based on market conditions in accordance with the requirements of stock corporation law. Board of Management compensation is oriented toward our sustained development and there is a multi-year measurement base in the new system for the variable components.

At its discretion and after due consideration, the Supervisory Board may also reward extraordinary performance by an individual member(s) or by all members of the Board of Management in the form of a special bonus.

In accordance with market-oriented and corporate standards, we grant all members of the Board of Management additional benefits under the terms of their service contracts, some of which are viewed as non-cash benefits and taxed accordingly. This mainly includes being furnished with a company car and accident and liability insurance and reimbursements in connection with maintaining a second household.

Employment outside of the Group generally requires prior approval by the Supervisory Board. Generally, no additional compensation is paid to members of the Board of Management for board memberships of other Group entities.

For more information on the compensation of the Board of Management and the disclosures required by § 314 of the German Commercial Code, German Accounting Standard No. 17 (GAS 17), and the German Corporate Governance Code, please refer to Note 43 "*Compensation of the Board of Management and the Supervisory Board*" to our consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

Employees

Headcount development

Employees in the Group	As of September 30, 2019	As of December 31, 2018	As of December 31, 2017
Total	**211,884**	**215,675**	**217,349**
Of which: Deutsche Telekom AG	17,640	19,259	21,428
Of which: civil servants (in Germany, with an active service relationship)	12,281	13,507	15,482
Germany operating segment[1]	61,181	62,621	64,798
United States operating segment	47,496	46,871	45,888
Europe operating segment[1]	45,240	48,133	47,421
Systems Solutions operating segment	37,718	37,467	37,924
Group Development[2]	2,615	1,976	1,967
Group Headquarters & Group Services	17,635	18,606	19,351
Breakdown by geographic area			
Germany	95,029	98,092	101,901
International	116,855	117,582	115,448
Of which: other EU Member States	59,362	61,249	59,952
Of which: rest of Europe	2,083	2,471	2,620
Of which: North America	47,855	47,245	46,332
Of which: rest of world	7,555	6,618	6,543

In the first three quarters of 2019, the Group's headcount decreased by 1.8 percent compared with the end of 2018. By December 31, 2018, our Group's headcount decreased by 0.8 percent compared with December 31, 2017, and by December 31, 2017, the headcount had decreased by 0.5 percent compared with December 31, 2016, both for the reasons stated below.

Germany

The headcount in our Germany operating segment in the first three quarters of 2019 decreased by 2.3 percent compared with the end of 2018 as a result of efficiency enhancement measures and the take-up of socially responsible instruments in connection with the staff restructuring.

The headcount in our Germany operating segment as at December 31, 2018 decreased by 3.4 percent compared with December 31, 2017 as a result of efficiency enhancement measures, fewer new hires in the operational units, and the take-up of socially responsible instruments in connection with the staff restructuring.

As at December 2017, the headcount in this segment had decreased by 2.3 percent compared with December 31, 2016, due to measures to enhance efficiency, a slowdown in recruitment in the operating units, and the take-up of socially responsible instruments.

United States

The total number of employees in our United States operating segment in the first three quarters of 2019 segment increased by 1.3 percent compared to December 31, 2018, primarily due to the anticipation of the proposed Sprint transaction.

The total number of employees in our United States operating segment as of December 31, 2018, increased by 2.1 percent compared to December 31, 2017, due primarily to increases in customer support, back office, and network employees, partially offset by a decrease in customer acquisition employees.

As at December 31, 2017, the total number of employees in this segment had increased by approximately 2.4 percent compared with December 31, 2016 due to an increase in customer support and network employees, partially offset by a decrease in customer acquisition employees.

Europe

In our Europe operating segment, the headcount decreased by 6.0 percent in the first three quarters of 2019 compared with the end of the prior year. This was due in part to the sale of Telekom Albania. The headcount also decreased in Romania and Hungary in particular.

In our Europe operating segment, staff levels as at December 31, 2018 had increased by 1.5 percent compared with December 31, 2017. This growth was mainly attributable to our national companies in Austria, where we took over employees of UPC Austria, and in Croatia, due in part to the expansion of our service activities there.

As at December 31, 2017, staff levels had increased by 1.3 percent compared to December 31, 2016, due to the extra employees needed at our national company in Poland to staff the new branches opened there.

Systems Solutions

The number of employees in our Systems Solutions operating segment increased by 0.7 percent in the first three quarters of 2019 compared with the end of 2018, mainly due to the first-time inclusion and expansion of a service unit in India. The remaining headcount in this segment decreased by 2.1 percent on account of restructuring measures.

The headcount in our Systems Solutions operating segment as at December 31, 2018 decreased by 1.2 percent, compared to December 31, 2017, due mainly to restructuring measures.

As at December 31, 2017, the headcount had increased by 1.2 percent, compared to December 31, 2016, largely as a result of the integration of Telekom Security employees.

Group Development

In the Group Development operating segment, the number of employees increased by 32.3 percent in the first three quarters of 2019 compared with the December 31, 2018. This increase can be attributed to the inclusion of Tele2 Netherlands in the Netherlands.

In our Group Development operating segment, the number of employees grew slightly by 0.5 percent as at December 31, 2018 compared with the end of 2017.

In our Group Development operating segment, the number of employees declined by 23.5 percent as at December 31, 2017, compared with December 31, 2016, primarily as a result of the deconsolidation of Strato AG as of March 31, 2017.

Group Headquarters & Group Services

The number of employees in our Group Headquarters & Group Services segment decreased by 5.2 percent in the first three quarters of 2019 compared with the end of 2018, mainly due to the ongoing staff restructuring at Vivento and the lower headcount in the Technology and Innovation unit.

The number of employees in our Group Headquarters & Group Services segment had decreased as at December 31, 2018 by 3.9 percent compared with the end of 2017. The decline in staff levels caused by ongoing restructuring measures at Vivento was partially offset by the addition of employees at the Technology and Innovation unit.

Numbers decreased by 4.7 percent as at December 31, 2017 compared to December 31, 2016 mainly due to the ongoing staff restructuring at Vivento and the Group-wide bundling of the Telekom Security unit under our Systems Solutions operating segment. By contrast, the number of employees in our new Technology and Innovation Board department increased.

Collective bargaining

On April 12, 2018, Deutsche Telekom and the trade union Vereinte Dienstleistungsgewerkschaft ("ver.di") reached agreements on the terms for a collective bargaining agreement (*Tarifvertrag*) for Deutsche Telekom, Telekom Deutschland GmbH, Deutsche Telekom Service GmbH, Deutsche Telekom Außendienst GmbH, Deutsche Telekom Technik GmbH, and Deutsche Telekom Geschäftskunden-Vertrieb GmbH. The new collective bargaining agreement, *inter alia*, provides for salary increases of 2.7 percent (3.1 percent for lower salary groups) with retroactive effect as of May 1, 2018 and an additional 2.1 percent increase as of May 1, 2019 for all salaries covered by the collective bargaining agreement. The new agreement took effect retroactively as of February 1, 2018 and has a twenty-six month term.

Further, on April 12, 2018, Deutsche Telekom and ver.di reached agreements on the terms for a collective bargaining agreement (*Tarifvertrag*) for Deutsche Telekom IT GmbH and Deutsche Telekom Individual Solutions & Products GmbH. The new collective bargaining agreement, *inter alia*, provides for salary increases of 2.6 percent (3.0 percent for lower salary groups) with retroactive effect as of July 1, 2018 and an additional 2.0 percent increase as of July 1, 2019 for all salaries covered by the collective bargaining agreement. The new agreement took effect retroactively as of April 1, 2018 and has a two-year term.

Under the aforementioned collective bargaining agreements, dismissals for operational reasons (*betriebsbedingte Beendigungskündigungen*) are ruled out until December 31, 2020.

On November 22, 2018, an agreement for the German subsidiaries of T-Systems was reached with ver.di. Among other matters, the agreement provides for salary increases of 2.0 percent (3.0 percent for lower salary groups) effective January 1, 2019 and an additional 2.5 percent increase effective January 1, 2020. The agreement took effect retroactively as of April 1, 2018, and has a thirty-three month term.

Civil servants

Although no employees hired after January 1, 1995 have been granted civil servant status, we employ a substantial number of civil servants. Pursuant to the law governing our privatization, our civil servant employees retained their civil servant status. Accordingly, the terms and conditions of their employment and the benefits owed to them continue to be governed by German regulations regarding civil servants. In particular, civil servant salaries are set by statute and not by us or by collective bargaining agreements. In addition, civil servants are tenured employees and may not be unilaterally terminated except in extraordinary, statutorily defined circumstances. Civil servants are not permitted to participate in work-related actions such as strikes, but are permitted to join labor unions. Although we are authorized, pursuant to the law governing our privatization, to exercise generally the rights and duties of the Federal Republic as the employer of civil servants, the Federal Postal and Telecommunication Agency (Bundesanstalt für Post und Telekommunikation or the Federal Agency) has a right of consultation in the implementation of certain aspects of the terms under which we employ civil servants.

Under the German Postal Employees Act (*Postpersonalrechtsgesetz*), which governs the legal position of civil servants at Deutsche Telekom, we have been given greater flexibility with respect to our relationship with our civil servants. Among other things, we were able to eliminate the Christmas bonus thus enabling us to finance the reduction in weekly working hours from 41 to 38 under our employment alliance, which also applied to civil servants from April

2004. Based on the agreement and the applicable law, we may assign tasks in companies within or outside the Group to active civil servants. The civil servants' compensation, healthcare and pension entitlements have been maintained. Under certain circumstances, civil servants may also be transferred, even without their consent, to companies in which Deutsche Telekom has a direct or indirect majority shareholding. However, there is a risk that civil servants who have been transferred and whose civil servant status has been temporarily suspended may return to Deutsche Telekom, for example, after the completion of their work at one of our subsidiaries. Although we attempt to reduce the financial impacts of this risk through compensation payments from the subsidiaries to Deutsche Telekom, we cannot eliminate it completely.

Since 2004, the measures agreed upon for civil servants in the collective bargaining agreement between Deutsche Telekom and ver.di (*Manteltarifvertrag*) have been funded by various measures, including the elimination of year-end bonuses (Christmas bonuses) based on an amendment of the legal provisions relating to the German Postal Employees Act. Civil servants have raised objections and taken legal action against this amendment but, after the Federal Constitutional Court confirmed its constitutionality in 2012, most claims and appeals were withdrawn or dismissed by the competent courts. A small number of claims remain before the relevant courts pending resolution.

Pensions

We manage our pension commitments based on our Group-wide Global Pension Policy. This policy is designed to ensure that Group minimum standards regarding the granting and management of company pension benefits are complied with on a worldwide basis, that plans are harmonized, 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 the requirements for the launch, adjustment, and closure of corresponding plans. The regulations and provisions in our Group policy take into account national differences in state pension and other commitments under labor, tax, and social law and common business practices in the area of pension commitments.

In Germany, we offer defined benefit plans based on defined contribution-like pension commitments (*Beitragsorienterte Leistungszusagen*). We also established a contractual trust arrangement ("CTA"), Deutsche Telekom Trust e. V., in Germany in 2011 to allow 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. In addition, specific arrangements are in place with respect to pensions for civil-servants.

Defined benefit plans

We maintain defined benefit pension plans in various countries on the basis of the pensionable compensation of our employees and their length of service. Some of these pension plans are at least partially financed through external pension funds (including the German CTA), and some remain unfunded. 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 as of the end of a given financial year, but also expected future salary and benefit increases.

As of December 31, 2018, provisions for pensions and other employee benefits (defined benefit liability according to International Accounting Standard 19) amounted to EUR 5.5 billion (December 31, 2017: EUR 8.4 billion). The slight decrease in pension provisions is mainly attributable to the transfer of the 12 percent stake in British Telekom to Deutsche Telekom Trust e.V. ("CTA") as plan assets completed on March 23, 2018.

With respect to the defined benefit pension plans the following table presents the development of plan assets at fair value for the periods indicated:

	2018	2017	2016
		(millions of €)	
		(audited)	
Plan assets at fair value as of January 1	**3,102**	**2,990**	**2,774**
Changes attributable to business combinations/transfers of operation/acquisitions and disposals	0	0	0
Interest income on plan assets (calculated using the discount rate)	88	48	57
Amount by which the actual return exceeds (falls short of) the interest income on plan assets (remeasurement)	179	105	33
Contributions by employer	2,852	10	264
Contributions by plan participants	4	4	5
Benefits actually paid from plan assets	(132)	(31)	(32)
Settlements	0	0	(58)
Administration costs	0	0	0
Tax payments	0	0	-
Exchange rate fluctuations for plans in foreign currency	6	(24)	(23)
Plan assets at fair value as of December 31	**6,099**	**3,102**	**2,990**

Contributions by employer as of December 31, 2018 include shares in BT, which were paid into the corporate CTA, and, in an offsetting effect, a refund from the CTA to Deutsche Telekom for benefit payments made by the employer. In 2018, pension payments were made from the CTA on a pro-rata basis for the first time in Germany.

The following tables present the breakdown of plan assets at fair value by investment category as of the dates indicated:

	December 31, 2018	Of which: price in an active market	Of which: price without an active market
		(millions of €)	
		(audited)	
Equity securities	4,278	4,278	0
Debt securities	922	922	0
Real estate	66	66	0
Derivatives	0	0	0
Investment funds	156	156	0
Asset-backed securities	0	0	0
Structured debt instruments	437	437	0
Cash and cash equivalents	118	118	0
Other	122	84	38
Plan assets at fair value	**6,099**	**6,061**	**38**

	December 31, 2017	Of which: price in an active market	Of which: price without an active market
		(millions of €)	
		(audited)	
Equity securities	1,312	1,312	0
Debt securities	1,244	1,244	0
Real estate	56	56	0
Derivatives	0	0	0
Investment funds	0	0	0
Asset-backed securities	0	0	0
Structured debt instruments	350	350	0
Cash and cash equivalents	2	2	0
Other	138	101	37
Plan assets at fair value	**3,102**	**3,065**	**37**

	December 31, 2016	Of which: price in an active market	Of which: price without an active market
		(millions of €)	
		(audited)	
Equity securities	795	795	0
Debt securities	1,870	1,870	0
Real estate	56	56	0
Derivatives	1	1	0
Investment funds	0	0	0
Asset-backed securities	0	0	0
Structured debt instruments	0	0	0
Cash and cash equivalents	135	135	0
Other	133	96	37
Plan assets at fair value	**2,990**	**2,953**	**37**

As of December 31, 2018, the plan assets at fair value include shares issued by Deutsche Telekom amounting to EUR 3,043 thousand (December 31, 2017: shares totaling EUR 3,449 thousand; December 31, 2016: shares totaling EUR 1,364 thousand) and bonds in the amount of EUR 1,960 thousand of Deutsche Telekom International Finance B.V.

The following table presents the amounts of defined benefit obligations, plan assets and defined benefit obligations in excess of plan assets as of the dates indicated:

	2018	2017	2016
		(millions of €)	
		(audited)	
Defined benefit obligation	11,590	11,462	11,427
Plan assets at fair value	(6,099)	(3,102)	(2,990)
Defined benefit obligations in excess of plan assets	**5,491**	**8,360**	**8,437**

The following table presents the experience-based adjustments with respect to defined benefit obligations and plan assets for the periods indicated:

	2018	2017	2016
		(%)	
		(audited)	
Experience-based increase (decrease) of defined benefit obligation	0.1	(0.1)	(0.1)
Experience-based increase (decrease) of plan assets	2.9	3.4	1.1

Defined contribution plans

Group-wide, we recognized EUR 120 million (2017: EUR 131 million, 2016: EUR 109 million) from current contributions for additional defined contribution plans (DC-plans) in the consolidated income statement in 2018.

