unitymedia

Annual Report
December 31, 2018

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FORWARD-LOOKING STATEMENTS

Certain statements in this annual report constitute forward-looking statements. To the extent that statements in this annual report are not recitations of historical fact, such statements constitute forward-looking statements, which, by definition, involve risks and uncertainties that could cause actual results to differ materially from those expressed or implied by such statements. In particular, statements under *Business* (including, but not limited to, *Competition, Intellectual Property* and *Legal Proceedings*), *Material Contracts, Regulatory* and *Management's Discussion and Analysis of Financial Condition and Results of Operations* may contain forward-looking statements, including statements regarding our business, product and finance strategies in 2019, subscriber growth and retention rates, competitive, regulatory and economic factors, the timing and impacts of proposed transactions, liquidity and other information and statements that are not historical fact.

Where, in any forward-looking statement, we express an expectation or belief as to future results or events, such expectation or belief is expressed in good faith and believed to have a reasonable basis, but there can be no assurance that the expectation or belief will result or be achieved or accomplished. In evaluating these statements, you should consider the risks and uncertainties in the following list, and those described herein, as some of but not all of the factors that could cause actual results or events to differ materially from anticipated results or events:

- economic and business conditions and industry trends in Germany;
- the competitive environment in Germany, including competitor responses to our products and services;
- fluctuations in currency exchange rates and interest rates;
- instability in global financial markets, including sovereign debt issues and related fiscal reforms;
- consumer disposable income and spending levels, including the availability and amount of individual consumer debt;
- changes in consumer television viewing preferences and habits;
- consumer acceptance of our existing service offerings, including our cable television, broadband internet, fixed-line telephony, mobile and business service offerings, and of new technology, programming alternatives and other products and services that we may offer in the future;
- our ability to manage rapid technological changes;
- our ability to maintain or increase the number of subscriptions to our cable television, broadband internet, fixed-line telephony and mobile service offerings and our average revenue per household;
- our ability to provide satisfactory customer service, including support for new and evolving products and services;
- our ability to maintain or increase rates to our subscribers or to pass through increased costs to our subscribers;
- the impact of our future financial performance, or market conditions generally, on the availability, terms and deployment of capital;
- changes in, or failure or inability to comply with, government regulations in Germany and adverse outcomes from regulatory proceedings;
- government intervention that impairs our competitive position, including any intervention that would impact our contractual relationships with housing associations and Professional Operators (as defined and described below) or would open our broadband distribution networks to competitors;
- our ability to obtain regulatory approval and satisfy other conditions necessary to close acquisitions, and the impact of conditions imposed by competition and other regulatory authorities in connection with acquisitions;
- our ability to successfully acquire new businesses and, if acquired, to integrate, realize anticipated efficiencies from, and implement our business plan, with respect to the businesses we may acquire;
- changes in laws or treaties relating to taxation, or the interpretation thereof, in Germany;
- changes in laws and government regulations that may impact the availability and cost of capital and the derivative instruments that hedge certain of our financial risks;

- the ability of suppliers and vendors (including our third-party wireless network provider under our mobile virtual network operator (**MVNO**) arrangement) to timely deliver quality products, equipment, software, services and access;
- the availability of attractive programming for our video services and the costs associated with such programming, including retransmission and copyright fees payable to public and private broadcasters;
- uncertainties inherent in the development and integration of new business lines and business strategies;
- our ability to adequately forecast and plan future network requirements, including the costs and benefits associated with our planned new build and upgrade activities;
- the availability of capital for the acquisition and/or development of telecommunications networks and services;
- problems we may discover post-closing with the operations, including the internal controls and financial reporting process, of businesses we acquire;
- the leakage of sensitive customer data;
- the outcome of any pending or threatened litigation;
- the loss of key employees and the availability of qualified personnel;
- changes in the nature of key strategic relationships with partners;
- changes in the nature of key relationships with Deutsche Telekom (as defined and described below) and certain of its affiliates for the access and operation of a significant portion of our network;
- our ability to successfully interact with labor councils and unions; and
- events that are outside of our control, such as political unrest in international markets, terrorist attacks, malicious human acts, natural disasters, pandemics and other similar events.

The broadband distribution and mobile service industries are changing rapidly and, therefore, the forward-looking statements of expectations, plans and intent in this annual report are subject to a significant degree of risk. These forward-looking statements and the above-described risks, uncertainties and other factors speak only as of the date of this annual report, and we expressly disclaim any obligation or undertaking to disseminate any updates or revisions to any forward-looking statement contained herein, to reflect any change in our expectations with regard thereto, or any other change in events, conditions or circumstances on which any such statement is based. Readers are cautioned not to place undue reliance on any forward-looking statement.

BUSINESS

In this annual report, unless the context otherwise requires, the terms "we", "our", "our company", "us" and "**Unitymedia**" refer to Unitymedia GmbH and its consolidated subsidiaries. Unless otherwise indicated, operational and statistical data, including subscriber statistics and product offerings, are as of December 31, 2018.

Introduction

We are a subsidiary of Liberty Global plc (**Liberty Global**) that provides video, broadband internet and fixed-line telephony services over our broadband communications network and mobile services as an MVNO. We also provide business-to-business (**B2B**) communications services, including broadband internet, video, voice, mobile and data services. We are the second largest cable operator in Germany and the largest cable operator in the German federal states of North Rhine-Westphalia, Hesse and Baden-Württemberg in terms of the number of customers. As of December 31, 2017, these three federal states have a population of 35.2 million and a combined number of households of 17.1 million, and include the major cities of Cologne, Dortmund, Düsseldorf, Essen, Frankfurt, Karlsruhe, Mannheim, Stuttgart and Wiesbaden.

Liberty Global is the world's largest international TV and broadband company, operating under the consumer brands Virgin Media, Unitymedia, Telenet and UPC. Liberty Global invests in the infrastructure that empowers its customers to make the most of the video, internet and communications revolution. Its substantial scale and commitment to innovation enables it to develop market-leading products delivered through next-generation networks that connected over 21.2 million customers subscribing to 44.7 million television, broadband internet and telephony services at December 31, 2018. Liberty Global also serves over six million mobile subscribers. In addition, Liberty Global also owns 50% of VodafoneZiggo, a Dutch joint venture.

On May 9, 2018, Liberty Global and certain of its subsidiaries entered into a sale and purchase agreement with Vodafone Group plc and certain of its subsidiaries pursuant to which Liberty Global will sell its ownership interest in certain of its operations, including its interest in our company, to Vodafone Group plc. Vodafone Group plc will be acquiring our company inclusive of our outstanding debt. As currently structured, upon closing, a change of control will be triggered with respect to our debt, and lenders and bondholders will have an option to put their debt to Vodafone Group plc. Closing of the transaction is subject to various conditions, including regulatory approval, which we expect will be obtained in mid-2019.

We classify our customers based on our main subscription-based business activities. The following table shows our operating statistics as of December 31, 2018 and 2017.

	December 31,	
	2018	**2017**
Footprint		
Homes Passed [1]	13,136,200	12,981,300
Two-way Homes Passed [2]	13,060,200	12,900,400
Subscribers (RGUs) [3]		
Basic Video [4]	4,675,500	4,687,200
Enhanced Video [5]	1,607,500	1,653,600
Total Video	6,283,000	6,340,800
Internet [6]	3,615,500	3,476,600
Telephony [7]	3,380,800	3,251,000
Total RGUs	13,279,300	13,068,400
Penetration		
Enhanced Video Subscribers as a % of Total Video Subscribers [8]	25.6%	26.1%
Internet as % of Two-way Homes Passed [9]	27.7%	26.9%
Telephony as % of Two-way Homes Passed [9]	25.9%	25.2%
Cable Customer relationships		
Cable Customer Relationships [10]	7,175,900	7,160,200
RGUs per Cable Customer Relationship	1.85	1.83
Customer bundling		
Single-Play	50.4%	52.2%
Double-Play	14.2%	13.1%
Triple-Play	35.4%	34.7%
Mobile statistics		
Mobile subscribers [11]	283,300	320,400

(1) Homes Passed are homes, residential multiple dwelling units or commercial units that can be connected to our networks without materially extending the distribution plant. Our Homes Passed counts are based on census data that can change based on either revisions to the data or from new census results.

(2) Two-way Homes Passed are Homes Passed by those sections of our network that are technologically capable of providing two-way services, including video, internet and telephony services.

(3) Revenue Generating Unit (**RGU**) is separately a Basic Video Subscriber, Enhanced Video Subscriber, Internet Subscriber or Telephony Subscriber (each as defined and described below). A home, residential multiple dwelling unit, or commercial unit may contain one or more RGUs. For example, if a residential customer subscribed to our enhanced video service, fixed-line telephony service and broadband internet service, the customer would constitute three RGUs. Total RGUs is the sum of Basic Video, Enhanced Video, Internet and Telephony Subscribers. RGUs generally are counted on a unique premises basis such that a given premises does not count as more than one RGU for any given service. On the other hand, if an individual receives one of our services in two premises (e.g. a primary home and a vacation home), that individual will count as two RGUs for that service. Each bundled cable, internet or telephony service is counted as a separate RGU regardless

of the nature of any bundling discount or promotion. Non-paying subscribers are counted as subscribers during their free promotional service period. Some of these subscribers may choose to disconnect after their free service period. Services offered without charge on a long-term basis (e.g., VIP subscribers, free service to employees) generally are not counted as RGUs. We do not include subscriptions to mobile services in our externally reported RGU counts. In this regard, our December 31, 2018 RGU counts exclude our separately reported mobile subscribers.

(4) Basic Video Subscriber is a home, residential multiple dwelling unit or commercial unit that receives our video service over our broadband network via a digital video signal without subscribing to any recurring monthly service that requires the use of encryption-enabling technology. Encryption-enabling technology includes smart cards, or other integrated or virtual technologies that we use to provide our enhanced service offerings. We count RGUs on a unique premises basis. In other words, a subscriber with multiple outlets in one premises is counted as one RGU and a subscriber with two homes and a subscription to our video service at each home is counted as two RGUs.

(5) Enhanced Video Subscriber is a home, residential multiple dwelling unit or commercial unit that receives our video service over our broadband network or through a partner network via a digital video signal while subscribing to any recurring monthly service that requires the use of encryption-enabling technology. Enhanced Video Subscribers are counted on a unique premises basis. For example, a subscriber with one or more set-top boxes that receives our video service in one premises is generally counted as just one subscriber. An Enhanced Video Subscriber is not counted as a Basic Video Subscriber. As we migrate customers from basic to enhanced video services, we report a decrease in our Basic Video Subscribers equal to the increase in our Enhanced Video Subscribers.

(6) Internet Subscriber is a home, residential multiple dwelling unit or commercial unit that receives internet services over our network. Our Internet Subscribers do not include customers that receive services from dial-up connections.

(7) Telephony Subscriber is a home, residential multiple dwelling unit or commercial unit that receives voice services over our network. Telephony Subscribers exclude mobile telephony subscribers.

(8) Enhanced video penetration is calculated by dividing the number of enhanced video RGUs by the total number of basic and enhanced video RGUs.

(9) Telephony and broadband penetration is calculated by dividing the number of telephony RGUs and broadband RGUs, respectively, by the total Two-way Homes Passed.

(10) Cable Customer Relationships are the number of customers who receive at least one of our video, internet or telephony services that we count as RGUs, without regard to which or to how many services they subscribe. Cable Customer Relationships generally are counted on a unique premises basis. Accordingly, if an individual receives our services in two premises (e.g., a primary home and a vacation home), that individual generally will count as two Cable Customer Relationships. We exclude mobile-only customers from Cable Customer Relationships.

(11) Our mobile subscriber count represents the number of active subscriber identification module (**SIM**) cards in service rather than services provided. For example, if a mobile subscriber has both a data and voice plan on a smartphone this would equate to one mobile subscriber. Alternatively, a subscriber who has a voice and data plan for a mobile handset and a data plan for a laptop (via a dongle) would be counted as two mobile subscribers. Customers who do not pay a recurring monthly fee are excluded from our mobile telephony subscriber counts after a period of inactivity of 90 days.

History

Our predecessor company was formed on September 20, 2002 as a German limited liability company (*Gesellschaft mit beschränkter Haftung*), which we refer to as "**Old Unitymedia**". Old Unitymedia's operations resulted from the acquisition by Unitymedia Hessen GmbH & Co. KG (**Unitymedia Hessen**) of Unitymedia NRW GmbH (**Unitymedia NRW**) in 2005 and the integration of the assets and liabilities of the cable network business of Tele Columbus Kabel Holding GmbH (**Tele Columbus**), which were located in North Rhine-Westphalia and Hesse. The combinations allowed Old Unitymedia to interconnect the broadband cable networks in North Rhine-Westphalia and Hesse and build the first fully-integrated cable network in Germany. In May 2007, Old Unitymedia introduced a single "Unitymedia" brand for its products and services and, in its upgraded network coverage area, began to offer a triple-play product, combining digital cable television services with broadband internet access and fixed-line telephony services.

We were formed by Liberty Global on October 15, 2009, in contemplation of the issuance of a debt financing in connection with our then potential acquisition of Old Unitymedia. On January 28, 2010, we acquired 100% of Old Unitymedia and on September 16, 2010, we completed the merger with Old Unitymedia and we were the surviving entity in the merger. Beginning on August 8, 2012 we changed our name to Unitymedia GmbH (**Unitymedia**).

On December 15, 2011, UPC Germany HoldCo 2 GmbH (**UPC Germany HC2**), a wholly-owned indirect subsidiary of UPC Germany Holding B.V. (**UPC Germany**) (Unitymedia's immediate parent company), acquired all of the shares of Kabel BW Musketeer GmbH (**KBW Musketeer**), the indirect parent company of Kabel BW GmbH (**Old KBW**) (the **LG/KBW Transaction**).

As part of a reorganization during 2012 that was effected through a series of mergers and consolidations, KBW Musketeer and its immediate subsidiary, Kabel BW Erste Beteiligungs GmbH (**Kabel BW**), were merged into UPC Germany HC2 and UPC Germany HC2 was subsequently merged into Old KBW. As a result of these transactions, which were effective upon registration in March 2012, UPC Germany HoldCo 1 GmbH (**UPC Germany HC1**) became the immediate parent company of Old KBW. In May 2012, the "**KBW Fold-in**" was completed which resulted in the immediate parent company of UPC Germany HC1, UPC Germany Holdings GmbH (**UPC Germany Holdings**), becoming a direct subsidiary of Unitymedia Hessen. As part of our continuing internal reorganization following the LG/KBW Transaction and the subsequent KBW Fold-in, on August 24, 2012 Unitymedia Hessen sold its shares in UPC Germany Holdings to a newly formed subsidiary, UPC Germany NewCo GmbH (**UPC Germany NewCo**). In addition, each of the following mergers were registered with the commercial register (*Handelsregister*) between August 29 and August 31, 2012: (i) UPC Germany Holdings was merged into UPC Germany NewCo; (ii) UPC Germany HC1 was merged into Old KBW; and (iii) Kabel Baden-Württemberg Verwaltungs-GmbH was merged into Old KBW. On September 3, 2013, the merger of Hessen Verwaltungs-GmbH into Unitymedia NRW was registered with the commercial register. On March 30, 2015, the merger of UPC Germany NewCo into Unitymedia Hessen as part of our continuing internal reorganization was registered with the commercial register. On April 1, 2015, Old KBW was renamed to Unitymedia BW GmbH (**KBW**). On November 10, 2015, the merger of Unitymedia Services GmbH into Unitymedia NRW was registered with the commercial register.

We are registered with the commercial register (*Handelsregister*) of the local court (*Amtsgericht*) of Cologne under number HRB 68501. Our principal business address is Aachener Strasse 746-750, 50933 Cologne, Germany. A copy of this annual report, our quarterly reports and our other releases are available on Liberty Global's website (www.libertyglobal.com). None of the information posted on this website is incorporated into this annual report.

Products and Services

We currently provide digital cable television and digital and analog radio services, including premium digital cable services, to customers in the three federal states of North Rhine-Westphalia, Hesse and Baden-Württemberg, Germany. In addition, in the upgraded portion of our network coverage area (which covers over 99% of our total network coverage area), we offer our customers access to triple-play services under the brand "Unitymedia" consisting of digital video, broadband internet and fixed-line telephony. We also offer quadruple-play bundles that include mobile voice and data services. The upgraded portion of our network provides us with full bi-directional capability that enables us to provide premium digital cable and broadband internet service at very high speeds, as well as fixed-line telephony services. Through our partnership with Telefónica Germany GmbH & Co. OHG (**Telefónica Germany**) we offer our customers mobile voice and data services.

We generate revenue principally from relationships with our customers who pay subscription fees for the services provided. Subscription fees for cable video services are typically paid directly by single family homes (or single-dwelling units (**SDUs**)) subscribing to the service or, in the case of multi-dwelling units (**MDUs**), we enter into a bulk contract with the owner or housing association of the multi-dwelling structure based on the number of units connected. Single family home customers also pay us directly for the subscription fees associated with our premium digital cable services, as well as the broadband internet, fixed-line telephony and mobile services they purchase from us. Generally, the owner of an MDU allows us to sell enhanced video, broadband internet and fixed-line telephony services directly to individual tenants.

Video Business

We have marketed our video services under the integrated "Unitymedia" brand in our entire footprint since April 2015, when we rebranded the integrated "Kabel BW" brand that was previously used in the federal state of Baden-Württemberg to "Unitymedia". We offer a full range of video services, including premium subscription channels, high definition (**HD**) channels, digital video recorder (**DVR**) functionality, HD receivers, common interface plus (**CI+**) modules, our Horizon TV platform (as defined and described below) and access to video-on-demand (**VoD**). No set-top box, CI+ module or smart card is, however, required to receive our basic video services because our basic digital services are unencrypted across our footprint.

There are 1.6 million RGUs that subscribe to our enhanced video products and 4.7 million RGUs that subscribe to our basic video package of television channels. We continue to upgrade our systems to expand our digital service offerings and encourage our basic subscribers to convert to an enhanced video service. As of December 31, 2018, we provided our basic and enhanced video services to 47.8% of the homes passed by our network, while 25.6% of our video base subscribed to enhanced video services.

Basic and Digital Cable Services

Our basic video product, "Kabelanschluss", offers an entry level digital cable product. It offers over 90 digital TV channels and approximately 95 digital radio channels. This basic digital cable product also provides access to 32 HD channels, of which 19 are from public broadcasters. We regularly update our basic cable program offerings to reflect changes in viewer interest, for example by further increasing the number of HD channels.

Premium Digital Cable Services

Our premium digital cable services include premium HD channel offerings, VoD including our maxdome (as defined and described below) subscription video-on-demand (**SVoD**) package, DVR functionality and premium programming channels that we assemble into packages. We offer an HD option that includes HD free-to-air (**FTA**) content from commercial broadcasters. Our digital cable customers can subscribe to this HD option for an additional monthly fee if they have a suitable HD capable device. This HD option currently includes 27 HD channels, which are in addition to the 32 HD channels that are already included in our basic digital cable product. Across our footprint, we have introduced our next-generation set-top box platform, which we refer to as "**Horizon TV**". Horizon TV is an all-in-one set-top box with an integrated Euro DOCSIS 3.0 modem and a WiFi connection, providing an intuitive advanced user interface, DVR functionality, access to premium TV and VoD. For more information, see "— *Horizon TV*" below. In addition, to further fuel the digital conversion, we offer a regular HD interactive set-top box without DVR functionality and a CI+ module, both including a smartcard, that allows those video households with an enabled HD television set to watch premium standard definition (**SD**) or HD content. Customers can either purchase or rent these devices for an additional monthly fee or as part of a triple-play bundle at a discount and a one-time activation fee. Our Horizon TV, HD DVR and HD interactive receivers provide access to our extensive VoD offering that can be watched on a per-view basis. This includes over 52,000 titles of on-demand content.

We offer several premium content packages ("Genre Packages"), which can be ordered individually for an additional monthly fee. Our SERIES & MOVIES package includes 11 channels, our DOCU package includes nine channels, our SPORTS package includes seven channels, and our KIDS package includes eight channels. At an additional bundle discount, customers can also order our Digital TV ALLSTARS package which is comprised of all the aforementioned Genre Packages and 18 additional channels. In addition, subscribers to our HD option will receive the majority of our premium TV channels in HD. Our video customers may also subscribe to premium SD and HD content offered by Sky Deutschland AG (**Sky Deutschland**) for an incremental subscription fee through a smart card on our network. These customers can access the premium content of Sky Deutschland via attractive bundles in combination with our Digital TV ALLSTARS package. In total, we currently offer up to 114 HD channels (including up to 23 Sky Deutschland HD channels), including FTA and premium channels by public and commercial broadcasters in each case. For more details regarding our arrangement with Sky Deutschland, see "— *Material Contracts — Other Significant Supply Agreements — Sky Deutschland*".

We also offer digital foreign language packages under the name "Digital TV INTERNATIONAL". It consists of our individual foreign language programming packages in Albanian, Arabic, Bosnian, Croatian, French, Greek, Italian, Japanese, Polish, Portuguese/Spanish, Russian, Serbian and Turkish.

Maxdome. We have entered into a distribution agreement with ProSiebenSAT.1 Media AG (**ProSiebenSAT.1**) for their SVoD service, known as "**maxdome**". Since March 2015, we offer the maxdome SVoD platform via our Horizon TV platform, Horizon Go (as defined and described below) and certain of our interactive set-top boxes. The maxdome product can be ordered by our customers on a standalone basis. Via the maxdome option, our customers have access to the majority of maxdome's unlimited SVoD offer.

Horizon TV. We introduced our next-generation set-top box platform, Horizon TV, in September 2013 in our former Unitymedia footprint and in November 2014 in our former Kabel BW footprint. Horizon TV is a central media platform that is capable of distributing video, voice and data content throughout the home and to multiple devices. It has a sophisticated user interface that enables customers to view linear channels, VoD programming and personal media content and to pause, replay and record programming. On our Horizon TV platform, we also offer applications for various services (such as Netflix, YouTube, Facebook, Twitter and others). The Horizon TV platform includes an online television application that offers over 150 linear video channels, of which the majority are available out-of-home, and access to VoD and SVoD across multiple devices (**Horizon Go**). As of December 31, 2018, we had over 775,000 Horizon TV subscribers.

Our Customers. We divide our basic cable subscribers into two specific market segments: residential subscribers in SDUs and subscribers in MDUs. Each market segment is targeted with tailored marketing, sales and advertising techniques.

In the SDU market segment, residential subscribers typically enter into standard form contracts with us. We have a direct customer relationship with our residential subscribers and deliver targeted marketing directly to this market segment.

In the MDU market segment, video subscription fees are paid by housing or condominium associations, administrators, landlords and other third parties that own or manage the MDUs and third parties that operate and administer the in-building network on behalf of housing associations (**Professional Operators**). Approximately two-thirds of our video RGUs are with MDUs. We either enter into a signal delivery agreement with a housing association or landlord under which we supply our signal to the connection point or a bulk agreement that allows for exclusive provision of video, broadband internet and fixed-line telephony services directly to end customers. In addition, we may also maintain and operate the network required to deliver the signal into the tenant's home where we have entered into modernization agreements with housing or condominium associations, administrators, landlords and others under which we modernize the relevant in-house networks and receive a building cost allowance (*Baukostenzuschuss*) in some instances. In return, we have the right to use the respective in-house network and to serve the respective households with broadband cable services. We typically invoice the housing association for our fees relating to basic cable services and offer our premium digital cable, broadband internet and fixed-line telephony services directly to the tenants. Thus, we create a relationship with such subscribers for all our advanced services beyond the basic cable services, unless we are prohibited from doing so by the housing association. In order to provide these advanced services to tenants who request them, we typically connect our distribution network to the building and upgrade the in-home wiring, on an as-needed or success-based basis.

Within our MDU base, we also offer our services to Professional Operators, sometimes referred to as "level 4 operators". Professional Operators procure basic television signals from other providers or us and generally resell them to housing associations. Professional Operators generally enjoy volume-based discounts built into our standard rate card, which create incentives for these operators to cluster their subscribers behind individual connection points. Historically, our agreements with Professional Operators have included additional volume-based rate discounts to our standard rate card. Operator-specific discounts, when combined with volume-based discounts built into the standard rate card, have traditionally resulted in a substantially lower average monthly subscription revenue per average RGU or mobile subscriber, as applicable (**ARPU**) within this customer segment. However, our costs associated with these customers are also lower for a variety of reasons, particularly because we are not responsible for certain activities such as customer care, which the Professional Operators provide.

Cable Service and Subscription Fees. Subscribers in SDUs to our basic digital access products are charged a monthly subscription fee. The pricing under certain multi-user contracts is based on standard rate card or on individual rates with discount reduction for lump sum contracts. Subscription fees for our basic cable television services for customers with MDUs are based on our standard rate card. The rate card is based on the number of dwelling units connected to each connection point to the end-customers' premises. In order to upgrade to any of our premium digital cable services, tenants in MDUs have the option to enter into a direct contract with us and pay an additional monthly fee for such services. Any such fee is in addition to the basic cable fee that the landlord pays to us and that is passed on to the tenant as part of the monthly utility bill.

In addition to the monthly subscription fees, subscribers generally pay an activation fee upon connecting or re-connecting to our network. This activation fee is sometimes waived for larger MDU customers, for example when a subscriber is reconnecting to our network, moves into a previously connected household or as part of periodic marketing promotions. We also charge one-time activation fees for premium boxes, such as our HD DVR and Horizon TV boxes.

Broadband Internet

We provide broadband internet services to 3.6 million RGUs. We have expanded the availability of our ultra high-speed broadband internet services through the deployment of Euro DOCSIS 3.0 (an international standard that defines requirements for a data transmission over a cable system) capable equipment to 99% of our homes passed. During 2018, we started the commercial rollout of the Euro DOCSIS 3.1 transmission standard within our footprint, making speeds of up to 1 Gbps available for our customers in the cities of Bochum, Frankfurt, Cologne and Düsseldorf. As of December 31, 2018, the availability of Euro DOCSIS 3.1 reached 11% of our homes passed.

We market our broadband internet services through a product portfolio, with particular focus on our bundled double-play and triple-play offerings. As of December 31, 2018, we provided broadband internet services to our customers at a download speed of up to 400 Mbps across our entire footprint and up to 1 Gbps in certain areas without any time or data volume restrictions. Customers can choose between different packages, each of which includes our broadband internet access. Our current core product offers a download speed of up to 150 Mbps. We offer broadband internet services on a standalone basis, as a double-play option that bundles our broadband internet services with fixed-line telephony access with a flat rate to national landlines and as a triple-play option that bundles our broadband internet services with fixed-line telephony access with flat rate national landline and certain digital cable products.

Subscribers to any of our internet/telephony packages generally use our cable modems free of charge. Due to changes in legislation, subscribers are also able to use their own third-party provided modems. For households located in the upgraded portion of our network who do not subscribe to our cable video services, we also market and sell broadband internet and/or telephony services separately from our video products. In addition to monthly subscription fees, subscribers pay an activation fee upon subscribing to one of these products. In certain cases, these one-time charges are waived for promotional reasons. Currently, we also offer certain promotional campaigns for new subscribers to our bundled broadband offerings, granting a reduced subscription fee during the first 12 months of a two-year minimum contract.

We also offer additional services included with our broadband internet bundled packages, including an internet security package consisting of anti-virus, anti-spyware, firewall, spam protection, a child-proof lock and other value-added services, such as online storage and web space. We charge the customer a monthly fee for each of these add-on services after a free trial period.

Fixed-line Telephony

We provide our fixed-line telephony services to 3.4 million RGUs. In line with our broadband internet portfolio, we offer telephony services via voice-over-internet-protocol (**VoIP**) technology on a standalone basis and bundled with broadband internet services as part of our double-play and triple-play product portfolios. The fixed-line telephony products offered as part of these packages include a flat rate connection for unlimited calls to landlines in Germany. Telephony subscribers can also add additional options to existing telephony contracts under which customers, for a fee, can benefit from significant savings on their fixed-to-mobile calls or have unlimited calls in certain international destinations. We offer international flat rates that allow subscribers to make landline calls without any time restrictions. "Europa Flat Plus" offers landline calls without any time restrictions to 25 countries for a monthly subscription fee, whereas our "International Flat Plus" option includes calls to 75 international destinations, including the countries in the "Europa Flat Plus" option. We further provide an incremental option for our telephony subscribers, which includes a premium router with additional functionalities such as "ISDN" compatibility, voicemail and a second or third line for an additional monthly fee and a one-time activation fee.

Our fixed-line telephony services use VoIP as the method of transporting voice over our cable network. Analog voice information is digitally encoded and converted into packets, and then sent to their destinations via our own telephony switches. We pay interconnection fees to other internet and telephony providers when our subscribers connect with another network and receive similar fees from providers when their users connect with our network through interconnection points.

Channel Carriage Fees

We charge television broadcasters channel carriage fees for delivering their FTA television channels (as opposed to channels marketed in premium video subscription packages) over our network. We have entered into feed-in agreements with certain large commercial broadcasters pursuant to which they pay us fees for the distribution of signals. In general, channel carriage fees are charged on a monthly basis, depending on the number of video subscribers. We also carry the HD FTA channels from the commercial broadcaster groups on our network as well as certain premium HD content from national and international commercial broadcasters. Our digital cable customers that have a suitable Horizon TV, HD DVR, HD set-top box or CI+ module can watch the respective content in HD when subscribing to any of the premium HD packages. We invoice the channel carriage fees directly to all broadcasters. Certain of the incremental fees for our HD FTA content as part of our HD option received from our subscribers are shared with the commercial broadcasters. Prior to January 1, 2013, we maintained feed-in arrangements with the German public broadcasters, Arbeitsgemeinschaft der Öffentlich-Rechtlichen Rundfunkanstalten der Bundesrepublik Deutschland (**ARD**), Zweites Deutsches Fernsehen (**ZDF**), arte and Deutschlandradio (**DLR**). During 2012, all German public broadcasters jointly sent us notices purporting to terminate the feed-in agreements at the end of 2012 and have ceased to pay any feed-in fees as of January 1, 2013. Following various court proceedings, we have entered into long-term settlement agreements with ARD and ZDF, while with arte and DLR, the court proceedings continue. Our total channel carriage fee revenue is subject to these purportedly terminated contracts, the settlement agreements with ARD and ZDF, and to contracts with broadcasters that expire or are otherwise terminable by either party at various dates ranging from 2019 through 2026. For more information regarding lawsuits we have filed against German public broadcasters for, among other matters, payment of channel carriage fees, see "— *Legal Proceedings*". For more information regarding our feed-in agreements, see "— *Material Contracts — Other Significant Supply Agreements — Feed-in Agreements*". For more information regarding lawsuits we have filed against German public broadcasters for, among other matters, payment of channel carriage fees, see "— *Legal Proceedings*".

Business Services

Beginning in early 2011, we started offering broadband internet and telephony services for B2B customers, targeting small or home office (**SOHO**) consumers and, to a lesser extent, medium-sized business segments in the market with a streamlined

portfolio in our footprint. These products are similar to our residential offerings and offer a core bundle with a download speed of 150 Mbps and maximum download speeds of up to 400 Mbps. Our product offerings to B2B customers are characterized by additional features, such as static IP addresses, higher upload speeds, premium routers, homepage packages, internet security packages, more extensive customer service and a premium pricing structure. We also offer WiFi solutions for business clients with a retail focus, which enables them to offer their customers WiFi internet access. In addition, in certain cases we offer individual B2B solutions via direct fiber with ultra-high broadband speeds of up to 10 Gbps. We also offer mobile data and voice services for B2B customers, as well as a business TV product.

Mobile

Our mobile service is provided over the wireless network of mobile phone operator Telefónica Germany. Mobile services are presently offered on a standalone basis and as an option to our customers who subscribe to a double-play or triple-play bundle. Each household in our footprint can order up to five SIM cards. As of December 31, 2018, we had 283,300 postpaid mobile subscribers.

Calls placed by our mobile subscribers into our fixed and mobile network are free-of-charge. Out-of-network calls are billed according to different tariff plans, which include a per minute or monthly charge for certain unlimited calls and, in certain subscription packages, include limited (or capped) mobile internet surfing with a smart phone and/or flat-rate voice calls to all German mobile and fixed networks. To those customers that also subscribe to certain fixed-line bundles, we offer a discount on the mobile subscription plan versus the standalone price. We also typically charge a one-time activation fee to our customers for each SIM card.

Operations

Marketing and Sales

We market and sell our products to customers using a broad range of sales channels, including our own retail stores, third-party retailers and partner shops, web sales, inbound and outbound telemarketing and direct sales as well as informal "customer-gets-customer" promotions. The manner in which we target customers depends on the customer segment. We believe consumer awareness underpins our sales to direct subscribers.

We have a team of dedicated in-house sales support managers who work exclusively with our key account customers. These include housing associations, housing administrations, real estate investors and wholesale partners and carriers, who have more than 300 units under contract. This in-house sales staff develops and cultivates close working relationships with our key account customers and works with residential sales teams to generate customer sales leads and increase retention of existing customers. In addition, this in-house sales staff develops and maintains contact with local authorities and construction companies to ensure that new buildings will be connected to our cable network in North Rhine-Westphalia, Hesse and Baden Württemberg.