In addition to the classic DC-plans on a group-wide global level, our payments to the statutory pension scheme (*Deutsche Rentenversicherung*) in Germany totaled EUR 0.4 billion in the 2018 financial year (2017: EUR 0.3 billion, 2016: EUR 0.3 billion).

Pension contributions for civil servants in the Group

Civil servants employed by us are entitled to pension benefits provided by the German federal government pursuant to the German Civil Servants' Benefits Act (*Beamtenversorgungsgesetz*). Pursuant to the law governing our privatization, we are required to make annual contributions to a special pension fund established to fund such pension obligations. Since January 1, 2013, and based on the Act on the Reorganization of the Civil Service Pension Fund (*Gesetz zur Neuordnung der Postbeamtenversorgungskasse*), the special pension fund is operated by the Federal Postal and Telecommunication Agency. Our contributions under the law governing our privatization generally amount to 33 percent of the pensionable gross remuneration of active civil servants and the notional pensionable gross remuneration of civil

servants on leave of absence. In the 2018 financial year, the corresponding expense amounted to EUR 441 million (2017: EUR 458 million; 2016: EUR 516 million). The present value of future payment obligations was EUR 2.5 billion at December 31, 2018 (December 31, 2017: EUR 3.1 billion, December 31, 2016: EUR 3.6 billion).

The Act for the Improvement of the Staff Structure at the Residual Special Asset of the Federal Railways and the Successor Companies of the Former Deutsche Bundespost (*Gesetz zur Verbesserung der personellen Struktur beim Bundeseisenbahnvermögen und in den Unternehmen der Deutschen Bundespost*) allows us to include civil servants in staff restructuring measures. Civil servants of all service grades, who are working in areas where there is a surplus of staff and for whom employment in another area is not possible or cannot reasonably be expected in line with civil service legislation, have been able to apply for early retirement from the age of 55. By virtue of the Act on the Reorganization of the Civil Service Pension Fund, the provisions for early retirement for civil servants were last extended until December 31, 2016. As of December 31, 2018, this resulted in liabilities in an amount of EUR 1,227 million of which EUR 422 million were current (2017: EUR 1,283 million, of which EUR 447 million were current; 2016: EUR 1,856 million, of which EUR 573 million were current).

For more information regarding pensions, see "*Employee Benefits*" and "*Judgments and Estimates—Pension obligations for benefits to non-civil servants*" both contained in the section "*Summary of accounting policies*" in the notes to our consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum as well as notes 14 "*Provisions for pensions and other employee benefits*", 16 "*Other liabilities*" and 38 "*Other financial obligations*".

Personnel costs

The following table presents information on personnel costs in the Group for the periods indicated:

	Q1 - Q3 2019	**2018**	**2017**	**2016**
	(billions of €)			
	(unaudited)			
Personnel costs in the Group	12.6	16.4	15.5	16.5
Of which: expenses relating to staff-related measures	0.8	2.5	2.7	3.5

ADDITIONAL INFORMATION

We are a stock corporation organized under the laws of the Federal Republic of Germany. Deutsche Telekom AG, Bonn, is the parent company of our Group. Its ordinary registered shares are traded on the Frankfurt Stock Exchange as well as on other German stock exchanges. Information on the capital stock in accordance with § 289a No. 1 of the German Commercial Code (*Handelsgesetzbuch*) can be found in Note 18 "*Shareholders' equity*" to our consolidated financial statements as of and for the financial year ended December 31, 2018 and incorporated by reference in this offering memorandum.

Voting Rights

Each share of Deutsche Telekom entitles its holder to one vote. However, no voting rights exist for treasury shares (around 19 million as of December 31, 2018). The treasury shares include the former trust shares (around 18.5 million) – shares originated in connection with the acquisitions of VoiceStream Wireless Corp. and Powertel, Inc. (now T-Mobile US) in 2001 – that were transferred to a custody account of Deutsche Telekom following the dissolution of the trusts at the beginning of 2016 (see "—*Share Repurchase / Treasury Shares*" below).

Authorized Capital and Contingent Capital

The shareholders' meeting on May 31, 2017 authorized our Board of Management to increase our share capital with the approval of the Supervisory Board by up to EUR 3,600,000,000 by issuing up to 1,406,250,000 no par value registered shares against cash and/or non-cash contributions in the period ending May 30, 2022. This authorization may be exercised in full or on one or more occasions in partial amounts. The Board of Management is authorized, subject to the approval of the Supervisory Board, to exclude residual amounts from shareholders' subscription rights. Furthermore, the Board of Management is authorized, subject to the approval of the Supervisory Board, to exclude shareholders' subscription rights when increasing share capital against non-cash contributions in to order to issue new shares for mergers or acquisitions of companies, business units or interests in companies, including increasing existing investment holdings, or other assets eligible for contribution in conjunction with such acquisitions, including receivables from Deutsche Telekom. However, the proportion of the share capital attributable to the new shares issued on the basis of this authorization with subscription rights being excluded, together with the proportion of the share capital attributable to new shares or option and/or conversion rights and obligations under the bonds issued or sold after May 31, 2017, with subscription rights being excluded, must not exceed 20 % of the total share capital as of May 31, 2017, as of the date of the registration of the authorization, or as of the date of issuing the new shares, whichever amount is lowest. If the issue or sale is carried out in accordance with § 186 (3) sentence 4 of the German Stock Corporation Act (*Aktiengesetz*) (directly or by analogy), this shall also constitute an exclusion of subscription rights. The Board of Management is authorized, subject to the approval of the Supervisory Board, to determine the further content of the rights attached to the shares and the conditions according to which the shares are issued (2017 authorized capital). The 2017 authorized capital was entered into the commercial register on July 11, 2017.

The shareholders' meeting on May 17, 2018 resolved to cancel the 2014 contingent capital and to replace it with a 2018 contingent capital (described below). The cancelation of the 2014 contingent capital was entered into the commercial register on June 26, 2018.

The shareholders' meeting on May 17, 2018 increased the share capital contingently by up to EUR 1,200,000,000, comprising up to 468,750,000 no par value shares (2018 contingent capital). The contingent capital increase will be implemented only to the extent that

a) the holders or creditors of bonds with warrants, convertible bonds, profit participation rights, and/or participating bonds (or combinations of these instruments) with options or conversion rights, which are issued or guaranteed by Deutsche Telekom or its direct or indirect majority holdings by May 16, 2023, on the basis of the authorization resolution granted by the shareholders' meeting on May 17, 2018, make use of their option and/or conversion rights, or

b) those obligated pursuant to the terms of bonds with warrants, convertible bonds, profit participation rights, and/or participating bonds (or combinations of these instruments) which are issued or guaranteed by Deutsche Telekom or its direct or indirect majority holdings by May 16, 2023, on the basis of the authorization resolution granted by the shareholders' meeting on May 17, 2018, fulfill their respective option or conversion obligations under such instruments (including in the event that, in exercising a redemption option upon maturity of the bond, Deutsche Telekom grants shares in Deutsche Telekom in lieu of payment of the amount due)

and other forms of fulfillment are not used. The new shares shall participate in profits starting at the beginning of the financial year in which they are issued as the result of the exercise of any option or conversion rights or the fulfillment

of any option or conversion obligations. Our Supervisory Board is authorized to amend § 5 (3) of our Articles of Incorporation in accordance with the particular usage of the contingent capital and after the expiry of all the option or conversion periods. The 2018 contingent capital was also entered into the commercial register on June 26, 2018.

Authorization to Issue Convertible Bonds

The shareholders' meeting on May 17, 2018 authorized our Board of Management to issue, with the approval of our Supervisory Board, on one or more occasions until May 16, 2023, bearer or registered bonds with warrants, convertible bonds, profit participation rights, and/or participating bonds (or combinations of these instruments) having a total nominal amount of up to EUR 8,000,000,000.00 and to grant the holders of the respective bonds option or conversion rights to shares of Deutsche Telkom AG in respect of up to 468,750,000 shares with a portion of the share capital of up to EUR 1,200,000,000.00 in the aggregate, in accordance with the terms and conditions of the bonds (the "2018 Convertible Bond Authorization"). The bonds can be issued with or without a limited term and carry fixed or variable interest. The purpose of the 2018 contingent capital described above is to enable Deutsche Telekom to fulfill its obligation to issue shares upon the exercise of option or conversion rights of holders of bonds issued under the 2018 Convertible Bond Authorization. In general, shareholders have subscription rights to the bonds issued under the 2018 Convertible Bond Authorization. With approval of the Supervisory Board, our Board of Management is authorized to exclude the subscription rights of shareholders to the bonds in certain circumstances, including in particular if the issue price of the bonds is not significantly lower than their theoretical market value and if the shares underlying such bonds represent a portion of the share capital of Deutsche Telekom of less than 10 percent. Further details regarding the 2018 Convertible Bond Authorization are set forth in our invitation to our shareholders' meeting held on May 17, 2018 as available on our website.

Shareholder Remuneration

Policy

A dividend of EUR 0.70 for the financial year 2018 for each no par value share carrying dividend rights was paid out in April 2019. Subject to the necessary approvals, a dividend of EUR 0.60 will be paid for the 2019 financial year. In line with a November 2019 change to our shareholder remuneration policy, this dividend, expected to be paid out in 2020, is not intended to reflect the growth in adjusted earnings per share. Beginning from the 2020 financial year, the dividend is expected to reflect the relative growth in earnings per share with a fixed lower limit of EUR 0.60 per dividend-bearing share.

The implementation of this policy is subject to the availability of sufficient distributable balance sheet profits of Deutsche Telekom for the financial year in question, our ability to establish the necessary reserves for any share repurchases and other legal requirements that may be applicable. It is also contingent upon our governing bodies adopting resolutions to this effect, taking into account the company's situation at the time.

Dividend in the Form of Shares

In 2013 we began granting shareholders the option, exercisable by eligible shareholders under the securities laws of their respective jurisdictions, of converting dividend payments into Deutsche Telekom shares instead of receiving a cash payment. We repeated this practice every year until 2017 (with respect to the 2016 financial year), but not in 2018 (with respect to the 2017 financial year) and not in 2019 (with respect to the 2018 financial year).

In June 2017, dividend entitlements of Deutsche Telekom shareholders amounting to around EUR 1.4 billion were contributed against issue of new shares from authorized capital and thus did not have an impact on cash flows. Deutsche Telekom carried out an increase in issued capital of around EUR 0.2 billion against contribution of dividend entitlements for this purpose in June 2017. This increased capital reserves by around EUR 1,143 million, and under IFRS, by around EUR 1,175 million. The number of shares increased by 84,556,563. The dividend for the 2018 financial year described above was paid out in cash in the full amount (*i.e.*, in respect of all shares entitled to receive a dividend) at the beginning of April 2019.

Share Repurchase / Treasury Shares

The shareholders' meeting resolved on May 25, 2016 to authorize our Board of Management until May 24, 2021 to repurchase shares representing a total share capital of up to EUR 1,179,302,878.72. The shares to be repurchased on the basis of this authorization, when taken together with other shares repurchased by us and still in our possession or attributable to us according to § 71d and § 71e of the German Stock Corporation Act may not at any time account for more than 10 percent of our share capital. Moreover, the requirements under § 71 (2) sentences 2 and 3 of the

German Stock Corporation Act must be complied with. In addition, 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. The shares shall be purchased through the stock exchange in adherence to the principle of equal treatment (§ 53a of the German Stock Corporation Act). Shares can 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 tender shares, must also comply with the principle of equal treatment.

The resolution of the shareholders' meeting of May 25, 2016, also authorizes our Board of Management to acquire the shares through the use of equity derivatives.

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. The shares can be canceled or sold on the stock market or by way of an offer to all shareholders. The shares may also be used to fulfill the rights of our Board of Management members to receive shares, 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. The shares may also be used for the other purposes set forth in the authorization. The subscription rights of shareholders relating to these shares and their re-sale or re-transfer by us are excluded in certain cases in accordance with the authorization.

No treasury shares were acquired in the period from 2017 to 2019 up to the date of this offering memorandum.

We also dispose of treasury shares, in particular in connection with our Share Matching Plan. Under the Share Matching Plan, certain executives may or are obliged to invest a portion of their variable short-term remuneration component, which is based on the achievement of targets set for each such executive for the financial year (Variable I), in Deutsche Telekom shares. Deutsche Telekom, in turn, awards additional shares for every share acquired as part of these executives' aforementioned personal investments. The additional shares are allotted to the beneficiaries of this plan on expiration of a four-year lock-up period. For more information, please refer to the Note 39 "*Share-based payment*" to our consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

For more information on treasury shares, please refer to the Note 18 "*Shareholders' equity*" to our consolidated financial statements as of and for the year ended December 31, 2018 incorporated by reference in this offering memorandum.

Main Agreements that Include a Change of Control Clause

The main agreements entered into by Deutsche Telekom that include a change of control clause principally relate to bilateral credit lines and several loan agreements. In the event of a change of control, the individual lenders have the right to terminate their respective credit line and, if necessary, serve notice or demand repayment of the loans. A change of control is deemed to take place when a third party, which can also be a group acting jointly, acquires control over Deutsche Telekom.

On November 2, 2016, Deutsche Telekom signed an amendment to the shareholder agreement with the Greek government from May 14, 2008 on Hellenic Telecommunications Organization S.A., Athens, Greece ("OTE"); the amendment concerned the accession of the Hellenic Republic Asset Development Fund ("HRADF") as a party to the shareholder agreement in connection with the acquisition of 5 % of the shares of OTE from the Greek government. Under this agreement, the Greek government, together with HRADF, is, under certain circumstances, entitled to acquire all shares in OTE from Deutsche Telekom as soon as one (or more) person(s), with the exception of the Federal Republic of Germany, either directly or indirectly acquire(s) 35 percent of the voting rights of Deutsche Telekom.

In the master agreement establishing the procurement joint venture BuyIn in Belgium, Deutsche Telekom and Orange S.A. (formerly France Télécom S.A.)/Atlas Services Belgium S.A. (a subsidiary of Orange S.A.) agreed that if Deutsche Telekom or Orange comes under the controlling influence of a third party or if a third party that is not wholly owned by the Orange group of companies acquires shares in Atlas Services Belgium S.A., the respective other party (Orange and Atlas Services Belgium S.A. only jointly) may terminate the master agreement with immediate effect.

Accounting-Related Internal Control System

Our internal control system, or ICS, is based on the internationally recognized Committee of Sponsoring Organizations of the Treadway Commission ("COSO") Internal Control – Integrated Framework, COSO I, as amended

on May 14, 2013. The Audit Committee of the Supervisory Board monitors the effectiveness of the ICS – as required by § 107 (3) sentence 2 of the German Stock Corporation Act. The Board of Management has the responsibility to define the scope and structure of the ICS at its discretion.

Internal Audit is responsible for independently reviewing the functionality and effectiveness of the ICS in the Group and at Deutsche Telekom, and, to comply with this task, has comprehensive information, audit and inspection rights.

The accounting-related ICS comprises the principles, methods, and measures used to ensure appropriate accounting. It is continuously being refined and aims to ensure that the consolidated financial statements of Deutsche Telekom are 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. Another objective of the accounting-related ICS is the preparation of annual financial statements of Deutsche Telekom and the combined management report in accordance with German GAAP.

It is generally true of any ICS that regardless of how it is specifically structured there can be no absolute guarantee that it will achieve its objectives. Therefore, with respect to accounting-related ICS, there can only ever be relative, but no absolute certainty that material accounting misstatements can be prevented or detected.

Group Accounting manages the processes for the preparation of the consolidated financial statements and the management report. Laws, accounting standards and other pronouncements are continuously analyzed as to whether and to what extent they are relevant and how they impact on financial reporting. The relevant requirements are defined in the Group Accounting Manual, for example, communicated to the relevant units and, together with the financial reporting calendar that is binding throughout the Group, forms the basis of the financial reporting process. In addition, supplementary process directives, such as intercompany policy, standardized reporting formats, IT systems, as well as IT-based reporting and consolidation processes support the process of uniform and compliant Group accounting. Where necessary, we also draw on the services of external service providers, for example, for measuring pension obligations. Group Accounting ensures these requirements are complied with consistently throughout the Group. The staff involved in the accounting process receive regular training. Deutsche Telekom and the Group companies are responsible for ensuring that Group-wide guidelines and procedures are complied with. The Group companies ensure the compliance and timeliness of their accounting-related processes and systems and in doing so, are supported and monitored by Group Accounting.

Operational accounting processes at the national and international level are increasingly managed by our shared service centers. Harmonizing these processes enhances their efficiency and quality and in turn, improves the reliability of the ICS. The ICS thus safeguards both the quality of internal processes at the shared service centers and the interfaces to the Group companies by means of adequate controls and an internal certification process. Internal controls are embedded in the accounting process depending on risk levels. The accounting-related ICS comprises both preventive and detective controls, which include IT-based and manual matching, the segregation of functions, the dual checking principle, monitoring controls as well as general IT checks such as access management in IT systems and change management.

We have implemented a standardized process throughout the Group for monitoring the effectiveness of the accounting-related ICS. This process systematically focuses on risks of possible misstatements in the consolidated financial statements. At the beginning of the year, specific accounts and accounting-related processes are selected based on risk factors. They are then reviewed for effectiveness in the course of the year. If control weaknesses are found, they are analyzed and assessed, particularly in terms of their impact on the consolidated financial statements and the combined management report. Material control weaknesses, the action plans for eliminating them, and ongoing progress are reported to the Board of Management and additionally to the Audit Committee of the Supervisory Board of Deutsche Telekom. In order to ensure a high-quality accounting-related ICS, Internal Audit is closely involved in all stages of the process.

Statement by the Board of Management on the Dependent Company Report

At the last three shareholders' meetings of Deutsche Telekom, the Federal Republic of Germany did not represent a majority. In the light of this development, our company decided not to prepare a dependent company report for the 2018 and 2019 financial years.

In the last dependent company report prepared by Deutsche Telekom describing relations between the Federal Republic of Germany and Deutsche Telekom (for the 2017 financial year), the Board of Management issued the following statement: "The Board of Management hereby declares that under the circumstances known to the Board of Management at the time the corporate transactions were performed, Deutsche Telekom received appropriate remuneration

for such transactions. Deutsche Telekom did not perform or omit any actions in the interests of or on the instructions of, the controlling company or any affiliated companies of the Federal Republic."

DESCRIPTION OF THE NOTES

The Notes will be issued under the Agreement, expected to be dated as of January 21, 2020, among the Issuer and Citibank as fiscal agent and principal paying agent (the "Fiscal Agent," which expression shall, where the context so requires, include any successor for the time being as Fiscal Agent, or the "Paying Agent," where the context so requires, which term shall also include any substitute or additional paying agents from time to time under the Agreement). The Paying Agent is also acting as transfer agent, defeasance agent and registrar of the Notes.

Holders are deemed to have notice of all provisions of the Agreement. The summary information set forth herein does not purport to be complete and is subject to the actual provisions of the Agreement and the Notes. Copies of the Agreement and the Notes are available for inspection at the office of the Fiscal Agent. A copy of the Agreement is also available upon request from the Issuer.

General

The Notes will be the direct, unconditional, unsecured and unsubordinated general obligations of the Issuer. The Notes will rank equally among themselves, without any preference of one over the other by reason of priority of date of issue or otherwise, and at least equally with all other unsecured and unsubordinated general obligations of the Issuer from time to time outstanding. The Notes will be repaid at maturity at a price of 100% of the principal amount thereof. The Notes will be issued in denominations of $150,000 and integral multiples of $1,000 in excess thereof. The Notes do not provide for any sinking fund.

A "Business Day" means a day (other than a Saturday or Sunday) on which commercial banks are open for business (including dealings in foreign exchange and foreign currency) in New York City.

Principal and Interest

The Notes will be initially limited to $1,250,000,000 aggregate principal amount and will mature on January 21, 2050. The Notes will bear interest at the rate per annum of 3.625% from January 21, 2020. Interest on the Notes will be payable semiannually in arrears on January 21 and July 21 of each year, commencing on July 21, 2020. Interest on the Notes will in each case be payable to the holders of record on the Business Day immediately preceding the relevant interest payment date. Interest on the Notes will be calculated on the basis of a 360-day year consisting of twelve 30-day months.

The Notes may be redeemed at any time prior to maturity in the circumstances described under "—*Optional Redemption*" and "*—Optional Tax Redemption*".

If any interest payment date, the date of maturity or the date fixed for redemption of any Note is not a Business Day, then payment of interest or principal need not be made on such date, but may be made on the next succeeding Business Day with the same force and effect as if made on the date of maturity or the date fixed for redemption, and no interest shall accrue for the period after such date.

Additional Notes

The Notes will be issued in the initial aggregate principal amount set forth above. The Issuer may, from time to time, without notice to or the consent of the Holders, create and issue, pursuant to the Agreement and in accordance with applicable laws and regulations, additional notes (the "Additional Notes") maturing on the same maturity date as the Notes and having the same terms and conditions under the Agreement as the previously outstanding Notes in all respects (or in all respects except for the issue date and the amount and the date of the first payment of interest thereon) so that such Additional Notes shall be consolidated and form a single series with the previously outstanding Notes. Any Additional Notes shall be issued under a separate CUSIP or ISIN number unless the Additional Notes are issued pursuant to a "qualified reopening" of the original Notes or are otherwise treated as part of the same "issue" of debt instruments as the original Notes for U.S. federal income tax purposes. Additional Notes, if any, will be issued under a separate offering document or a supplement to this offering memorandum.

Optional Redemption

The Issuer may, at its option, redeem the Notes as a whole or in part at any time prior to the Optional Redemption Relevant Date upon not less than 30 nor more than 60 days' prior notice, at a redemption price equal to the greater of:

- 100% of the principal amount of the Notes plus accrued and unpaid interest (and Additional Amounts, if any) to the date of redemption; or

- as determined by the Quotation Agent, the sum of the present values of the remaining scheduled payments of principal and interest (and Additional Amounts, if any) on the Notes that would be due if such Notes matured on the Optional Redemption Relevant Date but for the redemption (not including any portion of such payments of interest accrued as of the date of redemption) plus accrued and unpaid interest (and Additional Amounts, if any) to the date of redemption. The present values will be determined by discounting the remaining principal and interest payments to the redemption date on a semiannual basis (assuming a 360-day year consisting of twelve 30-day months), using the Adjusted Treasury Yield.

In addition, the Issuer may, at its option, redeem the Notes as a whole or in part at any time on or after the relevant Optional Redemption Relevant Date upon not less than 30 nor more than 60 days' prior notice, at a redemption price equal to 100% of the principal amount of the relevant Notes, plus accrued and unpaid interest (and Additional Amounts, if any) to the date of redemption.

"Adjusted Treasury Yield" means, with respect to any redemption date, the rate per annum equal to the semiannual equivalent yield to maturity of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for such redemption date plus 25 basis points.

"Comparable Treasury Issue" means the U.S. Treasury security selected by the Quotation Agent as having a maturity comparable to the remaining term of the Notes to be redeemed (assuming, for this purpose, that the Notes matured on the applicable Optional Redemption Relevant Date) that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to the remaining term of the Notes.

"Comparable Treasury Price" means, with respect to any redemption date, the average of the Quotation Agent's Quotations for the redemption date.

"Independent Investment Banker" means an independent investment banking institution of national standing in the United States appointed by the Issuer.

"Optional Redemption Relevant Date" means July 21, 2049 (six months prior to the maturity date).

"Quotation Agent" means a reference treasury dealer that is a primary U.S. government securities dealer in New York City. The Independent Investment Banker will appoint the Quotation Agent after first consulting with the Issuer.

"Quotation Agent's Quotations" means with respect to any redemption date, the average, as determined by the Independent Investment Banker, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the Independent Investment Banker by the Quotation Agent at 5:00 p. m. on the third business day before the redemption date.

From and after the redemption date, if money for the redemption of the Notes called for redemption is made available as provided in the Agreement and the Notes called for redemption on the redemption date, the Notes will cease to bear interest, and the only right of the Holders will be to receive payment of the redemption price and all unpaid interest accrued to the date of redemption.

If fewer than all of the Notes are to be redeemed, the Fiscal Agent shall select, no more than 60 days prior to the date fixed for redemption, the particular Notes or portions thereof for redemption from the outstanding Notes not previously called for redemption, on a pro rata basis, by lot or by such method as the Fiscal Agent deems fair and appropriate and in accordance with the procedures of the Depositary in the case of global securities.

Optional Tax Redemption

The Notes may be redeemed at any time, at the option of the Issuer or, if applicable, a Successor Person (as defined below) in whole or in part, upon no less than 30 days' but no more than 60 days' prior notice, at a redemption price equal to 100% of the principal amount of the Notes being redeemed plus accrued and unpaid interest on the principal amount being redeemed (and all Additional Amounts, if any) to (but excluding) the redemption date, if

- as a result of any change in, execution of or amendment to any laws or treaties or the official application or interpretation of such laws or treaties, the Issuer would be required to pay Additional Amounts (as described in "*Additional Amounts*" below) and such obligation cannot be avoided by the Issuer taking reasonable measures available to it; or,

- a person into which the Issuer is merged or to whom it has conveyed, transferred or leased its property or assets (a "Successor Person") is similarly required to pay Additional Amounts. In such a case, the Issuer is not required to use reasonable measures to avoid the obligation to pay Additional Amounts.

Such optional tax redemption is available only in the case of changes, executions, amendments, applications or interpretations that occur in, or affecting the taxation of, the jurisdiction where the Issuer is incorporated and on or after the date specified in this offering memorandum for the Notes. For a Successor Person, the applicable jurisdiction will be the jurisdiction in which the Successor Person is organized, and the applicable date will be the date such entity became a Successor Person.

Prior to the giving of notice of redemption, the Issuer or the Successor Person, as the case may be, will deliver to the Fiscal Agent an officer's certificate, stating that the Issuer or the Successor Person, as the case may be, is entitled to effect such redemption and setting forth in reasonable detail a statement of circumstances showing that the conditions precedent to the right of the Issuer or the Successor Person, as the case may be, to redeem the Notes pursuant to the Agreement have been satisfied.

Modifications and Amendment

The Issuer and the Fiscal Agent may, with the consent of the Holders of not less than a majority in aggregate principal amount of the Notes then outstanding, evidenced as provided in the Agreement, execute agreements adding any provisions to or changing in any manner or eliminating any of the provisions of the Agreement or of any supplemental agreement or modifying in any manner the rights of the Holders; provided that no such agreement shall (a) change the maturity of the principal of any Note, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of any installment of interest thereon, or change the place or currency of payment of principal of, or interest on, any Note, or change the Issuer's obligation to pay Additional Amounts, impair or affect the right of any Holder to institute suit for the enforcement of any such payment on or after the due date therefor (or in the case of redemption, on or after the redemption date) without the consent of the Holder of each Note so affected; or (b) reduce the aforesaid percentage of Notes, the consent of the Holders of which is required for any such agreement, without the consent of the Holders of the Notes then outstanding.

The Issuer and the Fiscal Agent may, without the consent of the Holders, from time to time and at any time, enter into a separate or supplemental fiscal and paying agency agreement to:

- to convey, transfer, assign, mortgage or pledge to the Fiscal Agent or another person as security for the Notes any property or assets;

- to evidence the succession of another person to the Issuer, or successive successions, and the assumption by the successor person of the covenants, agreements and obligations of the Issuer pursuant to the Agreement;

- to evidence and provide for the acceptance of appointment of a successor or successors to the Fiscal Agent in any of its capacities;

- to add to the covenants of the Issuer, such further covenants, restrictions, conditions or provisions as the Issuer shall reasonably consider to be for the protection of the Holders, to surrender any power conferred upon the Issuer and to make the occurrence, or the occurrence and continuance, of a default in any such additional

covenants, restrictions, conditions or provisions an Event of Default under the Notes permitting the enforcement of all or any of the several remedies provided in the applicable Agreement; *provided*, that in respect of any such additional covenant, restriction, condition or provision such supplemental agreement may provide for a particular period of grace after default (which period may be shorter or longer than that allowed in the case of other defaults) or may provide for an immediate enforcement upon such an Event of Default or may limit the right of the Holders of a majority in aggregate principal amount of the Notes to waive such an Event of Default;

- to modify the restrictions on, and procedures for, resale and other transfers of the Notes pursuant to law, regulation or practice relating to the resale or transfer of restricted securities generally;

- to cure any ambiguity or to correct or supplement any provision contained in the Agreement, the Notes, or in any supplemental agreement which may be defective or inconsistent with any other provision contained therein or in any supplemental agreement or to make such other provisions in regard to matters or questions arising under the Agreement or under any supplemental agreement as the Issuer may deem necessary or desirable and which shall not adversely affect in any material respect the interests of the Holders to which such provisions relate; and

- to "reopen" the Notes and create and issue Additional Notes having identical terms and conditions as the existing Notes (or in all respects except for the issue date, issue price, the CUSIP number and first interest payment date) so that the Additional Notes are consolidated and form a single series with the outstanding Notes.

Limitation on Liens

So long as any of the Notes remain outstanding, the Issuer may not become obligated on any present or future Capital Market Indebtedness that is secured by a lien on the whole or any part of its present or future assets, unless an equivalent lien on the same property is granted to the Holders.

"Capital Market Indebtedness" means any obligation to repay money that is borrowed through the issuance of bonds, notes or other debt securities, which are capable of being quoted, listed or traded on a stock exchange or other recognized securities market. Capital Market Indebtedness does not include any off-balance sheet assets and obligations.

For the avoidance of doubt in respect of asset-backed financings originated by the Issuer, the expression "assets" does not include assets of the Issuer that are sold on a non-recourse basis determined in accordance with the civil law applicable to such transaction.