We promote our products and services to landlords and residential customers through direct marketing by direct sales agents working with MDUs and field sales agents working to sell our products and services to residential customers. The field sales agents are responsible for sales of our basic cable video service, digital and premium digital cable offerings, broadband internet and telephony services, and also manage disconnections of services. Our direct sales agents are independent contractors who work on commission. In addition, we have over 290 exclusive stores and partner shops in various cities in our footprints, including rural areas. We further target residential customers through partnerships with retail outlets, such as multi-media retailers, electronics and telecommunications stores. We also have cooperation arrangements in place with certain mega-retailers.

Customer Service

The customer service function is responsible for all customer care activities, including handling customer queries and complaints. In addition, customer service also provides inbound telemarketing and sales support functions for our residential and small and medium enterprise (**SME**) customers. We operate dedicated customer service centers in Bochum, Heidelberg, Kerpen and Berlin with approximately 350 full-time equivalent customer service agents, supplemented by outsourced call-center capacity of over 2,200 full-time equivalents. Our customer service agents are skilled in multiple areas, including marketing campaigns, customer care and sales for a variety of products as well as technical service. Our customer service organization is structured as a process-oriented organization with special teams for the various processes, such as order entry, number porting and complaint management.

Our Network

Our network passes 13.1 million homes, or approximately 77% of the households, in the German federal states of North Rhine-Westphalia, Hesse and Baden-Württemberg. Our network utilizes the hybrid fiber coaxial cable and consists of approximately 231,000 kilometers of coaxial cable and approximately 29,000 kilometers of fiber cable. Average annual network availability of our network and product platforms is high, with availability above 99.9% in the twelve months ended December 31, 2018.

The original infrastructure, which was a single direction broadcast network, was based on the homogeneous topology developed by the predecessor Deutsche Telekom AG (**Deutsche Telekom**) and its predecessor's companies. Of our homes passed, 99% are served by a two-way upgraded network with full bi-directional capability, based on Euro DOCSIS 3.0 technology, over an 862 MHz band. This enables us to provide advanced bi-directional cable services such as broadband internet at very high speeds, telephony and VoD, and the distribution of signals, including HD channels.

Deutsche Telekom and its predecessors originally constructed both our cable television network and Deutsche Telekom's current fixed-line telephony network. Certain parts of the infrastructure (including cable ducts, towers, fiber optic transmission systems, and equipment locations) are shared by both the Deutsche Telekom telephony network and our cable television network. We lease these assets from Deutsche Telekom. In general, the network is composed of fiber and coaxial cable that is either buried in the ground or housed in cable ducts. The ducts are typically owned by Deutsche Telekom, and we lease duct space for our network from Deutsche Telekom under long-term contracts. With the exception of the ducts, we operate all of the distribution plant and associated electronics. We purchase the electrical power required to operate the master headend, regular headends, hubs and amplifiers through Deutsche Telekom, Vattenfall Europe AG and MVV Energie AG. Purchasing the power from Deutsche Telekom is necessary because, in many cases, the same power source supplies Deutsche Telekom's telephone plant and our cable plant. For a description of our agreements with Deutsche Telekom, see "*— Material Contracts — Material Supply Contracts — Unitymedia's Agreements with Deutsche Telekom*" and "*— Material Contracts — Material Supply Contracts — The Former Kabel BW Group's Agreements with Deutsche Telekom*".

In 2015, we began the roll-out of a public WiFi network and we currently reach approximately 100 cities throughout our footprint. In addition to this public hotspot network, which currently offers over 1,000 access points, we launched a community WiFi offer in August 2016, activating WiFiSpots at our customers' homes to create the most dense WiFi network in our footprint. This network offers seamless and unlimited WiFi connectivity for our broadband customers outside their homes and currently grants access to over 1.6 million access points in Germany and over 10 million access points across the E.U. and the U.S. We are also entering into cooperation with certain municipalities to launch public WiFi services in city centers. In addition, we are expanding our hybrid fiber coaxial cable network into new market areas and are testing Euro DOCSIS 3.1 technology.

Competition

The markets for video, broadband internet and telephony services are highly competitive and rapidly evolving. Specifically, the media and communications market in Germany is progressively characterized by convergence as customers are increasingly looking to receive their media and communications services from one provider at attractive prices. In response, service providers are providing video, broadband internet, fixed-line telephony services and increasingly mobile services bundled as triple-play or quadruple-play offerings. Consequently, we have faced, and will continue to face, increased competition across all of our product and service offerings. While we have continued to make progress in growing our subscriber base by increasing penetration of our video base with premium and advanced services, the competition we face in our markets, as well as a decline in the economic environment, could adversely impact our ability to increase or, in certain cases, maintain our revenue, RGUs, cash flow and liquidity. We currently are unable to predict the extent of any of these potential adverse effects.

We believe that German cable operators are well positioned to benefit from these convergence trends as they increasingly up-sell broadband internet, fixed-line telephony, access to a large number of free-TV and premium channels, premium HD channels and services to their existing basic cable television customers. In the German market, there are principally two major distribution platforms through which triple-play services are provided: cable and digital subscriber line (**DSL**). Deutsche Telekom is the major operator offering triple-play via DSL and, to a lesser extent, fiber technology. Moreover, there are several independent DSL operators ("resellers") that base their offerings on access to Deutsche Telekom's infrastructure and/or local loop. Vodafone GmbH (**Vodafone**) is one of these resellers and also owns a fixed broadband infrastructure following the acquisition of Kabel Deutschland Holding AG (**KDG**), another large cable operator active in all German federal states outside of our footprint. While Vodafone's acquisition of KDG does not give it access to a cable network in our footprint, Vodafone may be able to leverage its national marketing power with this combined business under the Vodafone brand and increase the amount of its broadband subscribers in our footprint via its access to Deutsche Telekom's DSL infrastructure that runs across our network. Cable networks upgraded to bi-directional transmission are particularly well suited to provide triple-play services with high bandwidth requirements due to

their network characteristics. As they were originally designed for transmission of large data amounts, cable networks are able to deliver consistent speeds irrespective of the distance to the customer, unlike DSL platforms. The Euro DOCSIS 3.0 broadband technology currently allows us to deliver speed levels of up to 400 Mbps across our entire footprint. We started the commercial rollout of the Euro DOCSIS 3.1 transmission standard in 2018, making speeds of up to 1 Gbps available for customers in selected cities within our footprint. During 2016, we demonstrated that download speeds of 2 Gbps can be achieved on our network. These speed levels cannot be matched by DSL without deep fiber deployment. End-to-end network ownership is a key advantage for cable operators to provide their services cost-effectively, design their services according to market demand and accelerate time-to-market.

Video Business Market

The German television market is the largest in Europe, with approximately 39.7 million television homes and a combined cable, satellite, terrestrial and internet protocol television (**IPTV**) penetration rate of approximately 96% based on approximately 40.3 million German households as of December 2017 (Source: German Digitization Report and Federal Statistical Office of Germany). Similar to other European markets, television consumer behavior in Germany is starting to put more emphasis on digital, innovative, HD and interactive television services, such as VoD requiring high bandwidth and bi-directional distribution platforms. Cable as a distribution platform is well positioned to benefit from the growth opportunities arising from these new services given its network characteristics. Only a few distribution platforms are able to provide interactivity, for example the distribution of VoD.

The German broadcasting market is characterized by a relatively large availability of free television channels. The free television offering is dominated by two broadcasting groups including public broadcaster groups and major commercial broadcasters. Broadcasters in Germany generally pay channel carriage fees to cable operators for the transmission and distribution of analog and digital television and radio signals via their network. However, during 2012, German public broadcasters (ARD, ZDF, arte and DLR) sought to terminate existing channel carriage fee arrangements and have ceased to pay any feed-in fees as of January 1, 2013. Despite these actions, German public broadcasters expect that their signals will continue to be distributed over cable operators' networks based on existing "must-carry" regulations. We have rejected the termination notices and filed lawsuits against ARD and ZDF in which we argue that the termination notices provided by ARD (consisting of several public broadcasters) and ZDF in relation to our feed-in contracts are void on the basis that they formed an illegal cartel when agreeing their cable strategy. In addition, we also filed lawsuits against ZDF and six of ARD's local public broadcasters in the administrative courts challenging their position that their "must carry" status would require us to distribute their channels without receiving any compensation for the required cable capacity. On July 12, 2017, the Higher Regional Court of Düsseldorf confirmed our view that the termination notices of German public broadcasters were void, and therefore we were entitled to carriage fees as set out in the carriage agreement. While all German public broadcasters appealed that decision, we have started negotiations with these broadcasters for a potential settlement agreement. We were able to reach a settlement with ARD at the end of March 2018 and with ZDF in September 2018, which in both cases also includes a new long-term co-operation for the linear and non-linear distribution of ARD and ZDF channels and content assets within our network. While we have ceased all legal disputes with ARD and ZDF as result of the settlement agreements, we continue both dialogue and litigation with arte and DLR. For further information about our feed-in of content on our network and our claims against certain of these public broadcasters, see "*Business of Unitymedia — Channel Carriage Fees*", "*Business of Unitymedia — Material Contracts — Other Significant Supply Agreements — Feed-in Agreements*" and "*Business of Unitymedia — Legal Proceedings*".

We are the second largest cable television provider in Germany based on the number of video cable subscribers, with operations in the three federal states of North Rhine-Westphalia, Hesse and Baden-Württemberg. Our video cable service competes directly with a wide range of providers, including:

- traditional over-the-air broadcast television services;
- direct-to-home (**DTH**) satellite providers;
- digital terrestrial video broadcast (**DVB-T**), which comprises the digital broadcasting of television signals over terrestrial antennas and other earthbound circuits;
- other fixed-line telecommunications carriers and broadband providers, including Deutsche Telekom, the incumbent telephony operator, which primarily use DSL technologies to provide IPTV and VoD; and
- over-the-top (**OTT**) video content providers that deliver TV signals as a video stream on top of third parties' broadband internet access services.

The table below shows the development of TV reception by infrastructure in Germany from 2013-2018. According to the German Digitization Report, as of June 2018, 45.1% of German television homes used cable as their primary means for receiving television signals, as compared to satellite with 45.0% of German television homes; terrestrial transmission systems were used in 6.4% of German television homes; and IPTV was used in 8.4% of German television homes. The total percentage exceeds 100 because some homes use more than one distribution platform.

	2013	2014	2015	2016	2017	2018
			(%)			
Cable	46.3	46.3	46.1	45.9	45.9	45.1
Satellite	46.2	46.1	46.5	46.5	45.7	45.0
DVB-T	11.0	10.0	9.7	9.0	7.4	6.4
IPTV	4.9	4.9	4.8	6.2	6.9	8.4

Source: TNS German Digitization Report 2018

Cable. Cable television is one of the most commonly used transmission medium for television services in Germany, with a penetration rate of approximately 45.1% of households as of June 2018 (Source: German Digitization Report, 2018). Approximately 74% of German households are passed by broadband cable networks (Source: ANGA, 2018). Cable network services are characterized by easy-to-use technology, efficient installation of customer equipment and reliability of a protected signal delivered directly to the home. Unlike services provided via satellite platforms, cable television subscribers have the additional benefit of the customer service and point of contact with the cable service provider.

We generate revenue principally from relationships with our customers who pay subscription fees for the services provided. Subscription fees for basic cable video services are typically paid directly by single family homes (or SDUs) subscribing to the service or, in the case of MDUs, we enter into a bulk contract with the owner or housing association of the multi-dwelling structure based on the number of units connected. Single family home customers also pay us directly for the subscription fees associated with our premium digital cable services, as well as the broadband internet and fixed-line telephony services they purchase from us. Generally, the owner of an MDU allows us to sell digital cable (including our premium digital cable services), broadband internet and fixed-line telephony services directly to individual tenants. In addition, we are generally compensated for the use of capacity in our network by broadcasters which pay channel carriage fees for the transmission and distribution of their FTA television and audio signals via our network. For further information on our channel carriage fee arrangements with broadcasters, see "*Business of Unitymedia — Channel Carriage Fees*", "*Business of Unitymedia — Material Contracts — Other Significant Supply Agreements — Feed-in Agreements*" and "*Business of Unitymedia — Legal Proceedings*".

We face competition for housing association contracts from housing associations, municipal carriers telecommunication operators and Professional Operators. Professional Operators typically enter into long-term contracts with housing associations and may have greater flexibility in their pricing strategies, which limits our opportunities to win new contracts or prolong existing contracts with these housing associations and may hinder our efforts to effectively market our services to housing associations. In 2011, Deutsche Telekom announced that it was seeking to provide video and broadband services to MDUs, and it has entered into several contracts with housing associations since then. We therefore expect to experience more competition in the MDU market segment from Deutsche Telekom and alternative providers, which may lead to MDU contract losses or ARPU pressure. In addition, certain of the conditions our company agreed to in connection with the completion of the LG/KBW Transaction will increase competition with respect to the MDU market segment.

To strengthen our competitive position, we have enhanced our premium digital cable service with DVR functionality and HD services. In September 2013, we introduced our next-generation Horizon TV platform, offering an enhanced interactive TV experience for consumers. Horizon is an all-in-one set-top box with an integrated Euro DOCSIS 3.0 modem and a WiFi connection, providing an intuitive advanced user interface, access to premium TV and VoD. In addition, we introduced Horizon Go, an online television application that offers over 150 linear video channels, of which the majority are available out-of-home, and access to VoD services. In 2015, we expanded our VoD services by adding the maxdome SVoD package to our portfolio and announced a VoD partnership with the largest German commercial broadcaster, Mediengruppe RTL Deutschland (**RTL**). As of December 31, 2018, we offer a total of over 52,000 VoD titles. The bundle options allow subscribers to select various combinations of services to meet their needs. Promotional discounts are typically available to new subscribers.

Satellite. We face significant competition from FTA satellite distribution for our basic cable video services. An increase in the market share of satellite distribution, particularly FTA satellite, may have a negative impact on our video subscriber base and related basic cable fees in the future. Certain digital premium and pay-TV providers, such as Sky Deutschland, have made use of

their own satellite platforms and introduced DVRs to provide additional functionality for those subscribers who receive their digital pay programming through satellite, thereby making satellite more attractive to potential customers. Sky Deutschland has been acquired by British Sky Broadcasting Group plc and we cannot anticipate the consequence regarding a shift in long-term commercial strategy. In addition, we compete with providers of digital video programming that currently utilize our network to reach their own subscribers. For example, we have an agreement with Sky Deutschland that gives our customers the opportunity to subscribe to premium content offered by Sky Deutschland through a smart card on our network. These providers may decide to develop or use alternative distribution platforms, such as FTA satellite or OTT services, adversely affecting our ability to generate channel carriage fees and subscriber revenue, and potentially reducing the appeal of cable television.

The second most popular form of television reception in Germany is DTH satellite television. Satellite operators such as Sky Deutschland, SES S.A. Astra (**SES Astra**) and Eutelsat Communications S.A. (**Eutelsat**), provide television users with over 300 digital free- and pay-TV channels targeted at the German market and several hundred international television programs, depending on the location of the satellite transponder. To receive programming distributed via satellite, viewers need a satellite dish and a set-top box. Viewers also require a smart card for premium television services distributed via satellite. Except for the premium HD+ service by SES Astra, satellite providers do not have any relationship with end customers in Germany and, consequently, do not receive any subscription or other fees from them. If applicable, satellite customers are charged premium subscription fees directly by the providers of such programs. Eutelsat, with its KabelKiosk pay-TV service, and Sky Deutschland, with its premium subscription packages, also offer premium subscription packages to Professional Operators for wholesale distribution as an alternative to our premium digital channels. In August 2011, Deutsche Telekom began bundling its DSL-based broadband internet and fixed-line telephony services with a satellite-based video solution, targeting households in rural areas that already have a satellite dish installed or are planning to install a satellite dish and where very high bit rate digital subscriber lines (**VDSL**) or fiber-based bandwidth wireline capacity is not available with its existing network to broadcast linear content via IPTV. Satellite may be heavily promoted in the future by Sky Deutschland, Deutsche Telekom, other content providers or satellite operators by offering more attractive content, in particular premium and HD content.

Satellite's main strengths compared to cable include: lower costs over time for consumers, given that the initial cost of purchasing a satellite dish is offset by the absence of recurring subscription fees; satellite's almost universal coverage across Germany, including remote and rural areas where a cable connection is not available; and a broader offering of international channels. We compete with satellite providers by offering customers an easily delivered triple-play bundle of services and advanced services, including VoD capability, as our network is well suited for bi-directional high-speed data transfer. In addition, satellite requires a large up-front commitment by the customer and there are limitations on satellite reception due to location or external conditions, such as adverse weather conditions. In certain circumstances, restrictions set by zoning laws and contractual arrangements with property owners prohibit the installation of a satellite dish. Applicable regulations, however, may change in the future and, as a result, competition with satellite providers may increase further.

Terrestrial (DVB-T/DVB-T2). Another television delivery medium is DVB-T, which is available primarily in metropolitan areas. Similar to satellite, DVB-T does not allow for the provision of enhanced bi-directional functionalities given the lack of a return path. In order to receive channels that are transmitted via the legacy standard DVB-T, a consumer needs an antenna and a receiver, but is not required to pay any subscription fees. In March 2017, the legacy standard DVB-T was discontinued in the majority of its transmission areas with remaining areas to be switched-off in 2019, and the successor technology, "**DVB-T2**", was commercially launched, with initial availability only in densely populated areas across Germany. DVB-T2 offers approximately 20 free HD channels of public broadcasters, with approximately 20 additional HD channels of private broadcasters available when paying an annual fee. The terrestrial transmission infrastructure is owned and operated by Media Broadcast GmbH and public broadcasters ARD and ZDF. Demand for digital terrestrial television may increase in the future as the price of the receiving equipment decreases and as the quality of the service may improve.

Video and Television Distribution Over the Internet (IPTV). As a consequence of improvements in internet access and data transmission technologies, in particular the upgrade of DSL to VDSL or fiber-to-the-home (**FTTH**), the internet is increasingly being used as a platform for the distribution of IPTV and VoD services. Deutsche Telekom introduced its IPTV offering for the first time in 2006 and today is the leading provider of IPTV in Germany, also offering a VoD service. Deutsche Telekom has reported 3.4 million video subscribers, including a portion of DTH subscribers, as of December 31, 2018. Vodafone is the second largest IPTV provider in Germany with approximately 185,000 IPTV video subscribers as of March 31, 2016. Following Vodafone's acquisition of a majority ownership in KDG, Vodafone has a large presence in the video market in Germany, with combined IPTV and cable video subscribers of 7.6 million as of December 31, 2018. Both Deutsche Telekom and Vodafone currently offer IPTV services to their customers with a broadband connection that delivers speeds of at least 3-6 Mbps. In order to provide IPTV services at a comparable technical quality to cable, satellite and terrestrial TV offerings, we believe this currently allows Deutsche Telekom to offer IPTV services (including HD channels) to almost all of the homes passed by our network.

Over-the-Top Content (OTT). We currently see increased competition in the market for video from OTT content providers. These providers deliver television signals as video stream on top of third parties' broadband internet access services (including our network). There are several OTT players active in the German market, such as Amazon's Prime Video, Netflix, ProSiebenSAT. 1's maxdome, Sky Deutschland's Sky Ticket and Apple Inc.'s Apple TV. These OTT players are competitive, especially for their SVoD services. Their services are often available via an application on a TV set and/or mobile device. According to the German Digitization Report, as of **June 2018**, more than 50% of German television homes have a connected TV screen set-up for video streaming (either build-in or via connected device). These services may become more popular, in particular among Germany's younger consumers and are competing with our premium content offering. We have entered into a distribution agreement with ProSiebenSAT.1 for their SVoD service, known as maxdome. Since March 2015, we offer the maxdome SVoD service via our Horizon TV platform, Horizon Go and certain of our interactive set-top boxes. The maxdome product can be ordered by our customers on a standalone basis on top of their triple-play Horizon TV proposition. Via the maxdome option, our customers have access to the majority of maxdome's unlimited SVoD offer. For more information on maxdome, see "*Business of Unitymedia — Maxdome*". In March 2017, we added the Netflix app to our Horizon TV platform making Netflix's SVoD content available to video customers with an existing Netflix subscription.

Broadband Internet Market

Germany is the largest internet market in Europe with an estimated 34.3 million fixed-line broadband internet subscribers as of September 30, 2018, compared to 28.2 million in France and 26.5 million in the United Kingdom (**U.K.**) (Source: Analysys Mason). Access lines with speeds higher than 1 Mbps are generally classified as broadband internet. The main broadband access line technologies in Germany are DSL (including VDSL and ADSL2+) and cable.

The table below shows the development of the broadband internet market by infrastructure in Germany from December 31, 2013 through September 30, 2018. Cable in Germany as of September 30, 2018 is estimated to have 8.0 million broadband subscribers.

	December 31,					September 30,
	2013	2014	2015	2016	2017	2018
	(in millions of subscribers)					
DSL	23.4	23.5	23.8	24.3	25.1	25.7
Cable	5.1	5.9	6.6	7.2	7.7	8.0
Fiber-to-the-building (**FTTB**)/FTTH	0.1	0.1	0.1	0.3	0.4	0.4
Others	0.1	0.1	0.1	0.1	0.1	0.2
Total	28.7	29.6	30.6	31.9	33.3	34.3

Source: Analysys Mason, 2018

High speed access lines with speeds higher than 16 Mbps are growing rapidly. Cable is, in our view, well positioned to benefit from this speed migration (and additional future speed migrations).

The broadband internet services business in Germany is highly competitive. We compete with companies that provide low-speed and low-cost internet services over traditional telephone lines. For broadband internet access, DSL is currently the dominant technology, and the major DSL service provider in Germany is Deutsche Telekom with 13.6 million broadband internet subscribers as of December 31, 2018. Currently, we estimate that Deutsche Telekom is able to offer its core VDSL with up to 50 Mbps internet speed to almost all of the homes passed by our network. This penetration compares to the 75% VDSL coverage, or 31.5 million households, in Germany that Deutsche Telekom reported as of September 30, 2018. At the same time, Deutsche Telekom already started to implement vectoring technology and is currently upgrading to super vectoring, enhancing maximum broadband speeds to up to 100 Mbps and 250 Mbps, respectively, from the current regular VDSL speeds of up to 50 Mbps.

Other major competitors in the broadband internet market are resellers of Deutsche Telekom's services, including United Internet AG (**United Internet**), and alternative network operators such as Vodafone and Telefónica Germany that generally lease the unbundled local loop from Deutsche Telekom or use other forms to access Deutsche Telekom's network. During 2012 and 2013, United Internet, Vodafone and Telefónica Germany, each signed agreements with Deutsche Telekom to gain bitstream access to Deutsche Telekom's VDSL lines (including vectoring in the future), based on minimum commitments, which gives these operators access to high internet speeds. Vodafone also owns a cable operator (formerly known as KDG), active in all German federal states outside of our footprint. While Vodafone's acquisition of KDG did not give it access to a cable network in our footprint, Vodafone can leverage its national marketing power to increase the amount of its broadband subscribers in our footprint

via its access to Deutsche Telekom's DSL infrastructure which runs across our network. In addition, we face competition from local operators and city carriers, such as NetCologne Gesellschaft mbH (**NetCologne**), in regional clusters. Additional internet access technologies comprise FTTH and FTTB that are usually deployed in densely populated areas. NetCologne, for example, is rolling out FTTB in the city of Cologne and Deutsche Telekom, as well as other local operators, in conjunction with municipal utility companies, are increasingly rolling out fiber-based technologies in our markets. Fiber network operator Deutsche Glasfaser Holding GmbH is continuing to roll out FTTH and FTTB in rural areas in the state of North Rhine-Westphalia.

In addition, mobile broadband services have been launched by mobile network operators, such as Deutsche Telekom, Vodafone and Telefónica Germany. This market segment has experienced strong growth. Although mobile broadband services generally offer speeds and capacities slower than cable and DSL/VDSL operators, such network capabilities were enhanced by long-term evolution (**LTE**) network roll-outs throughout the past few years. As of September 30, 2018, Vodafone has LTE population coverage of approximately 93% and is currently piloting 1 Gbps services in selected cities. As of September 30, 2018, Deutsche Telekom covers approximately 98%. Deutsche Telekom further offers a hybrid router that combines landline and mobile LTE network bandwidths at an incremental subscription fee. Deutsche Telekom and Vodafone have started to bundle their mobile products with their fixed products by giving additional benefits to certain customers who take both services, including a discount on their mobile services. Other technologies for internet access may develop and become competitive alternatives, as well. Accordingly, we will continue to face additional competition and new technologies may force us to increase capital expenditures to upgrade our system and provide additional products and services.

We believe we operate a network with superior technology, and that we can offer customers maximum download and upload speeds at varying tiers of service tailored to the customer's needs throughout our footprint. As a result of implementing Euro DOCSIS 3.0, our network has the ability to deliver broadband speeds up to 400 Mbps since February 2016, which today is eight times the speed of regular VDSL and four times the speed of vectoring. During 2018, we also started the commercial rollout of the Euro DOCSIS 3.1 transmission standard, making speeds of up to 1 Gbps available for customers in selected cities within our footprint. These speed levels cannot be matched by DSL without deep fiber deployment. In addition, our large video customer base provides a strong basis to up-sell our broadband internet service.

Fixed-line Telephony Market

Fixed-line Telephony. Deutsche Telekom dominates the fixed-line telephony market with 18.6 million subscribers as of December 31, 2018, compared to approximately 38.5 million total fixed-line telephony subscribers in Germany (Source: Federal Network Agency, 2017).

The fixed-line telephony market is increasingly under pressure from resellers, alternative carriers, declining mobile phone charges and alternative access technologies such as VoIP services offered via DSL or other broadband internet connections such as cable and other service providers, such as Skype and Whatsapp. The German market for phone services is typically price sensitive. We expect competition, including price competition, from traditional and non-traditional fixed-line and mobile telephony providers to continue. In recent years, fixed-line telephony calls have been transformed into a commodity and have become increasingly dependent on a quality broadband offering, as phone service is increasingly bundled with broadband internet services. Fixed-line telephony has experienced significant price erosion over the last few years, with operators increasingly offering flat-rate products. We seek to compete based on the speed of our network connections, pricing and product innovation. We also offer varying plans to meet customer needs and various bundled service options with our digital video and broadband internet services.

Cable operators in Germany offer voice services generally as a flat rate product for domestic fixed-line calls with additional charges for international and mobile calls. Voice services are offered both on a standalone basis and as part of a double- or triple-play product offering. The key advantages of the fixed-line telephony offering of cable companies include pricing and product bundling. Furthermore, the bundling of services is an appealing value proposition for the customer, while at the same time providing attractive economics to the cable operator. The basic cable TV subscriber base of German cable operators is typically under penetrated with respect to broadband internet and VoIP offerings. This relative under-penetration of German cable customers offers significant growth opportunities. In addition, fixed-line telephony and internet products via cable can be offered on an unbundled basis in order to target additional customers that do not want to receive video services via cable or do not need an internet connection.

Mobile. There are three network operators in the German market: Deutsche Telekom, Vodafone and Telefónica Germany. Each of these operators has its own mobile access network. Over recent years, the mobile operators utilized their networks by allowing MVNOs to sell their own branded mobile products. The German market has one of Europe's most advanced mobile service provider sectors, with Freenet AG's mobilcom-debitel currently being the largest service provider. Discounters and large retailers have also entered the market in cooperation with mobile operators and offer mobile voice and data services under their own brands. The mobile penetration rate in Germany is estimated to be 163% (Federal Network Agency, 2017) and the German market for mobile services is still growing. The volume of mobile call minutes, short message service and data has increased substantially over the years, whereby mobile data revenue as a percentage of total mobile revenue has increased considerably (Source: Dialog Consult/VATM, 2018). Given the increased relevance of mobile data, mainly driven by increased usage of mobile apps for video consumption, social media or communication, mobile network operators are increasing data allowances and investing in upgraded networks. As of September 30, 2018, Vodafone increased its LTE population coverage to approximately 93% while Deutsche Telekom's coverage is about 98% as of September 30, 2018. The total German mobile market size is large, with €26.5 billion of revenue in 2017, of which €18.8 billion represents customer subscription fees (Source: Federal Network Agency). At the same time, price levels are decreasing and we expect increasing competition, including price erosion. Our mobile services are provided via an MVNO arrangement over the wireless network of mobile phone operator, Telefónica Germany.

Convergence

Deutsche Telekom and Vodafone have started to bundle their mobile products with their fixed products by giving additional benefits to certain customers who take both services, including a discount on their mobile services. As of December 31, 2018, Deutsche Telekom reported 4.3 million SIM cards on its converged offer. Accordingly, this convergence trend may enable Deutsche Telekom and Vodafone, via their respective 'MagentaEINS' and 'GigaKombi' converged product offerings, to reduce churn or attract new customers. We currently offer mobile services via an MVNO model over the wireless network of Telefónica Germany and give a discount to customers who are also subscribing to certain of our fixed broadband bundles. The trend towards more converged offers may force us to provide additional products and services and related investments.

Business Customers

In 2011, we began to actively offer specific products to meet the broadband internet and fixed-line telephony needs of SOHO and medium-sized enterprises. In our view, our main competitors in this business area include Deutsche Telekom, Vodafone, United Internet, BT (Germany) GmbH & Co. OHG, Verizon Deutschland GmbH, Colt Telecom GmbH, Telefónica Germany, QSC AG, Versatel AG and NetCologne. In addition to our residential offerings, these product offerings include premium customer care hotline services and several value-added services, such as higher upload speeds and static internet protocol services. In 2013, we expanded our portfolio with mobile voice and data services based on our existing MVNO agreement with Telefónica Germany, as well as introducing a business TV product. Overall, competition for SOHO products has increased.

Intellectual Property

The German Act on Copyright and Related Rights (*Gesetz über Urheberrecht und verwandte Schutzrechte*) generally requires that the operators of cable networks pay royalties for the retransmission of certain radio and television programs. Claims for these royalties can be asserted exclusively by the German copyright collecting societies (*Verwertungsgesellschaften*) and not by the authors of such protected intellectual property themselves. Broadcasters have the choice, however, to assert their rights individually or via a copyright collecting society. The *Gesellschaft für musikalische Aufführungs - und mechanische Vervielfältigungsrechte* (**GEMA**), one of the German copyright collecting societies, has been mandated by most of the relevant German copyright collecting societies to collect these royalties from the cable network operators. In addition, VG Media GmbH (**VG Media**) was mandated by some German commercial broadcasters to assert their royalty claims based on their cable retransmission rights. The amount of the royalties due is not provided for under the German Act on Copyright and Related Rights, and GEMA and VG Media have previously asserted royalty amounts that we disputed.

We have agreements with GEMA (and other collecting societies and public broadcasters) and VG Media regarding the payment of royalties for retransmission of television and radio programs. We entered into an agreement with GEMA in April 2009, and such agreement has a year-to-year term, subject to termination by either party at the end of each year. Under the agreement, we agreed to pay GEMA an annual fee equal to 3.3% of our basic cable service revenue (as defined in the agreement with GEMA and generally includes the revenue we generate from the delivery of FTA TV programs to video subscribers, but excludes revenue we receive for premium or advanced services, or activation or equipment fees), subject to certain minimum commitments. Our agreements with VG Media and RTL require us to pay an annual fee equal to 1.1% in the aggregate of our basic cable service revenue (as defined in the agreements with VG Media and RTL), partly subject to minimum annual commitments.

In addition, GEMA may demand fees under the German Act on Copyright and Related Rights regarding the distribution of our premium subscription service. In December 2009, GEMA brought a claim against us in the Munich arbitration court of the German Office for Patents and Trademarks for an indeterminate amount of fees relating to the distribution of our premium channels. At this time, we are unable to predict the outcome of this litigation or estimate our potential liability. Under nearly all of our current agreements with our suppliers of premium channels, we are indemnified for any payments we make to GEMA with respect to such distribution.

We also pay a license fee to the applicable content providers for the premium channels we distribute. The license fee is generally paid based on the number of subscribers to whom we make such programming available.

We have entered into a licensing agreement with GEMA for non-linear distribution rights related to the provision of on-demand content or recorded content.

We also have concluded a license agreement with a co-operation of collecting societies called "**ZPÜ**", according to which we pay royalties to ZPÜ for providing mobile phones to customers.

Legal Proceedings

From time to time, we may become involved in legal proceedings arising out of our operations in the normal course of business. We believe the ultimate resolution of any of these existing contingencies will not likely have a material adverse effect on our business, results of operations or financial condition. The outcome of legal proceedings, however, can be extremely difficult to predict, and we can offer no assurances in this regard.

Telekom Deutschland Litigation. On December 28, 2012, we filed a lawsuit against Telekom Deutschland GmbH (**Telekom Deutschland**), a subsidiary of Deutsche Telekom, in which we assert that we pay excessive prices for the co-use of Telekom Deutschland's cable ducts in our footprint. The Federal Network Agency approved rates for the co-use of certain ducts of Telekom Deutschland in March 2011. Based in part on these approved rates, we sought a reduction of the annual lease fees (approximately €76 million for 2012) by approximately five-sixths. In addition, we are seeking the return of similarly calculated overpayments from 2009 through the ultimate settlement date, plus accrued interest. In October 2016, the first instance court dismissed this action and in March 2018, the court of appeal dismissed our appeal of the first instance court's decision and did not grant permission to appeal further to the Federal Court of Justice. We have filed a motion with the Federal Court of Justice to grant permission to appeal. The resolution of this matter may take several years, and no assurance can be given that our claims will be successful. If this matter is settled subsequent to the completion of the sale of our company to Vodafone Group plc, Liberty Global is entitled to 50% of any amounts recovered, plus 50% of the net present value of certain cost savings in future periods that are attributable to the favorable resolution of this matter, less 50% of associated legal or other third-party fees paid post-completion of the sale of our company to Vodafone Group plc.

DVR Set-top Boxes. Pursuant to agreements we have with the suppliers of our DVR set-top boxes, we are responsible for the payment of the copyright fees for such set-top boxes owed under German copyright law to ZPÜ. The tariffs applicable are subject to ongoing litigation between an association of set-top box manufacturers and ZPÜ. We are unable to predict the outcome of this litigation or estimate our potential liability. Given the increasing number of set-top boxes we deploy with DVR functionality, there is a risk that we may have to pay a considerably higher amount of these copyright fees than the amount accrued.

Statement of Claim against German public broadcasters. On December 18, 2012, we filed lawsuits against German public broadcasters ARD (consisting of several public broadcasters), ZDF, arte and DLR in which we argue that the termination notices provided by these public broadcasters in relation to our feed-in contracts are void on the basis that they formed an illegal cartel when agreeing their cable strategy (which included the termination of our feed-in agreements) under Section 1 of the German Act Against Restraints of Competition and Article 101 of the Treaty of the Functioning of the European Union (**E.U.**) at the Regional Courts in Cologne and Mannheim. On December 13, 2013, the Regional Court of Mannheim rejected our claim and we appealed this decision to the Higher Regional Court of Stuttgart. On December 29, 2016, the Higher Regional Court of Karlsruhe rejected our appeal against the decision of the Regional Court of Mannheim. We have appealed the decision to the Federal High Court by way of non-admittance complaint. The Federal High Court accepted our complaint and scheduled an oral hearing for reviewing our case on May 21, 2019. Similarly, on November 12, 2014, the Regional Court of Cologne rejected our parallel claim, and we appealed this decision to the Higher Regional Court of Düsseldorf, and such court decided on July 12, 2017 that our claim was justified and public broadcasters' termination notice was void. Public broadcasters have appealed this decision to the Federal High Court by way of non-admittance complaint. We have also initiated legal proceedings against arte and DLR for payment of feeding-in fees in the years 2014 and 2015 as the previous cases only cover our claims related to the year 2013. In addition, we filed lawsuits against ZDF and six of ARD's local public broadcasters in the administrative courts, challenging their position that their "must carry" status would require us to distribute their channels without receiving any compensation for the required cable capacity.

To date, the administration court of Hamburg has confirmed that we do not have to carry the must carry channels if such channel providers are unwilling to compensate us for the usage of our capacity. However, the administrative courts of Cologne, Munich, Mainz and Leipzig have rejected our claims. We appealed these decisions. On July 28, 2016 the Higher Administrative Court of Koblenz rejected our appeal against the ruling of the Administrative Court of Mainz. On October 19, 2017, the Higher Administrative Court of North-Rhine-Westphalia rejected our claim and we partly appealed this decision to the Federal Administrative Court. In June 2015 and June 2016, the Federal High Court ruled in similar cases brought by KDG against public broadcasters that the must carry regulation obliges the cable operator to distribute the channels with must carry status; however, the cable operator should also receive compensation, which requires determination by the courts of the first instance. In July 2015, we reduced the analog distribution of four must carry channels of public broadcasters in our network, in order to make a more efficient use of our capacity. The public broadcasters have complained to the media authorities and we are involved in related regulatory procedures and litigation. Following the final shut off of analog channel distribution within our network in June 2017, these complaint procedures have been ceased as they were related to the analog distribution. Following the decision of the Higher Regional Court of Düsseldorf on July 12, 2017 confirming our view that the termination notices of German public broadcasters were void and therefore we were entitled to receive carriage fees as set out in the carriage agreement we have started negotiations with the German public broadcasters for potential settlement agreements. While all German public broadcasters appealed that decision, we were able to enter into a settlement agreement with ARD end of March 2018 and with ZDF in September 2018 which in both cases also includes a new long-term co-operation for the linear and non-linear distribution of ARD and ZDF channels and content assets within our network. While we have ceased all legal disputes with ARD and ZDF as result of the settlement agreements, we still continue both dialogue and litigation with arte and DLR. However, DLR sent us in June 2018 a further termination notice with effect to December 31, 2018, which we have accepted and have discontinued carriage of DLR's radio channels as of January 22, 2019. We therefore continue litigation with respect to carriage fees for prior years and offered DLR to negotiate a new carriage agreement. We can give no assurance that our remaining causes of action will be successful or that any of our feed-in agreements with arte and DLR will be renewed or extended on financially equivalent terms, or at all.

Employees

As of December 31, 2018, Unitymedia, including its consolidated subsidiaries, had an aggregate of approximately 2,750 full-time equivalent employees, certain of whom belong to organized unions and works councils, and includes contractors and temporary employees. We believe that our relations with employees, works councils and unions are good.

MATERIAL CONTRACTS

The agreements described below are of material importance to us or one of our operating subsidiaries as of December 31, 2018. Agreements entered into in the ordinary course of business are not described. For a description of our material financing agreements, see "*Description of Indebtedness*". The summary of each agreement set forth below is a summary of the material terms of such agreement in effect as of the date of this annual report.

Material Supply Contracts

Unitymedia Hessen and Unitymedia NRW's Agreements with Deutsche Telekom. The various services offered by Deutsche Telekom are defined under so-called "**Term Sheets**" that are based on two master service agreements (**MSA**s), one with our subsidiary Unitymedia Hessen and one with our subsidiary Unitymedia NRW. The Term Sheets govern the co-use of cable ducts, the use of cable protection tubes, the offer of co-use of further cable ducts, the use of fiber optic transmission systems, the lease of space for broadband cable technology and the purchase of energy for broadband equipment. Except for the Term Sheets on the offer for co-use of further cable ducts, which have already expired, the terms of the Term Sheets are generally indefinite. However, the Term Sheets are subject to certain termination rights and, according to German law, lease agreements are subject to a mandatory statutory termination right of either party after a term of 30 years. Furthermore, under the MSAs and most of the Term Sheets Deutsche Telekom is generally not entitled to terminate the services provided under the Term Sheets on co-use of cable ducts (not including the offer of co-use of further cable ducts), cable protection tubes, fiber optic transmission systems or lease of space for broadband cable technology. There are limited exceptions related to situations in which Deutsche Telekom discontinues the use of assets previously used for the provision of the respective services, intends to transfer the assets to a third party or intends to abandon leased space in its function as space used for technical purposes.

The charges for these individual services are set out in the Term Sheets. The MSAs include price adjustment clauses related to a change of Deutsche Telekom's costs. Under the MSA with Unitymedia NRW, price increases may not exceed the increase of the German cost of living index and a decrease may not fall below the prices as of October 1, 2002 set out in the individual Term Sheets. From time to time, we have disputes with Deutsche Telekom as to the charges, quality and accessibility of leased surfaces under the Term Sheets, and on December 28, 2012, we filed a lawsuit against Telekom Deutschland in which we assert that we pay excessive prices for the co-use of Deutsche Telekom's cable ducts in our footprint compared to the regulated prices. For

additional information on this lawsuit, see "— *Legal Proceedings*". We have also entered into various other license, rental and operating lease agreements with Deutsche Telekom, all of which are expensed as services are provided. In accordance with International Financial Reporting Standards as adopted by the E.U. (**E.U.-IFRS**), we treat these leases as operating rather than finance leases.

KBW's (formerly Kabel BW) Agreements with Deutsche Telekom. In July 2003, the predecessor to KBW entered into a framework service agreement with Deutsche Telekom and certain of its affiliates for the lease of cable duct space for a portion of KBW's cable network as well as for fiber optic transmission capacity, tower and facility space and for other services. In addition, the predecessor to KBW purchases a portion of the electricity required for the operation of its network through Deutsche Telekom under such agreement. The various services and assets provided by Deutsche Telekom are specified under Term Sheets that are part of the framework service agreement. The framework service agreement is a long-term contractual arrangement and has strict guidelines regarding Deutsche Telekom's ability to modify prices. The assets that are shared between KBW's network and that of Deutsche Telekom include underground cable ducts used to house Deutsche Telekom's phone network and our cable television network, facilities which house Deutsche Telekom's phone switches and our cable television headends, fiber optic systems used to transmit both phone and cable television signals and electricity supplied to shared facilities. The term of the framework service agreement is unlimited, and Deutsche Telekom is generally not entitled to terminate the services provided under the Term Sheets on co-use of cable ducts (not including the offer of co-use of further cable ducts), cable protection tubes, fiber optic transmission systems or lease of space for broadband cable technology, except under certain circumstances. Deutsche Telekom may terminate the other services according to the applicable Term Sheets under certain circumstances. For example, if Deutsche Telekom decides to discontinue using cable ducts carrying KBW's cables without replacing the ducts, it may terminate KBW's rights to use such facilities. In addition, according to German law, lease agreements are subject to an ordinary termination right of either party after a term of 30 years. From time to time we have disputes with Deutsche Telekom as to the charges, quality and accessibility of leased surfaces under the Term Sheets, and on December 28, 2012, we filed a lawsuit against Telekom Deutschland, an operating subsidiary of Deutsche Telekom, in which we assert that we pay excessive prices for the co-use of Deutsche Telekom's cable ducts in our footprint compared to the regulated prices. For additional information on this lawsuit, see "— *Legal Proceedings*".

Furthermore, the predecessor to KBW entered into an agreement with Deutsche Telekom for the lease of 862 MHz broadband cable systems in June 2008 and several amendment agreements thereto. The agreements have a term until June 2018 and may be terminated by Deutsche Telekom only for good cause (*Wichtiger Grund*).

Other Significant Supply Agreements

Sky Deutschland. On April 10, 2012, we entered into a new distribution agreement with Sky Deutschland concerning the feed-in and marketing of Sky Deutschland's services, including its premium packages, VoD and pay-per-view services ("Sky Anytime"). This new distribution agreement replaced the previous agreements our company had with Sky Deutschland. We agreed to market Sky Deutschland's packages on a standalone basis or in bundled offers together with our services, based on a shared customer relationship. We have also agreed that we can market Sky Deutschland's premium packages such as the *Bundesliga* (German premier soccer league) in a bundle with our pay-TV packages. We and Sky Deutschland have agreed that each party will maintain a direct contractual relationship with new customers receiving Sky Deutschland's programming in combination with our services. We are responsible for customer service, billing and collections for all triple-play and related services and cover bad debt risk. Sky Deutschland must assign all claims against "bad payers" to us. As compensation for our services rendered to Sky Deutschland (including feed-in and distribution), we receive both fixed service fees per subscriber and a share of the revenue Sky Deutschland receives from the customers. In September 2012, we started to bundle Sky Deutschland's premium content with our own pay-TV packages and actively offer those bundles to existing and new subscribers in our Unitymedia footprint. The agreement had a term until December 31, 2015, which we have changed and extended until December 31, 2019 by way of an amendment.

Feed-in Agreements. We have entered into numerous feed-in agreements with public and commercial broadcasters for the non-pay and pay channel carriage of their signals. The most important feed-in agreements are with RTL and ProSiebenSAT.1 and the public broadcasters ARD and ZDF. The feed-in agreements with the commercial broadcasters have terms ranging from 2019 through 2022 and include distribution of HD channels and, to a certain extent, cooperation arrangements with respect to premium channels and VoD services. In light of the foregoing, no assurance can be given that any of our channel carriage fee contracts will be renewed or extended on financially equivalent terms, or at all. Any lowering of the channel carriage fees that we receive from program providers, or change in the distribution model, may adversely affect our business, financial condition and results of operations.

Bulk Agreements. Approximately two-thirds of our basic cable video RGUs reside in MDUs that are subject to bulk agreements with landlords, housing associations or Professional Operators, and the top 20 bulk agreements accounted for approximately 9% of our total revenue (including estimated amounts billed directly by our company to the building occupants for premium digital cable, broadband internet and fixed-line telephony services) during the three months ended December 31, 2018. For these

customers, our contractual relationship is with a landlord, local housing association or Professional Operator, many of which own or represent multiple buildings that house a large number of customers. In some cases, the bulk agreements allow us to sell digital video (including our premium digital cable services), broadband internet and fixed-line telephony services directly to individual tenants. Our bulk agreements are, to a significant extent, medium- and long-term contracts. As of December 31, 2018, bulk agreements covering approximately 29% of the video subscribers that we serve expire by the end of 2019 or are terminable on 30-days notice. In addition, housing associations may terminate such agreements prematurely if, for example, the agreements are deemed to violate antitrust laws or laws governing general terms and conditions. There can be no assurance that we will be able to retain any of these customers or renew the contracts on commercially favorable terms, if at all.

RELATED-PARTY TRANSACTIONS

We have various related-party transactions with certain of our and Liberty Global's affiliates and with other Liberty Global subsidiaries. The details of our related-party transactions are outlined below. For additional information, see note 16 to our consolidated financial statements included in Part II of this annual report.

Operating Expenses

Related-party operating expenses (**OpEx**) represent certain cash settled charges from other Liberty Global subsidiaries to our company primarily for certain backbone and other network-related services provided to our company. We recorded related-party OpEx of €3.0 million during the year ended December 31, 2018.

Selling, General and Administrative Expenses

Related-party selling, general and administrative (**SG&A**) expenses represent the net impact of certain cash settled (i) charges from other Liberty Global subsidiaries to our company, primarily for software maintenance services and (ii) recharges for certain general and administrative services provided by our company to other Liberty Global subsidiaries. We recorded related-party SG&A credits of €0.2 million during the year ended December 31, 2018.

Allocated Share-based Compensation Expense

Allocated share-based compensation expense is allocated to our company by Liberty Global and represent share-based compensation expense associated with the Liberty Global share-based incentive awards held by certain employees of our subsidiaries. Share-based compensation expense is reflected as a decrease to owner's deficit and is included in SG&A in our consolidated statements of operations. We recorded allocated share-based compensation of €9.4 million during the year ended December 31, 2018.

We recorded an aggregate capital charge of €2.6 million during 2018 in our consolidated statement of changes in owner's deficit in connection with the exercise of Liberty Global share appreciation rights and the vesting of Liberty Global restricted share awards held by certain employees of our subsidiaries. We and Liberty Global have agreed that these capital charges will be based on the fair value of the underlying Liberty Global shares associated with share-based incentive awards that vest or are exercised during the period, subject to any reduction that is necessary to ensure that the capital charge does not exceed the amount of share-based compensation expense recorded by our company with respect to Liberty Global share-based incentive awards.

Fees and Allocations, net

Related-party fees and allocations, net, which are based on our company's estimated share of the applicable costs (including personnel-related and other costs associated with the services provided) incurred by other Liberty Global subsidiaries, represent the aggregate net effect of charges between our company and various Liberty Global subsidiaries that are outside of our company. These charges generally relate to management, finance, legal, technology, marketing and other services that support our company's operations, including the use of the UPC trademark. The categories of our fees and allocations, net are as follows:

- *OpEx and SG&A (exclusive of depreciation and share-based compensation).* The amounts included in this category, which are generally cash settled, represent our estimated share of certain centralized technology, management, marketing, finance and other OpEx and SG&A expenses of Liberty Global subsidiaries, whose activities benefit multiple operations, including operations within and outside of our company. The amounts allocated represent our estimated share of the actual costs incurred by other Liberty Global subsidiaries, without a mark-up. Amounts in this category are generally deducted to arrive at the calculation of the earnings before interest, taxes, depreciation and amortization "**EBITDA**" metric specified by our debt agreements (**Covenant EBITDA**). We recorded OpEx and SG&A related fees and allocations

of €51.3 million during the year ended December 31, 2018. For 2018, the amount presented is net of €1.8 million of charges to Liberty Global for certain centrally-managed technology services provided by our company.

- *Depreciation.* The amounts included in this category, which are generally loan settled, represent our estimated share of depreciation of assets not owned by our company. The amounts allocated represent our estimated share of the actual costs incurred by other Liberty Global subsidiaries, without a mark-up. We recorded depreciation related fees and allocations of €102.5 million during the year ended December 31, 2018.

- *Share-based compensation.* The amounts included in this category, which are generally cash settled, represent our estimated share of share-based compensation associated with Liberty Global employees who are not employees of our company. The amounts allocated represent our estimated share of the actual costs incurred by other Liberty Global subsidiaries, without a mark-up. We recorded share-based compensation related fees and allocations of €23.3 million during the year ended December 31, 2018.

- *Management fee.* The amounts included in this category, which are generally cash settled, represent our estimated allocable share of (i) OpEx and SG&A expenses related to stewardship services provided by certain other Liberty Global subsidiaries and (ii) the mark-up, if any, applicable to each category of the related-party fees and allocations charged to our company. We recorded management fees of €84.9 million during the year ended December 31, 2018. For 2018, the amount presented is net of €0.1 million of charges to Liberty Global for the mark-up related to certain centrally-managed technology services provided by our company.

Liberty Global charges technology-based fees to our company using a royalty-based method. The excess of the royalty-based charges over our estimated proportionate share of the underlying technology-based costs is classified as a management fee and added back to arrive at Covenant EBITDA.

Interest Expense

During 2018, we recorded related-party interest expense of €29.5 million, all of which relates to the Shareholder Loan (as defined and described below).

Interest Income

Related-party interest income primarily relates to our loans receivable from UPC Germany, including (i) the 2012 UPC Germany Loan Receivable, (ii) the 2015 UPC Germany Loan Receivable and (iii) the 2016 UPC Germany Loan Receivable (each as defined and described below). Interest income is included in other income, net, in our consolidated statements of operations. We recorded related-party interest income of €108.8 million during the year ended December 31, 2018.

Property, Equipment and Intangible Asset Additions, net

Related-party property, equipment and intangible asset additions, net, which are generally cash settled, represent the net carrying values of (i) customer premises and network-related equipment acquired from other Liberty Global subsidiaries, which centrally procure equipment on behalf of our company and other Liberty Global subsidiaries and (ii) used customer premises and network-related equipment acquired from or transferred to other Liberty Global subsidiaries outside of Unitymedia. We recorded €17.8 million of property, equipment and intangible asset additions, net during the year ended December 31, 2018.

2012 UPC Germany Loan Receivable

We have a loan receivable from UPC Germany that originated in May 2012 (the **2012 UPC Germany Loan Receivable**). Amounts loaned to UPC Germany pursuant to the 2012 UPC Germany Loan Receivable agreement are subject to certain restrictions contained in the instruments governing our indebtedness.

The principal amount on the current portion of the 2012 UPC Germany Loan Receivable was €1,000.1 million at December 31, 2018. The interest rate on the current portion of this loan was 1.32% as of December 31, 2018 and is subject to adjustment. The net decrease in the principal balance of the 2012 UPC Germany Loan Receivable during 2018 was due to (i) cash advances of €4,143.3 million, (ii) cash repayments of €3,003.6 million, (iii) the transfer of €38.6 million in non-cash accrued interest to the 2012 UPC Germany Loan Receivable balance and (iv) a €26.3 million non-cash increase related to the settlement of aggregate amounts due under the 2015 UPC Germany Loan Receivable and the 2016 UPC Germany Loan Receivable. In addition, in connection with an April 2018 amendment to the agreement, a portion of the outstanding principal balance of the 2012 UPC Germany Loan Receivable was reclassified to noncurrent loans receivable.

The principal amount on the noncurrent portion of the 2012 UPC Germany Loan Receivable was €1,693.4 million at December 31, 2018, which is due on January 1, 2028. The interest rate on the noncurrent portion of the 2012 UPC Germany Loan Receivable is fixed at 4.89% throughout the term of the agreement. The increase in the principal amount of the noncurrent portion of the 2012 UPC Germany Loan Receivable during 2018 includes (i) the transfer of €2,064.4 million of principal from the current portion of the 2012 UPC Germany Loan Receivable and (ii) cash repayments of €353.0 million.

2016 UPC Germany Loan Receivable

We have a loan receivable from UPC Germany in the amount of €283.0 million that was issued in June 2016 and matures on January 15, 2023 (the **2016 UPC Germany Loan Receivable**). Amounts loaned to UPC Germany pursuant to the 2016 UPC Germany Loan Receivable agreement are subject to certain restrictions contained in the instruments governing our indebtedness. The interest rate on this loan, which is subject to adjustment, was 4.90% as of December 31, 2018.

2015 UPC Germany Loan Receivable

We have a loan receivable from UPC Germany in the amount of €230.0 million that was issued in December 2015 and matures on February 15, 2026 (the **2015 UPC Germany Loan Receivable**). Amounts loaned to UPC Germany pursuant to the 2015 UPC Germany Loan Receivable agreement are subject to certain restrictions contained in the instruments governing our indebtedness. The interest rate on this loan, which is subject to adjustment, was 5.25% as of December 31, 2018.

Shareholder Loan

The "**Shareholder Loan**" represents a loan payable to our shareholder, UPC Germany, that originated in December 2010. The Shareholder Loan bears interest at 8.125% per annum and accrued interest is generally transferred to the loan balance annually on January 1. All principal and accrued interest on this loan (collectively €507.5 million at December 31, 2018) is due and payable on January 1, 2030. The net increase in the principal amount during 2018 includes (i) a non-cash increase of €146.7 million related to the settlement of related-party payables and (ii) the transfer of €25.2 million in non-cash accrued interest to the loan balance.

Third-party Copyrights

We have certain agreements with GEMA,VG Media and RTL regarding the payment of royalties for the retransmission of television and radio programs protected under the German Act on Copyright and Related Rights. For a description of these arrangements, see "*Business — Intellectual Property*".

REGULATORY

Our business is subject to various regulatory requirements and obligations including the telecommunications and media laws, general antitrust law, as well as technical and other regulations. Relevant legislation imposes a variety of rules on us and other market participants. Certain key provisions are set forth below. This description is not intended to be a comprehensive description of all regulation in this area nor a review of specific obligations which have been imposed on us.

Telecommunications Regulation

The Regulatory Framework. The telecommunications business in Germany is subject to the regulatory regime of the German Telecommunications Act and certain ordinances promulgated under the German Telecommunications Act. The German Telecommunications Act covers the transport of any signal by telecommunications installations encompassing television signals, internet data transport and voice telephony, all of which we provide.

The German regulatory framework is predominantly based on the E.U. Regulatory Framework. The body of E.U. law that deals with communications regulation consists of a variety of legal instruments and policies (collectively referred to as the **"E.U. Regulatory Framework"**). The key elements of the E.U. Regulatory Framework are various directives that require Member States, including Germany, to harmonize their laws, as well as certain regulations that have effect without any national transposition.

The E.U. Regulatory Framework primarily seeks to open European markets for communications services and to establish basic user rights. It harmonizes the rules for the establishment and operation of electronic communications networks, including cable television and traditional fixed-line telephony networks, and the offer of electronic communications services, such as fixed-line telephony, internet and, to some degree, television services. We implemented the 2009 revisions to the E.U. Regulatory Framework in May 2012. A further fundamental review of the E.U. Regulatory Framework has been implemented with the release

of the European Electronic Communication Code. The E.U. Regulatory Framework does not generally address issues of content (in particular, radio and television programs, which are specifically regulated by the Audiovisual Media Services Directive, as defined and described below, of November 14, 2018).

On September 11, 2013, the E.U. Commission proposed a new regulation on measures for the "Telecoms Single Market". This proposal sought to introduce a single E.U. authorization and regulatory supervision for communications providers, coordinate frequency use within the E.U. to further reduce roaming charges and further harmonize contract terms used against end consumers and create certain net neutrality obligations (see also below "Net neutrality"). The Commission's proposal has, after a consultation process between the different European legislative bodies, been enacted as a regulation focusing on roaming and net neutrality, becoming effective on April 30, 2016. The regulation might have an impact on our business.

On May 6, 2015, the E.U. Commission published its Digital Single Market strategy document. The strategy is an aggregation of many different policy areas with the purpose of creating a digital single market to expand jobs and stimulate growth. The strategy includes policy review in the areas of E.U. communications regulation, broadcasting law, copyright reform and anticompetitive geo-blocking practices.

On September 14, 2016, the E.U. Commission published its Proposed Directive establishing the European Electronic Communications Code as part of the Digital Single Market strategy. The directive seeks to revise the regulatory framework for the Telecoms sector and will therefore have a large impact on our business. The European Electronic Communication Code (EU/2018/1972) has been adopted by E.U. Parliament and E.U. Counsel on December 11, 2018, and needs to be transposed into national law until December 20, 2020.

The Regulatory Bodies. The German Federal Network Agency (*Bundesnetzagentur*), an independent governmental body, is responsible *inter alia* for the regulation of the German telecommunications market. The Federal Network Agency has various powers with respect to the enforcement of telecommunications laws and ordinances. All decisions of the Federal Network Agency may be challenged before the competent administrative court (*Verwaltungsgericht*) in Cologne and further appealed at higher instances.

Under the E.U. Regulatory Framework for electronic communication services, a Body of the European Regulators for Electronic Communications has been created, including the Federal Network Agency, in order to foster the harmonization of regulatory decisions by national regulators within the E.U.

Potential Additional Regulated Markets. Broadcasting transmission services are not currently subject to supervision by the Federal Network Agency, however they are subject to supervision by the Federal Cartel Office (the **FCO**) under general competition law, as well as by state media authorities, see "*Media Regulation*". The E.U. Commission has not included such market in the recommendation on markets susceptible to ex ante regulation. The E.U. Commission reviews this recommendation on a regular basis.

With respect to the commercial provision of (narrowband) phone services to end-customers based on a self-operated fixed-line telecommunications network, we are deemed to have significant market power pursuant to regulatory orders issued by the Federal Network Agency in 2009, 2013 and, on December 2, 2016, with respect to market 1 (formerly market 3 and prior to that market 9) regarding call termination on individual public phone networks of alternative network operators provided at a fixed location. According to those regulatory orders, call termination rates are subject to prior permission by the Federal Network Agency. On January 16, 2019, are preliminary permission to charge €0.0008 per minute has been granted. Prior to that, the permitted rate was €0.001 per minute.

Notification Requirements. The German Telecommunications Act does not require telecommunications network operators and telecommunications service providers to obtain a license, but provides for an obligation to notify the Federal Network Agency of the commencement, any modification and the termination of the operation of a public telecommunications network and of the offering of telecommunications services to the public.

Interconnection and Access Obligations. Every operator of a public telecommunications network, irrespective of its market position, is obligated upon request to offer interconnection with its network to other network operators. If the parties cannot agree upon the conditions of such interconnection, the Federal Network Agency can impose on an operator that controls access to end customers the obligation to provide interconnection and other access obligations upon application by one of the parties.

The regulatory powers of the Federal Network Agency are comprehensive vis-à-vis operators with "significant market power", irrespective of their granting access to end customers. Based on a market analysis, the Federal Network Agency may impose on operators of public telecommunications networks with significant market power various obligations to interconnect and to grant

other undertakings access to their telecommunications networks for the provision of telecommunications services. With respect to the commercial provision of (narrowband) phone services to end-customers based on a self-operated fixed-line telecommunications network, we are deemed to have significant market power, see "*Regulated Markets*".

Regulation of Fees. Under the German Telecommunications Act, the fees for telecommunications access services offered by providers can be subject to pricing regulation if significant market power has been determined or if the operator controls access to end-users. The German Telecommunications Act distinguishes between fees that require prior regulatory approval (ex ante) and those that are subject to an ex post review. The way in which fees are regulated is dependent on the possession of significant market power as well as on the imposition of access obligations. Pursuant to the regulatory practice of the Federal Network Agency, fees we charge for call terminations at a fixed location (market 1) were traditionally subject to ex post regulation. In addition, certain transparency and nondiscrimination requirements applied. On August 11, 2014, December 6, 2016 and January 16, 2019, the Federal Network Agency decided not to subject our termination fees for inbound calls to our telephony customers to an ex ante regulation, to the extent we receive such telephony traffic from other operators via public switched telephone network interfaces. Only calls terminating via next-generation network interfaces, which is currently implemented in more and more cases, have to be approved under an ex ante price control regime. After years of disagreement with the E.U. Commission, the Federal Network Agency decided to follow the E.U. Commission's recommendation and cut termination fees by using pureLRIC costing methodology. The fees we are allowed to charge to interconnection partners are therefore now considerably lower than the ones previously approved by the Federal Network Agency. In turn, the costs we incur for interconnection and termination services from other telecommunications network operators dropped similarly. Such decisions of the Federal Network Agency can be overruled by the court system, and the German Constitutional Court has recently decided that such rulings shall have a retroactive effect, which will lead to substantial claims if case fees get adjusted by the courts.

Since November 2013, reciprocal termination rates for exchanging calls via our IP-interface have been imposed, which results in us, like every other telecommunications provider in Germany, charging the interconnection rate of the incumbent telecommunications operator, Deutsche Telekom. We are not regulated for interconnection via the SS7 interface, but only for interconnection via our IP-interface. The level of termination rates applicable to us with respect to calls terminating on our IP-interface is currently set at €0.1 cent/minute, which rate will expire on December 31, 2018.

Wholesale Access to Infrastructure. Subsequent to the Federal Network Agency's decision of July 29, 2014, to allow Deutsche Telekom to deploy vectoring technology, Deutsche Telekom was granted exclusive permission also to deploy vectoring within a 550 meter radius of their Main Distribution Frames (**MDFs**). The Federal Network Agency's Vectoring II decision, dated September 1, 2016, prevents Deutsche Telekom's competitors from gaining access to Deutsche Telekom's unbundled local loops and restricts competitors to bitstream products while a virtual unbundled local access product remains unavailable. Under the current decision, other providers can apply for exclusivity at an MDF only if they have already connected more street cabinets in the specific MDF area than Deutsche Telekom. The Vectoring II decision is currently being challenged in court by several of Deutsche Telekom's competitors.

On October 29, 2015, the Federal Network Agency issued their regulatory order regarding market 3b (Wholesale Central Access), which consists of bitstream access products. According to this decision, Deutsche Telekom holds significant market power on the market for bitstream access on layer 2 and, accordingly, Deutsche Telekom will have to grant access to end-users via bitstream products on layer 2. With respect to the market for bitstream access on layer 3, Deutsche Telekom was deemed to hold significant market power (excluding 20 regional markets (13 of which are within our footprint)) and will be required to grant access to end-users in such markets (excluding the 20 regional markets where no access on layer 3 is required when access on layer 2 is granted). The wholesale rates for bitstream access on layer 2 charged by Deutsche Telekom will be subject to an ex ante approval but not based on cost. This market 3b regulation is currently reviewed by the Federal Network Agency.

Allocation and Use of Frequencies. The use of frequencies in our cable network is not subject to the German Telecommunications Act and therefore does not require a frequency allocation by the Federal Network Agency. This has been also clarified by one of the recent amendments of the German Telecommunications Act. Even though no frequency allocation is required for the operation of our cable network, its operation is subject to the German Electromagnetic Compatibility Act (*Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln*) and a complementary ordinance (*Sicherheitsfunk-Schutzverordnung*). How in practice compatibility between the use of frequencies by mobile operators and by us (in our cable) will be established, is currently discussed in various instances. Negotiations between us and a German MVNO are currently taking place in order to find a procedure to fix leaking network infrastructure.

Rights of Way. Operators of public telecommunications networks that wish to use public streets, squares, bridges, public waters and railroads for the laying and operating of telecommunications lines have to apply to the Federal Network Agency in order to obtain the respective rights of way. In particular, the Federal Network Agency has to determine whether the applicant has demonstrated sufficient professional expertise, reliability and financial capability to operate telecommunications lines. Both

the installation of new telecommunications lines and the modification of existing telecommunications lines also require the consent of the competent road construction and maintenance authority. Due to new provisions of the German Telecommunications Act transposing the E.U. Directive on measures to reduce the cost of deploying high-speed electronic communications networks that entered into force on November 10, 2016, any operator may require other operators of public infrastructure (including, but not limited to, operators of electronic communications networks) to share passive infrastructure and in-house infrastructure up to the first concentration point (including wiring). Further, every operator of public infrastructure will be obliged to coordinate civil works with other operators. Moreover, developers of areas under development are obligated to lay ducts that are to include a fiber optic cable.

Net Neutrality. Pursuant to the German Telecommunications Act, the German government is empowered to release orders to ensure net neutrality. After proposing a corresponding draft order in July 2013, the German government decided to refrain from further initiatives in this regard and instead deferred the decision to the European level. On October 27, 2015, the E.U. Parliament adopted a regulation that safeguards a certain level of net neutrality, effective on April 30, 2016, see above "*The Regulatory Framework*". This regulation imposes additional transparency and information obligations as well as the fundamental principle of non-discrimination on internet access providers. It does not hinder or prohibit the provision of specialized services as well as exclusive cooperations with content providers requiring a certain quality of service. In the meantime, the German federal states of North Rhine-Westphalia and Thuringia have amended their State Media Acts to generally allow for regulatory action to safeguard net neutrality, although the state media authorities (see below "*Media Regulation*") have not yet adopted corresponding measures.