Events of Default

The occurrence and continuance of one or more of the following events will constitute an event of default (an "Event of Default") under the Agreement and the Notes:

a) the Issuer fails to pay principal or interest upon any Note within 30 days from the relevant due date; or

b) the Issuer fails duly to perform any other obligation arising from any Note, which failure is not capable of remedy or, if such failure is capable of remedy, such failure continues for more than 60 days after the Issuer has received notice thereof from a Holder; or

c) (i) any Capital Market Indebtedness of the Issuer becomes prematurely repayable as a result of a default in respect of the terms thereof; or (ii) the Issuer fails to fulfill any payment obligation in excess of EUR 25,000,000 or the equivalent thereof under any Capital Market Indebtedness or under any guarantee or suretyship given for any Capital Market Indebtedness of any other person within 30 days from its due date or, in the case of a guarantee or suretyship, within 30 days after the guarantee or suretyship has been invoked, unless the Issuer shall contest in good faith that such payment obligation exists or is due or that such guarantee or suretyship has been validly invoked; or
(iii) if a security granted in respect of any Capital Market Indebtedness or any guarantee or suretyship therefor is enforced on behalf of or by the creditor(s) entitled thereto; or

d) the Issuer announces its inability to meet its financial obligations or ceases its payments; or

e) a court opens insolvency proceedings against the Issuer, or the Issuer applies for or institutes such proceedings or offers or makes an arrangement for the benefit of its creditors generally; or

f) the Issuer goes into liquidation unless this is done in connection with a merger, or other form of combination with another company and such company assumes all obligations contracted by the Issuer in connection with this issue; or

g) any governmental order, decree or enactment shall be made in or by Germany whereby the Issuer is prevented from observing and performing in full its obligations as set forth in the Agreement, respectively, and this situation is not cured within 90 days.

If an Event of Default with respect to the Notes occurs and is continuing, then in every such case the Holders of not less than 25% in principal amount of the Notes outstanding may declare the principal amount of all of the Notes to be due and payable immediately, by a notice in writing to the Issuer, with a copy to the Fiscal Agent, specifying such principal amount and upon any such declaration such specified amount shall become immediately due and payable.

At any time after such a declaration of acceleration with respect to the Notes has been made and before a judgment or decree for payment of the money due has been obtained by the Fiscal Agent as provided in the Agreement, the Holders of a majority in principal amount of the outstanding Notes, by written notice to the Issuer and the Fiscal Agent, may rescind and annul such declaration and its consequences if:

(1) the Issuer has paid or deposited with the Fiscal Agent a sum sufficient to pay:

(A) all overdue interest on the Notes,

(B) the principal of (and premium, if any, on) any Notes which have become due otherwise than by such declaration of acceleration and any interest thereon at the rate or rates prescribed therefor in the Notes, to the extent that payment of such interest is lawful, interest upon overdue interest at the rate or rates prescribed therefor in the Notes, and

(C) all sums paid or advanced by the Fiscal Agent hereunder and the reasonable compensation, expenses, disbursements and advances of the Fiscal Agent, its agents and counsel;

and

(2) all Events of Default with respect to the Notes, other than the non-payment of the principal of the Notes which have become due solely by such declaration of acceleration, have been cured or waived as provided in the Agreement.

The Holders of a majority in aggregate principal amount of the Notes then outstanding may, by written notice to the Issuer and to the Fiscal Agent, waive all defaults and rescind and annul such declaration and its consequences, except a default

(i) in the payment of the principal of, or any premium or interest on, any Note, or

(ii) in respect of a covenant or provision which under the Agreement cannot be modified or amended without the consent of the Holder of each outstanding Note affected;

and no such waiver or rescission and annulment shall extend to or shall affect any subsequent default or impair any right consequent thereon.

Limitations on Suits; Unconditional Right of Holder to Initiate Certain Actions

Before a Holder can bring its own lawsuit or other formal legal action or take other steps to enforce its rights or protect its interests relating to the Notes, the following must occur:

- The Holder must give the Fiscal Agent written notice that an Event of Default has occurred and remains uncured.

- The holders of not less than 25% in principal amount of the outstanding Notes must make a written request that the Fiscal Agent institute proceedings because such Event of Default, and must offer indemnity and/or security satisfactory to the Fiscal Agent against the costs, expenses and other liabilities of complying with such request; and
- For 60 days after receipt of the above notice, written request and offer of indemnity and/or security, the Fiscal Agent fails to institute any such proceedings, and during such 60-day period the Holders of a majority in principal amount of the outstanding Notes must not have delivered to the Fiscal Agent any direction inconsistent with the aforementioned written request.

Notwithstanding the above, however, the right of any Holder to receive payment of the principal of and interest on its Note on or after the respective due dates expressed in such Note, or to institute suit for the enforcement of any such payment on or after such respective dates, will not be impaired or affected without the consent of such Holder.

Substitution of Issuer; Consolidation, Merger and Sale of Assets

The Issuer, without the consent of the Holders, is generally permitted to consolidate or merge into, or sell, transfer, lease or convey all or substantially all of their respective assets to, any corporation and the Issuer may at any time substitute for the Issuer any other company more than 90% of the voting share or other equity interests of which are directly or indirectly owned by the Issuer ("Subsidiary") as principal debtor under the Notes, provided that:

(1) in case the Issuer shall consolidate with or merge into another person or convey, transfer or lease its properties and assets substantially as an entirety to any person, the person formed by such consolidation or into which the Issuer is merged or the person which acquires by conveyance or transfer, or which leases, the properties and assets of the Issuer substantially as an entirety shall be a corporation, partnership or trust, shall be organized and validly existing, under the laws of the jurisdiction of its organization shall expressly assume, by an agreement supplemental hereto executed and delivered to the Fiscal Agent in form reasonably satisfactory to the Fiscal Agent, the due and punctual payment of the principal of and any premium and interest (including all Additional Amounts and any additional amounts payable pursuant to subsection (3) below) on all the Notes and the performance or observance of every covenant of the Agreement on the part of the Issuer to be performed or observed;

(2) immediately after giving effect to such transaction and treating any indebtedness which becomes an obligation of the Issuer as a result of such transaction as having been incurred by the Issuer

at the time of such transaction, no Event of Default, and no event which, after notice or lapse of time or both, would become an Event of Default, shall have happened and be continuing;

(3) the person formed by such consolidation or into which the Issuer is merged or to whom the Issuer has conveyed, transferred or leased its properties or assets (if such person is organized and validly existing under the laws of a jurisdiction other than the United States, any State thereof, or the District of Columbia) agrees to indemnify the Holder of each Note against (a) any tax, assessment or governmental charge imposed on any such Holder or required to be withheld or deducted from any payment to such Holder as a consequence of such consolidation, merger, conveyance, transfer or lease; and (b) any costs or expenses of the act of such consolidation, merger, conveyance, transfer or lease; and

(4) the Issuer has delivered to the Fiscal Agent an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer or lease and, if a supplemental agreement is required in connection with such transaction, such supplemental agreement comply with the Agreement and that all conditions precedent herein provided for relating to such transaction have been complied with.

Discharge and Defeasance

The Agreement provides that the Issuer will be discharged from any and all obligations in respect of the Agreement (except for certain obligations to register the transfer of or exchange Notes, replace stolen, lost or mutilated Notes, make payments of principal and interest and maintain paying agencies) if:

- the Issuer has paid or caused to be paid in full the principal of and interest on all Notes outstanding thereunder;

- the Issuer shall have delivered to the Fiscal Agent for cancellation all Notes outstanding theretofore authenticated; or

- all Notes not theretofore delivered to the Fiscal Agent for cancellation (i) have become due and payable; (ii) will become due and payable in accordance with their terms within one year or (iii) are to be, or have been, called for redemption as described under "—*Optional Redemption*" or "—*Optional Tax Redemption*" within one year under arrangements satisfactory to the Fiscal Agent for the giving of notice of redemption, and, in any such case, the Issuer shall have irrevocably deposited with the Fiscal Agent, in irrevocable trust for the benefit of the holders of such Notes, (a) cash in U.S. dollars in an amount, or (b) U.S. Government Obligations (as defined below) which through the payment of interest thereon and principal thereof in accordance with their terms will provide not later than the due date of any payment, cash in U.S. dollars in an amount, or (c) any combination of
(a) and (b), sufficient to pay all the principal of, and interest on (and Additional Amounts, if any), all such Notes not theretofore delivered to the Fiscal Agent for cancellation on the dates such payments are due in accordance with the terms of the Notes and all other amounts payable under the Agreement by the Issuer.

"U.S. Government Obligations" means securities which are (i) direct obligations of the U.S. government or (ii) obligations of a person controlled or supervised by and acting as an agency or instrumentality of the U.S. government, the payment of which is unconditionally guaranteed by the U.S. government, which, in either case, are full faith and credit obligations of the U.S. government payable in U.S. dollars and are not callable or redeemable at the option of the issuer thereof and shall also include a depositary receipt issued by a bank or trust company as custodian with respect to any such U.S. Government Obligation or a specific payment of interest on or principal of any such U.S. Government Obligation held by such custodian for the account of the holder of a depositary receipt; provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of interest on or principal of the U.S. Government Obligation evidenced by such depositary receipt.

Covenant Defeasance

The Agreement also provides that the Issuer need not comply with certain covenants of the Agreement (including those described under "—*Limitation on Liens*"), if:

- the Issuer, irrevocably deposits with the Fiscal Agent as trust funds in irrevocable trust, specifically pledged as security for, and dedicated solely to, the benefit of the Holders, (i) cash in U.S. dollars in an amount, or (ii) U.S. government obligations which through the payment of interest thereon and principal thereof in accordance with their terms will provide not later than the due date of any payment cash in U.S. dollars in an amount, or (iii) any combination of (i) and (ii), sufficient to pay all the principal of, and interest (and Additional Amounts, if any) on, the Notes then outstanding on the dates such payments are due in accordance with the terms of the Notes;

- certain Events of Default, or events which with notice or lapse of time or both would become such an Event of Default, shall not have occurred and be continuing on the date of such deposit;

- the Issuer delivers to the Fiscal Agent an opinion of tax counsel with respect to U.S. federal income tax matters to the effect that the beneficial owners of the Notes will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the exercise of such Covenant Defeasance and will be subject to U.S. federal income tax on the same amounts, in the same manner and at the same times as would be the case if such Covenant Defeasance had not occurred;

- the Issuer delivers to the Fiscal Agent an opinion of tax counsel in its jurisdiction of incorporation to the effect that such deposit and related Covenant Defeasance will not cause the Holders, other than Holders who are or who are deemed to be residents of such jurisdiction of incorporation or use or hold or are deemed to use or hold their Notes in carrying on a business in such jurisdiction of incorporation, to recognize income, gain or loss for income tax purposes in such jurisdiction of incorporation, and to the effect that payments out of the trust fund will be free and exempt from any and all withholding and other income taxes of whatever nature of such jurisdiction of incorporation or any political subdivision thereof or therein having power to tax, except in the case of Notes beneficially owned (i) by a person who is or is deemed to be a resident of such jurisdiction of incorporation or (ii) by a person who uses or holds or is deemed to use or hold such Notes in carrying on a business in such jurisdiction of incorporation; and

- the Issuer delivers to the Fiscal Agent an officers' certificate and an opinion of legal counsel of recognized standing, each stating that all conditions precedent provided for relating to such covenant defeasance have been complied with.

The effecting of these arrangements is also known as "Covenant Defeasance".

Additional Amounts

The Issuer will make all payments in respect of the Notes without withholding or deduction for or on account of any present or future taxes or duties of whatever nature imposed or levied by way of withholding or deduction at source unless such withholding or deduction is required by law. The Issuer will pay such Additional Amounts as shall be necessary in order that the net amounts received by the Holders, after such withholding or deduction by or on behalf of a Relevant Jurisdiction (as defined below) shall equal the respective amounts of principal and interest which would otherwise have been receivable in the absence of such withholding or deduction; except that no Additional Amounts shall be payable with respect to:

(a) any tax or other governmental charge which would not have been imposed but for the existence of any present or former connection between such Holder and the Relevant Jurisdiction (other than the mere holding of the Notes and the receipt of payments thereon), including, without limitation, such Holder being or having been a citizen or resident thereof or being or having been present or engaged in trade or business therein or having or having had a permanent establishment therein;

(b) any tax or other governmental charge that would not have been imposed but for a failure by the Holder to comply with any applicable certification, information, identification, documentation or other reporting requirements concerning the nationality, residence, identity or connection with the Relevant Jurisdiction if such compliance is required as a precondition to relief or exemption from such tax or other governmental charge (including without limitation a certification that such Holder is not resident in the Relevant Jurisdiction);

(c) any tax or other governmental charge which would not have been imposed but for a change in law that becomes effective more than 30 days after a payment by the Issuer on the Notes becomes due and payable, or is duly provided for and notice thereof is duly published, whichever occurs later;

(d) any tax that would not have been so withheld or deducted if the Notes had been presented for payment within 30 days after the date on which such payment first becomes due, except to the extent that the Holder would have been entitled to Additional Amounts had the Notes been presented for payment on the last day of such 30-day period;

(e) any estate, inheritance, gift, value added, sales, use, excise, transfer, personal property or similar tax, duties, assessments or other governmental charge;

(f) any tax that is payable other than by deduction or withholding from payments on the Notes;

(g) any tax or other governmental charge required to be withheld by any Paying Agent from a payment on the Notes, if such payment can be made without such deduction or withholding by any other Paying Agent; or

(h) any combination of items (a), (b), (c), (d), (e), (f) and (g) above.

The foregoing provisions shall apply mutatis mutandis to any withholding or deduction for or on account of any present or future taxes or governmental charges of whatever nature of any jurisdiction in which any successor Person to the Issuer is organized, or any political subdivision or taxing authority thereof or therein. As used in (a), (b) and (d) above, references to Holder shall include the legal or beneficial owner of the Notes and any other party to which the Notes may be attributed for tax purposes as well as, regarding all such parties, including a trustor, trustee, beneficial or legal owner, a fiduciary, settler, beneficiary, partner, member, shareholder, or other equity owner of, or possessor of a power over such party.

References to principal or interest in respect of the Notes shall be deemed to include any Additional Amounts which may be payable as set forth in the Agreement.

"Relevant Jurisdiction" means the jurisdiction (or any political subdivision or taxing authority thereof or therein) in which the Issuer is incorporated.

Governing Law; Submission to Jurisdiction

The Agreement and the Notes will be governed by and construed in accordance with the laws of the State of New York.

The Issuer has irrevocably submitted to the non-exclusive jurisdiction of the courts of any U.S. state or federal court in the Borough of Manhattan in the City of New York, New York with respect to any legal suit, action or proceeding arising out of or based upon the Agreement or the Notes.

Regarding the Fiscal Agent, Paying Agent, Transfer Agent and Registrar

In acting under the Agreement, and in connection with the Notes, the Fiscal Agent is acting solely as an agent of the Issuer and does not assume any obligation towards or relationship of agency of trust for or with the Holders of the Notes (and will not be considered a fiduciary). Any funds held by any paying agent for payment of principal of or interest on the Notes shall be held in trust by it for the persons entitled thereto and applied as set forth in the Agreement and in the Notes, but need not be segregated from other funds held by it except as required by law and as agreed upon separately by the Issuer and the Fiscal Agent.

The Agreement will not oblige the Fiscal Agent to exercise certain responsibilities that may be exercised by trustees with respect to debt securities issued under an indenture, including certain discretionary actions customarily taken by trustees in connection with events of default under such debt securities. For a description of the duties and the immunities and rights of any fiscal agent, paying agent, transfer agent or registrar under the Agreement, reference is made to the Agreement, and the obligations of any fiscal agent, paying agent, transfer agent and registrar to the Holder are subject to such immunities and rights.

The Agreement provides that the Fiscal Agent may resign and that the Issuer may remove the Fiscal Agent or any other Paying Agent in respect of the Notes, but any such resignation or removal will take effect only upon the appointment by the Issuer of, and acceptance of such appointment by, a successor Fiscal Agent or other Paying Agent.

Notices

So long as any Notes are represented by a global note and such global note is held on behalf of a clearing system, notices to Holders may be given by delivery of the relevant notice to that clearing system for communication by it to entitled accountholders or, if any such delivery is not practicable, by publication in a leading English language daily newspaper having general circulation in Europe. Any such notice will be deemed to have been given on the date of first publication or, if published more than once or on different dates, on the first date on which publication is made.

BOOK-ENTRY; DELIVERY AND FORM; SUMMARY OF PROVISIONS RELATING TO NOTES IN GLOBAL FORM

The information set out in the sections of this offering memorandum describing clearing and settlement arrangements is subject to any change or reinterpretation of the rules, regulations and procedures of DTC as currently in effect. The information in such sections concerning clearing systems has been obtained from sources that the Issuer believes to be reliable. The Issuer accepts responsibility only for the correct extraction and reproduction of such information, but not for the accuracy of such information. If an investor wishes to use the facilities of any clearing system, it should confirm the applicability of the rules, regulations and procedures of the relevant clearing system. The Issuer will not be responsible or liable for any aspect of the records relating to, or payments made on account of, book-entry interests held through the facilities of any clearing system or for maintaining, supervising or reviewing any records relating to such book-entry interests.

The certificates representing the Notes will be issued in fully registered form without interest coupons. Notes sold in offshore transactions in reliance on Regulation S will initially be represented by one or more permanent Regulation S global notes in fully registered form without interest coupons, and will be deposited with the fiscal agent as custodian for, and registered in the name of a nominee of, DTC for the accounts of its participants, including Euroclear and Clearstream. Prior to the 40th day after the later of the commencement of the offering of the Notes and the date of the original issue of the Notes, any resale or other transfer of such interests to U.S. persons shall not be permitted unless such resale or transfer is made pursuant to Rule 144A or Regulation S and in accordance with the certification requirements described below.

Notes sold in reliance on Rule 144A will be represented by one or more permanent Rule 144A global notes in definitive, fully registered form without interest coupons, and will be deposited with the fiscal agent as custodian for, and registered in the name of a nominee of, DTC. Beneficial interests in a Rule 144A global note may be transferred to a person who takes delivery in the form of an interest in a Regulation S global note only upon receipt by the fiscal agent of written certifications (in the form or forms provided in the Agreement) and pursuant to the transfer restrictions related to a Rule 144A global note as described in this offering memorandum.

Each global note (and any Notes issued in exchange therefor) will be subject to certain restrictions on transfer set forth therein described under "*Transfer Restrictions*". Except in the limited circumstances described below under "—*Summary of Provisions Relating to Certificated Notes*", owners of beneficial interests in the global notes will not be entitled to receive physical delivery of certificated Notes.

Ownership of beneficial interests in a global note will be limited to persons who have accounts with DTC, or participants, or persons who hold interests through participants. Ownership of beneficial interests in a global note will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee (with respect to interests of participants) and the records of participants (with respect to interests of persons other than participants). Qualified institutional buyers may hold their interests in a Rule 144A global note directly through DTC if they are participants in such system, or indirectly through organizations that are participants in such system.

Investors may hold their interests in a Regulation S global note directly through Euroclear or Clearstream, if they are participants in such systems, or indirectly through organizations that are participants in such systems. Euroclear and Clearstream will hold interests in the Regulations S global notes on behalf of their participants through DTC.

So long as DTC, or its nominee, is the registered owner or holder of a global note, DTC or such nominee, as the case may be, will be considered the sole owner or holder of the Notes represented by such global note for all purposes under the Agreement and the Notes. No beneficial owner of an interest in a global note will be able to transfer that interest except in accordance with DTC's applicable procedures, in addition to those provided for under the Agreement and, if applicable, those of Euroclear and Clearstream.

Conveyance of notices and other communications by DTC to its participants, by each of those participants to its indirect participants, and by participants and indirect participants to beneficial owners of interests in a global note will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

The fiscal agent will send any notices in respect of the Notes held in book-entry form to DTC or its nominee.

Neither DTC nor its nominee will consent or vote with respect to the Notes unless authorized by a participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an omnibus proxy to the Issuer as soon as possible after the record date. The omnibus proxy assigns DTC's or its nominee's consenting or voting rights to those participants to whose account the Notes are credited on the record date.

Payments of the principal of, and interest on, a global note will be made to DTC or its nominee, as the case may be, as the registered owner thereof. Neither the Issuer nor the fiscal agent will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in a global note or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

The Issuer expects that DTC or its nominee, upon receipt of any payment of principal or interest in respect of a global note, will credit participants' accounts with payments in amounts proportionate to their respective beneficial interests in the principal amount of such global note as shown on the records of DTC or its nominee. The Issuer also expects that payments by participants to owners of beneficial interests in such global note held through such participants will be governed by standing instructions and customary practices, as is now the case with securities held for the accounts of customers registered in the names of nominees for such customers. Such payments will be the responsibility of such participants.

Transfers between participants in DTC will be effected in the ordinary way in accordance with DTC rules and will be settled in same-day funds. Transfers between participants in Euroclear and Clearstream will be effected in the ordinary way in accordance with their respective rules and operating procedures.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Euroclear or Clearstream participants, on the other, will be effected in DTC in accordance with DTC rules on behalf of the relevant European international clearing system by the relevant European depositary; however, those cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in that system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if the transaction meets its settlement requirements, deliver instructions to the relevant European depositary to take action to effect final settlement on its behalf by delivering or receiving securities in DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Euroclear and Clearstream participants may not deliver instructions directly to the European depositaries.

Because of time zone differences, credits of securities received in Euroclear or Clearstream as a result of a transaction with a person that does not hold the Notes through Euroclear or Clearstream will be made during subsequent securities settlement processing and dated the first day Euroclear or Clearstream, as the case may be, is open for business following the DTC settlement date. Those credits or any transactions in those securities settled during that processing will be reported to the relevant Euroclear or Clearstream participants on that business day. Cash received in Euroclear or Clearstream as a result of sales of securities by or through a Euroclear participant or a Clearstream participant to a DTC participant will be received with value on the DTC settlement date, but will be available in the relevant Euroclear or Clearstream cash account only as of the first day Euroclear or Clearstream, as the case may be, is open for business following settlement in DTC.

The Issuer expects that DTC will take any action permitted to be taken by a holder of Notes (including the presentation of Notes for exchange as described below) only at the direction of one or more participants to whose account the DTC interests in a global note are credited and only in respect of such portion of the aggregate principal amount of Notes as to which such participant or participants has or have given such direction. However, if there is an event of default under the Notes, DTC will exchange the applicable global note for certificated Notes, which it will distribute to its participants and which may be legended as set forth under the heading "*Transfer Restrictions*".

DTC

DTC is a limited purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered pursuant to the provisions of Section 17A of the Exchange Act. DTC holds securities for its participants and facilitates the clearance and settlement of securities transactions between participants through electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical movement of securities certificates. Direct participants include securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Indirect access to the DTC system is available to others such as banks, brokers, dealers and trust

companies that clear through or maintain a custodial relationship with a participant, either directly or indirectly, or indirect participants.

Euroclear

Euroclear holds securities and book-entry interests in securities for participating organizations and facilitates the clearance and settlement of securities transactions between Euroclear participants, and between Euroclear participants and participants of certain other securities intermediaries through electronic book-entry changes in accounts of such participants or other securities intermediaries. Euroclear provides Euroclear participants, among other things, with safekeeping, administration, clearance and settlement, securities lending and borrowing, and related services. Euroclear participants are investment banks, securities brokers and dealers, banks, central banks, supranationals, custodians, investment managers, corporations, trust companies and certain other organizations. Certain of the Initial Purchasers, or other financial entities involved in this offering, may be Euroclear participants. Non-participants in the Euroclear system may hold and transfer book-entry interests in the Notes through accounts with a participant in the Euroclear system or any other securities intermediary that holds a book-entry interest in the securities through one or more securities intermediaries standing between such other securities intermediary and Euroclear.

Investors electing to acquire Notes in the offering through an account with Euroclear or some other securities intermediary must follow the settlement procedures of such intermediary with respect to the settlement of new issues of securities. Notes to be acquired against payment through an account with Euroclear will be credited to the securities clearance accounts of the respective Euroclear participants in the securities processing cycle for the first day Euroclear is open for business following the settlement date for value as of the settlement date.

Investors electing to acquire, hold or transfer Notes through an account with Euroclear or some other securities intermediary must follow the settlement procedures of such intermediary with respect to the settlement of secondary market transactions in securities. Euroclear will not monitor or enforce any transfer restrictions with respect to the Notes. Investors that acquire, hold and transfer interests in the Notes by book-entry through accounts with Euroclear or any other securities intermediary are subject to the laws and contractual provisions governing their relationship with their intermediary, as well as the laws and contractual provisions governing the relationship between such intermediary and each other intermediary, if any, standing between themselves and the individual Notes.

Euroclear has advised that, under Belgian law, investors that are credited with securities on the records of Euroclear have a co-property right in the fungible pool of interests in securities on deposit with Euroclear in an amount equal to the amount of interests in securities credited to their accounts. In the event of the insolvency of Euroclear, Euroclear participants would have a right under Belgian law to the return of the amount and type of interests in securities credited to their accounts with Euroclear. If Euroclear did not have a sufficient amount of interests in securities on deposit of a particular type to cover the claims of all participants credited with such interests in securities on Euroclear's records, all participants having an amount of interests in securities of such type credited to their accounts with Euroclear would have the right under Belgian law to the return of their pro rata share of the amount of interests in securities actually on deposit. Under Belgian law, Euroclear is required to pass on the benefits of ownership in any interests in Notes on deposit with it (such as dividends, voting rights and other entitlements) to any person credited with such interests in securities on its records. Distributions with respect to the Notes held beneficially through Euroclear will be credited to the cash accounts of Euroclear participants in accordance with the Euroclear terms and conditions.

Clearstream

Clearstream advises that it is incorporated under the laws of Luxembourg and licensed as a bank and professional depositary. Clearstream holds securities for its participating organizations and facilitates the clearance and settlement of securities transactions among its participants through electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical movement of certificates. Clearstream provides to its participants, among other things, services for safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Clearstream interfaces with domestic markets in several countries. Clearstream has established an electronic bridge with the Euroclear operator to facilitate the settlement of trades between Clearstream and Euroclear. As a registered bank in Luxembourg, Clearstream is subject to regulation by the Luxembourg Commission for the Supervision of the Financial Sector. As a professional depository, Clearstream is subject to regulation by the Luxembourg Monetary Institute. Clearstream participants are recognized financial institutions around the world, including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. In the United States, Clearstream participants are limited to securities brokers and dealers and banks, and may include the Initial Purchasers, or other financial entities involved in, this offering. Other institutions that maintain a custodial

relationship with a Clearstream participant may obtain indirect access to Clearstream. Clearstream is an indirect participant in DTC. Distributions with respect to Notes held beneficially through Clearstream will be credited to cash accounts of Clearstream participants in accordance with its rules and procedures.

Although DTC, Euroclear and Clearstream are expected to follow the foregoing procedures in order to facilitate transfers of interests in a global note among participants of DTC, Euroclear and Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. Neither the Issuer nor the fiscal agent will have any responsibility for the performance by DTC, Euroclear or Clearstream or their respective participants or indirect participants of their respective obligations under the rules and procedures governing their respective operations.

Summary of Provisions Relating to Certificated Notes

If DTC is at any time unwilling or unable to continue as a depositary for the Global Notes and a successor depositary is not appointed by the Issuer within 90 days, or if there shall have occurred and be continuing an event of default with respect to the Notes and a holder so requests, the Issuer will issue certificated Notes in exchange for the Global Notes. Certificated notes delivered in exchange for book- entry interests will be registered in the names, and issued in denominations of $150,000 and integral multiples of $1,000 in excess thereof, requested by or on behalf of DTC or the successor depositary (in accordance with its customary procedures). Holders of book-entry interests in a Global Security may receive certificated Notes, which may bear the legend referred to under "*Transfer Restrictions*", in accordance with DTC's rules and procedures in addition to those provided for under theAgreement.

Except in the limited circumstances described above, owners of book-entry interests will not be entitled to receive physical delivery of individual definitive certificates. The Notes are not issuable in bearer form.

Subject to any applicable transfer restrictions, the holder of a certificated note bearing the legend referred to under "*Transfer Restrictions*" may transfer or exchange such Notes in whole or in part by surrendering them to the Fiscal Agent. Prior to any proposed transfer of Notes in certificated form, the holder may be required to provide certifications and other documentation to the Fiscal Agent as described above. In the case of a transfer of only part of a note, the original principal amount of both the part transferred and the balance not transferred must be in authorized denominations, and new Notes will be issued to the transferor and transferee, respectively, by the Fiscal Agent. Upon the transfer, exchange or replacement of certificated Notes not bearing the legend described above, the fiscal agent will deliver certificated Notes that do not bear such legend.

Upon the transfer, exchange or replacement of certificated Notes bearing the legend described above, or upon a specific request for removal of the legend from such certificated note, the Fiscal Agent will deliver only certificated Notes bearing such legend or will refuse to remove such legend, as the case may be, unless there is delivered to the Issuer such satisfactory evidence, which may include an opinion of legal counsel of recognized standing, as may be reasonably required by the Issuer that neither the legend nor the restrictions on transfer set forth therein are required to ensure compliance with the provisions of the Securities Act.

Payment of principal and interest in respect of the certificated Notes shall be payable at the office or agency of the Issuer in the City of New York which shall initially be at the corporate trust office of the Fiscal Agent, which is located at 388 Greenwich Street, 6th Floor, New York, NY 10013, provided that at the option of the Issuer with prior notice to the paying agent, payment may be made by wire transfer, direct deposit or check mailed to the address of the holder entitled thereto as such address appears in the note register.

The certificated Notes, at the option of the Holder and subject to the restrictions contained in the Notes and in the Agreement, may be exchanged or transferred, upon surrender for exchange or presentation for registration of transfer at the office of the Fiscal Agent. Any certificated note surrendered for exchange or presented for registration of transfer shall be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the fiscal agent, duly endorsed by the Holder thereof or his attorney duly authorized in writing. Notes issued upon such transfer will be executed by the Issuer and upon the written request of the Issuer, authenticated by the Fiscal Agent, registered in the name of the designated transferee or transferees and delivered at the office of the Fiscal Agent or mailed, at the request, risk and expense of, and to the address requested by, the designated transferee or transferees.

TAXATION

German Tax Considerations

The following is a discussion of certain German tax considerations that may be relevant to you as a holder of the Notes. The discussion does not purport to be a comprehensive description of all the tax considerations that may be relevant to you. The discussion is based on the law as it stands on the date of this offering memorandum and may be subject to change, potentially with retroactive effect. You should consult your own adviser regarding the tax consequences of the purchase, ownership and disposition of the Notes in a light of your particular circumstances, including the aspect of any state, local or other applicable tax laws.