Consumer Protection. On December 19, 2016, the Federal Network Agency published a regulation to enhance transparency for end-users. The main feature of the regulation is the introduction of a "product information sheet" for broadband products that have to be provided to customers prior to contract conclusion and show the major indicators (such as bandwidth and contract duration). Minor features include information on the agency's speed test tool, mandatory information upon approaching data caps and additional information on invoices pertaining to termination rights. Most obligations under the regulation took effect on June 1, 2017.

The right of end users to use the telecommunications terminal equipment of their choice in all telecoms networks has been addressed in a law (*Gesetzes zur Auswahl und zum Anschluss von Telekommunikationsendgeräten*) passed by the German Federal Parliament on November 7, 2015 and by the Federal Council in November 27, 2015. The law was published in January 2016 and became effective on August 1, 2016. It limits network operators' ability to restrict usage of third-party equipment, including routers and cable modems. This could have an adverse effects on our business.

Media Regulation

The Audiovisual Media Services Directive (**AVMSD**) has paved the way towards a single European market for audiovisual media services. It has harmonised the audiovisual rules of the Member States and facilitated the provision of audiovisual media services across the E.U. on the basis of the country of origin principle. The AVMSD relates to both traditional broadcast content as well as on-demand content. Since its adoption in 2007, the audiovisual media landscape has changed significantly due to media convergence. As part of its Digital Single Market strategy, the E.U. Commission consulted on a revision of the AVMSD, which Liberty Global, on behalf of Unitymedia, responded. The AVMSD is also addressed in the Digital Single Market strategy. A new legislative proposal amending the AVMSD (EU/2018/1808) has been enforced by the E.U. Parliament and E.U. Counsel on November 14, 2018 to bring the directive in line with the new realities, and in particular, to include video-sharing platforms in the regulatory regime of the AVMSD. As stated in the directive, the Member States will transpose the new amendment to the AVMSD into national law by September 2020.

Based on, and apart from, the AVMSD regulation of the media falls within the legislative competence of the German federal states (*Bundesländer*). The media laws of all 16 federal states have been partially harmonized by the State Broadcasting Treaty (*Rundfunkstaatsvertrag*). The State Broadcasting Treaty establishes the main framework of the German regulation of broadcast. In particular, it provides for a regime designed to ensure that a diversity of opinions is secured in the mix of public and commercial radio and television channels and their respective programming. The regime affects our ability to decide how to use our digital platform and therefore, may impact our business.

Nearly every German state has established its own independent regulatory body, the state media authority (*Landesmedienanstalt*), for the regulation of the private broadcasting sector. The state media authorities are primarily responsible for licensing and supervising of commercial broadcasters and the allocation of transmission capacities for radio and television channels (must carry regulation as described below). They are also in charge of the regulation of channel carriage fees, conditional access systems, interfaces, electronic program guides/navigators, the bundling of programs and price regulation. Any decision of the state media authorities can be challenged before the competent administrative courts.

Broadcasters have the right to file a complaint with the relevant state media authority in the event that cable network operators refuse to carry their signals. The state media authorities are vested with the power to order the transmission of channels upon receipt of such complaints, provided that the respective broadcaster's programs enjoy a "must carry" status or that the network has sufficient excess capacity. Whether or not a broadcaster, in particular one enjoying must carry status, is entitled to claim a distribution directly from the cable network operator and to the extent channel carriage fees are payable to the cable operator is unclear.

Allocation and Use of Transmission Capacities. The State Broadcasting Treaty sets forth the rules for the allocation and use of digital transmission capacities and digital playout facilities for television channels. The allocation and use of analog cable transmission capacities for both radio and television channels is governed by the laws of the respective states. The allocation and use of digital transmission capacities for digital television and radio channels are, however, primarily governed by the must carry rules of the State Broadcasting Treaty.

Regulations regarding the analog cable transmission of radio and television channels vary from state to state and cable network operators are generally not free to allocate analog channels in their networks. Rather, the state media authorities make allocation decisions regarding the programs that will be transmitted over the cable networks in order to ensure a diversity of opinions in the mix of channels and programming. As we have entirely ceased the distribution of analog TV channels in our network in June 2017, such allocation decision (must carry obligations) by the media authorities now only relate to analog radio channels.

In the digital range, the must carry obligations currently apply for the distribution of certain digital channels (up to a maximum of one-third of our digital bandwidth dedicated to broadcasting services). Practically speaking, up to one-third of digital capacity is must carry, up to one-third is allocated to ensure diversity and minimum one-third is for the cable operator's own choice.

Platform Regulation. The operation of digital platforms for television services is governed by both the State Broadcasting Treaty and the German Telecommunications Act. The provisions on digital television platforms in the State Broadcasting Treaty are supplemented by a specific bylaw on open access to digital services and on platform regulation (*Satzung über die Zugangsfreiheit zu digitalen Diensten und zur Plattformregulierung*), which has been adopted by the state media authorities. They provide general rules for the use of conditional access systems, interfaces, electronic program guides/navigators and the bundling of programs. Under these regulations, which are supervised by the state media authorities, where we are registered as a platform provider, we must generally grant a diverse program offering and must not unfairly obstruct or discriminate against broadcasters and other content providers. A legislative proposal to amend platform regulation has been discussed between the federal states, and a first draft is expected in the first or second quarter of 2018. The German Telecommunications Act contains specific provisions for conditional access systems supervised by the Federal Network Agency.

Antitrust Regulation

In addition to the regulation by the Federal Network Agency under the German Telecommunications Act, the FCO has powers under the German Act against Restraints of Competition (*Gesetz gegen Wettbewerbsbeschränkungen*) that prohibits the abuse of a market-dominant position as well as the distortion of competition through agreements or collusive behavior by market participants. Similar powers are vested with the E.U. Commission.

If the FCO or the E.U. Commission determine that a company has a dominant position in a relevant market or distorts competition through agreements or collusive behavior, the competent authority is entitled to prohibit such practices and to impose various punitive measures, including fines or disgorgement of profits generated by such behavior. In addition, third parties may initiate civil proceedings against companies that willfully or negligently violate provisions of the German Act against Restraints of Competition to obtain compensation for damages suffered, provided that these provisions were intended to protect the interests of such third parties.

DESCRIPTION OF INDEBTEDNESS

For a summary of our outstanding indebtedness as of December 31, 2018, and of the material terms of the agreements and arrangements governing such indebtedness as of such date, see note 13 to our consolidated financial statements included in Part II of this annual report.

MANAGEMENT

The ultimate authority within Unitymedia vests with UPC Germany, our sole shareholder. UPC Germany is, in turn, indirectly controlled by Liberty Global. All fundamental decisions regarding Unitymedia are reserved for the decision of the shareholders' meeting, including, but not limited to, the following:

- instructions to the managing directors;
- appointment and removal of managing directors;
- granting of discharge from liabilities to the managing directors;
- determination of annual financial statements and distribution of profits;
- measures in connection with monitoring and supervising managing directors;
- amendments of the articles of incorporation;
- fundamental structural changes (e.g., mergers, a conversion or a splitting of the company);
- consent to the conclusion of a domination or profit and loss absorption agreement; and
- Unitymedia may expand the authority of the shareholders' meeting.

Supervisory Board

In accordance with German corporate law, we are managed by our Managing Directors (*Geschäftsführer*). Responsibilities for operations are delegated to members of senior management. The Unitymedia entities employ more than 2,500 employees. Consequently, the German Co-Determination Act (*Mitbestimmungsgesetz*) applies and requires the implementation of a supervisory board for the German holding company of the Unitymedia entities with 12 members, six of which will be shareholder representatives, while the remaining six members will be employee representatives. On September 30, 2013, 12 members were appointed to the supervisory board. The currently-appointed members are listed below:

Name	Age	Position
Czermak, Michael	44	Vice President Legal and Business Development, Liberty Global
Lutz Schüler	51	Chief Operating Officer, Virgin Media
Manuel Kohnstamm	57	Chief Corporate Affairs Officer, Liberty Global
Tonya Uyanik	36	Vice President Control and Capital Allocation
Lars Ziegenhagen	47	Senior Vice President Legal
Dr. Philipp Holtschmidt	42	Vice President Human Resources
Erwin Gilbert	65	Labor Union Representative
Markus Frings	53	Labor Union Representative
Robert Feuchter	60	Works Council Representative
Frank Gerth	57	Works Council Representative
Stefan Kerpers	58	Works Council Representative
Ralf Mielke	51	Director Level 4 Provider

The inaugural meeting of the supervisory board occurred on November 6, 2013. The supervisory board advises and supervises the managing board. The supervisory board is further responsible for appointment and removal of managing directors. It is also in charge of the auditors and is responsible for reviewing the financial statements. The supervisory board's rules of procedure, which are yet to be implemented, shall determine that certain transactions require the supervisory board's consent.

Managing Directors

The Managing Directors are responsible for the day-to-day management of the business. Our Managing Directors and the Managing Directors of each of our subsidiaries are appointed at a shareholders' meeting for each company. Such Managing Directors may also be removed at the applicable shareholders' meeting. The Managing Directors are obligated to report regularly to the applicable shareholders' meeting or partners' meeting on the business activities and strategy of the applicable company, and the shareholders or partners may request additional reports at any time. The Managing Directors must obtain prior approval from the shareholders or partners, as the case may be, with respect to certain material matters, but the shareholders or partners, as the case may be, are generally not entitled to assume management functions or interfere with the day-to-day management of the business.

We currently have five Managing Directors:

Name	Age	Year First Appointed
Winfried Rapp	50	2013
Gudrun Scharler	44	2017
Christian Hindennach	44	2017
Thomas Funke	43	2018
Martin Czermin	47	2018

- ***Winfried Rapp*** has been our Chief Executive Officer (**CEO**) and has also been a member of Liberty Global's Executive Operating Committee since September 2018. Prior to this, he served as our Chief Financial Officer (**CFO**) and a member of the Board of Management. Before joining Unitymedia, he worked for SAP for more than 10 years in various finance functions both nationally and internationally, most recently as CFO for the Global Service division, and before that as Regional CFO for Western Europe. Born in Ulm, Winfried Rapp previously worked for Deutsche Telekom in Central Group Controlling and at T-Mobile U.K. He has many years of experience in IT and telecommunications, and has also gained experience in various finance roles in the automotive/manufacturing industries and in the logistics sector.
- ***Gudrun Scharler*** has been our Chief Operations Officer since 2014 and is, among other functions, responsible for our customer service department. Before joining Unitymedia, Gudrun Scharler was CEO of Customer Support, as well as the Managing Director of the E-Plus customer operations unit. Previously, she worked as Executive Director of Operations for Sunrise, the Swiss telecommunications company, as well as for Telefonica Deutschland. Ms. Scharler has more than 15 years of experience in the telecommunications industry.
- ***Christian Hindennach*** serves as our Chief Commercial Officer of our Consumer business and is responsible for the development of our product strategy, marketing and sales related activities and digital transformation initiatives. Mr. Hindennach joined Unitymedia in 2012 as Senior Vice President of Marketing & Products and served previously in several senior management roles with Telefónica Germany. He has over 10 years of experience in the telecommunications industry.
- ***Thomas Funke*** has been CFO of Unitymedia since September 2018 after previously serving as Vice President Accounting and Finance Operations since 2015. Previously, he was responsible for Unitymedia's Compliance & Risk Management. From 2011 to 2013, Mr. Funke was an authorized signatory and manager of Baker Tilly Germany. Prior to these roles, the former regular in the German armed forces had acquired financial expertise in a variety of senior commercial positions in medium-sized companies. Born in Krefeld, Thomas Funke holds the academic titles Diplom-Kaufmann (FH) and Master of Laws.
- ***Martin Czermin*** has been head of Unitymedia's B2B and MDU departments since October 1, 2016. Before joining Unitymedia, he occupied several senior positions with enterprise communications solutions providers serving the B2B market. Most recently, Mr. Czermin served as CEO of NFON AG, the European market leader in cloud telephone systems for small and medium-sized enterprises. Prior to that role, he spent 10 years at Siemens Enterprise Communications in various management functions, where he was responsible for the sales organization in Germany and the USA. Before studying information technology at the Technical University of Munich, the graduate engineer completed an apprenticeship in communication electronics.

The business address of all the Managing Directors named above is Aachener Str. 746-750, 50933 Cologne, Germany.

Auditor's Report (Translation)

To Unitymedia GmbH, Cologne

Opinions

We have audited the consolidated financial statements of Unitymedia GmbH, Cologne and its subsidiaries (**the Group**), which comprise the consolidated statement of financial position as at December 31, 2018, and the consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from January 1, 2018 to December 31, 2018, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of Unitymedia GmbH for the financial year from January 1, 2018 to December 31, 2018. We have not audited the information included within "Determinations on the proportion of women" presented in Section 3.2 of the group management report.

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

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the E.U., and the additional requirements of German commercial law pursuant to Section 315e (1) German Commercial Code (**HGB**) and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at December 31, 2018, and of its financial performance for the financial year from January 1, 2018 to December 31, 2018; and

- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the group management report does not cover the information included within "Determinations on the proportion of women" presented in Section 3.2 of the group management report.

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

Basis for the Opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Section 317 HGB and the German Generally Accepted Standards of Financial Statement Audits promulgated by the Institute of Public Auditors in Germany (**IDW**). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Other Information

Management is responsible for the other information. The other information comprises:

- the information included within "Determinations on the proportion of women" presented in Section 3.2 of the group management report; and

- information included in the annual report, with the exception of the audited consolidated financial statements and group management report and our auditor's report.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

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

– is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit; or

– otherwise appears to be materially misstated.

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

Management is responsible for the preparation of the consolidated financial statements that comply, in all material respects, with International Financial Reporting Standards (**IFRS**) as adopted by the E.U. and the additional requirements of German commercial law pursuant to Section 315e (1) HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, management is responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

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

Furthermore, management is responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, management is responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

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

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

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and in compliance with the German generally accepted standards for the audit of financial statements promulgated by the IDW will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

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

– identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls;

- obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems;

- evaluate the appropriateness of accounting policies used by management and the reasonableness of estimates made by management and related disclosures;

- conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern;

- evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRS as adopted by the E.U. and the additional requirements of German commercial law pursuant to Section 315e (1) HGB;

- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions;

- evaluate the consistency of the group management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides; and

- perform audit procedures on the prospective information presented by management in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by management as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

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

Düsseldorf, March 15, 2019

KPMG AG
Wirtschaftsprüfungsgesellschaft

Original German version signed by:

Nölgen	Reuter
Wirtschaftsprüfer	Wirtschaftsprüfer
German Public Auditor	German Public Auditor

UNITYMEDIA GMBH

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2018	**2017**
	in millions	
ASSETS		
Current assets:		
Cash and cash equivalents	€ 1.5	€ 2.3
Trade receivables and unbilled revenue, net (note 9)	62.6	100.9
Loans receivable – related-party (note 16)	1,093.6	1,877.0
Other current assets (notes 4, 6 and 16)	126.9	84.6
Total current assets	1,284.6	2,064.8
Property and equipment, net (note 8)	3,153.6	3,168.6
Goodwill (note 8)	2,841.7	2,841.7
Intangible assets subject to amortization, net (notes 4 and 8)	460.5	476.3
Loans receivable – related-party (note 16)	2,206.4	513.0
Derivative instruments (note 6)	125.4	82.7
Other noncurrent assets (notes 4 and 10)	25.8	18.0
Total noncurrent assets	8,813.4	7,100.3
Total assets	€ 10,098.0	€ 9,165.1

The accompanying notes are an integral part of these consolidated financial statements.

UNITYMEDIA GMBH

CONSOLIDATED BALANCE SHEETS - (Continued)

	December 31,	
	2018	2017
	in millions	
LIABILITIES AND OWNER'S DEFICIT		
Current liabilities:		
Accounts payable	€ 62.9	€ 60.4
Accrued liabilities (note 11)	242.6	235.9
Accounts payable and accrued liabilities – related-party (note 16)	94.8	331.4
Deferred revenue (note 4)	94.7	76.7
Current portion of debt and finance lease obligations – third-party (note 13)	740.9	428.4
Corporate income taxes payable	196.7	140.4
Current provisions (note 12)	42.4	48.7
Other current liabilities (note 6)	94.5	65.2
Total current liabilities	1,569.5	1,387.1
Noncurrent debt and finance lease obligations:		
Third-party (note 13)	7,352.4	6,939.6
Related-party (note 16)	507.5	331.5
Deferred tax liabilities (note 14)	437.6	411.0
Noncurrent provisions (note 12)	38.7	37.6
Other noncurrent liabilities (notes 4 and 6)	275.8	326.4
Total noncurrent liabilities	8,612.0	8,046.1
Total liabilities	10,181.5	9,433.2
Commitments and contingencies (notes 6, 12, 13, 14 and 17)		
Owner's deficit (note 15):		
Share capital	—	—
Additional paid-in capital	980.7	975.5
Accumulated deficit	(1,057.7)	(1,237.0)
Accumulated other comprehensive loss, net of taxes	(6.5)	(6.6)
Total owner's deficit	(83.5)	(268.1)
Total liabilities and owner's deficit	€ 10,098.0	€ 9,165.1

The accompanying notes are an integral part of these consolidated financial statements.

UNITYMEDIA GMBH

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year ended December 31,		
	2018	2017	2016
		in millions	
Revenue (notes 3 and 4)	€ 2,477.2	€ 2,382.3	€ 2,277.4
Operating costs and expenses:			
Operating (other than depreciation and amortization) (**OpEx**) (note 16)	602.0	620.8	594.8
Selling, general and administrative (other than depreciation and amortization) (including share-based compensation) (**SG&A**) (note 16)	262.7	251.0	252.3
Related-party fees and allocations, net (note 16)	262.0	234.3	193.1
Impairment, restructuring and other operating items, net	9.3	9.1	75.0
	1,136.0	1,115.2	1,115.2
Earnings before interest, taxes, depreciation and amortization (**EBITDA**)	1,341.2	1,267.1	1,162.2
Depreciation and amortization	775.9	795.5	846.8
Earnings before interest and taxes (**EBIT**)	565.3	471.6	315.4
Financial and other income (expense):			
Interest expense:			
Third-party	(335.5)	(369.5)	(364.7)
Related-party (note 16)	(29.5)	(25.2)	(22.2)
Realized and unrealized gains (losses) on derivative instruments, net (note 6)	214.4	(309.0)	45.0
Foreign currency transaction gains (losses), net	(145.4)	304.1	(67.7)
Losses on debt modification and extinguishment, net (note 13)	(11.5)	(77.2)	(3.9)
Other income, net (notes 7, 13, and 16)	106.8	59.7	35.6
Net financial and other expense	(200.7)	(417.1)	(377.9)
Earnings (loss) before income taxes	364.6	54.5	(62.5)
Income tax expense (note 14)	(160.9)	(58.5)	(27.9)
Net earnings (loss)	€ 203.7	€ (4.0)	€ (90.4)
Further details of OpEx and SG&A:			
Direct cost of services (programming, interconnect, equipment sales)	€ 215.7	€ 231.8	€ 206.7
Internal labor	201.9	193.0	192.4
Core network and IT	150.2	150.0	152.0
Customer services	96.9	99.5	90.8
Marketing and selling	88.9	87.6	96.3
Business services	51.7	49.9	47.8
Outsourced labor	30.0	28.6	29.2
Other indirect costs	29.4	31.4	31.9
	€ 864.7	€ 871.8	€ 847.1
Further details of impairment, restructuring and other operating items, net:			
Restructuring charges	€ 18.3	€ 2.4	€ 77.0
Gain on disposal of assets	(4.0)	(5.2)	(3.2)
Other	(5.0)	11.9	1.2
	€ 9.3	€ 9.1	€ 75.0

The accompanying notes are an integral part of these consolidated financial statements.

UNITYMEDIA GMBH

CONSOLIDATED STATEMENTS OF COMPREHENSIVE EARNINGS (LOSS)

	Year ended December 31,		
	2018	2017	2016
		in millions	
Net earnings (loss)	€ 203.7	€ (4.0)	€ (90.4)
Other comprehensive earnings (loss):			
Pension liability adjustment	0.1	1.3	(2.6)
Income taxes relating to components of other comprehensive earnings (loss)	—	(0.4)	0.8
Total other comprehensive earnings (loss)	0.1	0.9	(1.8)
Total comprehensive earnings (loss)	€ 203.8	€ (3.1)	€ (92.2)

The accompanying notes are an integral part of these consolidated financial statements.

UNITYMEDIA GMBH

CONSOLIDATED STATEMENTS OF CHANGES IN OWNER'S DEFICIT

	Additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss, net of taxes	Total owner's deficit
	in millions			
Balance at January 1, 2016	€ 955.3	€ (1,142.6)	€ (5.7)	€ (193.0)
Net loss	—	(90.4)	—	(90.4)
Other comprehensive loss, net of taxes	—	—	(1.8)	(1.8)
Deemed contribution of technology-related services (note 16)	11.6	—	—	11.6
Share-based compensation (note 16)	7.9	—	—	7.9
Capital charge in connection with exercise of Liberty Global share-based incentive awards (note 16)	(3.9)	—	—	(3.9)
Balance at December 31, 2016	970.9	(1,233.0)	(7.5)	(269.6)
Net loss	—	(4.0)	—	(4.0)
Other comprehensive earnings, net of taxes	—	—	0.9	0.9
Share-based compensation (note 16)	7.4	—	—	7.4
Capital charge in connection with exercise of Liberty Global share-based incentive awards (note 16)	(2.8)	—	—	(2.8)
Balance at January 1, 2018, before effect of accounting changes	975.5	(1,237.0)	(6.6)	(268.1)
Accounting changes (note 2)	—	(24.4)	—	(24.4)
Balance at January 1, 2018, as adjusted for accounting changes	975.5	(1,261.4)	(6.6)	(292.5)
Net earnings	—	203.7	—	203.7
Other comprehensive earnings, net of taxes	—	—	0.1	0.1
Share-based compensation (note 16)	8.0	—	—	8.0
Capital charge in connection with exercise of Liberty Global share incentive awards (note 16)	(2.6)	—	—	(2.6)
Other	(0.2)	—	—	(0.2)
Balance at December 31, 2018	€ 980.7	€ (1,057.7)	€ (6.5)	€ (83.5)

The accompanying notes are an integral part of these consolidated financial statements.

UNITYMEDIA GMBH

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year ended December 31,		
	2018	2017	2016
		in millions	
Cash flows from operating activities:			
Net earnings (loss)	€ 203.7	€ (4.0)	€ (90.4)
Adjustments to reconcile net earnings (loss) to net cash provided by operating activities:			
Share-based compensation expense	10.4	7.4	7.9
Related-party fees and allocations	262.0	234.3	193.1
Impairment, restructuring and other operating items, net	9.3	9.1	75.0
Depreciation and amortization	775.9	795.5	846.8
Amortization of deferred financing costs and non-cash interest accretion	5.3	5.8	5.9
Related-party interest expense	29.5	25.2	22.2
Realized and unrealized losses (gains) on derivative instruments, net	(214.4)	309.0	(45.0)
Foreign currency transaction losses (gains), net	145.4	(304.1)	67.7
Losses on debt modification and extinguishment, net	11.5	77.2	3.9
Deferred tax expense (benefit)	37.8	(11.3)	(42.5)
Changes in operating assets and liabilities	(273.3)	(10.1)	(8.3)
Net cash provided by operating activities	1,003.1	1,134.0	1,036.3
Cash flows from investing activities:			
Advances to parent	(786.7)	(500.9)	(872.5)
Capital expenditures	(384.7)	(494.2)	(407.0)
Other investing activities	3.5	3.9	2.0
Net cash used by investing activities	(1,167.9)	(991.2)	(1,277.5)
Cash flows from financing activities:			
Borrowings of third-party debt	1,426.7	2,394.8	498.4
Repayments of third-party debt and finance lease obligations	(1,251.2)	(2,486.4)	(353.5)
Payment of financing costs and debt premiums	(11.7)	(81.3)	(4.6)
Net cash received related to derivative instruments	1.7	29.9	—
Related-party borrowings (repayments)	—	0.2	(4.3)
Change in cash collateral	—	—	108.2
Other financing activities	(1.5)	(0.5)	(2.2)
Net cash provided (used) by financing activities	164.0	(143.3)	242.0
Net increase (decrease) in cash and cash equivalents and restricted cash	(0.8)	(0.5)	0.8
Cash and cash equivalents and restricted cash:			
Beginning of period	3.9	4.4	3.6
End of period	€ 3.1	€ 3.9	€ 4.4

CONSOLIDATED STATEMENTS OF CASH FLOWS — (Continued)

	Year ended December 31,		
	2018	2017	2016
		in millions	
The following amounts are included in net cash provided by operating activities:			
Cash paid for interest (excluding payments related to derivative instruments)	€ 318.8	€ 408.5	€ 367.3
Net cash paid for taxes	€ 34.6	€ 10.8	€ 32.3
Details of end of period cash and cash equivalents and restricted cash:			
Cash and cash equivalents	€ 1.5	€ 2.3	€ 2.8
Restricted cash included in other noncurrent assets	1.6	1.6	1.2
Total cash and cash equivalents and restricted cash	€ 3.1	€ 3.9	€ 4.0

The accompanying notes are an integral part of these consolidated financial statements.

(1) Basis of Presentation

Unitymedia GmbH (**Unitymedia**) is a wholly-owned subsidiary of UPC Germany Holding B.V. (**UPC Germany**), which in turn is an indirect subsidiary of Liberty Global plc (**Liberty Global**). Unitymedia is included in the consolidated financial statements of Liberty Global (registered in London, United Kingdom). A copy of our and Liberty Global's annual reports, quarterly reports and certain other releases are available on Liberty Global's website (www.libertyglobal.com).

In the following text, the terms "Unitymedia," "we," "our," "our company" and "us" may refer, as the context requires, to Unitymedia, or collectively to Unitymedia and its subsidiaries.

Unitymedia, which operates in the German federal states of North Rhine-Westphalia, Hesse and Baden-Württemberg, provides video, broadband internet, fixed-line telephony and mobile services to residential customers and businesses.

On May 9, 2018, Liberty Global and certain of its subsidiaries entered into a sale and purchase agreement with Vodafone Group plc and certain of its subsidiaries pursuant to which Liberty Global will sell its ownership interest in certain of its operations, including its interest in our company, to Vodafone Group plc (the **Vodafone Transaction**). Vodafone Group plc will be acquiring our company inclusive of our outstanding debt. As currently structured, upon closing, a change of control will be triggered with respect to our debt, and lenders and bondholders will have an option to put their debt to Vodafone Group plc. Closing of the transaction is subject to various conditions, including regulatory approval, which we expect will be obtained in mid-2019.

Our annual consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (**IFRS**) as adopted by the European Union (**E.U.-IFRS**) and the additional requirements of German commercial law pursuant to §315e (3) German Commercial Code (**HGB**).

Unitymedia is registered in Cologne, Germany with the commercial register of the local court of Cologne under HRB 68501.

The Unitymedia Notes (as defined and described in note 13) are listed on the Official List of the Luxembourg Stock Exchange and are admitted to trading on the Euro MTF Market, which is not a regulated market (as defined by Article 4 (14) of the Directive 2004/39/EC of the European Parliament and of the Council of April 21, 2004). For more information regarding the Unitymedia Notes, see note 13.

Unless otherwise indicated, convenience translations into euros are calculated as of December 31, 2018.

These consolidated financial statements were submitted to our supervisory board and approved for publication by the Managing Directors on March 15, 2019.

(2) Accounting Changes and Recent Pronouncements

First-time Application of Accounting Standards

The following new accounting standards and amendments to accounting standards have been initially applied:

Standard	Title	Applicable for fiscal years beginning on or after	Date of endorsement by the E.U.
IFRS 2 (amendments)	Classification and Measurement of Share-based Payment Transactions	January 1, 2018 (a)	February 26, 2018
IFRS 9	Financial Instruments	January 1, 2018 (b)	November 22, 2016
IFRS 15	Revenue from Contracts with Customers	January 1, 2018 (c)	September 22, 2016
IFRS 15 (amendments)	Clarifications to IFRS 15 Revenue from Contracts with Customers	January 1, 2018 (c)	October 31, 2017

(a) In June 2016, the IASB issued amendments to IFRS 2, *Share-based Payments* (**IFRS 2**), which includes new requirements for the accounting of share-based payment transactions with a net settlement feature for withholding tax obligations. The amendments to IFRS 2 require that certain transactions be classified as equity-settled share-based payment transactions.

We adopted the amendments to IFRS 2 on January 1, 2018. The amendments to IFRS 2 did not have a material impact on our consolidated financial statements and related disclosures.

(b) In July 2014, the IASB issued IFRS 9, *Financial Instruments* (**IFRS 9**), which introduces a single approach for the classification and measurement of financial assets according to their cash flow characteristics and the business model they are managed in, and provides a new impairment model based on expected credit losses. IFRS 9 includes new regulations regarding the application of hedge accounting to better reflect an entity's risk management activities, especially with regard to managing non-financial risks. IFRS 9 also requires entities to account for the modification of a financial liability that is not derecognized as a gain or loss through the statement of operations on the date of modification.

We adopted IFRS 9 effective January 1, 2018 on a retrospective basis by recording the cumulative effect adjustment to owner's deficit. The adoption of this standard resulted in an adjustment to our trade receivables from applying the expected credit loss model and a reclassification of the portion of the change in fair value of certain derivative-related borrowing instruments for which we elect the fair value option that relates to the change in the instrument's credit risk. The application of IFRS 9 did not have a material impact on our consolidated financial statements and related disclosures.

(c) In May 2014, the IASB issued IFRS 15, *Revenue from Contracts with Customers* (**IFRS 15**), which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of goods or services to customers. We adopted IFRS 15 effective January 1, 2018 by recording the cumulative effect of the adoption to our accumulated deficit. We applied the new standard to contracts that were not complete at January 1, 2018. The comparative information for the years ended December 31, 2017 and 2016 contained within these consolidated financial statements and notes has not been restated and continues to be reported under the accounting standards in effect for such periods.

The most significant impact of IFRS 15 on our revenue recognition policy relates to our accounting for certain upfront fees charged to our customers. When we enter into contracts to provide services to our customers, we often charge installation or other upfront fees. Under previous accounting rules, installation fees related to services provided over our cable networks were recognized as revenue during the period in which the installation occurred to the extent these fees were equal to or less than direct selling costs. Under IFRS 15, these fees are generally deferred and recognized as revenue over the contractual period, or longer if the upfront fee results in a material renewal right.

The cumulative effect of the adoption of IFRS 15 on our summary balance sheet information as of January 1, 2018 is as follows:

	Balance at December 31, 2017	IFRS 15 Adjustments	Balance at January 1, 2018
		in millions	
Assets:			
Trade receivables and unbilled revenue, net	€ 100.9	€ (16.6)	€ 84.3
Other current assets	€ 84.6	€ 15.9	€ 100.5
Other noncurrent assets, net	€ 18.0	€ 1.1	€ 19.1
Liabilities:			
Deferred revenue	€ 76.7	€ 30.4	€ 107.1
Deferred tax liabilities	€ 411.0	€ (11.2)	€ 399.8
Other noncurrent liabilities	€ 326.4	€ 5.0	€ 331.4
Equity:			
Accumulated deficit	€ (1,237.0)	€ (23.9)	€ (1,260.9)

For the year ended December 31, 2018, the adoption of IFRS 15 decreased our deferred revenue and other noncurrent liabilities by €11.6 million, with a corresponding increase to our revenue and Adjusted Segment EBITDA**.** As we use the term, "**Adjusted Segment EBITDA**" is defined as EBITDA before share-based compensation, provisions and provision

releases related to significant litigation, impairment, restructuring and other operating items and related-party fees and allocations, net.

For additional information regarding the impact of our adoption of IFRS 15, see note 4.

New Accounting Standards, Not Yet Effective

Except for the following accounting standards that are relevant for our company, there were no additional standards and interpretations issued by the International Accounting Standards Board (IASB) that are not yet effective for the current reporting period that we see as relevant for our company. We have not early adopted the accounting standards that are relevant for us.

Standard/ Interpretation	Title	Applicable for fiscal years beginning on or after	Date of endorsement by the E.U.
IFRS 16	Leases	January 1, 2019 (a)	October 31, 2017
IFRIC 23	Uncertainty over Income Tax Treatments	January 1, 2019 (b)	October 23, 2018
IAS 1 and IAS 8 (amendments)	Definition of Material	January 1, 2020 (b)	Not yet endorsed

(a) In January 2016, the IASB issued IFRS 16, *Leases* (**IFRS 16**), which supersedes IAS 17 *Leases* (**IAS 17**). IFRS 16 will result in lessees recognizing right-of-use assets and lease liabilities on the balance sheet with additional disclosures about leasing arrangements. IFRS 16 also eliminates the classification of leases as either operating leases or finance leases by a lessee. IFRS 16 requires lessees and lessors to recognize and measure leases retrospectively to each prior reporting period presented (full retrospective approach) or retrospectively through a cumulative effect adjustment to equity on the effective date (modified retrospective approach). The modified retrospective approach also includes a number of optional practical expedients that may be applied. IFRS 16 also replaces the straight-line operating lease expense for those leases accounted for under IAS 17 with a depreciation charge for the lease asset and an interest expense on the lease liability. This change aligns the lease expense treatment for all leases. The new standard is effective for annual reporting periods beginning on or after January 1, 2019, while early adoption is permitted if IFRS 15 is applied.

We will adopt IFRS 16 on January 1, 2019 by using the modified retrospective approach. We intend to apply the following practical expedients and options:

- In transition, we will not reassess which existing contracts are or contain leases. In addition, we will not use hindsight during transition;
- In transition, we will determine on a lease-by-lease basis whether to measure the right-of-use asset at either (i) its carrying amount, as if the standard had been applied since the lease commencement date, or (ii) an amount equal to the lease liability, as adjusted for any prepaid or accrued lease payments;
- We will not apply the practical expedient that permits a lessee to account for lease and non-lease components in a contract as a single lease component and, accordingly, we will continue to account for these components separately;
- We will recognize right-of-use assets and lease liabilities for leases of low-value assets and leases with terms of 12 months or less; and
- We will apply a single discount rate to a portfolio of leases with reasonably similar characteristics.

The main impacts of the adoption of this standard will be (i) the recognition of right-of-use assets and lease liabilities in our consolidated balance sheet for leases previously accounted for as operating leases and (ii) the replacement of operating lease expense with a depreciation charge for right-of-use assets and interest expense on lease liabilities. This change will result in a front-loaded total lease expense versus the previous straight-line operating lease expense.

Although we are still evaluating the effect that IFRS 16 will have on our consolidated financial statements, upon adoption, we currently expect to recognize (i) aggregate right-of-use assets that represent around 6% of our total assets as of December 31, 2018 and (ii) aggregate lease liabilities that represent around 8% of our total liabilities as of December 31, 2018, with the difference representing an increase to our owner's deficit.

We expect that the adoption of IFRS 16 will increase EBITDA as a result of operating lease expense being replaced with a depreciation charge for right-of-use assets and interest expense on lease liabilities. We also expect that the adoption of IFRS 16 will increase cash flows from operating activities and decrease cash flows from financing activities on the consolidated statement of cash flows, as all principal payments on lease liabilities will be presented within the cash flows from financing activities. For a summary of our undiscounted future minimum lease payments under operating leases as of December 31, 2018, see note 17.

(b) We evaluated the impact of applying this accounting standard on our consolidated financial statements and do not believe the impact of the adoption of this standard to be material.

(3) Summary of Significant Accounting Policies

Estimates

The preparation of financial statements in conformity with E.U.-IFRS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Estimates and assumptions are used in accounting for, among other things, the valuation of acquisition-related assets and liabilities, allowances for uncollectible accounts, certain components of revenue, programming and copyright costs, deferred income taxes and the related recognition of deferred tax assets, loss contingencies, fair value measurements, impairment assessments, capitalization of internal costs associated with construction and installation activities, useful lives of long-lived assets and share-based compensation. Actual results could differ from those estimates.

Reclassifications

Certain prior period amounts have been reclassified to conform to the current year presentation.

Principles of Consolidation

The accompanying consolidated financial statements include our accounts and the accounts of all voting interest entities where we exercise a controlling financial interest through the ownership of a direct or indirect controlling voting interest and special purpose entities over which we exercise control. All significant intercompany accounts and transactions have been eliminated in consolidation. Investments in special purpose entities that we do not control are accounted for using the equity method.

The following subsidiaries of Unitymedia are included in our consolidated financial statements at December 31, 2018, all of which are 100% owned, except for Unitymedia Finanz-Service GmbH as noted below:

Name of subsidiary	Headquarters location
Unitymedia Management GmbH (a)	Cologne, Germany
Unitymedia Hessen Verwaltung GmbH	Cologne, Germany
Unitymedia Hessen GmbH & Co. KG (**Unitymedia Hessen**) (b)	Cologne, Germany
Unitymedia NRW GmbH (**Unitymedia NRW**) (a)	Cologne, Germany
Arena Sport Rechte und Marketing GmbH i.L.	Cologne, Germany
Unitymedia BW GmbH (**KBW**)	Cologne, Germany
Unitymedia Service GmbH (a)	Berlin, Germany
Unitymedia Finanz-Service GmbH (c)	Cologne, Germany
Unitymedia Finance LLC	Delaware, US

(a) Exempt from publishing statutory accounts pursuant to Sec. 264 (3) HGB.

(b) Exempt from publishing statutory accounts pursuant to Sec. 264b HGB.

(c) Unitymedia Finanz-Service GmbH is a wholly owned subsidiary of Global Handset Finco Limited, an indirect subsidiary of Liberty Global, and is consolidated as a special purpose entity by Unitymedia.

Cash and Cash Equivalents and Restricted Cash

Cash and cash equivalents include cash on hand and demand deposits which have a maturity of three months or less at the time of acquisition. Cash and cash equivalents are measured at cost. Due to the external credit ratings of our respective counterparties, we consider our cash and cash equivalents to have low credit risk.

Restricted cash includes cash held in escrow and cash pledged as collateral. Restricted cash amounts that are required to be used to purchase noncurrent assets or repay noncurrent debt are classified as noncurrent assets. All other cash that is restricted to a specific use is classified as current or noncurrent based on the expected timing of the disbursement.

Cash Flow Statement

For the purpose of determining the classification of cash flows in our consolidated statements of cash flows, payments on related-party loans are first applied to principal (included as cash flows from financing activities) and then to capitalized interest (included as cash flows from operating activities). In addition, interest-bearing cash advances to related parties and repayments thereof are classified as investing activities. Receipts on related-party receivables are first applied to principal (included as cash flows from investing activities) and then to capitalized interest (included as cash flows from operating activities). All other related-party borrowings, advances and repayments are reflected as financing activities.

The capital expenditures that we report in our consolidated statements of cash flows do not include amounts that are financed under capital-related vendor financing or finance lease arrangements. Instead, these amounts are reflected as non-cash additions to our property, equipment and intangible assets when the underlying assets are delivered and as repayments of debt when the principal is repaid.

Property and Equipment

Property and equipment are measured at initial cost less accumulated depreciation and any accumulated impairment losses. When parts of an item of property and equipment have different useful lives, they are accounted for as separate items (major components) of property and equipment. The initial cost comprises the purchase price, borrowing costs (if applicable), costs of construction, including direct materials and labor, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the costs of dismantling and removing the items and restoring the site on which the assets are located. No borrowing costs were capitalized during the periods presented.

Depreciation is computed on a straight-line basis over the estimated useful life of each major component of an item of property and equipment. The cable distribution systems have estimated useful lives ranging from 4 to 30 years. Support equipment and buildings (including leasehold improvements) have estimated useful lives ranging from 3 to 15 years. Customer premises equipment have estimated useful lives of 5 years. Land is not depreciated. Depreciation methods, useful lives and residual values are reviewed at each reporting date and may be adjusted based on management's expectations of future use.

Property and equipment are reviewed at each reporting date to determine whether there is any indication of impairment. Impairment exists when the carrying value exceeds the recoverable amount. The recoverable amount is the higher of fair value less costs to sell and value in use. For purposes of impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows from other assets or groups of assets (cash-generating units). We have determined that our property and equipment is part of a single cash-generating unit for purposes of impairment testing. Impairment losses are reversed if the reasons for the impairment loss no longer exist or the impairment loss has decreased.

Subsequent costs are included in the assets' carrying amount or recognized as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will be achieved and when the cost can be measured reliably. The carrying amount of any replaced item is derecognized. All other expenditures for repairs and maintenance are expensed as incurred.

Gains and losses due to disposals are included in impairment, restructuring and other operating items, net in our consolidated statements of operations.

Intangible Assets

Our primary intangible assets are goodwill, customer relationships, subscriber acquisition costs, software costs and trade names. Goodwill and intangible assets with indefinite useful lives are not amortized, but instead are tested for impairment at least annually. Intangible assets with finite lives are amortized over their respective estimated useful lives on a straight-line basis and reviewed for impairment when circumstances warrant. Each reporting period, we evaluate the estimated useful lives of our intangible assets that are subject to amortization to determine whether events or circumstances warrant revised estimates of useful lives.

Goodwill represents the excess purchase price over the fair value of the identifiable net assets acquired. Goodwill is tested for impairment annually, or more frequently when there is an indication that it may be impaired. We have identified one cash-generating unit to which all goodwill is assigned. If the recoverable amount (i.e. the higher of fair value less costs to sell or value in use) of the cash-generating unit is less than the carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill and then to the other assets pro-rata on the basis of the carrying amount of each asset. An impairment loss recognized for goodwill is not reversed in a subsequent period.

Customer relationships and trade name are recognized at their fair values in connection with business combinations and are amortized over estimated lives of 10 years. Subscriber acquisition costs are recognized as incurred when such costs are directly attributable to obtaining a new customer contract, are paid to a third party, can be measured reliably and meet the definition of an intangible asset. Subscriber acquisition costs are amortized over the applicable contractual life, which have estimated useful lives of two years.

Costs associated with maintaining computer software are expensed as incurred. Costs that are directly associated with the production of identifiable and unique software products controlled by us for which it is probable that the expected future economic benefits attributable to the assets would flow to our company beyond one year are recognized as intangible assets. Capitalized internal-use software costs include only external direct costs of materials and services consumed in developing or obtaining the software and payroll and payroll-related costs for employees who are directly associated with and who devote time to the project. Capitalization of these costs ceases no later than the point at which the project is substantially complete and ready for its intended purpose. Capitalized internal-use software costs are amortized on a straight-line basis over their applicable expected useful lives, which are approximately three years. Where no internal-use intangible asset can be recognized, development expenditures are expensed as incurred.

Subsequent expenditures related to intangible assets are capitalized only when the expenditures increase the future economic benefits embodied in the specific asset to which it relates. All other expenditures, including expenditures on internally generated brands, are expensed as incurred.

Leasing

Leases are classified as finance leases whenever the terms of the lease transfer substantially all of the risks and rewards of ownership to us. Property and equipment acquired by way of a finance lease are initially stated at an amount equal to the lower of their fair value or the present value of the minimum lease payments at inception of the lease. The leased asset is subsequently depreciated over the shorter of its estimated useful life or the lease term and is subject to impairment assessments as a component of the applicable cash-generating unit. Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the finance balance outstanding. The corresponding lease obligations, net of finance charges, are included in debt with the interest element of the lease payment charged to our consolidated statements of operations over the lease period. All other leases are classified as operating leases with payments being recognized in our consolidated statements of operations on a straight-line basis over the term of the lease.

We have entered into various long-term service level agreements with Deutsche Telekom AG (**Deutsche Telekom**) and certain of its affiliates that are significant to our business, in particular for the lease of cable duct space. Generally, the terms per the agreements are unlimited, yet we have certain termination rights which are entirely at our discretion. According to German law, lease agreements are subject to a termination right of either party after a term of 30 years. We do not capitalize these cable ducts as finance leases as a result of management assumptions made regarding the expected usage of the cable ducts at the inception of the contracts.

Financial Instruments

Financial Assets

Policy applicable from January 1, 2018 under IFRS 9. On initial recognition, a financial asset is measured at (i) amortized cost, (ii) fair value through other comprehensive income or (iii) fair value through profit and loss. Financial assets are generally not reclassified subsequent to their initial recognition. A financial asset (unless it is a trade receivable without a significant financing component) is initially measured at fair value plus, for an item not at fair value through profit and loss, transaction costs that are directly attributable to its acquisition or issue. A trade receivable without a significant financing component is initially measured at the transaction price.

A financial asset is measured at amortized cost if (i) it is held within a business model whose objective is to hold assets to collect contractual cash flows and (ii) its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding. In assessing whether the contractual cash flows are solely payments of principal and interest, we consider the contractual terms of the instrument. Financial assets at amortized cost are measured using the effective interest method, adjusted for any impairment losses. Gains and losses related to financial assets recognized at amortized cost are recorded in our consolidated statements of operations.

Our trade receivables without a significant financing component are initially measured at the transaction price and subsequently reported at amortized cost, net of an allowance for impairment of trade receivables. The allowance for impairment of trade receivables is estimated based upon our assessment of anticipated loss related to uncollectible accounts receivable, measured at an amount equal to lifetime expected credit losses (simplified approach). We use a number of factors in determining the allowance, including, among other things, aging schedules, collection trends, prevailing and anticipated economic conditions and specific customer credit risk. The allowance is maintained until payment is received.

Loans and other receivables are recognized initially at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, loans and receivables are measured at amortized cost using the effective interest method, less any impairment losses. The loss allowance is determined at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly since initial recognition. Otherwise, the loss allowance is calculated at an amount equal to twelve-month expected credit losses.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition, we consider both quantitative and qualitative information based on our historical experience and informed credit assessment, which may include forward-looking information. We consider various factors when determining if a financial asset is in default, including (i) if the borrower is unlikely to pay its credit obligations to us in full and (ii) if the financial asset is more than 90 days past due, unless we have reasonable and supportable information to demonstrate that a longer past due criterion is more appropriate.

The sale of financial assets are accounted for using the settlement date.

Policy applicable before January 1, 2018 under IAS 39. Prior to the adoption of IFRS 9, we classified our financial assets into one of the following categories: (i) loans and receivables, (ii) held to maturity, (iii) available for sale, and (iv) at fair value through profit and loss.

Financial assets at amortized cost were measured using the effective interest method.

Financial Liabilities

On initial recognition, a financial liability is measured at (i) amortized cost or (ii) fair value through profit and loss.

A financial liability is measured at fair value through profit and loss if (i) it is classified as held-for-trading, (ii) it is a derivative, or (iii) if we have elected such classification upon initial recognition. Financial liabilities at fair value through profit and loss are measured at fair value, and net gains and losses, including any interest expense and foreign exchange gains and losses, are recognized in profit or loss, except for gains or losses attributable to the credit risk of the liability, which are recorded in other comprehensive income.

Financial liabilities at amortized cost are measured using the effective interest method, adjusted for any impairment losses. Gains and losses related to financial liabilities recognized at amortized cost are recorded in our consolidated statements of operations.

Bonds and bank liabilities are recognized initially at fair value, net of transaction costs incurred. Borrowings are subsequently stated at amortized cost. Any difference between the proceeds (net of transaction costs) and the redemption value of our bond and bank liabilities is recognized in our consolidated statements of operations over the respective terms of the borrowing agreements using the effective interest method.

Derecognition. We generally derecognize (i) financial assets when the contractual rights to the cash flows expire or are transferred and (ii) financial liabilities when we no longer have a contractual obligation.

Impairment

Policy applicable from January 1, 2018 under IFRS 9. Expected credit loss allowances are recognized for financial assets measured at amortized cost and contract assets. We generally measure allowances based on expected credit losses resulting from default events that are possible in the next 12 months. If, however, the credit risk has increased significantly since the initial recognition of the financial asset, we measure allowances based on expected credit losses resulting from all possible default events over the expected life of the financial instrument. Allowances for trade receivables and contract assets are measured based on lifetime expected credit losses.

Expected credit losses are a probability-weighted estimate of the present value of cash shortfalls based on the risk of default. Expected credit losses are discounted at the effective interest rate of the financial asset.

Policy applicable before January 1, 2018 under IAS 39. Prior to the adoption of IFRS 9, financial assets measured at amortized cost were assessed at each reporting date to determine whether there was objective evidence of impairment. Objective evidence that financial assets were impaired included default or delinquency by a debtor, indications that a debtor or issuer would enter insolvency, and adverse changes in the payment status of borrowers or issuers.

Derivative Instruments

All derivative instruments are recorded on the balance sheet at fair value. Although we enter into derivative instruments to manage foreign exchange risk, we do not apply hedge accounting to any of our derivative instruments. Changes to the fair value of our derivative instruments are recognized in realized and unrealized gains or losses on derivative instruments in our consolidated statements of operations.

The net cash received or paid related to our derivative instruments is classified as an operating, investing or financing activity in our consolidated statements of cash flows based on the objective of the derivative instrument and the classification of the applicable underlying cash flows. For derivative contracts that are terminated prior to maturity, the cash paid or received upon termination that relates to future periods is classified as a financing activity.

Provisions

Provisions represent liabilities for which the timing of settlement and/or amount are uncertain. A provision is recognized when (i) a present legal or constructive obligation as a result of a past event exists, (ii) it is probable that an outflow of resources will be required to settle the obligation and (iii) a reliable estimate can be made of the amount of the obligation.

Foreign Currency Transactions

Our functional currency is the euro. Transactions denominated in currencies other than the euro are recorded based on exchange rates at the time such transactions arise. Changes in exchange rates with respect to monetary items (e.g. cash held in a foreign currency or assets and liabilities to be received or paid in a fixed or determinable number of foreign currency units) recorded in our consolidated balance sheets result in transaction gains and losses that are reflected in our consolidated statements of operations as foreign currency transaction gains or losses.

Revenue Recognition

Service Revenue — Cable Networks. We recognize revenue from the provision of video, broadband internet and fixed-line telephony services over our cable network to customers in the period the related services are provided, with the exception of revenue recognized pursuant to certain contracts that contain promotional discounts, as described below. Installation fees related to services provided over our cable network are generally deferred and recognized as revenue over the contractual period, or longer if the upfront fee results in a material renewal right.

Sale of Multiple Products and Services. We sell video, broadband internet, fixed-line telephony and mobile services to our customers in bundled packages at a rate lower than if the customer purchased each product on a standalone basis. Revenue from bundled packages generally is allocated proportionally to the individual products or services based on the relative standalone selling price for each respective product or service.

Mobile Revenue. Consideration from mobile contracts is allocated to the airtime service component and the handset component based on the relative standalone selling prices of each component. We account for contracts with a customer that are entered into at the same time as a single contract. We recognize revenue from mobile services in the period in which the related services are provided. Revenue from the sale of handsets is recognized at the point in time in which the goods have been transferred to the customer.

B2B Revenue. We defer upfront installation and certain nonrecurring fees received on business-to-business (**B2B**) contracts where we maintain ownership of the installed equipment. The deferred fees are amortized into revenue on a straight-line basis, generally over the longer of the term of the arrangement or the expected period of performance.

Contract Costs. Incremental costs to obtain a contract with a customer, such as incremental sales commissions, are generally recognized as intangible assets and amortized to depreciation and amortization expense over the applicable period benefited, which generally is the contract life. If, however, the amortization period is less than one year, we expense such costs in the period incurred.

Promotional Discounts. For subscriber promotions, such as discounted or free services during an introductory period, revenue is recognized uniformly over the contractual period if the contract has substantive termination penalties. If a contract does not have substantive termination penalties, revenue is recognized only to the extent of the discounted monthly fees charged to the subscriber, if any.

Subscriber Advance Payments. Payments received in advance for the services we provide are deferred and recognized as revenue when the associated services are provided.

Value-Added Taxes. Revenue is recorded net of applicable value-added tax (**VAT**).

For additional information regarding our revenue recognition and related costs, see note 4. For information regarding our policy for allocating product revenue, see *Segments* below.

Income Taxes

Current taxes

Current income tax assets and liabilities are measured at the amount expected to be recovered from or paid to the taxation authorities at undiscounted values. The tax rates and tax laws used to compute the amounts are those that are enacted or substantively enacted as of the balance sheet date.

Deferred taxes

Generally, deferred taxes are recognized for any temporary differences between the tax base and the E.U.-IFRS base, except in situations where goodwill is not recognized for tax purposes.

Deferred tax assets are recognized for deductible temporary differences and tax loss and interest carryforwards, if it is probable that future taxable earnings will be available against which the unused tax losses or temporary differences can be utilized. However, deferred tax assets are not recognized if the deferred tax asset arises from the initial recognition of an asset or liability in a transaction that is not a business combination and at the time of the transaction affects neither accounting earnings nor taxable earnings.

The recoverability of the carrying value of deferred taxes is determined based on management's estimates of future taxable earnings. If it is no longer probable that enough future taxable earnings will be available against which the unused tax losses or temporary differences can be used, an impairment in a corresponding amount is recognized on the deferred tax assets.

Deferred taxes are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates that have been enacted or substantively enacted as of the balance sheet date. Deferred taxes are not discounted.

If the changes in the value of assets or liabilities are recognized in a separate component of equity, the change of value of the corresponding deferred tax assets and liabilities are also recognized in this separate component of equity (instead of income tax expense).

Deferred tax assets and liabilities are offset in our consolidated balance sheets if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity.

For additional information concerning our income taxes, see note 14.

Segments

We have one reportable segment, which provides video, broadband internet, fixed-line telephony and mobile services to consumers and businesses in Germany.

Our revenue by major category is set forth below:

	Year ended December 31,		
	2018	2017	2016
		in millions	
Residential revenue:			
Residential cable revenue (a):			
Subscription revenue (b):			
Video	€ 1,042.0	€ 1,038.2	€ 1,026.0
Broadband internet	684.8	619.4	568.7
Fixed-line telephony	447.3	440.9	433.1
Total subscription revenue	2,174.1	2,098.5	2,027.8
Non-subscription revenue	154.4	146.1	158.5
Total residential cable revenue	2,328.5	2,244.6	2,186.3
Residential mobile revenue (c):			
Subscription revenue (b)	14.3	16.5	19.6
Non-subscription revenue	1.4	36.7	11.9
Total residential mobile revenue	15.7	53.2	31.5
Total residential revenue	2,344.2	2,297.8	2,217.8
B2B revenue (d):			
Subscription revenue	74.0	52.2	39.3
Non-subscription revenue	53.3	26.2	12.9
Total B2B revenue	127.3	78.4	52.2
Other revenue	5.7	6.1	7.4
Total	€ 2,477.2	€ 2,382.3	€ 2,277.4

(a) Residential cable subscription revenue includes amounts received from subscribers for ongoing services. Residential cable non-subscription revenue includes, among other items, channel carriage fees, installation revenue, late fees and revenue from the sale of equipment. As described in note 2, we adopted IFRS 15 on January 1, 2018 using the cumulative effect transition method. For periods subsequent to our adoption of IFRS 15, installation revenue is generally deferred and recognized over the contractual period as residential cable subscription revenue. For periods prior to the adoption of IFRS 15, installation revenue is included in residential cable non-subscription revenue.

(b) Residential subscription revenue from subscribers who purchase bundled services at a discounted rate is generally allocated proportionally to each service based on the standalone price for each individual service. As a result, changes in the standalone pricing of our cable and mobile products or the composition of bundles can contribute to changes in our product revenue categories from period to period.

(c) Residential mobile subscription revenue includes amounts received from subscribers for ongoing services. Residential mobile non-subscription revenue includes, among other items, interconnect revenue and revenue from sales of mobile handsets and other devices.

(d) B2B subscription revenue represents revenue from services to certain small or home office (**SOHO**) subscribers. SOHO subscribers pay a premium price to receive expanded service levels along with video, broadband internet, fixed-line telephony or mobile services that are the same or similar to the mass marketed products offered to our residential subscribers. B2B non-subscription revenue includes business broadband internet, video, fixed-line telephony, mobile and data services offered to medium to large enterprises and, on a wholesale basis, to other operators.

(4) Revenue Recognition and Related Costs

Contract Balances

If we transfer goods or services to a customer but do not have an unconditional right to payment, we record a contract asset. Contract assets typically arise from the uniform recognition of introductory promotional discounts over the contract period and accrued revenue for handset sales. Our contract assets were €19.7 million and €20.8 million as of December 31, 2018 and January 1, 2018, respectively. The current and noncurrent portions of our contract asset balance at December 31, 2018 are included within other current assets and other noncurrent assets, respectively, in our consolidated balance sheet.

We record deferred revenue when we receive payment prior to transferring goods or services to a customer. We primarily defer revenue for (i) installation services and other upfront services and (ii) other services that are invoiced prior to when services are provided. Our deferred revenue balances were €112.6 million and €119.5 million as of December 31, 2018 and January 1, 2018, respectively. The decrease in deferred revenue during 2018 is primarily due to €107.2 million of revenue recognized that was included in our deferred revenue balance at January 1, 2018, partially offset by advanced billings. The current and noncurrent portions of our deferred revenue balance at December 31, 2018 are included within deferred revenue and other noncurrent liabilities, respectively, in our consolidated balance sheet.

Contract Costs

Our aggregate assets associated with incremental costs to obtain our contracts were €105.1 million and €94.8 million at December 31, 2018 and January 1, 2018, respectively. The current and noncurrent portions of our assets related to contract costs at December 31, 2018 are included within intangible assets in our consolidated balance sheet. We recorded amortization of €101.1 million during 2018 related to these assets.

Unsatisfied Performance Obligations

A large portion of our revenue is derived from customers who have completed their initial contract term and receive services on a rolling monthly basis without an extended contractual term. Revenue from contracts with residential customers is generally recognized over the term of such contracts, which is typically 12 to 24 months for our residential and mobile service contracts and one to five years for our B2B service contracts.

(5) Financial Risk Management

Overview

We have exposure to the following risks that arise from our financial instruments:

- Credit Risk
- Liquidity Risk
- Market Risk

Our exposure to each of these risks, the policies and procedures that we use to manage these risks and our approach to capital management are discussed below in this note. As a subsidiary of Liberty Global, our approach to the management of these risks is integrated with Liberty Global's overall risk management policies and procedures.

Credit Risk

Credit risk is the risk that we would experience financial loss if our customers or the counterparties to our derivative and other financial instruments, certain instruments we classify as debt, undrawn debt facilities and cash investments were to default on their obligations to us.

We manage the credit risks associated with our trade receivables by performing credit verifications, following established dunning procedures and engaging collection agencies. We also manage this risk by disconnecting services to customers whose accounts are delinquent. Concentration of credit risk with respect to trade receivables is limited due to the large number of customers.

We manage the credit risks associated with our derivative and other financial instruments, certain instruments we classify as debt, undrawn debt facilities and cash investments primarily through the evaluation and monitoring of the creditworthiness of, and concentration of risk with, the respective counterparties. In this regard, credit risk associated with our derivative instruments and undrawn debt facilities is spread across a relatively broad counterparty base of banks and financial institutions. Most of our cash currently is invested in overnight deposits with banks having a minimum credit rating of A by Standard & Poor's or an equivalent rating by Moody's Investor Service. To date, neither the access to nor the value of our cash and cash equivalent balances have been adversely impacted by liquidity problems of financial institutions. In limited circumstances, we require certain counterparties to our derivative instruments to post cash collateral. In this regard, as of December 31, 2018, certain of our counterparties have posted cash collateral of €155.2 million, which is predominantly subject to return at the maturity of the underlying derivative instruments.

We have entered into derivative instruments under master agreements with each counterparty that contain master netting arrangements that are applicable in the event of early termination by either party to such derivative instrument. At December 31, 2018, our exposure to counterparty credit risk related to derivative assets with a net aggregate fair value of €21.9 million, comprising derivative assets of €55.7 million and derivative liabilities of €33.8 million. For additional information regarding our derivative-related debt, see note 13.

Under our derivative contracts, it is generally only the non-defaulting party that has a contractual option to exercise early termination rights upon the default of the other counterparty and to set off other liabilities against sums due upon such termination. However, in an insolvency of a derivative counterparty, under the laws of certain jurisdictions, the defaulting counterparty or its insolvency representatives may be able to compel the termination of one or more derivative contracts and trigger early termination payment liabilities payable by us, reflecting any mark-to-market value of the contracts for the counterparty. Alternatively, or in addition, the insolvency laws of certain jurisdictions may require the mandatory set off of amounts due under such derivative contracts against present and future liabilities owed to us under other contracts between us and the relevant counterparty. Accordingly, it is possible that we may be subject to obligations to make payments, or may have present or future liabilities owed to us partially or fully discharged by set off as a result of such obligations, in the event of the insolvency of a derivative counterparty, even though it is the counterparty that is in default and not us. To the extent that we are required to make such payments, our ability to do so will depend on our liquidity and capital resources at the time. In an insolvency of a defaulting counterparty, we will be an unsecured creditor in respect of any amount owed to us by the defaulting counterparty, except to the extent of the value of any collateral we have obtained from that counterparty.

In addition, where a counterparty is in financial difficulty, under the laws of German jurisdictions, the relevant regulators may be able to (i) compel the termination of one or more derivative instruments, determine the settlement amount and/or compel,

without any payment, the partial or full discharge of liabilities arising from such early termination that are payable by the relevant counterparty or (ii) transfer the derivative instruments to an alternative counterparty.

Although we actively monitor the creditworthiness of our key vendors, the financial failure of a key vendor could disrupt our operations and have an adverse impact on our revenue and cash flows.

While we currently have no specific concerns about the creditworthiness of any counterparty for which we have material credit risk exposures, the current economic conditions and uncertainties in global financial markets have increased the credit risk of our counterparties and we cannot rule out the possibility that one or more of our counterparties could fail or otherwise be unable to meet its obligations to us. Any such instance could have an adverse effect on our cash flows, results of operations and financial condition. In this regard, (i) the financial failure of any of our counterparties could reduce amounts available under committed credit facilities and adversely impact our ability to access cash deposited with any failed financial institution, thereby causing a default under one or more derivative contracts, and (ii) tightening of the credit markets could adversely impact our ability to access debt financing on favorable terms, or at all.

Our maximum exposure to credit risk is represented by the carrying amounts of our financial assets, including our related-party loans receivable, and certain instruments we classify as debt. In connection with the Vodafone Transaction, the obligations under our loans receivable from UPC Germany (as described in note 16) are expected to be transferred from UPC Germany to Vodafone. Based on certain of our estimates and other factors, including (i) our assessment that the completion of the Vodafone Transaction is probable and (ii) the credit profile of Vodafone, we have determined that any potential credit loss associated with these loans receivable would not be significant. For information concerning the carrying amounts of our financial assets, see notes 6, 13 and 16.

Liquidity Risk

Liquidity risk is the risk that we will encounter difficulty in meeting our financial obligations. We evaluate our liquidity risks at the parent (Unitymedia) and operating subsidiary levels. As a holding company, our primary assets, other than cash and cash equivalents, are our investments in consolidated subsidiaries. Our ability to access the financial assets of our operating subsidiaries is restricted by the terms of the indentures for debt instruments. Tax considerations and other factors may also limit our ability to access the financial assets of our subsidiaries.

Our sources of liquidity at the parent level include (i) our cash and cash equivalents, (ii) amounts due under the 2012 UPC Germany Loan Receivable, the 2015 UPC Germany Loan Receivable and the 2016 UPC Germany Loan Receivable (each as defined and described in note 16), (iii) funding from UPC Germany (and ultimately from Liberty Global or other Liberty Global subsidiaries) in the form of loans or contributions, as applicable, and (iv) subject to certain restrictions as noted above, proceeds in the form of distributions or loans from Unitymedia Hessen, Unitymedia NRW, KBW or other subsidiaries. At December 31, 2018, substantially all of our consolidated cash and cash equivalents was held by our subsidiaries.

In addition to cash and cash equivalents, the primary sources of liquidity of Unitymedia Hessen, Unitymedia NRW, KBW and our other operating subsidiaries is cash provided by operations and, in the case of Unitymedia Hessen and Unitymedia NRW, any borrowing availability under the Unitymedia Credit Facilities (as defined and described in note 13). At December 31, 2018, we had aggregate borrowing capacity of €500.0 million under the Unitymedia Credit Facilities. For information regarding limitations on the borrowing availability of the Unitymedia Credit Facilities, see note 13.

Our corporate liquidity requirements include (i) corporate general and administrative expenses and (ii) interest payments on outstanding debt. From time to time, Unitymedia may also require cash in connection with (a) the repayment of our debt, (b) the satisfaction of contingent liabilities or (c) acquisitions and other investment opportunities. No assurance can be given that funding from UPC Germany (and ultimately from Liberty Global or other Liberty Global subsidiaries), our subsidiaries or external sources would be available on favorable terms, or at all.

The liquidity of Unitymedia Hessen, Unitymedia NRW, KBW and our other operating subsidiaries is generally used to fund capital expenditures, debt service requirements and other liquidity requirements that may arise from time to time. Our subsidiaries may also require funding in connection with (i) the repayment of outstanding debt, (ii) acquisitions and other investment opportunities or (iii) distributions or loans to Unitymedia (and ultimately to Liberty Global or other Liberty Global subsidiaries). No assurance can be given that any external funding would be available to our subsidiaries on favorable terms, or at all.

Our most significant financial obligations are our debt obligations (as described in note 13). The terms of our debt instruments contain certain restrictions, including covenants that restrict our ability to incur additional debt. As a result, additional debt financing is only a potential source of liquidity if the incurrence of any new debt is permitted by the terms of our existing debt instruments.