Income Taxation

If you are not a tax resident of Germany and do not otherwise have a connection with Germany other than the mere purchase, holding and disposition of, or the receipt of payments on, the Notes, you will not be subject to income taxation in Germany with your income from the Notes.

If you are an individual and a tax resident of Germany and the income from the Notes constitutes income from capital investment to you (a "German Private Investor"), interest payments received by you with respect to the Notes as well as the gain from the sale or other disposition (including repayment or redemption) of the Notes (*i.e.,* the difference between the proceeds from the sale or disposition of the Notes, after deduction of the expenses that are directly connected with the sale or disposition, and the cost of acquisition), will be subject to personal income tax at a flat rate of 25% (plus 5.5% solidarity surcharge thereon and, if applicable, church tax). In order to determine the amount of the gain, the proceeds derived from the sale or disposition and the acquisition cost are converted into euro at the conversion rate as of the date of acquisition and disposition, respectively (*i.e.,* currency gains are taxable).

Subject to an annual lump-sum allowance for savers (*Sparer-Pauschbetrag*) in the amount of EUR 801 (EUR 1,602 for married couples and registered partners filing jointly) for your overall income from capital investment, you will not be entitled to deduct any expenses incurred in connection with your investment in the Notes. In addition, you will only be able to offset losses from the investment in the Notes against positive income from capital investment but not against other types of income (*e.g.*, employment income) and further loss utilization restrictions might apply.

Collection of the tax (including solidarity surcharge and, if applicable, church tax) by way of withholding through a Disbursing Agent (as described under the caption "*Withholding Tax*" below) will satisfy your tax liability with respect to the aforementioned interest payments and gains (*Abgeltungsteuer*). If a Disbursing Agent has not withheld the tax, you must include the interest payments and the gain from the sale or other disposition of the Notes in your annual income tax return filing; the tax will then be collected by way of assessment.

Upon request, your income from the Notes (and any other income from capital investment) will be taxed at your individual progressive personal income tax rate (in lieu of the flat tax rate) together with your other taxable income if this results in a lower tax burden than the application of the flat tax rate (*Günstigerprüfung*). In this case, the tax withheld by a Disbursing Agent is credited against your final personal income tax liability or, if in excess of such final tax liability, refunded. But even then, you will not be allowed to claim a deduction of expenses actually incurred in connection with your investment in the Notes or to offset losses from the investment in the Notes against other types of positive income, and further loss utilization restrictions might apply.

If you are a tax resident of Germany or otherwise have a connection with Germany other than the mere purchase, holding and disposition of, or the receipt of payments on, the Notes, *e.g.,* because the Notes form part of the business property of a permanent establishment or fixed base maintained in Germany, but you are not a German Private Investor (*e.g.,* because you hold the Notes as business assets), the flat tax regime does not apply to you. In this case, your income from the Notes will be subject to personal income tax at individual progressive tax rates of up to 45% (plus 5.5% solidarity surcharge on such personal income tax, if applicable and, if applicable, church tax) or, as the case may be, corporate income tax at a rate of 15% (plus 5.5% solidarity surcharge on such corporate income tax). When computing your income, you will be allowed to deduct your expenses incurred in connection with your investment in the Notes under general rules.

Income derived from the Notes will also be subject to trade tax at the applicable municipal rate (which varies depending on the relevant municipality) if the Notes form part of the property of a permanent establishment of a commercial business in Germany.

If a convention for the avoidance of double taxation ("DTC") applies in a situation where a resident of Germany is also resident in another jurisdiction, or otherwise has a connection with such jurisdiction, the German taxation right may, in full or in part, be excluded. Prospective investors should consult with their own tax advisors whether a DTC applies.

Withholding Tax

If you are not a tax resident of Germany and do not otherwise have a connection with Germany other than the mere purchase, holding and disposition of, or the receipt of payments on, the Notes, interest payments to you under the Notes as well as gains realized by you on the sale or other disposition of the Notes will not be subject to German withholding tax.

If you are a tax resident of Germany or otherwise have a connection with Germany other than the mere purchase, holding and disposition of, or the receipt of payments on, the Notes, *e.g.,* because the Notes form part of the business property of a permanent establishment or fixed base maintained in Germany, and you keep the Notes in Germany in a custodial account with a Disbursing Agent (as defined below), the Disbursing Agent will be required to withhold tax at a rate of 25% (plus 5.5% solidarity surcharge thereon, resulting in an aggregate withholding rate of 26.375%) from the gross amount of the interest payments to be disbursed or credited to you with respect to the Notes. The Disbursing Agent will be informed by the Federal Central Tax Office (*Bundeszentralamt für Steuern, BZSt*) about your affiliation with a religious group that levies the church tax. The Disbursing Agent will then automatically withhold church tax (where applicable). You can object in writing to the Federal Central Tax Office providing information about your religious affiliation to the Disbursing Agent (*Sperrvermerk*). If you so object, the BZSt will notify your local tax office. The local tax office will then request you to file a tax return.

The term "Disbursing Agent" relates to a bank, a financial services institution, a securities trading enterprise or a securities trading bank, each as defined in the German Banking Act (and, in each case, including a German branch of a foreign enterprise, but excluding a foreign branch of a German enterprise) that holds the Notes in custody for you or conducts their sale or other disposition and disburses or credits the income from the Notes to you.

In the event that you sell or otherwise dispose of the Notes (including the redemption or repayment of Notes), the Disbursing Agent will generally be required to withhold tax as in the case of interest payments. If you have kept the Notes in a custodial account with the same Disbursing Agent since their acquisition or, in the event of a transfer of the Notes, your acquisition cost of the Notes has been evidenced to the Disbursing Agent (as described below), the tax is withheld at the above-mentioned rate from the gain (*i.e.,* the difference between the proceeds from the sale or the disposition of the Notes, after deduction of the expenses that are directly connected with the sale or disposition, and the acquisition cost). In order to determine the amount of the gain, the proceeds derived from the sale or disposition and the acquisition cost, are converted into euro at the conversion rate as of the date of acquisition and disposition, respectively (*i.e.,* currency gains are taken into account for withholding).

When you transfer the Notes to another custodial account within Germany, the releasing Disbursing Agent has to inform the accepting Disbursing Agent of your acquisition cost. When you transfer the Notes to a Disbursing Agent from a bank or financial services institution that has its seat in another member state of the European Union or the European Economic Area or in another contracting state pursuant to Article 17 (2) (i) of the directive adopted by the Council of the European Union on June 3, 2003 (2003/48/EC) on the taxation of savings income in the form of interest payments, or from a branch of a German bank or financial services institution established in such state, you can provide evidence of the acquisition cost through certification by such non-German institution. In all other cases, the evidence of the acquisition cost is not permissible.

If, in the event of a transfer of the Notes, the acquisition cost of the Notes has not been evidenced to the Disbursing Agent, the Disbursing Agent has to withhold tax at the above-mentioned rate from an amount equal to 30% of the proceeds from the sale or other disposition of the Notes.

If you transfer Notes that you keep in Germany in a custodial account with a Disbursing Agent to another holder, the Disbursing Agent must treat the transfer as a sale or disposition for withholding tax purposes, unless you

inform the Disbursing Agent that the transfer is without consideration. If the Disbursing Agent is not so informed, the Disbursing Agent must withhold tax at the above-mentioned rate from a substitute tax base.

If you are a German Private Investor, you can take advantage of the *Sparer-Pauschbetrag* (as described above) by completing an exemption order (*Freistellungsauftrag*) for the Disbursing Agent. In this case, the Disbursing Agent will not withhold tax on your investment income (including income derived from the Notes) up to the amount shown on the exemption order. Furthermore, the Disbursing Agent will not withhold any tax, if you submit to the Disbursing Agent a certificate of non-assessment (*Nichtveranlagungsbescheinigung*) issued by the local tax office.

If you are subject to personal or corporate income taxation in Germany with your income from the Notes, but the flat tax regime does not apply to you (*i.e.,* because you are not a German Private Investor), the tax withheld by a Disbursing Agent will be credited against your final personal or corporate income tax liability or, if in excess of such final tax liability, refunded. You should consult your tax adviser about ways to avoid or limit withholding by a Disbursing Agent, in particular in the event of a sale or other disposition of the Notes.

If a DTC applies in a situation where a resident of Germany is also resident in another jurisdiction, or otherwise has a connection with such jurisdiction, the investor may be able to avoid withholding or may be able to request a refund for taxes withheld in Germany with respect to income from the Notes. Prospective investors should consult with their own tax advisors whether a DTC applies.

Gift or Inheritance Taxation

The gratuitous transfer of Notes by you as a gift or by reason of your death will be subject to German gift or inheritance tax if you are or the recipient is a resident, or deemed to be a resident, of Germany under German gift or inheritance tax law at the time of the transfer. If neither you nor the recipient is a resident or deemed to be a resident of Germany at the time of the transfer, no German gift or inheritance tax will be levied unless the Notes form part of the property of a permanent establishment or a fixed base maintained by you in Germany. Tax treaties concluded by Germany with respect to gift and inheritance taxes generally permit Germany to tax the transfer in this situation.

Other Taxes

No stamp, issue, registration or similar taxes or duties will be payable in Germany in connection with the issuance, delivery or execution of the Notes. At present, a net assets tax (*Vermögensteuer*) is not levied in Germany. Also, the European Commission’s proposal to introduce a financial transaction tax, which could also be applicable under certain circumstances to certain dealings in the Notes, has not been adopted or implemented in Germany. Recently, the German Federal Minister of Finance has submitted a proposal to introduce a financial transaction tax, which has also not yet been adopted or implemented in Germany.

Common Reporting Standard

The Organization for Economic Co-Operation and Development released the Common Reporting Standard (“CRS”) designed to create a global standard for the automatic exchange of financial account information. On October 29, 2014, 51 jurisdictions signed the Multilateral Competent Authority Agreement (the “Multilateral Agreement”) that activates this automatic exchange of information in line with the CRS. Since then, further jurisdictions have signed the Multilateral Agreement and in total over 100 jurisdictions have committed to adopting the CRS. Further, new mandatory automatic exchange of financial account information requirements are implemented under Council Directive 2011/16/EU on Administrative Cooperation in the Field of Taxation (the “DAC”). On December 9, 2014, EU Member States adopted Directive 2014/107/EU on administrative cooperation in direct taxation (“DAC2”), which provides for mandatory automatic exchange of financial information as foreseen in the CRS. DAC2 amends the previous DAC. In Germany, the mandatory automatic exchange of financial information to EU Member States as provided for in the DAC2 has started on September 30, 2017. Pursuant to the CRS and legislation enacted in Germany to implement the CRS, DAC and DAC2, certain disclosure requirements are imposed in respect of certain investors in the Notes who are residents of any of the jurisdictions that have adopted the CRS, unless a relevant exemption applies. This applies accordingly to entities that are controlled by one or more individuals, who are resident of such jurisdictions. Where applicable, information that would need to be disclosed will include certain information relating to reportable accounts such as the investors in the Notes, the ultimate beneficial owners and/or controllers, and their investment in and returns from the Notes.

All prospective investors should consult with their own tax advisors regarding the possible implication of CRS, DAC, DAC 2 and other similar legislation and/or regulations on their investment in the Notes.

United States Federal Income Tax Considerations

The following discussion summarizes certain U.S. federal income tax considerations that may be relevant if you are a U.S. holder. You are a "U.S. holder" if you are an individual who is a citizen or resident of the United States, a U.S. domestic corporation, or any other person that is subject to U.S. federal income tax on a net income basis in respect of an investment in the Notes. You are a "non-U.S. holder" if you are a beneficial owner of the Notes that is not a U.S. holder. This summary is based upon provisions of the Internal Revenue Code of 1986, as amended and regulations, rulings and judicial decisions as of the date hereof. Those authorities may be changed, perhaps retroactively, so as to result in U.S. federal income tax consequences different from those summarized below. This summary does not purport to be a comprehensive description of all of the tax considerations that may be relevant to any particular investor, including tax considerations that arise from rules of general application or that are generally assumed to be known by investors.

This summary deals only with U.S. holders who purchase the Notes at original issuance at their issue price and who hold the Notes as capital assets. It does not address considerations that may be relevant to you if you are an investor that is subject to special tax rules, such as a bank, a thrift, a real estate investment trust, a regulated investment company, an insurance company, a dealer in securities or currencies, a trader in securities or commodities that elects mark-to-market treatment, an entity taxed as a partnership (or the partners therein), a non-U.S. holder present in the United States for 183 days or more during the taxable year, a holder that has ceased to be a U.S. citizen or a lawful permanent resident of the United States, a person that will hold the Notes as a hedge against currency risk or as a position in a "straddle", hedge, conversion or other integrated transaction, a tax-exempt organization or a person whose "functional currency" is not the U.S. dollar. In addition, this summary does not discuss any aspect of U.S. federal taxation other than income taxation (such as estate and gift tax laws, the alternative minimum tax or Medicare tax on net investment income) or state, local or non-U.S. tax considerations.

You should consult your tax adviser about the tax consequences of the acquisition, ownership and disposition of the Notes, including the relevance to your particular situation of the considerations discussed below, as well as the relevance to your particular situation of state, local or other tax laws.

U.S. holders that use an accrual method of accounting for tax purposes ("accrual method holders") generally are required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements (the "book/tax conformity rule"). The application of the book/tax conformity rule thus may require the accrual of income earlier than would be the case under the general tax rules described below. It is not clear to what types of income the book/tax conformity rule applies, or, in some cases, how the rule is to be applied if it is applicable. However, recently released proposed regulations generally would exclude, among other items, original issue discount and market discount (in either case, whether or not de minimis) from the applicability of the book/tax conformity rule. Although the proposed regulations generally will not be effective until taxable years beginning after the date on which they are issued in final form, taxpayers generally are permitted to elect to rely on their provisions currently. Accrual method holders should consult with their tax advisors regarding the potential applicability of the book/tax conformity rule to their particular situation.

U.S. Federal Income Tax Consequences to U.S. Holders

Payments of Interest

Payments of interest on a Note will generally be taxable to you as ordinary income at the time it is paid or accrued in accordance with your method of accounting for U.S. federal income tax purposes. In addition, if any Additional Amounts are paid in respect of any taxes withheld from the interest payments, you will also be required to include in income as ordinary income any such Additional Amounts.

It is expected, and this discussion assumes, that the Notes will not be issued with original issue discount ("OID") in an amount equal to or in excess of a *de minimis* amount. In general, however, if the Notes are issued with OID that is equal to or more than a *de minimis* amount, regardless of your regular method of accounting for U.S. federal income tax purposes, you will have to include OID as ordinary gross income under a "constant yield method" before the receipt of cash attributable to such income.

Interest payments will be treated as income from sources outside the United States and you generally will be entitled to deduct or credit taxes that are withheld from the interest payments, subject to certain limitations. Payments of interest on the Notes generally will constitute foreign-source "passive category income" for U.S. foreign tax credit purposes. The rules governing the foreign tax credit are complex. You are urged to consult your tax advisers regarding the availability of the foreign tax credit under your particular circumstances.