Our ability to service or refinance our debt and to maintain compliance with our leverage covenants is dependent primarily on (i) our ability to maintain or increase our "**Covenant EBITDA**", the calculation of the "EBITDA" metric specified by our debt agreements, and (ii) to achieve adequate returns on our property, equipment and intangible asset additions and acquisitions. Our ability to maintain or increase cash from our operations will depend on our future operating performance, which is in turn dependent, to some extent, on general economic, financial, competitive, market, regulatory and other factors, many of which are beyond our control. In addition, our ability to obtain additional debt financing is limited by the leverage covenants contained in our and our subsidiaries' various debt instruments. In this regard, if our Covenant EBITDA were to decline, we could be required to repay or limit our borrowings under the Unitymedia Credit Facilities in order to maintain compliance with applicable covenants. No assurance can be given that we would have sufficient sources of liquidity, or that any external funding would be available on favorable terms, or at all, to fund any such required repayment.

We believe that our cash and cash equivalents, together with our other sources of liquidity described above, will be sufficient to fund our currently anticipated working capital needs, capital expenditures and debt service requirements during the next 12 months, although no assurance can be given that this will be the case. However, as our maturing debt grows in later years, we anticipate that we will seek to refinance or otherwise extend our debt maturities. No assurance can be given that we will be able to complete these refinancing transactions or otherwise extend our debt maturities. In this regard, it is not possible to predict how political and economic conditions, sovereign debt concerns or any adverse regulatory developments could impact the credit markets we access and, accordingly, our future liquidity and financial position. However, (i) the financial failure of any of our counterparties could (a) reduce amounts available under committed credit facilities and (b) adversely impact our ability to access cash deposited with any failed financial institution and (ii) tightening of the credit markets could adversely impact our ability to access debt financing on favorable terms, or at all. In addition, sustained or increased competition, particularly in combination with adverse economic or regulatory developments, could have an unfavorable impact on our cash flows and liquidity.

We and Liberty Global use budgeting and cash flow forecasting tools to ensure that we will have sufficient resources to timely meet our liquidity requirements. We and Liberty Global also maintain a liquidity reserve to provide for unanticipated cash outflows.

The following table shows the timing of expected euro equivalent payments based on the contractually agreed upon terms of our financial liabilities as of December 31, 2018:

	Payments due during:						
	2019	**2020**	**2021**	**2022**	**2023**	**Thereafter**	**Total**
				in millions			
Debt principal:							
Third-party	€ 622.7	€ 3.0	€ 2.9	€ 2.8	€ 787.0	€ 6,585.7	€ 8,004.1
Related-party	—	—	—	—	—	478.0	478.0
Debt interest (a):							
Third-party	323.7	333.3	333.0	333.0	316.5	753.9	2,393.4
Related-party	38.8	38.8	38.8	38.8	38.8	233.0	427.0
Finance lease obligations:							
Principal	3.0	2.7	2.5	2.0	0.6	2.3	13.1
Interest (a)	0.6	0.5	0.4	0.3	0.3	1.0	3.1
Accrued liabilities (including related-party accrued liabilities)	342.0	—	—	—	—	—	342.0
Accounts payable (including related-party accounts payable)	82.2	—	—	—	—	—	82.2
Total	€ 1,413.0	€ 378.3	€ 377.6	€ 376.9	€ 1,143.2	€ 8,053.9	€ 11,742.9

(a) Amounts are based on interest rates, interest payment dates, commitment fees and contractual maturities in effect as of December 31, 2018. These amounts are presented for illustrative purposes only and will likely differ from the actual cash payments required in future periods. In addition, the amounts presented do not include the impact of our interest rate derivative contracts, deferred financing costs or original issue premiums or discounts.

The following table provides information regarding the euro equivalents of the projected cash flows associated with our derivative instruments at December 31, 2018. These amounts are presented for illustrative purposes only and will likely differ from the actual cash paid or received in future periods.

	Payments (receipts) due during:						
	2019	2020	2021	2022	2023	Thereafter	Total
	in millions						
Projected derivative cash payments (receipts), net:							
Interest-related (a)	€ (40.5)	€ (71.1)	€ (50.6)	€ (54.2)	€ (48.8)	€ (109.8)	€ (375.0)
Principal-related (b)	—	(10.6)	—	—	(155.4)	3.8	(162.2)
Total	€ (40.5)	€ (81.7)	€ (50.6)	€ (54.2)	€ (204.2)	€ (106.0)	€ (537.2)

(a) Includes (i) the cash flows of our interest rate swaption and swap contracts and (ii) the interest-related cash flows of our cross-currency and interest rate swap contracts.

(b) Includes the principal-related cash flows of our cross-currency swap contracts.

Market Risk

Because we have certain debt that is denominated in United States (**U.S.**) dollars and other debt that has a floating interest rate, we are exposed to market risks relating to fluctuations in the foreign exchange rate between the U.S. dollar and the euro and changes in the EURIBOR and LIBOR indices. Each of these risks is discussed below.

Interest rate risk

Our exposure to market risk for changes in interest rates relates primarily to the Unitymedia Credit Facilities, vendor financing arrangements and certain derivative-related borrowing instruments.

In general, we enter into derivative instruments to protect against increases in the interest rates on our variable-rate debt. Accordingly, we have entered into various derivative transactions to manage exposure to increases in interest rates. We use interest rate derivative contracts to exchange, at specified intervals, the difference between fixed and variable interest rates calculated by reference to an agreed-upon notional principal amount. We also use swaptions that lock in a maximum interest rate if variable rates rise, but also allow our company to benefit from declines in market rates. Under our current guidelines, we use various interest rate derivative instruments to mitigate interest rate risk, generally for five years, with the later years covered primarily by swaptions. As such, the final maturity dates of our various portfolios of interest rate derivative instruments generally fall short of the respective maturities of the underlying variable-rate debt. In this regard, we use judgment to determine the appropriate composition and maturity dates of our portfolios of interest rate derivative instruments, taking into account the relative costs and benefits of different maturity profiles in light of current and expected future market conditions, liquidity issues and other factors. For additional information concerning the impacts of these interest rate derivative instruments, see note 6.

With respect to our fixed-rate debt, changes in interest rates will impact the fair value of the debt instrument but not our cash flows. If, however, we were to refinance our fixed rate debt, we would be exposed to interest rate risk with respect to the debt we would incur. While we and Liberty Global typically strive to mitigate this risk by refinancing well before the debt matures, no assurance can be given that we would be able to obtain new debt financing on terms that are as attractive as our existing debt, or at all. As we do not carry most of our debt at fair value, changes in the fair value of our debt typically would not have a material impact on our results of operations.

In July 2017, the U.K. Financial Conduct Authority (the authority that regulates LIBOR) announced that it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. Currently, it is not possible to predict the exact transitional arrangements for calculating applicable reference rates that may be made in the U.K., the U.S., the Eurozone or elsewhere given that a number of outcomes are possible, including the cessation of the publication of one or more reference rates. Our loan documents contain provisions that contemplate alternative calculations of the base rate applicable to our LIBOR-indexed debt to the extent LIBOR is not available, which alternative calculations we do not anticipate will be materially different from what would have been calculated under LIBOR. Additionally, no mandatory prepayment or redemption provisions would be triggered under our loan documents in the event that the LIBOR rate is not available. It is possible, however, that any new reference rate that applies to our LIBOR-indexed debt could be different than any new reference rate that applies to our LIBOR-indexed derivative instruments. We anticipate managing this difference and any resulting increased variable-rate exposure through modifications to our debt and/or derivative instruments, however future market conditions may not allow immediate implementation of desired modifications and/or the company may incur significant associated costs.

For purposes of demonstrating the sensitivity of the interest expense on the Unitymedia Credit Facilities to changes in interest rates, we present the change that would result from a hypothetical instantaneous change in the 3-month EURIBOR or LIBOR of 50 basis points (0.50%) as of December 31, 2018, holding all other variables constant. This sensitivity analysis assumes that this hypothetical rate was in effect, and that all of the available borrowings under the Unitymedia Credit Facilities were outstanding, for the entire year. This analysis is presented for illustrative purposes only. In practice, market rates rarely change in isolation and are likely to be interdependent. The annual impacts of these hypothetical changes in interest rates are as follows:

	Increase of 0.50%	Decrease of 0.50%
	in millions	
Increase (decrease) in interest expense	€ 17.1	€ (17.1)
Increase (decrease) in loss before income taxes	€ 17.1	€ (17.1)

Foreign currency risk

We historically have not had, and do not expect to have, material amounts of cash inflows or outflows that are denominated in currencies other than the euro, with the exception of interest and principal payments on our U.S. dollar-denominated indebtedness (as further described in note 13). Accordingly, interest and principal payments related to these debt instruments represent our only material foreign currency risk. In accordance with our and Liberty Global's risk management policies, we have entered into cross-currency swaps to synthetically convert the interest and principal payments due under these debt instruments into euros until the first call date of the respective notes.

For purposes of demonstrating the sensitivity of (i) the outstanding principal and accrued interest associated with our U.S. dollar-denominated indebtedness and (ii) the fair value of the related cross-currency swaps to changes in foreign currency exchange rates, we present the changes in these items that would result from a hypothetical instantaneous change in the euro to U.S. dollar foreign currency exchange rate of 10% as of December 31, 2018, holding all other variables constant. This sensitivity analysis assumes that these debt instruments and the related cross-currency swaps were outstanding for the entire year. This analysis is presented for illustrative purposes only. In practice, market rates rarely change in isolation and are likely to be interdependent. The annual impacts of these hypothetical changes in foreign exchange rates are as follows:

	Value of euro relative to U.S. dollar	
	10% increase	10% decrease
	in millions	
Increase (decrease) in foreign currency transaction gains	€ 336.6	€ (336.6)
Decrease (increase) in loss associated with change in fair value of cross-currency swaps	(379.4)	379.4
Decrease (increase) in loss before income taxes	€ (42.8)	€ 42.8

Capital Management

We manage our capital to ensure that we will be able to continue as a going concern in order to provide returns for our shareholder and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital. In order to maintain or adjust the capital structure, Liberty Global may determine to cause our company to return capital to our shareholder or make loans to our shareholder or other Liberty Global subsidiaries. In addition, Liberty Global may determine to cause one or more of its subsidiaries to provide funding to our company in the form of loans or capital contributions, as applicable.

We monitor our debt capital on the basis of our leverage covenants. As further discussed above, our ability to service or refinance our debt and to maintain compliance with our leverage covenants is dependent primarily on our ability to maintain or increase the Covenant EBITDA of our operating subsidiaries and to achieve adequate returns on our capital expenditures and acquisitions. For additional information regarding our debt, see note 13.

(6) Derivative Instruments

In general, we enter into derivative instruments to protect against (i) increases in the interest rates on our variable-rate debt and (ii) foreign currency movements with respect to borrowings that are denominated in a currency other than our functional currency. In this regard, we have entered into various derivative instruments to manage interest rate exposure and foreign currency exposure with respect to the U.S. dollar. We do not apply hedge accounting to our derivative instruments. Accordingly, changes in the fair values of our derivative instruments are recorded in realized and unrealized gains or losses on derivative instruments, net, in our consolidated statements of operations.

The following table provides details of the fair values of our derivative instrument assets and liabilities:

	December 31, 2018			December 31, 2017		
	Current (a)	Noncurrent (a)	Total	Current (a)	Noncurrent (a)	Total
	in millions					
Assets:						
Cross-currency and interest rate derivative contracts (b)	€ 102.0	€ 125.4	€ 227.4	€ 67.8	€ 82.7	€ 150.5
Liabilities:						
Cross-currency and interest rate derivative contracts (b)	€ 56.5	€ 163.4	€ 219.9	€ 24.0	€ 256.8	€ 280.8

(a) Our current derivative assets are included in other current assets in our consolidated balance sheets. Our current and noncurrent derivative liabilities are included in other current liabilities and other noncurrent liabilities, respectively, in our consolidated balance sheets.

(b) We consider credit risk relating to our and our counterparties' nonperformance in the fair value assessment of our derivative instruments. In all cases, the adjustments take into account offsetting liability or asset positions. The changes in the credit risk valuation adjustments associated with our cross-currency and interest rate derivative contracts resulted in net gains (losses) of (€18.4 million), €57.8 million and (€1.4 million) during 2018, 2017 and 2016, respectively. These amounts are included in realized and unrealized gains (losses) on derivative instruments, net, in our consolidated statements of operations. For further information regarding our fair value measurements, see note 7.

The net cash received or paid related to our derivative instruments is classified as an operating, investing or financing activity in our consolidated statements of cash flows based on the objective of the derivative instrument and the classification of the applicable underlying cash flows. For derivative contracts that are terminated prior to maturity, the cash paid or received upon termination that relates to future periods is classified as a financing activity. The classification of these net cash inflows is as follows:

	Year ended December 31,		
	2018	2017	2016
	in millions		
Operating activities	€ 74.8	€ 42.2	€ 39.8
Financing activities	1.7	29.9	—
Total	€ 76.5	€ 72.1	€ 39.8

Details of our Derivative Instruments

Cross-currency Derivative Instruments

Our borrowing arrangements are generally denominated in euros, which is our functional currency. However, when it is more cost effective, we may enter into borrowing arrangements that are denominated in currencies other than the euro. For these arrangements, we provide for an economic hedge against foreign currency exchange rate movements by using derivative instruments to synthetically convert the underlying debt into euros. At December 31, 2018, substantially all of our debt was either directly or synthetically matched to the euro. The following table sets forth the total notional amounts and the related weighted average remaining contractual lives of our cross-currency swap contracts at December 31, 2018:

	Notional amount due from counterparty	Notional amount due to counterparty	Weighted average remaining life
	in millions		in years
Cross-currency swap contracts	$ 3,855.0	€ 3,204.1	4.8

Interest Rate Swap Contracts

The following table sets forth the euro equivalents of the total notional amounts and the related weighted average remaining contractual lives of our interest rate swap contracts at December 31, 2018:

	Pay fixed rate (a)		Receive fixed rate	
	Notional amount	Weighted average remaining life	Notional amount	Weighted average remaining life
	in millions	in years	in millions	in years
Interest rate swap contracts	€ 7,179.6	3.4	€ 5,050.9	6.5

(a) Includes forward-starting derivative instruments.

Interest Rate Swap Options

We have entered into various interest rate swap options (**swaptions**), which give us the right, but not the obligation, to enter into certain interest rate swap contracts at set dates in the future, with each such contract having a life of no more than three years. At the transaction date, the strike rate of each of these contracts was above the corresponding market rate. The following table sets forth certain information regarding our swaptions at December 31, 2018:

	Notional amount	Underlying swap currency	Weighted average option expiration period (a)	Weighted average strike rate (b)
	in millions		in years	
Interest rate swap options	€ 3,557.2	€	0.9	1.93%

(a) Represents the weighted average period until the date on which we have the option to enter into the interest rate swap contracts.

(b) Represents the weighted average interest rate that we would pay if we exercised our option to enter into the interest rate swap contracts.

Basis Swaps

Our basis swaps involve the exchange of attributes used to calculate our floating interest rates, including (i) the benchmark rate, (ii) the underlying currency and/or (iii) the borrowing period. We typically enter into these swaps to optimize our interest rate profile based on our current evaluations of yield curves, our risk management policies and other factors. At December 31, 2018, the euro equivalent of the notional amount of our basis swap contracts, which are forward-starting, was €2,842.4 million and the related weighted average remaining contractual life was 0.5 years.

Impact of Derivative Instruments on Borrowing Costs

The impact of the derivative instruments that were in effect at December 31, 2018 (excluding forward-starting derivative instruments and swaptions) that mitigate our foreign currency and interest rate risk, as described above, was a decrease of 101 basis points to our borrowing costs at December 31, 2018.

(7) Fair Value Measurements

We use the fair value method to account for (i) our derivative instruments and (ii) certain instruments that we classify as debt. The reported fair values of these instruments as of December 31, 2018 are unlikely to represent the value that will be paid or received upon the ultimate settlement or disposition of these assets and liabilities.

We use a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. Level 1 inputs are quoted market prices in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date. Level 2 inputs are inputs other than quoted market prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability. We record transfers of assets or liabilities into or out of Levels 1, 2 or 3 at the beginning of the quarter during which the transfer occurred. During 2018, no such transfers were made.

All of our Level 2 inputs (interest rate futures, swap rates and certain of the inputs for our weighted average cost of capital (**WACC**) calculations) and certain of our Level 3 inputs (credit spreads) are obtained from pricing services. These inputs, or interpolations or extrapolations thereof, are used in our internal models to calculate, among other items, yield curves, forward interest and currency rates and WACC rates. In the normal course of business, we receive market value assessments from the counterparties to our derivative contracts. Although we compare these assessments to our internal valuations and investigate unexpected differences, we do not otherwise rely on counterparty quotes to determine the fair values of our derivative instruments. The midpoints of applicable bid and ask ranges generally are used as inputs for our internal valuations.

In order to manage our interest rate and foreign currency exchange risk, we have entered into (i) various derivative instruments and (ii) certain instruments that we classify as debt, as further described in notes 6 and 13, respectively. The recurring fair value measurements of these instruments are determined using discounted cash flow models. With the exception of the inputs for certain swaptions, most of the inputs to these discounted cash flow models consist of, or are derived from, observable Level 2 data for substantially the full term of these instruments. This observable data mostly includes currency rates, interest rate futures and swap rates, which are retrieved or derived from available market data. Although we may extrapolate or interpolate this data, we do not otherwise alter this data in performing our valuations. We use a Monte Carlo based approach to incorporate a credit risk valuation adjustment in our fair value measurements to estimate the impact of both our own nonperformance risk and the nonperformance risk of our counterparties. The inputs used for our credit risk valuations, including our and our counterparties' credit spreads, represent our most significant Level 3 inputs, and these inputs are used to derive the credit risk valuation adjustments with respect to these instruments. As we would not expect these parameters to have a significant impact on the valuations of these instruments, we have determined that these valuations (other than the valuations of the aforementioned swaptions) fall under Level 2 of the fair value hierarchy. Due to the lack of Level 2 inputs for the swaption valuations, we believe these valuations fall under Level 3 of the fair value hierarchy. At December 31, 2018 and 2017, the fair value of our swaptions was an asset (liability) of (€9.9 million) and €6.4 million, respectively. Our credit risk valuation adjustments with respect to our cross-currency, interest rate swaps and certain of our debt are quantified and further explained in notes 5 and 13.

We do not have any financial instruments that fall under Level 1 of the fair value hierarchy.

Fair value measurements are also used in connection with nonrecurring valuations performed in connection with acquisition accounting and impairment assessments. These nonrecurring valuations include the valuation of our company, customer relationship and other intangible assets and property and equipment. The valuation of our company (our only cash-generating unit) is based at least in part on discounted cash flow analyses. With the exception of certain inputs for our WACC and discount rate calculations that are derived from pricing services, the inputs used in our discounted cash flow analyses, such as forecasts of future cash flows, are based on our assumptions. The valuation of customer relationships is primarily based on an excess earnings methodology, which is a form of a discounted cash flow analysis. The excess earnings methodology requires us to estimate the specific cash flows expected from the customer relationship, considering such factors as estimated customer life, the revenue expected to be generated over the life of the customer relationship, contributory asset charges and other factors. Tangible assets are typically valued using a replacement or reproduction cost approach, considering factors such as current prices of the same or similar equipment, the age of the equipment and economic obsolescence. Most of our nonrecurring valuations use significant unobservable inputs and therefore fall under Level 3 of the fair value hierarchy. We performed nonrecurring fair value measurements in conjunction with impairment assessments during 2018 and 2017.

The fair values of financial assets and liabilities, together with the carrying amounts shown in our consolidated balance sheets, are as follows:

	Category under IAS 39 (a)	Category under IFRS 9 (a)	December 31, 2018 Carrying amount	December 31, 2018 Fair value	December 31, 2017 Carrying amount	December 31, 2017 Fair value
			in millions			
Assets carried at fair value — derivative financial instruments	I	III	€ 227.4	€ 227.4	€ 150.5	€ 150.5
Assets carried at cost or amortized cost:						
Loans receivable – related-party (b)	II	I	€ 3,300.0	€ 3,300.0	€ 2,390.0	€ 2,390.0
Trade receivables and unbilled revenue	II	I	62.6	62.6	104.7	104.7
Other current and noncurrent financial assets	II	I	32.1	32.1	7.4	7.4
Cash and cash equivalents	II	I	1.5	1.5	2.3	2.3
Restricted cash	II	I	1.6	1.6	1.6	1.6
Total assets carried at cost or amortized cost			€ 3,397.8	€ 3,397.8	€ 2,506.0	€ 2,506.0
Liabilities carried at fair value:						
Derivative financial instruments	I	III	€ 219.9	€ 219.9	€ 280.8	€ 280.8
Debt obligations – third-party (c)	I	III	33.7	33.7	32.6	32.6
Total liabilities carried at fair value			€ 253.6	€ 253.6	€ 313.4	€ 313.4
Liabilities carried at cost or amortized cost:						
Debt obligations – third-party	III	I	€ 8,046.5	€ 8,168.0	€ 7,326.8	€ 7,626.9
Loans payable – related-party (b)	III	I	507.5	507.5	331.5	331.5
Accrued liabilities (including related-party)	III	I	342.0	342.0	326.1	326.1
Accounts payable and other liabilities (including related-party accounts payable)	III	I	83.9	83.9	303.3	303.3
Finance lease obligations	V	I	13.1	13.1	8.7	8.7
Total liabilities carried at cost or amortized cost			€ 8,993.0	€ 9,114.5	€ 8,296.4	€ 8,596.5

(a) Pursuant to IFRS 9, which was adopted effective January 1, 2018, category I refers to financial assets and liabilities measured at amortized cost, category II refers to financial assets and liabilities measured at fair value through other comprehensive income or loss and category III refers to financial assets and liabilities measured at fair value through profit or loss. Previously, pursuant to International Accounting Standard 39, *Financial Instruments: Recognition and Measurement* (**IAS 39**), category I referred to financial assets and liabilities measured at fair value through profit and loss, classified as held for trading, category II referred to loans and receivables, category III referred to financial liabilities measured at amortized cost and category IV referred to derivative instruments designated as hedging instruments. Category V referred to finance leases outside the scope of IAS 39.

(b) The fair value amounts presented for our related-party loans receivable and payable represent the principal amount of these loans. Due to the related-party nature of these loans, our parent company has the ability to set the underlying terms, including applicable interest rates, maturity dates and the form of settlement, and can modify such terms at its discretion. Accordingly, we do not believe there is a reliable basis for determining the extent to which the estimated fair values of these loans differs from their respective principal amounts.

(c) We have elected the fair value option for certain derivative-related borrowing instruments. For further information regarding our derivative-related borrowing instruments, see note 13.

Pre-tax amounts recognized in our consolidated statements of operations for 2018, 2017 and 2016 related to our financial assets and liabilities are as follows:

	Interest income (a)	Interest expense	Other statement of operations effects (b)	Impact on earnings (loss) before income taxes
		in millions		
Year ended December 31, 2018:				
Derivative assets carried at fair value through our consolidated statement of operations	€ —	€ —	€ 172.7	€ 172.7
Assets carried at cost or amortized cost:				
Trade receivables (c)	0.2	—	(7.3)	(7.1)
Loans receivable – related-party	108.8	—	—	108.8
Cash and cash equivalents	—	—	0.3	0.3
Derivative liabilities carried at fair value through our consolidated statement of operations	—	—	41.7	41.7
Liabilities carried at fair value through our consolidated statement of operations	—	—	(2.4)	(2.4)
Liabilities carried at cost or amortized cost	—	(365.0)	(157.2)	(522.2)
	€ 109.0	€ (365.0)	€ 47.8	€ (208.2)
Year ended December 31, 2017:				
Derivative assets carried at fair value through our consolidated statement of operations	€ —	€ —	€ (206.4)	€ (206.4)
Assets carried at cost or amortized cost:				
Trade receivables (c)	0.1	—	(9.5)	(9.4)
Loans receivable – related-party	64.9	—	—	64.9
Cash and cash equivalents	—	—	0.8	0.8
Derivative liabilities carried at fair value through our consolidated statement of operations	—	—	(102.6)	(102.6)
Liabilities carried at fair value through our consolidated statement of operations	—	—	(5.8)	(5.8)
Liabilities carried at cost or amortized cost	—	(394.7)	226.1	(168.6)
	€ 65.0	€ (394.7)	€ (97.4)	€ (427.1)

	Interest income (a)	Interest expense	Other statement of operations effects (b)	Impact on earnings (loss) before income taxes
	in millions			
Year ended December 31, 2016:				
Derivative assets carried at fair value through our consolidated statement of operations	€ —	€ —	€ 45.6	€ 45.6
Assets carried at cost or amortized cost:				
Trade receivables (c)	0.1	—	(14.0)	(13.9)
Loans receivable – related-party	40.0	—	—	40.0
Cash and cash equivalents	—	—	0.2	0.2
Derivative liabilities carried at fair value through our consolidated statement of operations	—	—	(0.6)	(0.6)
Liabilities carried at fair value through our consolidated statement of operations	—	—	(4.9)	(4.9)
Liabilities carried at cost or amortized cost	—	(386.9)	(71.8)	(458.7)
	€ 40.1	€ (386.9)	€ (45.5)	€ (392.3)

(a) Amounts are included in other income, net, in our consolidated statements of operations.

(b) Except as noted in (c) below, amounts are included in net financial and other expense in our consolidated statements of operations.

(c) The other statement of operations effects for trade receivables represent provisions for impairment of trade receivables and are included in OpEx in our consolidated statements of operations.

(8) Long-lived Assets

Property and Equipment, Net

Changes during 2018 and 2017 in the carrying amounts of our property and equipment, net, are as follows:

	Cable distribution systems	Customer premises equipment	Support equipment, buildings and land	Total
		in millions		
Cost:				
January 1, 2018	€ 4,826.5	€ 609.9	€ 229.7	€ 5,666.1
Additions	355.2	123.1	66.7	545.0
Retirements and disposals	(187.7)	(89.9)	(30.0)	(307.6)
Transfers from (to) related party	1.3	(6.1)	—	(4.8)
Impairment	(1.8)	(2.1)	(0.8)	(4.7)
December 31, 2018	€ 4,993.5	€ 634.9	€ 265.6	€ 5,894.0
Accumulated depreciation:				
January 1, 2018	€ 2,132.4	€ 268.2	€ 96.9	€ 2,497.5
Depreciation	394.0	120.0	41.1	555.1
Retirements and disposals	(187.7)	(89.9)	(29.9)	(307.5)
Transfers from (to) related party	0.2	(4.9)	—	(4.7)
December 31, 2018	€ 2,338.9	€ 293.4	€ 108.1	€ 2,740.4
Property and equipment, net:				
December 31, 2018	€ 2,654.6	€ 341.5	€ 157.5	€ 3,153.6

	Cable distribution systems	Customer premises equipment	Support equipment, buildings and land	Total
		in millions		
Cost:				
January 1, 2017	€ 4,647.9	€ 557.1	€ 236.5	€ 5,441.5
Additions	331.8	161.1	51.3	544.2
Retirements and disposals	(152.8)	(104.3)	(58.1)	(315.2)
Transfers to related party	—	(3.2)	—	(3.2)
Impairment	(0.4)	(0.8)	—	(1.2)
December 31, 2017	€ 4,826.5	€ 609.9	€ 229.7	€ 5,666.1
Accumulated depreciation:				
January 1, 2017	€ 1,890.8	€ 258.8	€ 114.5	€ 2,264.1
Depreciation	394.7	114.5	40.5	549.7
Retirements and disposals	(153.1)	(103.1)	(58.1)	(314.3)
Transfers to related party	—	(2.0)	—	(2.0)
December 31, 2017	€ 2,132.4	€ 268.2	€ 96.9	€ 2,497.5
Property and equipment, net:				
December 31, 2017	€ 2,694.1	€ 341.7	€ 132.8	€ 3,168.6

During 2018 and 2017, we recorded non-cash increases to our property and equipment related to vendor financing arrangements of €331.4 million and €227.7 million, respectively, which exclude related VAT of €48.4 million and €26.2 million, respectively, that was also financed by our vendors under these arrangements. In addition, during 2018 and 2017, we recorded non-cash increases to our property and equipment related to assets acquired under finance leases of €7.4 million and €5.4 million, respectively.

During 2018 and 2017, no borrowing costs were capitalized.

Most of our property and equipment is pledged as security under our various debt instruments. For additional information, see note 13.

Goodwill

We performed our annual review for impairment as of October 1, 2018, and we concluded that the full amount of our goodwill was recoverable. For the year ended December 31, 2018, the recoverable amount was based on Level 2 observable inputs in the sale and purchase agreement between Liberty Global and Vodafone Group plc (as described in note 1), including the aggregate sales price and its relationship to our Adjusted Segment EBITDA. We believe that any reasonably possible changes in the key assumptions on which the recoverable amount is based would not cause the carrying amount of our goodwill to exceed its recoverable amount.

In the prior year, we performed our annual review for impairment as of October 1, 2017, and we concluded that the full amount of our goodwill was recoverable. The key assumptions for the value in use calculations used to determine the recoverable amount were those regarding WACC and discount rates and estimated changes to selling prices, product offerings and direct costs during the period. These key assumptions were primarily derived from internal sources and external market data and were based on past experience including estimates on the development of revenue and direct costs, customer acquisition and retention costs, churn rates, capital expenditures, market share and growth rates. The calculation used cash flow projections based on financial budgets approved by management, and projections or extrapolations of our long range plan through 2027. A WACC of 8.6% was applied to the projected cash flows based on the current market assessments of the time value of money and the risks specific to our company and our business plan. Cash flows beyond the 10-year period were extrapolated using a steady 2.5% growth rate based on historical experience. A period of 10 years prior to implementing a continuing growth rate in the cash flow model was deemed reasonable due to the long-term capital intensive nature of our industry.

The carrying amount of goodwill was unchanged during 2018 and 2017.

Intangible Assets Subject to Amortization, Net

Changes during 2018 and 2017 in the carrying amounts of our finite-lived intangible assets are as follows:

	Customer relationships	Subscriber acquisition costs	Other (a)	Total
	in millions			
Cost:				
January 1, 2018	€ 658.6	€ 189.5	€ 199.7	€ 1,047.8
Additions	—	112.0	94.2	206.2
Retirements and disposals	—	(99.1)	(37.0)	(136.1)
Impairment	—	—	(0.6)	(0.6)
December 31, 2018	€ 658.6	€ 202.4	€ 256.3	€ 1,117.3
Accumulated amortization:				
January 1, 2018	€ 398.0	€ 94.7	€ 78.8	€ 571.5
Amortization	65.9	101.1	53.8	220.8
Retirements and disposals	—	(98.5)	(37.0)	(135.5)
December 31, 2018	€ 463.9	€ 97.3	€ 95.6	€ 656.8
Intangible assets subject to amortization, net:				
December 31, 2018	€ 194.7	€ 105.1	€ 160.7	€ 460.5

(a) Primarily includes computer software costs.

	Customer relationships	Subscriber acquisition costs	Other (a)	Total
	in millions			
Cost:				
January 1, 2017	€ 1,358.6	€ 170.3	€ 185.6	€ 1,714.5
Additions	—	100.5	72.7	173.2
Retirements and disposals	(700.0)	(81.3)	(58.6)	(839.9)
December 31, 2017	€ 658.6	€ 189.5	€ 199.7	€ 1,047.8
Accumulated amortization:				
January 1, 2017	€ 996.1	€ 80.7	€ 87.8	€ 1,164.6
Amortization	101.9	94.3	49.6	245.8
Retirements and disposals	(700.0)	(80.3)	(58.6)	(838.9)
December 31, 2017	€ 398.0	€ 94.7	€ 78.8	€ 571.5
Intangible assets subject to amortization, net:				
December 31, 2017	€ 260.6	€ 94.8	€ 120.9	€ 476.3

(a) Primarily includes computer software costs.

(9) Trade Receivables and Unbilled Revenue, Net

The details of our current trade receivables and unbilled revenue, net, are set forth below:

	December 31, 2018	December 31, 2017
	in millions	
Trade receivables, gross	€ 53.6	€ 62.4
Allowance for impairment of trade receivables	(11.7)	(12.5)
Trade receivables, net	41.9	49.9
Current unbilled revenue	20.7	51.0
Current trade receivables and unbilled revenue, net	€ 62.6	€ 100.9

The detailed aging of current trade receivables and related impairment amounts as of December 31, 2018 and 2017 is set forth below:

	December 31, 2018		December 31, 2017	
	Gross trade receivables	Allowance for impairment	Gross trade receivables	Allowance for impairment
	in millions			
Days past due:				
Current	€ 12.6	€ 0.2	€ 16.1	€ 1.3
1 - 30	18.7	0.3	24.1	2.4
31 - 60	4.9	0.2	8.9	1.5
61 - 90	2.5	0.1	4.0	1.1
Over 90	14.9	10.9	9.3	6.2
Total	€ 53.6	€ 11.7	€ 62.4	€ 12.5

At December 31, 2018 and 2017, a total of €29.5 million and €35.1 million, respectively, was past due but not impaired. With respect to these trade receivables at December 31, 2018, there are no indications that the subscribers will not meet their payment obligations.

The following table shows the development of the allowance for impairment of trade receivables:

	2018	2017
	in millions	
Allowance at January 1	€ 12.5	€ 11.6
Provisions for impairment of receivables	7.3	9.5
Write-offs of receivables	(8.1)	(8.6)
Allowance at December 31	€ 11.7	€ 12.5

When a trade receivable is uncollectible, it is written off against the allowance account. Provisions for impairment of trade receivables are included in OpEx in our consolidated statements of operations. We do not hold trade receivables in any foreign currencies.

(10) Other Noncurrent Assets

The details of our other noncurrent assets are set forth as follows:

	December 31,	
	2018	2017
	in millions	
Contract assets	€ 14.2	€ —
Prepaid expenses	4.3	5.8
Restricted cash	1.6	1.6
Unbilled revenue	—	3.8
Other	5.7	6.8
Total other noncurrent assets	€ 25.8	€ 18.0

(11) Accrued Liabilities

The details of our third-party accrued liabilities are set forth as follows:

	December 31,	
	2018	2017
	in millions	
Accrued expenses (other than payroll related accruals)	€ 124.8	€ 126.7
Accrued capital expenditures	86.1	87.9
Accrued payroll related compensation and benefits	31.7	21.3
Total third-party accrued liabilities	€ 242.6	€ 235.9

(12) Provisions

The details of our provisions are set forth as follows:

	December 31,	
	2018	2017
	in millions	
Net pension liability (a)	€ 36.1	€ 35.1
Restructuring liability	23.0	27.7
Other	22.0	23.5
Total provisions	€ 81.1	€ 86.3
Current portion	€ 42.4	€ 48.7
Noncurrent portion	€ 38.7	€ 37.6

(a) Amounts include €2.0 million and €1.5 million of plan assets as of December 31, 2018 and 2017, respectively.

The following table shows the development of our provisions:

	Restructuring liability	Net pension liability	Other	Total
	in millions			
January 1, 2018	€ 27.7	€ 35.1	€ 23.5	€ 86.3
Additions	18.3	1.7	16.6	36.6
Releases	—	(0.2)	(11.1)	(11.3)
Cash payments	(23.0)	(0.5)	(7.0)	(30.5)
December 31, 2018	€ 23.0	€ 36.1	€ 22.0	€ 81.1
January 1, 2017	€ 68.9	€ 34.8	€ 23.6	€ 127.3
Additions	2.4	2.4	16.1	20.9
Releases	—	(1.3)	(6.6)	(7.9)
Cash payments	(43.6)	(0.8)	(9.6)	(54.0)
December 31, 2017	€ 27.7	€ 35.1	€ 23.5	€ 86.3

Our restructuring charges during 2018 and 2017 relate to employee severance and termination costs associated with certain reorganization activities.

Employee benefit-related expenses associated with our (i) contributions to the German statutory pension system, (ii) defined contribution plan, (iii) defined benefit pension plans and (iv) direct insurance aggregated €19.7 million, €18.5 million and €20.9 million during 2018, 2017 and 2016, respectively.

(13) Debt and Finance Lease Obligations

The euro equivalents of the components of our third-party debt are as follows:

	December 31, 2018		Principal amount	
			December 31,	
	Weighted average interest rate (a)	Unused borrowing capacity (b)	2018	2017
			in millions	
Unitymedia Notes	4.68%	€ —	€ 4,271.7	€ 4,546.2
Unitymedia Credit Facilities	4.10%	500.0	2,925.2	2,243.3
Vendor financing (c)	2.47%	—	618.3	319.1
Derivative-related debt instruments (d)	3.35%	—	188.9	192.1
Total third-party debt before deferred financing costs, discounts and accrued interest (e)	4.27%	€ 500.0	€ 8,004.1	€ 7,300.7

The following table provides a reconciliation of total third-party debt before deferred financing costs, discounts, and accrued interest to total debt and finance lease obligations:

	December 31,	
	2018	2017
	in millions	
Total third-party debt before deferred financing costs, discounts and accrued interest	€ 8,004.1	€ 7,300.7
Deferred financing costs, discounts and accrued interest, net	76.1	58.6
Total carrying amount of third-party debt	8,080.2	7,359.3
Finance lease obligations	13.1	8.7
Total third-party debt and finance lease obligations	8,093.3	7,368.0
Related-party debt (note 16):		
Principal	478.0	306.3
Accrued interest	29.5	25.2
Total related-party debt	507.5	331.5
Total debt and finance lease obligations	8,600.8	7,699.5
Current portion of debt and finance lease obligations	(740.9)	(428.4)
Noncurrent portion of debt and finance lease obligations	€ 7,859.9	€ 7,271.1

(a) Represents the weighted average interest rate in effect at December 31, 2018 for all borrowings outstanding pursuant to each debt instrument, including any applicable margin. The interest rates presented represent stated rates and do not include the impact of derivative instruments, deferred financing costs, original issue premiums or discounts and commitment fees, all of which affect our overall cost of borrowing. Including the effects of derivative instruments, original issue premiums or discounts and commitment fees, but excluding the impact of deferred financing costs, the weighted average interest rate on our aggregate third-party variable- and fixed-rate indebtedness was 3.40% at December 31, 2018. For information regarding our derivative instruments, see note 6.

(b) Unused borrowing capacity represents the maximum availability under the Unitymedia Credit Facilities at December 31, 2018 without regard to covenant compliance calculations or other conditions precedent to borrowing. At December 31, 2018, based on the most restrictive applicable leverage covenants and leverage-based restricted payment tests, €415.7 million of unused borrowing capacity was available to be borrowed and there were no restrictions on our ability to make loans or distributions from this availability. Upon completion of the relevant December 31, 2018 compliance reporting requirements and based on the most restrictive applicable leverage covenants and leverage-based restricted payment tests, without considering any actual or potential changes to our borrowing levels or any amounts loaned or distributed subsequent to December 31, 2018, we expect that the full amount of unused borrowing capacity will be available to be borrowed and that there will be no restrictions with respect to loans or distributions from this availability.

(c) Represents amounts owed pursuant to interest-bearing vendor financing arrangements that are used to finance certain of our property, equipment and intangible asset additions and certain of our operating expenses. These obligations are generally due within one year and include VAT that was paid on our behalf by the vendor. Our operating expenses for 2018 and 2017 include €327.6 million and €125.4 million, respectively, that were financed by an intermediary and are reflected as a hypothetical cash outflow within operating activities and a hypothetical cash inflow within financing activities in our consolidated statements of cash flows. During 2018 and 2017, aggregate payments of €134.1 million and €66.0 million, respectively, were made under operating-related vendor financing arrangements. In addition, during 2018 and 2017, aggregate payments of €274.5 million and €194.3 million , respectively, were made under capital-related vendor financing arrangements. Repayments of vendor financing obligations are included in repayments of third-party debt and finance lease obligations in our consolidated statements of cash flows.

(d) Includes amounts associated with certain derivative-related borrowing instruments, including €33.7 million and €32.5 million at December 31, 2018 and 2017, respectively, carried at fair value. These instruments mature at various dates through January 2023. The fair value of this debt has been reduced by credit risk valuation adjustments resulting in net losses of

€0.5 million and €7.6 million during 2018 and 2017, respectively, which are included in other income, net, in our consolidated statements of operations. For further information regarding our fair value measurements, see note 7.

(e) As of December 31, 2018 and 2017, our debt had an estimated fair value of €8.1 billion and €7.6 billion, respectively. The estimated fair values of our debt instruments are generally determined using the average of applicable bid and ask prices (mostly Level 1 of the fair value hierarchy) or, when quoted market prices are unavailable or not considered indicative of fair value, discounted cash flow models (mostly Level 2 of the fair value hierarchy). The discount rates used in the cash flow models are based on the market interest rates and estimated credit spreads, to the extent available, and other relevant factors. For additional information regarding fair value hierarchies, see note 7.

General Information

Credit Facilities. We have entered into two credit facility agreements with certain financial institutions. Our credit facilities contain certain covenants, the more notable of which are as follows:

- Our credit facilities contain certain consolidated net leverage ratios, as specified in the relevant credit facility, which are required to be complied with (i) on an incurrence basis and/or (ii) when the associated revolving credit facilities have been drawn beyond a specified percentage of the total available revolving credit commitments, on a maintenance basis;

- Subject to certain customary and agreed exceptions, our credit facilities contain certain restrictions which, among other things, restrict our ability to (i) incur or guarantee certain financial indebtedness, (ii) make certain disposals and acquisitions, (iii) create certain security interests over our assets and (iv) make certain restricted payments to our direct and/or indirect parent companies through dividends, loans or other distributions;

- Our credit facilities require that certain subsidiaries of Unitymedia (i) guarantee the payment of all sums payable under the relevant credit facility and (ii) grant first-ranking security over substantially all of their assets to secure the payment of all sums payable thereunder;

- In addition to certain mandatory prepayment events, our credit facilities provide that each individual lender under the relevant credit facility, under certain circumstances, may cancel that lender's commitments thereunder and declare the loan(s) made available thereunder by that lender due and payable after the applicable notice period following the occurrence of a change of control (as specified in the relevant credit facility);

- Our credit facilities contain certain customary events of default, the occurrence of which, subject to certain exceptions, materiality qualifications and cure rights, would allow the instructing group of lenders to (i) cancel the total commitments, (ii) declare that all or part of the loans be payable on demand and/or (iii) accelerate all outstanding loans and terminate their commitments thereunder;

- Our credit facilities require that we observe certain affirmative and negative undertakings and covenants, which are subject to certain materiality qualifications and other customary and agreed exceptions; and

- In addition to customary default provisions, our credit facilities include cross-acceleration provisions with respect to our other indebtedness, subject to agreed minimum thresholds and other customary and agreed exceptions.

Senior and Senior Secured Notes. We have issued senior and senior secured notes. In general, our senior and senior secured notes (i) are senior obligations of the issuer of such notes that rank equally with all of the existing and future senior debt of such issuer and are senior to all existing and future subordinated debt of such issuer, (ii) contain, in most instances, certain guarantees from other subsidiaries of Unitymedia (as specified in the applicable indenture) and (iii) with respect to our senior secured notes, are secured by certain pledges or liens over the assets and/or shares of Unitymedia and certain of our subsidiaries. In addition, the indentures governing our senior and senior secured notes contain certain covenants, the more notable of which are as follows:

- Subject to certain materiality qualifications and other customary and agreed exceptions, our notes contain (i) certain customary incurrence-based covenants and (ii) certain restrictions that, among other things, restrict our ability to (a) incur or guarantee certain financial indebtedness, (b) make certain disposals and acquisitions, (c) create certain security interests over our assets and (d) make certain restricted payments to our direct and/or indirect parent companies through dividends, loans or other distributions;

- Our notes provide that any failure to pay principal after the expiration of any applicable grace period, or any acceleration with respect to other indebtedness of the issuer or certain subsidiaries over agreed minimum thresholds (as specified under the applicable indenture), is an event of default under the respective notes;

- If the relevant issuer or certain of its subsidiaries (as specified in the applicable indenture) sell certain assets, such issuer must, subject to certain materiality qualifications and other customary and agreed exceptions, offer to repurchase the applicable notes at par, or if a change of control (as specified in the applicable indenture) occurs, such issuer must offer to repurchase all of the relevant notes at a redemption price of 101%; and

- Our senior secured notes contain certain early redemption provisions including the ability to, during each 12-month period commencing on the issue date for such notes until the applicable call date, redeem up to 10% of the original principal amount of the notes at a redemption price equal to 103% of the principal amount of the notes to be redeemed plus accrued and unpaid interest.

Unitymedia Notes

The details of the outstanding notes of Unitymedia as of December 31, 2018 are summarized in the following table:

Unitymedia Notes	Maturity	Interest rate	Original issue amount	Outstanding principal amount: Borrowing currency	Outstanding principal amount: Euro equivalent	Carrying value (a)
				in millions		
UM Senior Notes:						
2025 UM Senior Notes	January 15, 2025	6.125%	$ 900.0	$ 900.0	€ 785.9	€ 782.6
2027 UM Senior Notes	January 15, 2027	3.750%	€ 700.0	€ 700.0	700.0	695.6
UM Senior Secured Notes:						
2025 UM Senior Secured Notes:						
2025 UM Euro Senior Secured Notes	January 15, 2025	4.000%	€ 1,000.0	€ 1,000.0	1,000.0	995.7
2025 UM Dollar Senior Secured Notes	January 15, 2025	5.000%	$ 550.0	$ 550.0	480.3	478.2
2026 UM Senior Secured Notes	February 15, 2026	4.625%	€ 420.0	€ 378.0	378.0	376.7
2027 UM Senior Secured Notes	January 15, 2027	3.500%	€ 500.0	€ 500.0	500.0	496.3
2029 UM Senior Secured Notes	January 15, 2029	6.250%	€ 475.0	€ 427.5	427.5	422.5
Total					€ 4,271.7	€ 4,247.6

(a) Amounts are net of deferred financing costs and discounts, where applicable.

Subject to the circumstances described below, the Unitymedia Notes are non-callable prior to the applicable call date (**UM Call Date**) as presented in the below table. At any time prior to the respective UM Call Date, we may redeem some or all of the applicable notes by paying a "make-whole" premium, which is the present value of all remaining scheduled interest payments to the applicable UM Call Date using the discount rate (as specified in the applicable indenture) as of the redemption date plus 50 basis points.

Unitymedia Notes	UM Call Date
2025 UM Senior Notes	January 15, 2020
2027 UM Senior Notes	January 15, 2021
2025 UM Senior Secured Notes	January 15, 2020
2026 UM Senior Secured Notes	February 15, 2021
2027 UM Senior Secured Notes	January 15, 2021
2029 UM Senior Secured Notes	January 15, 2021

We may redeem some or all of the Unitymedia Notes at the following redemption prices (expressed as a percentage of the principal amount) plus accrued and unpaid interest and additional amounts (as specified in the applicable indenture), if any, to the applicable redemption date, as set forth below:

	Redemption price						
	2025 UM Senior Notes	2027 UM Senior Notes	2025 UM Euro Senior Secured Notes	2025 UM Dollar Senior Secured Notes	2026 UM Senior Secured Notes	2027 UM Senior Secured Notes	2029 UM Senior Secured Notes
12-month period commencing	January 15	January 15	January 15	January 15	February 15	January 15	January 15
2019	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2020	103.063%	N.A.	102.000%	102.500%	N.A.	N.A.	N.A.
2021	102.042%	101.875%	101.333%	101.667%	102.313%	101.750%	103.125%
2022	101.021%	100.938%	100.667%	100.833%	101.156%	100.875%	102.083%
2023	100.000%	100.469%	100.000%	100.000%	100.578%	100.438%	101.042%
2024 and thereafter	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

Unitymedia Credit Facilities

The Unitymedia Credit Facilities are the senior secured credit facilities of certain subsidiaries of Unitymedia. The details of the Unitymedia Credit Facilities as of December 31, 2018 are summarized in the following table:

Unitymedia Facility	Maturity	Interest rate	Facility amount (in borrowing currency)	Outstanding principal amount	Unused borrowing capacity	Carrying value (a)
				in millions		
UM Senior Secured Facility (b)	December 31, 2023	EURIBOR + 2.75%	€ 420.0	€ —	€ 420.0	€ —
UM Super Senior Secured Facility (c)	December 31, 2023	EURIBOR + 2.25%	€ 80.0	—	80.0	—
UM Facility B (d)	September 30, 2025	LIBOR + 2.25%	$ 855.0	746.6	—	742.1
UM Facility C (e)	January 15, 2027	EURIBOR + 2.75%	€ 825.0	825.0	—	821.6
UM Facility D (d)	January 15, 2026	LIBOR + 2.25%	$ 850.0	742.3	—	737.0
UM Facility E (f)	June 1, 2023	(f)	$ 700.0	611.3	—	609.6
Total				€ 2,925.2	€ 500.0	€ 2,910.3

(a) Amounts are net of deferred financing costs and discounts, where applicable.

(b) The UM Senior Secured Facility has a fee on unused commitments of 1.1% per year.

(c) The UM Super Senior Secured Facility has a fee on unused commitments of 0.9% per year and is senior with respect to the priority of proceeds received from the enforcement of shared collateral to (i) the Unitymedia Notes and (ii) the UM Senior Secured Facility.

(d) UM Facility B and UM Facility D are each subject to a LIBOR floor of 0.0%.

(e) UM Facility C is subject to a EURIBOR floor of 0.0%.

(f) UM Facility E bears interest at a rate of LIBOR + 2.00% until June 2020 and LIBOR + 2.25% thereafter, in each case subject to a LIBOR floor of 0.0%.

2018 Financing Transactions

In May 2018, we entered into UM Facility E. The net proceeds from UM Facility E were used (i) to redeem in full the €245.0 million outstanding principal amount under the April 2023 UM Senior Secured Notes, (ii) to redeem 10% of the €420.0 million original principal amount of the 2026 UM Senior Secured Notes, (iii) to redeem 10% of the €475.0 million original principal amount of the 2029 UM Senior Secured Notes and (iv) for general corporate purposes. In connection with this transaction, we recognized a loss on debt modification and extinguishment, net, of €11.5 million related to (a) the payment of €9.5 million of redemption premiums and (b) the write-off of €2.0 million of unamortized deferred financing costs and discounts.

2017 and 2016 Financing Transactions

During 2017 and 2016, we completed a number of financing transactions that generally resulted in lower interest rates and extended maturities. In connection with these transactions, we recognized losses on debt modification and extinguishment, net, of €77.2 million and €3.9 million during 2017 and 2016, respectively. These losses include (i) the payment of redemption premiums of €64.2 million and €3.1 million, respectively, and (ii) the write-off of unamortized deferred financing costs and discounts of €13.0 million and €0.8 million, respectively.

Maturities of Debt and Finance Lease Obligations

For information concerning the maturities of our debt and finance lease obligations as of December 31, 2018, see note 5.

(14) Income Taxes

Unitymedia and its operating subsidiaries consist of three German taxpayers, two of which are German fiscal unities. A German fiscal unity combines individual tax paying entities as one taxpayer for German tax purposes. The combined details of our current and deferred income tax benefit (expense) that are included in our consolidated statements of operations are as follows:

	Year ended December 31,		
	2018	2017	2016
		in millions	
Current tax expense	€ (123.1)	€ (69.8)	€ (70.4)
Deferred tax benefit (expense)	(37.8)	11.3	42.5
Total	€ (160.9)	€ (58.5)	€ (27.9)

The income tax expense attributable to our earnings (loss) before income taxes differs from the income tax expense computed by applying the German income tax rate of 32.47% for 2018 and 2017 and 32.78% for 2016 as a result of the following:

	Year ended December 31,		
	2018	2017	2016
		in millions	
Computed "expected" income tax benefit (expense)	€ (118.4)	€ (17.7)	€ 20.5
Non-deductible or non-taxable interest and other expenses, net (a)	(34.7)	(37.7)	(37.1)
Changes in unrecognized net operating losses and interest carryforwards, net	(10.7)	(8.9)	(8.7)
Tax rate change (b)	(0.5)	3.5	(0.3)
Other, net	3.4	2.3	(2.3)
Total income tax expense	€ (160.9)	€ (58.5)	€ (27.9)

(a) The income tax expense for 2018 includes (i) a deferred tax benefit of €1.7 million related to prior year items and (ii) a current tax benefit of €0.6 million related to prior year items. The income tax expense for 2017 includes (a) a deferred tax expense of €0.6 million related to prior year items and (b) a current tax expense of €1.1 million related to prior year items. The income tax expense for 2016 includes (1) a deferred tax expense of €2.1 million related to prior year items and (2) a current tax expense of €2.7 million related to prior year items.

(b) The change in tax rate was due to a change in allocation factors in municipalities in which we operate.

During 2018, 2017 and 2016, our income tax expense includes net income tax expense of €5.6 million, €3.9 million and €2.6 million, respectively, representing the net accrual of interest and penalties during the period.

The details of our deferred tax balances at December 31, 2018 and our deferred tax expense for the year ended December 31, 2018 are as follows:

	December 31, 2018		Year ended December 31, 2018
	Deferred tax assets	**Deferred tax liabilities**	**Recognition in statement of operations**
		in millions	
Loss carryforwards	€ 119.0	€ —	€ (47.2)
Property and equipment	—	369.0	35.5
Intangible assets	—	132.9	11.9
Goodwill	—	97.5	(1.4)
Derivatives	—	58.4	(58.8)
Investments		—	0.1
Receivables	—	8.2	(10.5)
Loans	65.2	—	58.1
Provisions	4.6	—	1.0
Accrued interest expense	47.5	—	(27.3)
Deferred revenue	—	9.0	(0.4)
Other	1.1	—	1.2
Net assets with liabilities within same jurisdiction	(237.4)	(237.4)	—
Total	€ —	€ 437.6	€ (37.8)

For deferred tax movements charged in owner’s equity, see note 2.

The details of our deferred tax balances at December 31, 2017 and our deferred tax benefit for the year ended December 31, 2017 are as follows:

	December 31, 2017		Year ended December 31, 2017
	Deferred tax assets	Deferred tax liabilities	Recognition in statement of operations
		in millions	
Loss carryforwards	€ 166.2	€ —	€ (56.1)
Property and equipment	—	404.7	32.4
Intangible assets	—	144.8	25.2
Goodwill	—	96.1	(0.5)
Derivatives	0.5	—	109.3
Investments		—	0.2
Receivables	—	8.9	4.9
Loans	7.1	—	(126.4)
Provisions	3.6	—	(0.8)
Accrued interest expense	74.8	—	23.6
Deferred revenue		8.6	(0.7)
Other	—	0.1	0.2
Net assets with liabilities within same jurisdiction	(252.2)	(252.2)	—
Total	€ —	€ 411.0	€ 11.3

No deferred tax assets have been recognized for the following carryforwards:

	December 31,	
	2018	2017
	in millions	
Interest carryforwards	€ 247.7	€ 209.8
Corporate income tax loss carryforwards	€ 149.7	€ 149.7

The use of our tax loss carryforwards within each fiscal unity combine all companies' tax losses in that fiscal unity. Tax losses do not expire, however, certain German tax legislation limits the ability to offset taxable income of separate company or different tax groups with the tax losses associated with another separate company or group as a result of certain profit and loss pooling agreements made pursuant to relevant tax law. The use of these losses is limited while the agreement is in place.

(15) Owner's Deficit

Our share capital was €25,000 at December 31, 2018, 2017 and 2016 and has been fully paid. All of our shares are held by UPC Germany.

(16) Related-party Transactions

Our related-party transactions consist of the following:

	Year ended December 31,		
	2018	2017	2016
		in millions	
Credits (charges) included in:			
OpEx	€ (3.0)	€ (4.5)	€ (4.9)
SG&A	0.2	(0.4)	(0.6)
Allocated share-based compensation expense	(9.4)	(7.4)	(7.9)
Fees and allocations, net:			
OpEx and SG&A (exclusive of depreciation and share-based compensation)	(51.3)	(55.8)	(56.6)
Depreciation	(102.5)	(54.4)	(49.3)
Share-based compensation	(23.3)	(14.6)	(18.1)
Management fee	(84.9)	(109.5)	(69.1)
Total fees and allocations, net	(262.0)	(234.3)	(193.1)
Included in EBIT	(274.2)	(246.6)	(206.5)
Interest expense	(29.5)	(25.2)	(22.2)
Interest income	108.8	64.9	40.0
Share of associate gain	—	—	0.8
Included in net earnings (loss)	€ (194.9)	€ (206.9)	€ (187.9)
Property, equipment and intangible asset additions, net	€ (17.8)	€ (94.8)	€ (101.4)

General. We charge fees and allocate costs and expenses to certain other Liberty Global subsidiaries, and certain Liberty Global subsidiaries outside of our company charge fees and allocate costs and expenses to us. Depending on the nature of these related-party transactions, the amount of the charges or allocations may be based on (i) our estimated share of the underlying costs, (ii) our estimated share of the underlying costs plus a mark-up or (iii) commercially-negotiated rates. The methodology used, which is intended to ensure that Liberty Global allocates its central and administrative costs to its borrowing groups, impacts Covenant EBITDA. In this regard, the components of related-party fees and allocations that are deducted to arrive at our Covenant EBITDA are based on (i) the amount and nature of costs incurred by the allocating Liberty Global subsidiaries during the period, (ii) the allocation methodologies in effect during the period and (iii) the size of the overall pool of entities that are charged fees and allocated costs, such that changes in any of these factors would likely result in changes to the amount of related-party fees and allocations that will be deducted to arrive at our Covenant EBITDA in future periods. For example, to the extent that a Liberty Global subsidiary borrowing group was to acquire (sell) an operating entity, and assuming no change in the total costs incurred by the allocating entities, the fees charged and the costs allocated to our company would decrease (increase). Although we believe that the related-party charges and allocations described below are reasonable, no assurance can be given that the related-party costs and expenses reflected in our consolidated statements of operations are reflective of the costs that we would incur on a standalone basis.

OpEx. These amounts represent certain cash settled charges from other Liberty Global subsidiaries to our company primarily for certain backbone and other network-related services provided to our company.

SG&A. These amounts represent the net impact of certain cash settled (i) charges from other Liberty Global subsidiaries to our company, primarily for software maintenance services and (ii) recharges for certain general and administrative services provided by our company to other Liberty Global subsidiaries.

Allocated share-based compensation expense. These amounts are allocated to our company by Liberty Global and represent share-based compensation expense associated with the Liberty Global share-based incentive awards held by certain employees of our subsidiaries. Share-based compensation expense is reflected as a decrease to owner's deficit and is included in SG&A in our consolidated statements of operations.

Fees and allocations, net. These amounts, which are based on our company's estimated share of the applicable costs (including personnel-related and other costs associated with the services provided) incurred by other Liberty Global subsidiaries, represent the aggregate net effect of charges between our company and various Liberty Global subsidiaries that are outside of our company. These charges generally relate to management, finance, legal, technology, marketing and other services that support our company's operations, including the use of the UPC trademark. The categories of our fees and allocations, net are as follows:

- *OpEx and SG&A (exclusive of depreciation and share-based compensation).* The amounts included in this category, which are generally cash settled, represent our estimated share of certain centralized technology, management, marketing, finance and other OpEx and SG&A expenses of Liberty Global subsidiaries, whose activities benefit multiple operations, including operations within and outside of our company. The amounts allocated represent our estimated share of the actual costs incurred by other Liberty Global subsidiaries, without a mark-up. Amounts in this category are generally deducted to arrive at our Covenant EBITDA. The amounts presented for 2018 and 2017 are net of charges to Liberty Global of €1.8 million and €9.6 million, respectively, for certain centrally-managed technology services provided by our company.

- *Depreciation.* The amounts included in this category, which are generally loan settled, represent our estimated share of depreciation of assets not owned by our company. The amounts allocated represent our estimated share of the actual costs incurred by other Liberty Global subsidiaries, without a mark-up.

- *Share-based compensation.* The amounts included in this category, which are generally cash settled, represent our estimated share of share-based compensation associated with Liberty Global employees who are not employees of our company. The amounts allocated represent our estimated share of the actual costs incurred by other Liberty Global subsidiaries, without a mark-up.

- *Management fee.* The amounts included in this category, which are generally cash settled, represent our estimated allocable share of (i) OpEx and SG&A expenses related to stewardship services provided by certain other Liberty Global subsidiaries and (ii) the mark-up, if any, applicable to each category of the related-party fees and allocations charged to our company. The amounts presented for 2018 and 2017 are net of charges to Liberty Global of €0.1 million and €0.7 million, respectively, for the mark-up related to certain centrally-managed technology services provided by our company.

Liberty Global charges technology-based fees to our company using a royalty-based method. For 2018, 2017 and 2016, our proportional share of the technology-based costs was €157.0 million, €102.8 million and €92.4 million, respectively. The excess of the royalty-based charges over our estimated proportionate share of the underlying technology-based costs is classified as a management fee and added back to arrive at Covenant EBITDA. We recorded an adjustment during 2016 to reduce the amount charged during 2015 under the royalty-based method. This adjustment resulted in an €11.6 million decrease to owner's deficit that is reflected as a deemed contribution of technology-related services in our consolidated statement of changes in owner's deficit.

Interest expense. These amounts relate to (i) the Shareholder Loan (as defined and described below) and (ii) the UMI Loan, which was settled during the first quarter of 2017.

Interest income. These amounts primarily relate to our loans receivable from UPC Germany, including (i) the 2012 UPC Germany Loan Receivable, (ii) the 2015 UPC Germany Loan Receivable and (iii) the 2016 UPC Germany Loan Receivable (each as defined and described below). Interest income is included in other income, net, in our consolidated statements of operations.

Share of associate gain. This amount represents our share of the results of the operations of Unitymedia International GmbH (**UMI**), which was merged with Unitymedia NRW in August 2018. Share of associate gain is included in other income, net, in our consolidated statements of operations.

Property, equipment and intangible asset additions, net. These amounts, which are generally cash settled, represent the net carrying values of (i) customer premises and network-related equipment acquired from other Liberty Global subsidiaries, which centrally procure equipment on behalf of our company and other Liberty Global subsidiaries and (ii) used customer premises and network-related equipment acquired from or transferred to other Liberty Global subsidiaries outside of Unitymedia.

Management remuneration. Salaries, bonuses and benefit related remuneration of the Managing Directors was €4.1 million, €4.5 million and €4.4 million for 2018, 2017 and 2016, respectively.

Supervisory board remuneration. Total remuneration received for board services by members of our supervisory board was less than €0.1 million for each of 2018, 2017 and 2016.

The following table provides details of our related-party balances:

	December 31,	
	2018	2017
	in millions	
Related-party assets:		
Current loans receivable (a)	€ 1,093.6	€ 1,877.0
Other current assets (b)	9.4	15.5
Noncurrent loans receivable (c)	2,206.4	513.0
Total	€ 3,309.4	€ 2,405.5
Related-party liabilities:		
Accounts payable and accrued liabilities (d)	€ 94.8	€ 331.4
Shareholder Loan (e)	478.0	306.1
Other noncurrent liabilities	—	0.2
Total	€ 572.8	€ 637.7

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(a) Represents (i) the current portion (principal amount of €1,000.1 million at December 31, 2018) and accrued interest associated with our loan receivable from UPC Germany that originated in May 2012 (the **2012 UPC Germany Loan Receivable**) and (ii) accrued interest associated with the 2016 UPC Germany Loan Receivable and the 2015 UPC Germany Loan Receivable (each as defined and described below). Amounts loaned to UPC Germany pursuant to the 2012 UPC Germany Loan Receivable agreement are subject to certain restrictions contained in the instruments governing our indebtedness. The interest rate on the current portion of this loan was 1.32% as of December 31, 2018 and is subject to adjustment.

The change in the principal balance of the 2012 UPC Germany Loan Receivable relates to:

- A net decrease during 2018 due to (i) cash advances of €4,143.3 million, (ii) cash repayments of €3,003.6 million, (iii) the transfer of €38.6 million in non-cash accrued interest to the 2012 UPC Germany Loan Receivable balance and (iv) a €26.3 million non-cash increase related to the settlement of aggregate amounts due under the 2015 UPC Germany Loan Receivable and the 2016 UPC Germany Loan Receivable. In addition, in connection with an April 2018 amendment to the agreement, a portion of the outstanding principal balance of the 2012 UPC Germany Loan Receivable was reclassified to noncurrent loans receivable;

- A net increase during 2017 due to (i) cash advances of €3,122.3 million, (ii) cash repayments of €2,621.4 million, (iii) the transfer of €25.3 million in non-cash accrued interest to the 2012 UPC Germany Loan Receivable balance and (iv) a €21.8 million non-cash increase related to the settlement of aggregate amounts due under the 2015 UPC Germany Loan Receivable and the 2016 UPC Germany Loan Receivable; and

- A net increase during 2016 due to (i) cash advances of €3,247.0 million, (ii) cash repayments of €2,657.5 million, (iii) a €57.3 million non-cash decrease related to the settlement of amounts due under the 2010 Shareholder Loan (as defined and described below), (iv) an €8.0 million non-cash increase related to the settlement of aggregate amounts due under the 2015 UPC Germany Loan Receivable and the 2016 UPC Germany Loan Receivable and (v) the transfer of €1.5 million in non-cash accrued interest to the 2012 UPC Germany Loan Receivable balance.

(b) Represents various related-party receivables that may be cash or loan settled.

(c) Represents (i) the noncurrent portion of the 2012 UPC Germany Loan Receivable (principal amount of €1,693.4 million at December 31, 2018), which is due on January 1, 2028, (ii) principal (€283.0 million at December 31, 2018) associated with our loan receivable from UPC Germany that was issued in June 2016 and matures on January 15, 2023 (the **2016 UPC Germany Loan Receivable**) and (iii) principal (€230.0 million at December 31, 2018) associated with our loan receivable from UPC Germany that was issued in December 2015 and matures on February 15, 2026 (the **2015 UPC Germany Loan Receivable**). Amounts loaned to UPC Germany pursuant to the 2016 UPC Germany Loan Receivable and the 2015 UPC Germany Loan Receivable agreements are subject to certain restrictions contained in the instruments governing our indebtedness. The interest rate on the noncurrent portion of the 2012 UPC Germany Loan Receivable is fixed at 4.89% throughout the term of the agreement. The interest rates on the 2016 UPC Germany Loan Receivable and 2015 UPC Germany Loan Receivable, which are subject to adjustment, were 4.90% and 5.25%, respectively, as of December 31, 2018. The increase in the principal amount of the noncurrent portion of the 2012 UPC Germany Loan Receivable during 2018 includes (a) the transfer of €2,046.4 million of principal from the current portion of the 2012 UPC Germany Loan Receivable and (b) cash repayments of €353.0 million.