Sale, Exchange, Redemption and Retirement of Notes

Upon the sale, exchange, redemption, retirement or other disposition of a Note, you will recognize gain or loss equal to the difference between the amount you realized upon the sale, exchange, redemption, retirement or other disposition (less an amount equal to any accrued interest that you did not previously include in income, which will be taxable as interest income as described under "—*Payments of Interest*" above) and your adjusted tax basis in the Note. Your tax basis in a Note will be, in general, your cost for that Note. Such gain or loss will generally be U.S.-source capital gain or loss and generally will be long-term capital gain or loss if, at the time of the disposition, the Notes have been held for more than one year. Consequently, you may not be able to claim a credit for any foreign tax imposed upon a disposition of a Note unless such credit can be applied (subject to applicable limitation) against tax due on other income treated as derived from foreign sources. Capital gains of individuals derived in respect of capital assets held for more than one year may be eligible for reduced rates of taxation. The deductibility of capital losses is subject to limitations.

Substitution of Issuer

The terms of the Notes provide that, in certain circumstances, the obligations of the Issuer under the Notes may be assumed by another entity. Any such assumption might be treated for U.S. federal income tax purposes as a deemed disposition of Notes by a U.S. holder in exchange for new notes issued by the new obligor. As a result of this deemed disposition, you could be required to recognize capital gain or loss for U.S. federal income tax purposes equal to the difference, if any, between the issue price of the new Notes (as determined for U.S. federal income tax purposes), and your tax basis in the Notes. You should consult your tax adviser concerning the U.S. federal income tax consequences to you of a change in obligor with respect to the Notes.

U.S. Federal Income Tax Consequences to Non-U.S. Holders

Subject to the discussion of backup withholding below, a non-U.S. holder generally will not be subject to U.S. federal income tax (including withholding tax) on payments of interest on the Notes. In addition, a non-U.S. holder generally will not be subject to U.S. federal income tax on gain realized on the sale, exchange, redemption, retirement or other taxable disposition of the Notes.

Foreign Asset Reporting

Certain U.S. holders that own "specified foreign financial assets" with an aggregate value in excess of U.S.$50,000 on the last day of the taxable year or $75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the Notes) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria.
U.S. holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the Notes, including the application of the rules to their particular circumstances.

Information Reporting and Backup Withholding

Information returns will be filed with the Internal Revenue Service ("IRS") in connection with payments on the Notes made to, and the proceeds of dispositions of Notes effected by, certain U.S. taxpayers. In addition, certain U.S. taxpayers may be subject to backup withholding in respect of such amounts if they do not provide their taxpayer identification numbers to the person from whom they receive payments. Non-U.S. taxpayers may be required to comply with applicable certification procedures to establish that they are not U.S. taxpayers in order to avoid the application of

such information reporting requirements and backup withholding. The amount of any backup withholding from a payment to a U.S. or non-U.S. taxpayer will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

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PLAN OF DISTRIBUTION

The Issuer intends to offer the Notes through the initial purchasers listed in the table below (the "Initial Purchasers"). Citigroup Global Markets Inc., J.P. Morgan Securities LLC and TD Securities (USA) LLC are acting as representatives for the Initial Purchasers. Subject to the terms and conditions contained in a purchase agreement dated January 13, 2020 among the Issuer and the Initial Purchasers (the "Purchase Agreement"), the Issuer has agreed to sell to the Initial Purchasers, and the Initial Purchasers have severally agreed to purchase from the Issuer, the principal amount of the Notes listed opposite their names below:

Initial Purchasers	Principal Amount
Citigroup Global Markets Inc.	$291,667,000
J.P. Morgan Securities LLC	$291,667,000
TD Securities (USA) LLC	$291,666,000
Banca IMI S.p.A.	$125,000,000
Commerz Markets LLC	$125,000,000
MUFG Securities Americas Inc.	$125,000,000
Total	**$1,250,000,000**

The Initial Purchasers have agreed, severally and not jointly, to purchase all of the Notes being sold pursuant to the Purchase Agreement if any of such Notes are purchased. If an Initial Purchaser defaults, the Purchase Agreement provides that the purchase commitments of the non-defaulting Initial Purchasers may be increased or, in certain cases, the Purchase Agreement may be terminated.

The Initial Purchasers have advised the Issuer that they propose initially to offer the Notes for resale at the price listed on the cover page of this offering memorandum. After the initial offering of the Notes, the offering price and other selling terms may from time to time be varied by the Initial Purchasers. The offering of the Notes by the Initial Purchasers is subject to receipt and acceptance and subject to the Initial Purchasers' right to reject any order in whole or in part.

The Issuer has agreed to indemnify the several Initial Purchasers against certain liabilities, including certain liabilities under the Securities Act, or to contribute to payments the Initial Purchasers may be required to make in respect of those liabilities.

The expenses of the offering, not including the discount to the Initial Purchasers, are estimated at $400,000 and are payable by the Issuer.

The Initial Purchasers are offering the Notes, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the Notes, and other conditions contained in the Purchase Agreement, such as the receipt by the Initial Purchasers of officer's certificates and legal opinions. The Initial Purchasers reserve the right to withdraw, cancel or modify offers to investors and to reject orders in whole or in part. After the Notes are released for sale, the Initial Purchasers may change the offering prices and other selling terms without notice.

The Notes are a new issue of securities with no established trading market. The Issuer does not intend to apply for listing of the Notes on any national securities exchange or for inclusion of the Notes on any automated dealer quotation system. The Issuer has been advised by the Initial Purchasers that they presently intend to make a market in the Notes after completion of the offering. However, they are under no obligation to do so and may discontinue any market-making activities at any time without any notice. The Issuer cannot assure the liquidity of the trading market for the Notes. If an active trading market for the Notes does not develop, the market price and liquidity of the Notes may be adversely affected. If the Notes are traded, they may trade at a discount from their initial offering price, depending on prevailing interest rates, the market for similar securities, the operating performance and financial condition of the Issuer, general economic conditions and other factors. See "*Risk Factors—Risks Related to the Notes—Many factors may adversely affect the trading market, value or yield of the Notes*".

Price Stabilization, Short Positions

In connection with the offering, the Initial Purchasers may purchase and sell the Notes in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the Initial Purchasers of a greater principal amount of Notes than

they are required to purchase in the offering. The Initial Purchasers must close out short position by purchasing Notes in the open market. A short position is more likely to be created if the Initial Purchasers are concerned that there may be downward pressure on the price of the Notes in the open market after pricing that could adversely affect investors who purchase in the offering.

The Initial Purchasers also may impose a penalty bid. This occurs when a particular Initial Purchaser repays to the Initial Purchasers a portion of the underwriting discount received by it because the representative has repurchased notes sold by or for the account of such Initial Purchaser in stabilizing or short covering transactions.

Any of these activities may cause the prices of the Notes to be higher than the price that otherwise would exist in the open market in the absence of such transactions. These transactions may be effected in any over-the-counter market, and, if commenced, may be discontinued at any time.

Neither the Issuer nor any of the Initial Purchasers make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the Notes. In addition, neither the Issuer nor any of the Initial Purchasers make any representation that the Representative will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Settlement

We expect that delivery of the Notes will be made against payment therefor on or about the closing date specified on the cover page of this offering memorandum (the "Settlement Date"), which will be the fifth New York business day following the date of pricing of the Notes of this offering (this settlement cycle being referred to as "T+5"). Under Rule 15c6-1 of the Securities Exchange Act of 1934, trades in the secondary market generally are required to settle in two New York business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade Notes prior to the second business day preceding the Settlement Date will be required, by virtue of the fact that the Notes initially will settle in T+5)., to specify an alternative settlement cycle at the time of any such trade to prevent a failed settlement. Purchasers of Notes who wish to trade Notes prior to the second business day preceding the Settlement Date should consult their own adviser.

Other Relationships

Some of the Initial Purchasers and their affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with the Issuer or its respective affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions.

The Initial Purchasers and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities.

In addition, in the ordinary course of their business activities, the Initial Purchasers and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of the Issuer or its respective affiliates. Certain of the Initial Purchasers or their affiliates that have a lending relationship with us routinely hedge, certain other of the Initial Purchasers or their affiliates currently hedge and are likely to hedge in future, and certain other of those Initial Purchasers or their affiliates may hedge, their credit exposure to us consistent with their customary risk management policies. Typically, such Initial Purchasers and their affiliates would hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities, including potentially the Notes offered hereby. Any such credit default swaps or short positions could adversely affect future trading prices of the Notes offered hereby. The Initial Purchasers and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

General

No action has been or will be taken in any jurisdiction that would permit a public offering of the Notes, or the possession, circulation or distribution of this offering memorandum, or any amendment or supplement to this offering

memorandum, or any other offering or publicity material relating to the Notes, in any country or jurisdiction where, or in any circumstances in which, action for that purpose is required. Accordingly, the Notes may not be offered or sold, directly or indirectly, and neither this offering memorandum nor any other offering material or advertisements in connection with the Notes may be distributed or published, in or from any country or jurisdiction except under circumstances that will result in compliance with applicable laws and regulations. Each Initial Purchaser has agreed that it will, to the best of its knowledge, comply with all relevant laws, regulations and directives in each jurisdiction in which it purchases, offers, sells or delivers Notes or has in its possession or distributes this offering memorandum and none of the Issuer or any other Initial Purchaser shall have any responsibility therefor.

United States

The Initial Purchasers propose to offer the Notes for resale in transactions not requiring registration under the Securities Act or applicable state securities laws, including sales pursuant to Rule 144A. Each Initial Purchaser has represented, warranted and agreed that it will offer and sell the Notes only:

(i) to persons whom it reasonably believes are QIBs pursuant to Rule 144A in transactions meeting the requirements of Rule 144A, or

(ii) to, or for the account or benefit of, persons other than “U.S. persons” (within the meaning of Regulation S under the Securities Act) purchasing in offshore transactions outside the United States within the meaning of Regulation S under the Securities Act.

Any offer or sale of the Notes in the United States in reliance on Rule 144A or another exemption from the registration requirements of the Securities Act will be made by broker-dealers who are registered as such under the Exchange Act.

Australia

No placement document, prospectus, product disclosure statement or other disclosure document (including as defined in the Corporations Act 2001 (Cth) (“Corporations Act”)) has been or will be lodged with the Australian Securities and Investments Commission (“ASIC”) or any other governmental agency, in relation to the offering. The offering memorandum does not constitute a prospectus, product disclosure statement or other disclosure document for the purposes of Corporations Act, and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act. No action has been taken which would permit an offering of the Notes in circumstances that would require disclosure under Parts 6D.2 or 7.9 of the Corporations Act.

The Notes may not be offered for sale, nor may application for the sale or purchase or any Notes be invited in Australia (including an offer or invitation which is received by a person in Australia) and neither the offering memorandum nor any other offering material or advertisement relating to the Notes may be distributed or published in Australia unless, in each case:

(a) the aggregate consideration payable on acceptance of the offer or invitation by each offeree or invitee is at least A$500,000 (or its equivalent in another currency, in either case, disregarding moneys lent by the person offering the Notes or making the invitation or its associates) or the offer or invitation otherwise does not require disclosure to investors in accordance with Part 6D.2 or 7.9 of the Corporations Act;

(b) the offer, invitation or distribution complied with the conditions of the Australian financial services license of the person making the offer, invitation or distribution or an applicable exemption from the requirement to hold such license;

(c) the offer, invitation or distribution complies with all applicable Australian laws, regulations and directives (including, without limitation, the licensing requirements set out in Chapter 7 of the Corporations Act);

(d) the offer or invitation does not constitute an offer or invitation to a person in Australia who is a “retail client” as defined for the purposes of Section 761G of the Corporations Act; and

(e) such action does not require any document to be lodged with ASIC or the ASX.

Canada

The Notes may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements*, Exemptions and Ongoing Registrant Obligations. Any resale of the Notes must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this offering memorandum (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 *Underwriting Conflicts* (NI 33-105), the Initial Purchasers are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Hong Kong

Each Initial Purchaser has represented, warranted and agreed that (a) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, any Notes other than (i) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the "SFO") and any rules made under that Ordinance; or (II) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance; and (b) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under that Ordinance.

Japan

Each Initial Purchaser has represented, warranted and agreed that the Notes have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended, the "Financial Instruments and Exchange Act") and that it will not offer or sell any Notes, directly or indirectly, in Japan or to, or for the benefit of, any Japanese person or to others, for re-offering or resale, directly or indirectly, in Japan or to any Japanese person, except in each case pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws and regulations of Japan. For purposes of this paragraph, "Japanese person" means any person resident in Japan, including any corporation or other entity organized under the laws ofJapan.

Korea

The Notes may not be offered, sold and delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in South Korea or to any resident of South Korea except pursuant to the applicable laws and regulations of South Korea, including the Financial Investment Services and Capital Markets Act and the Foreign Exchange Transaction Law and the decrees and regulations thereunder. The Notes have not been registered with the Financial Services Commission of South Korea for public offering in South Korea. Furthermore, the Notes may not be re-sold to South Korean residents unless the purchaser of the Notes complies with all applicable regulatory requirements (including but not limited to government approval requirements under the Foreign Exchange Transaction Law and its subordinate decrees and regulations) in connection with their purchase.

Singapore

The offering memorandum has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each Initial Purchaser has represented, warranted and agreed that it has not offered or sold any Notes or caused the Notes to be made the subject of an invitation for subscription or purchase and will not offer or sell any Notes or cause the Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, the offering memorandum or any other document or material in connection

with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore other than: (a) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time (the "SFA")) pursuant to Section 274 of the SFA; (b) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA; or (c) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is: (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Notes pursuant to an offer made under Section 275 of the SFA except: (i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA; (ii) where no consideration is or will be given for the transfer; (iii) where the transfer is by operation of law; (iv) as specified in Section 276(7) of the SFA; or (v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification — In connection with Section 309B of the SFA and the Securities and Futures (Capital Markets Products) Regulations 2018 ("CMP Regulations 2018"), unless otherwise specified before an offer of Notes, the Issuer has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes are ''prescribed capital markets products'' (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Switzerland

The Notes may not be publicly offered, sold or advertised, directly or indirectly, in, into or from Switzerland and will not be listed on the SIX Swiss Exchange or on any other stock exchange or regulated trading facility in Switzerland. Neither this offering memorandum nor any other offering or marketing material relating to the Notes constitutes a prospectus as such term is understood pursuant to article 652a or article 1156 of the Swiss Code of Obligations or a listing prospectus within the meaning of the listing rules of the SIX Swiss Exchange or the rules of any other stock exchange or regulated trading facility in Switzerland, and neither this offering memorandum nor any other offering or marketing material relating to the Notes may be publicly distributed or otherwise made publicly available in Switzerland.

Taiwan

The Notes have not been and will not be registered with the Financial Supervisory Commission of Taiwan, the Republic of China (''Taiwan''), pursuant to relevant securities laws and regulations and may not be offered or sold in Taiwan through a public offering or in any manner which would constitute an offer within the meaning of the Securities and Exchange Act of Taiwan or would otherwise require registration with or the approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorized to offer or sell the Notes in Taiwan.

United Arab Emirates (including Dubai International Financial Center)

The Notes have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the Dubai International Financial Centre) other than in compliance with the laws of the United Arab Emirates (and the Dubai International Financial Centre) governing the issue, offering and sale of securities. Further, the offering memorandum does not constitute a public offer of securities in the United Arab Emirates (including the Dubai International Financial Centre) and is not intended to be a public offer. The offering memorandum has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority or the Dubai Financial Services Authority.

United Kingdom

Each Initial Purchaser has represented, warranted and agreed that:

(i) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of section 21 of the Financial Services and Markets Act 2000 ("FSMA")) received by it in connection with the issue or sale of the Notes in circumstances in which section 21(1) of the FSMA does not apply to the Issuer; and

(ii) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the Notes in, from or otherwise involving the United Kingdom.

European Economic Area

Each Initial Purchaser has represented and agreed that it has not offered, sold or otherwise made available, and will not offer, sell or otherwise make available any Notes to any retail investor in the EEA. For the purposes of this provision:

(a) the expression "retail investor" means a person who is one (or more) of the following:

   a. retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "MiFID II"); or
   b. a customer within the meaning of Directive (EU) 2016/97 (as amended or superseded, the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or
   c. not a qualified investor as defined in Regulation (EU) 2017/1129 (as amended or superseded, the "Prospectus Regulation"); and

(b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

This EEA selling restriction is in addition to the other selling restrictions set forth above.

TRANSFER RESTRICTIONS

Offers and Sales

The Notes have not been and will not be registered under the Securities Act and may not be offered or sold in the United States except pursuant to an effective registration statement or (i) in a transaction not subject to the registration requirements under the Securities Act and any securities regulatory authority of any state of the United States or (ii) in accordance with an applicable exemption from the registration requirements thereof. Accordingly, the Notes are being offered and sold hereunder only:

- inside the United States or to U.S. persons (as defined under Regulation S), to QIBs; and
- outside the United States to non-U.S. persons or for the account or benefit of non-U.S. persons, in offshore transactions in reliance upon Regulation S.

Any offer or sale of the Notes in the United States in reliance on Rule 144A or another exemption from the registration requirements of the Securities Act will be made by broker-dealers who are registered as such under the Exchange Act.

Until the expiration of 40 days after the later of the commencement of the offering of the Notes and the original issue or sale date of the Notes, an offer or sale of the Notes within the United States by a dealer may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than pursuant to an exemption from registration under the Securities Act.

Each purchaser of the Notes will be deemed by its acceptance of the Notes to have represented, warranted and agreed that it is purchasing the Notes for its own account, or for one or more investor accounts for which it is acting as a fiduciary or agent, in each case for investment, and not with a view to, or for offer or sale in connection with, any distribution thereof in violation of the Securities Act or any state securities laws, subject to any requirement of law that the disposition of its property or the property of such investor account or accounts be at all times within its or their control and subject to its or their ability to resell such Notes pursuant to Rule 144A, Regulation S or any other exemption from registration available under the Securities Act.

Rule 144A Global Notes

Each purchaser of Notes within the United States will be deemed by its acceptance of the Notes to have represented, warranted and agreed on its behalf and on behalf of any investor accounts for which it is purchasing the Notes, that neither the Issuer nor the Initial Purchasers, nor any person acting on their behalf, has made any representation to it with respect to the offering or sale of any Notes, other than the information contained in this offering memorandum, which offering memorandum has been delivered to it and upon which it is solely relying in making its investment decision with respect to the Notes, has had access to such financial and other information concerning Deutsche Telekom and the Notes as it has deemed necessary in connection with its decision to purchase any of the Notes, and that:

(i) the purchaser is not an affiliate of Deutsche Telekom or a person acting on behalf of Deutsche Telekom or on behalf of such affiliate; and it is not in the business of buying and selling securities or, if it is in such business, it did not acquire the Notes from Deutsche Telekom or an affiliate thereof in the initial distribution of the Notes;

(ii) the purchaser acknowledges that the Notes have not been and will not be registered under the Securities Act or with any securities regulatory authority of any state of the United States and are subject to significant restrictions on transfer;

(iii) the purchaser (i) is a QIB, (ii) is aware that the sale to it is being made in reliance on Rule 144A or another exemption from, or in a transaction not subject to, the registration requirements of the Securities Act, and (iii) is acquiring such Notes for its own account or for the account of a QIB, in each case for investment and not with a view to, or for offer or sale in connection with, any resale or distribution of the Notes in violation of the Securities Act or any state securities laws;

(iv) the purchaser is aware that the Notes are being offered in the United States in a transaction not involving any public offering in the United States within the meaning of the Securities Act;

(v) if, prior to the date that is one year after the later of the date (the “Resale Restriction Termination

Date") of the commencement of sales of the Notes and the last date on which the Notes were acquired from the Issuer or any of the Issuer's affiliates in the offering the purchaser decides to offer, resell, pledge or otherwise transfer such Notes, such Notes may be offered, sold, pledged or otherwise transferred only (i) to a person whom the beneficial owner and/or any person acting on its behalf reasonably believes is a QIB in a transaction meeting the requirements of Rule 144A, (ii) in accordance with Regulation S, (iii) in accordance with Rule 144 (if available), (iv) in accordance with an effective registration statement under the Securities Act, or (v) pursuant to any other available exemption from the registration requirements of the Securities Act in each case in accordance with any applicable securities laws of any state of the United States or any other jurisdiction and agrees to give any subsequent purchaser of such Notes notice of any restrictions on the transfer thereof;

(vi) the Notes have not been offered to it by means of any general solicitation or general advertising;

(vii) the Notes are "restricted securities" within the meaning of Rule 144(a)(3) under the Securities Act and no representation is made as to the availability of the exemption provided by Rule 144 under the Securities Act for resales of any such Notes;

(viii) the Notes, unless otherwise determined by the Issuer in accordance with applicable law, will bear a legend to the following effect:

THIS SECURITY HAS NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY STATE SECURITIES LAW. THE HOLDER HEREOF, BY PURCHASING THIS SECURITY, (A) REPRESENTS THAT IT IS A "QUALIFIED INSTITUTIONAL BUYER" (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) AND (B) AGREES THAT THIS SECURITY MAY BE REOFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED ONLY IN COMPLIANCE WITH THE SECURITIES ACT AND OTHER APPLICABLE LAWS AND ONLY (1) TO DEUTSCHE TELEKOM AG (THE "ISSUER"), (2) PURSUANT TO RULE 144A UNDER THE SECURITIES ACT ("RULE 144A") TO A PERSON THAT THE HOLDER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER WITHIN THE MEANING OF RULE 144A PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF A QUALIFIED INSTITUTIONAL BUYER WHOM THE HOLDER HAS INFORMED, IN EACH CASE, THAT THE REOFFER, RESALE, PLEDGE OR THE TRANSFER IS BEING MADE IN RELIANCE ON RULE 144A, (3) IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 903 OR RULE 904 OF REGULATION S UNDER THE SECURITIES ACT, (4) PURSUANT TO AN EXEMPTION FROM REGISTRATION IN ACCORDANCE WITH RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE), OR (5) PURSUANT TO ANOTHER EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT, PROVIDED THAT, AS A CONDITION TO THE REGISTRATION OF THE TRANSFER HEREOF, THE ISSUER OR THE FISCAL AGENT MAY REQUIRE THE DELIVERY OF ANY DOCUMENTS, INCLUDING AN OPINION OF COUNSEL, THAT IT, IN ITS SOLE DISCRETION, MAY DEEM NECESSARY OR APPROPRIATE TO EVIDENCE COMPLIANCE WITH SUCH EXEMPTION. THE HOLDER HEREOF, BY, PURCHASING OR ACCEPTING THIS SECURITY, REPRESENTS AND AGREES FOR THE BENEFIT OF THE ISSUER THAT IT WILL NOTIFY ANY PURCHASER OF THIS SECURITY FROM THE HOLDER OF THE RESALE RESTRICTIONS REFERRED TO ABOVE.

(ix) the purchaser agrees that it will give to each person to whom it transfers the Notes notice of any restrictions on transfer of such Notes; and

(x) the purchaser acknowledges that the Fiscal Agent will not be required to accept for registration of transfer any Notes except upon presentation of evidence satisfactory to the Issuer and the Fiscal Agent that the restrictions set forth herein have been complied with.

Terms defined in Rule 144A shall have the same meaning when used in the foregoing sections (i)-(x). Each purchaser acknowledges that the Issuer and the Initial Purchasers will rely upon the truth and accuracy of the foregoing acknowledgements, representations and agreements, and agrees that if any of the acknowledgements, representations or warranties deemed to have been made by such purchaser by its purchase of Notes are no longer accurate, it shall promptly notify the Issuer and the Initial Purchasers; if they are acquiring any Notes offered hereby as a fiduciary or agent for one or more investor accounts, each purchaser represents that they have sole investment discretion with respect to each such account and full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.

The Issuer recognizes that none of DTC, Euroclear nor Clearstream in any way undertakes to, and none of DTC, Euroclear nor Clearstream have any responsibility to, monitor or ascertain the compliance of any transactions in the Notes with any exemptions from registration under the Securities Act or any other state or federal securities law.

Regulation S Global Notes

Each purchaser of Notes outside the United States pursuant to Regulation S will be deemed by its acceptance of the Notes to have represented, warranted and agreed, on its behalf and on behalf of any investor accounts for which it is purchasing the Notes, that neither the Issuer nor the Initial Purchasers, nor any person acting on their behalf, has made any representation to it with respect to the offering or sale of any Notes, other than the information contained in this offering memorandum, which offering memorandum has been delivered to it and upon which it is solely relying in making its investment decision with respect to the Notes, has had access to such financial and other information concerning Deutsche Telekom and the Notes as it has deemed necessary in connection with its decision to purchase any of the Notes, and that:

(i) the purchaser understands and acknowledges that the Notes have not been and will not be registered under the Securities Act, or with any securities regulatory authority of any state of the United States, and may not be offered, sold or otherwise transferred except in compliance with the registration requirements of the Securities Act or any other applicable securities law, pursuant to an exemption therefrom or in any transaction not subject thereto;

(ii) the purchaser, and the person, if any, for whose account or benefit the purchaser is acquiring the Notes, is not a U.S. person and is acquiring the Notes in an "offshore transaction" meeting the requirements of Regulation S and was located outside the United States at the time the buy order for the Shares was originated and continues to be outside of the United States and has not purchased the Notes for the account or benefit of any U.S. person or entered into any arrangement for the transfer of the Notes to any U.S. person;

(iii) the purchaser is aware of the restrictions on the offer and sale of the Notes pursuant to Regulation S described in this offering memorandum and agrees to give any subsequent purchaser of such Notes notice of any restrictions on the transfer thereof;

(iv) the Notes have not been offered to it by means of any "directed selling efforts" as defined in Regulation S; and

(v) Deutsche Telekom shall not recognize any offer, sale, pledge or other transfer of the Notes made other than in compliance with the above-stated restrictions.

Terms defined in Regulation S shall have the same meaning when used in the foregoing sections (i)-(v).

Until the 41st day after the later of the commencement of the sale of the Notes and the date of the original issuance of the Notes, the Regulation S notes will bear a restrictive legend to the following effect and may not be transferred otherwise than in accordance with the transfer restrictions set forth in such legend:

THE SECURITIES EVIDENCED HEREBY HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR WITH ANY SECURITIES REGULATORY AUTHORITY OF ANY JURISDICTION AND, ACCORDINGLY, MAY NOT BE REOFFERED, RESOLD, PLEDGED OR OTHERWISE TRANSFERRED WITHIN THE UNITED STATES OR TO OR FOR THE ACCOUNT OR BENEFIT OF A U.S. PERSON (AS DEFINED IN REGULATION S UNDER THE SECURITIES ACT) EXCEPT PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT. DEUTSCHE TELEKOM AG (THE "ISSUER") HAS AGREED THAT THIS LEGEND SHALL BE DEEMED TO HAVE BEEN REMOVED ON THE 41ST DAY FOLLOWING THE LATER OF THE COMMENCEMENT OF THE OFFERING OF THE SECURITIES AND THE FINAL DELIVERY DATE WITH RESPECT THERETO.

LEGAL MATTERS

The validity of the Notes has been passed upon for us by our United States counsel, Cleary Gottlieb Steen & Hamilton LLP, and for the underwriters by their United States counsel, Sullivan & Cromwell LLP.

INDEPENDENT ACCOUNTANTS

The consolidated financial statements of Deutsche Telekom as of and for the years ended December 31, 2018 and 2017, which are incorporated by reference in this offering memorandum, have been prepared in accordance with IFRS as adopted by the European Union and have been audited by PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Friedrich-Ebert-Anlage 35-37, 60327 Frankfurt am Main, Germany ("PwC"), independent accountants, as stated in its independent auditor's reports incorporated by reference in this offering memorandum. The condensed consolidated interim financial statements as of and for the nine-month period ending September 30, 2019 have been reviewed by PwC and PwC issued a review report thereon. However, their separate report dated November 7, 2019 incorporated by reference herein states that they did not audit and they do not express an opinion on that unaudited financial information. Accordingly, the degree of reliance on their report on such information should be restricted in light of the limited nature of the review procedures applied. PwC is a member of the German Chamber of Public Accountants (*Wirtschaftsprüferkammer*), Berlin.

The independent auditor's reports of PwC for the consolidated financial statements of the Company as of and for the fiscal years ended December 31, 2018 and 2017 refer to group management reports (*Konzernlageberichte*). Additionally, the review report of PwC on the condensed consolidated interim financial statements of the Company as of and for the nine-months period ended September 30, 2019 refers to the interim group management report (*Konzernzwischenlagebericht*). The group management reports and the interim group management report as a whole are not included or incorporated by reference in this offering memorandum. The group management reports and the interim group management report were prepared by and are the sole responsibility of, the Company's management in accordance with German generally accepted accounting principles and with respect to the interim group management report in accordance with the provisions of the German Securities Trading Act (*Wertpapierhandelsgesetz – WpHG*) applicable to interim group management reports. The examinations of and the auditor's reports upon such group management reports are required and were performed in accordance with § 317 of the German Commercial Code (*Handelsgesetzbuch, HGB*), with respect to the interim group management report in accordance with § 115 WpHG, and German generally accepted standards for the audit of management reports promulgated by the German Institut der Wirtschaftsprüfer (IDW). Those examinations were not made in accordance with generally accepted auditing or attestation standards in the United States. Accordingly, PwC does not express any opinion on this information or on the consolidated financial statements or the condensed consolidated interim financial statements incorporated by reference in the offering memorandum, in each case in accordance with U.S. generally accepted auditing standards or U.S. attestation standards. The information contained in such group management reports and the interim group management report and the auditor's reports upon such group management reports and the review report upon such interim group management report should not be relied upon by U.S. investors.

GENERAL INFORMATION

The issuance of the Notes is based on the annual financing plan (*Jahresfinanzierungsplan*) of Deutsche Telekom for the fiscal year 2020. The annual financing plan was resolved upon by the Board of Management of Deutsche Telekom on November 19, 2019 and approved by the Supervisory Board of Deutsche Telekom on December 18, 2019.

Issuer

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Deutsche Telekom AG

$1,250,000,000 3.625% Notes due January 21, 2050

Joint Book-Running Managers

Citigroup
J.P. Morgan
TD Securities

Co-Lead Managers

Banca IMI
COMMERZBANK
MUFG

January 13, 2020