(d) Represents various non-interest bearing related-party payables that may be cash or loan settled.

(e) Represents a loan payable to our shareholder, UPC Germany, that originated in December 2010 (the **Shareholder Loan**). The Shareholder Loan bears interest at 8.125% per annum and accrued interest is generally transferred to the loan balance annually on January 1. All principal and accrued interest on this loan (collectively €507.5 million at December 31, 2018) is due and payable on January 1, 2030. The net increase in the principal amount during 2018 includes (i) a non-cash increase of €146.7 million related to the settlement of related-party payables and (ii) the transfer of €25.2 million in non-cash accrued interest to the loan balance. The net increase in the principal amount during 2017 includes (a) the transfer of €11.9 million in non-cash accrued interest to the loan balance and (b) a non-cash increase of €2.6 million related to the settlement of related-party payables. The increase in the principal amount during 2016 includes (1) a non-cash increase of €84.8 million related to the settlement of related-party payables, (2) a non-cash decrease of €57.3 million related to the settlement of amounts against the 2012 UPC Germany Loan Receivable and (3) the transfer of €10.2 million in non-cash accrued interest to the loan balance.

Equity transactions. In connection with the exercise of Liberty Global share appreciation rights and the vesting of Liberty Global restricted share awards held by certain employees of our subsidiaries, we recorded aggregate capital charges of €2.6 million, €2.8 million and €3.9 million during 2018, 2017 and 2016, respectively, in our consolidated statements of changes in owner's deficit. We and Liberty Global have agreed that these capital charges will be based on the fair value of the underlying Liberty Global shares associated with share-based incentive awards that vest or are exercised during the period, subject to any reduction that is necessary to ensure that the capital charge does not exceed the amount of share-based compensation expense recorded by our company with respect to Liberty Global share-based incentive awards.

(17) Commitments and Contingencies

Commitments

In the normal course of business, we have entered into agreements that commit our company to make cash payments in future periods with respect to non-cancellable operating leases, purchases of customer premises and other equipment and services, network and connectivity commitments, programming contracts and other items. These include several long-term agreements with Deutsche Telekom and its affiliates with respect to usage and access for underground cable duct space, the use of fiber optic transmission systems, tower and facility space. In general, these agreements primarily impose fixed prices for a limited period of time, which may then be raised to reflect additional services requested and increased costs, subject to index-linked limitations. Some agreements impose prices based on the cost to Deutsche Telekom for services that are passed through to us. In accordance with E.U.-IFRS, we treat these agreements as operating rather than finance leases or as other commitments, as applicable.

Details of significant lease agreements, including lease agreements with Deutsche Telekom, are as follows:

Lease	Original terms	Remaining terms	Terms of renewal	Purchase options	Contingent rent
Building	1 - 20 years	1 - 13 years	1 - 5 years	No	No
Dark fiber	1 - 20 years	1 - 20 years	1 - 5 years	No	No
Colocation area	1 - 14 years	1 - 12 years	1 month - 1 year	No	No
Cable ducts	1 - 30 years	1 - 18 years	1 - 5 years	No	No

As of December 31, 2018, our operating leases, purchase commitments, network and connectivity commitments, programming obligations and other commitments are set forth in the following table. The commitments included in this table do not reflect any liabilities that are included in our December 31, 2018 consolidated balance sheet.

	Payments due during:						
	2019	2020	2021	2022	2023	Thereafter	Total
	in millions						
Operating leases	€ 103.0	€ 99.2	€ 95.8	€ 94.5	€ 92.0	€ 592.0	€ 1,076.5
Purchase commitments (a)	120.6	36.7	4.6	4.6	4.6	4.6	175.7
Network and connectivity commitments	39.0	8.9	3.8	3.6	3.5	23.8	82.6
Programming commitments	37.1	15.9	—	—	—	—	53.0
Other commitments	0.1	0.1	0.1	0.1	—	—	0.4
Total	€ 299.8	€ 160.8	€ 104.3	€ 102.8	€ 100.1	€ 620.4	€ 1,388.2

(a) Includes €10.0 million of related-party purchase obligations due during 2019.

Our operating leases include indefinite-lived lease agreements with Deutsche Telekom for cable ducts. Building, car and office equipment leases are also included in our operating leases. During 2018, the aggregate fees related to the indefinite-lived lease agreements were €76.5 million. We have the legal right to cancel these agreements with a notice period of 24 months, however, the technological requirements to replace leased capacity represent economic penalties that would result in the reasonably assured continuance of the leases for a longer period of time. Due to German law governing the statute of limitations, the agreements in effect represent a maximum lease term of 30 years, after which time Deutsche Telekom has certain additional rights under the lease. Accordingly, the lease amounts included in the above table reflect payments under the Deutsche Telekom lease agreements through the applicable statutory termination dates.

We expect that in the ordinary course of business, operating leases that expire generally will be renewed or replaced by similar leases. Expenses for operating leases included in our consolidated statements of operations were €104.7 million, €105.0 million and €105.8 million during 2018, 2017 and 2016, respectively.

Purchase commitments include unconditional and legally binding obligations related to (i) the purchase of customer premises and other equipment and (ii) certain service-related commitments, including call center, information technology and maintenance services.

Network and connectivity commitments include certain repair and maintenance, fiber capacity and energy commitments.

Programming commitments consist of obligations associated with certain of our programming and copyright contracts that are enforceable and legally binding on us as we have agreed to pay minimum fees without regard to (i) the actual number of subscribers to the programming services, (ii) whether we terminate service to a portion of our subscribers or dispose of a portion of our distribution systems or (iii) whether we discontinue our premium sports services. Programming commitments do not include increases in future periods associated with contractual inflation or other price adjustments that are not fixed. Accordingly, the amounts reflected in the above table with respect to these contracts are significantly less than the amounts we expect to pay in these periods under these contracts. Historically, payments to programming vendors have represented a significant portion of our

operating costs, and we expect that this will continue to be the case in future periods. In this regard, during 2018, 2017 and 2016, our third-party programming and copyright costs aggregated €145.9 million, €147.3 million and €143.0 million, respectively.

In addition to the commitments set forth in the table above, we have significant commitments under derivative instruments, pursuant to which we expect to make payments in future periods. For information regarding our derivative instruments, including the net cash paid or received in connection with these instruments during 2018, 2017 and 2016, see note 6.

Guarantees and Other Credit Enhancements

In the ordinary course of business, we may provide (i) indemnifications to our lenders, our vendors and certain other parties and (ii) performance and/or financial guarantees to local municipalities, our customers and vendors. Historically, these arrangements have not resulted in our company making any material payments and we do not believe that they will result in material payments in the future.

Legal and Regulatory Proceedings and Other Contingencies

Telekom Deutschland Litigation. On December 28, 2012, we filed a lawsuit against Telekom Deutschland GmbH (**Telekom Deutschland**), a subsidiary of Deutsche Telekom, in which we assert that we pay excessive prices for the co-use of Telekom Deutschland's cable ducts in our footprint. The Federal Network Agency approved rates for the co-use of certain ducts of Telekom Deutschland in March 2011. Based in part on these approved rates, we sought a reduction of the annual lease fees (approximately €75 million for 2018) by approximately five-sixths. In addition, we are seeking the return of similarly calculated overpayments from 2009 through the ultimate settlement date, plus accrued interest. In October 2016, the first instance court dismissed this action and in March 2018, the court of appeal dismissed our appeal of the first instance court's decision and did not grant permission to appeal further to the Federal Court of Justice. We have filed a motion with the Federal Court of Justice to grant permission to appeal. The resolution of this matter may take several years, and no assurance can be given that our claims will be successful. Any recovery by us will not be reflected in our consolidated financial statements until such time as the final disposition of this matter has been reached. If this matter is settled subsequent to the completion of the sale of our company to Vodafone Group plc, Liberty Global is entitled to 50% of any amounts recovered, plus 50% of the net present value of certain cost savings in future periods that are attributable to the favorable resolution of this matter, less 50% of associated legal or other third-party fees paid post-completion of the sale of our company to Vodafone Group plc.

Other Regulatory Issues. Video distribution, broadband internet, fixed-line telephony, mobile and content businesses are subject to significant regulation and supervision by various regulatory bodies, including state authorities in the jurisdictions in which we operate, and German and European Union (**E.U.**) authorities. Adverse regulatory developments could subject our businesses to a number of risks. Regulation, including conditions imposed on us by competition or other authorities as a requirement to close acquisitions or dispositions, could limit growth, revenue and the number and types of services offered and could lead to increased operating costs and property, equipment and intangible asset additions. In addition, regulation may restrict our operations and subject them to further competitive pressure, including pricing restrictions, interconnect and other access obligations, and restrictions or controls on content, including content provided by third parties. Failure to comply with current or future regulation could expose our businesses to various penalties.

In addition to the foregoing items, we have contingent liabilities related to matters arising in the ordinary course of business including (i) legal proceedings, (ii) issues involving VAT and wage, property, withholding and other tax issues and (iii) disputes over interconnection, programming, copyright and channel carriage fees. While we generally expect that the amounts required to satisfy these contingencies will not materially differ from any estimated amounts we have accrued, no assurance can be given that the resolution of one or more of these contingencies will not result in a material impact on our results of operations, cash flows or financial position in any given period. Due, in general, to the complexity of the issues involved and, in certain cases, the lack of a clear basis for predicting outcomes, we cannot provide a meaningful range of potential losses or cash outflows that might result from any unfavorable outcomes.

(18) Disclosures According to Generally Accepted Accounting Principles in Germany

Details of our average employee calculations are as follows, which are based on quarterly averages:

	December 31,	
	2018	2017
Average aggregate number of full-time and part-time employees	2,773	2,691
Average number of full-time equivalent employees:		
Included in operating departments (a)	1,537	1,587
Included in administration departments (b)	1,173	1,063
Total	2,710	2,650

(a) Our operating departments include network and customer operations and customer services.

(b) Our administration departments consist of sales and marketing, finance, information technology and other general services.

Our auditor has received the following remuneration for the respective services:

	Year ended December 31,		
	2018	2017	2016
		in millions	
Audit of financial statements	€ 0.7	€ 0.8	€ 0.8
Assurance services	0.3	0.3	0.2
Total	€ 1.0	€ 1.1	€ 1.0

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis, which should be read in conjunction with our consolidated financial statements, is intended to assist in providing an understanding of our results of operations and financial condition and is organized as follows:

- *Overview.* This section provides a general description of our business, our product offerings and recent events.
- *Results of Operations.* This section provides an analysis of our results of operations for the years ended December 31, 2018, 2017 and 2016.
- *Liquidity and Capital Resources.* This section provides an analysis of our parent and subsidiary liquidity, consolidated statements of cash flows and contractual commitments.

The capitalized terms used below have been defined in the notes to our consolidated financial statements. In the following text, the terms "we," "our," "our company" and "us" may refer, as the context requires, to Unitymedia or collectively to Unitymedia and its subsidiaries.

Overview

General

We are a subsidiary of Liberty Global that provides video, broadband internet and fixed-line telephony services over our broadband communications network and mobile services as a mobile virtual network operator (**MVNO**) to residential customers and businesses. We are the second largest cable operator in Germany and largest cable operator in the German federal states of North Rhine-Westphalia, Hesse and Baden-Württemberg in terms of the number of customers.

We focus on achieving organic revenue and customer growth in our broadband communications operations by developing and marketing bundled entertainment and communications services, and extending and upgrading the quality of our networks where appropriate. While we seek to obtain new customers, we also seek to maximize the average revenue we receive from each household by increasing the penetration of advanced services, composed of enhanced video, broadband internet, fixed-line telephony and mobile services, with existing customers through product bundling and upselling, or by migrating basic video customers to enhanced video services that include various incremental service offerings, such as premium subscription channels, high definition programming and subscription video-on-demand (**SVoD**) services. We plan to continue to employ this strategy to achieve organic revenue and subscriber growth.

Operations

In our upgraded network coverage area, we provide an integrated triple-play (and in some instances, quadruple-play) service offering that allows our residential subscribers to access enhanced video, broadband internet, fixed-line telephony and mobile services in addition to our basic video services as follows:

- <u>Video Services.</u> As of December 31, 2018, we provided basic and enhanced video services to 48% of the homes passed by our network. Our basic video channels are unencrypted and, as a result, subscribers who have the necessary equipment and who pay the monthly subscription fee for our basic package are able to watch our basic video channels. Our enhanced video service offerings include premium subscription channels and other encrypted content, such as SVoD services. As of December 31, 2018, 26% of our video base subscribed to enhanced video services. We provide basic video services via individual contracts with single dwelling units or bulk contracts with landlords or housing associations or with third parties that operate and administer the in-building networks on behalf of housing associations (**Professional Operators**).
- <u>Broadband Internet Services.</u> Our current service portfolio consists of services with download speeds of up to 400 Mbps with no time or data volume restrictions. Our customers can choose between various packages and bundles. As of December 31, 2018, we provided internet services to 28% of our two-way homes passed.

- *Fixed-line Telephony Services.* We market fixed-line telephony services principally as a component of our product bundles, but also on a standalone basis. As of December 31, 2018, we provided fixed-line telephony services to 26% of our two-way homes passed.

- *Mobile Services.* As an MVNO, we offer mobile voice and data services to our customers as a component of our product bundles or on a standalone basis.

As of December 31, 2018, we served 13,279,300 revenue generating units (**RGUs**), consisting of 6,283,000 video RGUs (including 1,607,500 enhanced video RGUs), 3,615,500 broadband internet RGUs and 3,380,800 fixed-line telephony RGUs over a broadband communications network that passed 13,136,200 homes. In addition, at December 31, 2018, we served 283,300 mobile subscribers.

Competition and Other External Factors

Although we continue to increase revenue and RGUs by increasing the penetration of our advanced services, we are experiencing significant competition. Key competitors of our cable business include:

(i) satellite-based and other broadband cable or fiber-based providers of free-to-air programming that compete primarily with our basic video products;

(ii) Sky Deutschland AG, Deutsche Telekom and several other content providers with their respective video offerings that compete primarily with our enhanced video products; and

(iii) Deutsche Telekom and alternative digital subscriber line and fiber-based operators with their bundled offerings that compete primarily with our broadband internet and fixed-line telephony products.

In addition to competition, our operations are subject to macroeconomic, political and other risks that are outside of our control. For example, high levels of sovereign debt in the U.S. and several European countries, combined with weak growth and high unemployment, could potentially lead to fiscal reforms (including austerity measures), tax increases, sovereign debt restructurings, currency instability, increased counterparty credit risk, high levels of volatility and disruptions in the credit and equity markets, as well as other outcomes that might adversely impact our company. Given our significant exposure to the euro, the occurrence of any of these events within the eurozone countries could have an adverse impact on, among other matters, our liquidity and cash flows.

On June 23, 2016, the United Kingdom (**U.K.**) held a referendum in which U.K. citizens voted in favor of, on an advisory basis, an exit from the E.U., commonly referred to as "**Brexit**." Failing the implementation of an agreed extension, the U.K. will leave the E.U. on March 29, 2019 under a so-called "hard Brexit" or "no-deal Brexit" without agreements on trade, finance and other key elements. The foregoing has caused considerable uncertainty as to Brexit's impact on the free movement of goods, services, people, data and capital between the U.K. and the E.U., customer behavior, economic conditions, interest rates, currency exchange rates and availability of capital. The effects of Brexit could adversely affect our business, results of operations, financial condition and liquidity.

In general, our ability to increase or maintain the fees we receive for our services is limited by competitive and, to a lesser degree, regulatory factors. The competition we face in our markets, as well as any decline in the economic environment, could adversely impact our ability to increase or maintain our revenue, RGUs, Adjusted Segment EBITDA or liquidity. We currently are unable to predict the extent of any of these potential adverse effects.

Results of Operations

General

Most of our revenue is subject to VAT or similar revenue-based taxes. Any increases in these taxes could have an adverse impact on our ability to maintain or increase our revenue to the extent that we are unable to pass such tax increases on to our customers. In the case of revenue-based taxes for which we are the ultimate taxpayer, we will also experience increases in our operating costs and expenses and corresponding declines in our Adjusted Segment EBITDA and Adjusted Segment EBITDA margin to the extent of any such tax increases.

We pay interconnection fees to other telephony providers when calls or text messages from our subscribers terminate on another network, and we receive similar fees from such providers when calls or text messages from their customers terminate on

our networks or networks that we access through MVNO or other arrangements. The amounts we charge and incur with respect to fixed-line telephony and mobile interconnection fees are subject to regulatory oversight. To the extent that regulatory authorities introduce fixed-line or mobile termination rate changes, we would experience prospective changes in our interconnect revenue and/or costs. The ultimate impact of any such changes in termination rates on our Adjusted Segment EBITDA would be dependent on the call or text messaging patterns that are subject to the changed termination rates.

As further described in note 2 to our consolidated financial statements, we adopted IFRS 15 on January 1, 2018 using the cumulative effect transition method. As such, the comparative information for 2017 and 2016 contained within our consolidated financial statements and notes thereto for 2017 and 2016 has not been restated and continues to be reported under the accounting standards in effect for such years. In order to provide a more meaningful comparison, in the following discussion and analysis of our results of operations for 2018, as compared to 2017, we present our revenue for 2017 on a pro forma basis that gives effect to the adoption of IFRS 15 as if such adoption had occurred on January 1, 2017. However, in the discussion and analysis of our results of operations for 2017, as compared to 2016, we present all amounts on a historical basis.

The adoption of IFRS 15 (i) increased our 2018 revenue and Adjusted Segment EBITDA by €11.6 million and (ii) on a pro forma basis as if the adoption of IFRS 15 had occurred on January 1, 2017, decreased our 2017 revenue and Adjusted Segment EBITDA by €3.8 million.

2018 compared to 2017

Revenue

Our revenue is derived primarily from residential and B2B communications services, including video, broadband internet, fixed-line telephony and mobile services. Variances in the subscription revenue that we receive from our customers are a function of (i) changes in the number of RGUs or mobile subscribers outstanding during the period and (ii) changes in average monthly subscription revenue per average RGUs or mobile subscribers, as applicable (**ARPU**). Changes in ARPU can be attributable to (a) changes in prices, (b) changes in bundling or promotional discounts, (c) changes in the tier of services selected, (d) variances in subscriber usage patterns and (e) the overall mix of cable and mobile products during the period. In the following discussion, we discuss ARPU changes in terms of the net impact of the above factors on the ARPU that is derived from our video, broadband internet, fixed-line telephony and mobile products.

Our revenue by major category is set forth below:

	Year ended December 31, 2018	Year ended December 31, 2017 pro forma	Increase (decrease) €	Increase (decrease) %
		in millions		
Residential revenue:				
Residential cable revenue (a):				
Subscription revenue (b):				
Video	€ 1,042.0	€ 1,058.4	€ (16.4)	(1.5)
Broadband internet	684.8	640.9	43.9	6.8
Fixed-line telephony	447.3	441.9	5.4	1.2
Total subscription revenue	2,174.1	2,141.2	32.9	1.5
Non-subscription revenue	154.4	99.4	55.0	55.3
Total residential cable revenue	2,328.5	2,240.6	87.9	3.9
Residential mobile revenue (c):				
Subscription revenue (b)	14.3	16.5	(2.2)	(13.3)
Non-subscription revenue	1.4	36.7	(35.3)	(96.2)
Total residential mobile revenue	15.7	53.2	(37.5)	(70.5)
Total residential revenue	2,344.2	2,293.8	50.4	2.2
B2B revenue (d):				
Subscription revenue	74.0	53.9	20.1	37.3
Non-subscription revenue	53.3	24.8	28.5	114.9
Total B2B revenue	127.3	78.7	48.6	61.8
Other revenue	5.7	6.1	(0.4)	(6.6)
Total	€ 2,477.2	€ 2,378.6	€ 98.6	4.1

(a) Residential cable subscription revenue includes amounts received from subscribers for ongoing services and the recognition of deferred installation revenue over the associated contract period. Residential cable non-subscription revenue includes, among other items, channel carriage fees, installation revenue, late fees and revenue from the sale of equipment.

(b) Residential subscription revenue from subscribers who purchase bundled services at a discounted rate is generally allocated proportionally to each service based on the standalone price for each individual service. As a result, changes in the standalone pricing of our cable and mobile products or the composition of bundles can contribute to changes in our product revenue categories from period to period.

(c) Residential mobile subscription revenue includes amounts received from subscribers for ongoing services. Residential mobile non-subscription revenue includes, among other items, interconnect revenue and revenue from sales of mobile handsets and other devices.

(d) B2B subscription revenue represents revenue from services to certain SOHO subscribers. SOHO subscribers pay a premium price to receive expanded service levels along with video, broadband internet, fixed-line telephony or mobile services that are the same or similar to the mass marketed products offered to our residential subscribers. A portion of the increases in our B2B subscription revenue is attributable to the conversion of certain residential subscribers to SOHO subscribers. B2B non-subscription revenue includes business broadband internet, video, fixed-line telephony, mobile and data services offered to medium to large enterprises and, on a wholesale basis, to other operators.

The details of the pro forma increase in our revenue during 2018, as compared to 2017, are set forth below:

	Subscription revenue (a)	Non-subscription revenue	Total
		in millions	
Increase in residential cable subscription revenue due to change in:			
Average number of RGUs (b)	€ 20.4	€ —	€ 20.4
ARPU (c)	12.5	—	12.5
Increase in residential cable non-subscription revenue (d)	—	55.0	55.0
Total increase in residential cable revenue	32.9	55.0	87.9
Decrease in residential mobile revenue (e)	(2.2)	(35.3)	(37.5)
Increase in B2B revenue (f)	20.1	28.5	48.6
Decrease in other revenue	—	(0.4)	(0.4)
Total	€ 50.8	€ 47.8	€ 98.6

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(a) Residential cable subscription revenue includes revenue from multi-year bulk agreements with landlords or housing associations or with third parties that operate and administer the in-building networks on behalf of housing associations. These bulk agreements, which generally allow for the procurement of the basic video signals at volume-based discounts, provide access to approximately two-thirds of our video subscribers. Our bulk agreements are, to a significant extent, medium- and long-term contracts. As of December 31, 2018, bulk agreements covering approximately 36% of the video subscribers that we serve expire by the end of 2020 or are terminable on 30-days notice. During the three months ended December 31, 2018, our 20 largest bulk agreement accounts generated approximately 9% of our total revenue (including estimated amounts billed directly to the building occupants for digital video, broadband internet and fixed-line telephony services). No assurance can be given that our bulk agreements will be renewed or extended on financially equivalent terms, or at all.

(b) The increase in residential cable subscription revenue related to a change in the average number of RGUs is attributable to the net effect of (i) an increase in the average number of broadband internet RGUs, (ii) a decline in the average number of video RGUs and (iii) an increase in the average number of fixed-line telephony RGUs.

(c) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) an improvement in RGU mix and (ii) a net increase due to (a) higher ARPU from broadband internet services and (b) lower ARPU from fixed-line telephony and video services.

(d) The increase in residential cable non-subscription revenue is primarily due to an increase in channel carriage fee revenue, including (i) a €31.2 million benefit related to the settlement of prior-year fees in connection with the execution of a new carriage fee contract during the first quarter of 2018, (ii) a €11.7 million benefit related to the settlement of prior-year fees in connection with the execution of a new carriage fee contract during the third quarter of 2018 and (iii) a decrease of €9.2 million attributable to the June 2017 discontinuation of our analog video services. Channel carriage revenue relates to fees received for the carriage of certain channels included in our basic and enhanced video offerings. This channel carriage fee revenue is subject to contracts that expire or are otherwise terminable by either party on various dates ranging from 2019 through 2028. The aggregate amount of revenue related to these channel carriage contracts represented approximately 4% of our total revenue during the three months ended December 31, 2018. No assurance can be given that these contracts will be renewed or extended on financially equivalent terms, or at all.

(e) The decrease in residential mobile non-subscription revenue is primarily due to a decrease in mobile handset sales as a result of the transfer of our wholesale handset program to another subsidiary within Liberty Global's central and corporate operations effective January 1, 2018.

(f) The increase in B2B subscription revenue is primarily attributable to an increase in the average number of broadband internet and fixed-line telephony SOHO subscribers. The increase in B2B non-subscription revenue is primarily due to an increase in interconnect revenue related to wholesale telephony services, which typically generate relatively low margins.

OpEx

OpEx includes programming and copyright costs, network operations, interconnect and access costs, costs of mobile handsets and other devices, customer operations, customer care and other costs related to our operations. Our network operating costs include significant expenses incurred pursuant to long-term agreements with Deutsche Telekom for the use of assets and other services. Programming and copyright costs, which represent the majority of our direct costs, are subject to increase in future periods as a result of (i) higher costs associated with the expansion of our digital video content, including rights associated with ancillary product offerings and rights that provide for the broadcast of live sporting events, (ii) rate increases and (iii) growth in the number of our enhanced video subscribers. In addition, we are subject to inflationary pressures with respect to our staff-related and other costs. Any cost increases that we are not able to pass on to our subscribers through rate increases would result in increased pressure on our operating margins.

The details of our OpEx costs are as follows:

	Year ended December 31,		Increase (decrease)	
	2018	2017	€	%
		in millions		
Direct costs (programming and copyright, interconnect and other)	€ 215.7	€ 231.8	€ (16.1)	(6.9)
Core network and IT	144.6	145.5	(0.9)	(0.6)
Customer service costs	96.9	99.5	(2.6)	(2.6)
Personnel costs	85.2	85.9	(0.7)	(0.8)
Outsourced labor	30.0	28.6	1.4	4.9
Business services	19.7	17.5	2.2	12.6
Other indirect costs	9.9	12.0	(2.1)	(17.5)
Total	€ 602.0	€ 620.8	€ (18.8)	(3.0)

Our total OpEx decreased €18.8 million or 3.0% during 2018, as compared to 2017. This decrease includes the following factors:

- A decrease in direct costs of €16.1 million or 6.9%, primarily due to the net effect of (i) a decrease in mobile handset and other device costs as a result of the transfer of our wholesale handset program, as described in *Revenue* above, (ii) an increase in interconnect and access costs, primarily attributable to higher call volumes, and (iii) a decrease in programming and copyright costs, primarily due to (a) an €8.9 million decrease associated with the reassessment of an accrual in connection with the settlement of prior-year fees related to the execution of a new carriage fee contract, as described in *Revenue* above, and (b) an €8.3 million increase associated with the settlement of prior-year fees in connection with the execution of a new carriage fee contract, as described in *Revenue* above; and

- A decrease in customer service costs of €2.6 million or 2.6%, primarily due to a decrease in third-party call center costs.

SG&A

SG&A expenses include human resources, information technology, general services, management, finance, legal, external sales and marketing costs, share-based compensation and other general expenses. As noted above under *OpEx*, we are subject to inflationary pressures with respect to our staff-related and other costs.

The details of our SG&A expenses are as follows:

	Year ended December 31,		Increase (decrease)	
	2018	2017	€	%
		in millions		
Personnel costs	€ 116.7	€ 107.1	€ 9.6	9.0
Marketing and selling	88.9	87.6	1.3	1.5
Business services	32.0	32.4	(0.4)	(1.2)
Core network and IT	5.6	4.5	1.1	24.4
Other indirect costs	19.5	19.4	0.1	0.5
Total	€ 262.7	€ 251.0	€ 11.7	4.7

Our total SG&A expenses increased €11.7 million or 4.7% during 2018, as compared to 2017, primarily due to an increase in personnel costs. Personnel costs increased of €9.6 million or 9.0%, primarily due to the net effect of (i) higher staffing levels, (ii) a decrease in temporary personnel costs and (iii) an increase in share-based compensation expense.

Related-party fees and allocations, net

We recorded related-party fees and allocations, net, related to our estimated share of the applicable costs incurred by Liberty Global subsidiaries of €262.0 million and €234.3 million during 2018 and 2017, respectively. These charges generally relate to management, finance, legal, technology, marketing and other corporate and administrative services that support our company's operations, including the use of the UPC trademark. For additional information, see note 16 to our consolidated financial statements.

Impairment, restructuring and other operating items, net

We recognized impairment, restructuring and other operating items, net, of €9.3 million during 2018, compared to €9.1 million during 2017. The 2018 amount includes (i) restructuring charges of €18.3 million, (ii) the release of a provision for legal contingencies of €10.3 million, (iii) asset impairments of €5.3 million and (iv) gains on disposal of assets of €4.0 million. The 2017 amount includes (a) provisions for legal contingencies of €9.7 million, (b) gains on disposal of assets of €5.2 million and (c) restructuring charges of €2.4 million.

Depreciation and amortization expense

Our depreciation and amortization expense decreased €19.6 million or 2.5% during 2018, as compared to 2017. This decrease is primarily due to the net effect of (i) an increase associated with property and equipment additions related to the installation of customer premises equipment, the expansion and upgrade of our networks and other capital initiatives, (ii) a decrease associated with certain assets becoming fully depreciated and (iii) a decrease in the amortization of customer relationships.

Net financial and other expense

Our net financial and other expense primarily includes interest expense, interest income, foreign currency transaction gains or losses, realized and unrealized gains or losses on derivative instruments, losses on debt modification and extinguishment and other income, net. As further described below, we recorded net financial and other expense of €200.7 million and €417.1 million during 2018 and 2017, respectively.

Interest expense – third-party

Our third-party interest expense decreased €34.0 million or 9.2% during 2018, as compared to 2017, primarily due to lower weighted average interest rates. We have completed various financing transactions that have lowered average interest rates and extended debt maturities. For additional information regarding our outstanding indebtedness, see note 13 to our consolidated

financial statements.

It is possible that the interest rates on (i) any new borrowings could be higher than the current interest rates on our existing indebtedness and (ii) our variable-rate indebtedness could increase in future periods. As further discussed in note 6 to our consolidated financial statements, we use derivative instruments to manage our interest rate risks.

In July 2017, the U.K. Financial Conduct Authority (the authority that regulates LIBOR) announced that it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. Currently, it is not possible to predict the exact transitional arrangements for calculating applicable reference rates that may be made in the U.K., the U.S., the Eurozone or elsewhere given that a number of outcomes are possible, including the cessation of the publication of one or more reference rates. Our loan documents contain provisions that contemplate alternative calculations of the base rate applicable to our LIBOR-indexed debt to the extent LIBOR is not available, which alternative calculations we do not anticipate will be materially different from what would have been calculated under LIBOR. Additionally, no mandatory prepayment or redemption provisions would be triggered under our loan documents in the event that the LIBOR rate is not available. It is possible, however, that any new reference rate that applies to our LIBOR-indexed debt could be different than any new reference rate that applies to our LIBOR-indexed derivative instruments. We anticipate managing this difference and any resulting increased variable-rate exposure through modifications to our debt and/or derivative instruments, however future market conditions may not allow immediate implementation of desired modifications and/or the company may incur significant associated costs.

Interest expense – related-party

Our related-party interest expense increased €4.3 million or 17.1% during 2018, as compared to 2017, primarily due to higher average outstanding related-party debt balances. Our related-party interest expense primarily relates to the Shareholder Loan. For additional information, see note 16 to our consolidated financial statements.

Realized and unrealized gains (losses) on derivative instruments, net

Our realized and unrealized gains or losses on derivative instruments include (i) unrealized changes in the fair values of our derivative instruments that are non-cash in nature until such time as the derivative contracts are fully or partially settled and (ii) realized gains or losses upon the full or partial settlement of the derivative contracts.

Our realized and unrealized gains (losses) on derivative instruments, net, were €214.4 million and (€309.0 million) during 2018 and 2017, respectively. The gain during 2018 is attributable to the net effect of (i) a net gain associated with changes in the relative value of the U.S. dollar and the euro and (ii) a net loss associated with changes in certain market interest rates. In addition, the gain during 2018 includes a net loss of €18.4 million resulting from changes in our credit risk valuation adjustments. The loss during 2017 is attributable to the net effect of (a) a net loss associated with changes in the relative value of the U.S. dollar and the euro and (b) a net gain associated with changes in certain market interest rates. In addition, the loss during 2017 includes a net loss of €57.8 million resulting from changes in our credit risk valuation adjustments.

For additional information regarding our derivative instruments, see notes 6 and 7 to our consolidated financial statements.

Foreign currency transaction gains (losses), net

We recognized foreign currency transaction gains (losses), net, of (€145.4 million) and €304.1 million during 2018 and 2017, respectively. These amounts primarily relate to the remeasurement of our U.S. dollar-denominated indebtedness.

Losses on debt modification and extinguishment, net

We recognized losses on debt modification and extinguishment, net, of €11.5 million and €77.2 million during 2018 and 2017, respectively, attributable to (i) the payment of redemption premiums of €9.5 million and €64.2 million, respectively, and (ii) the write-off of unamortized deferred financing costs and discounts of €2.0 million and €13.0 million, respectively.

For additional information, see note 13 to our consolidated financial statements.

Other income, net

We recognized other income, net, of €106.8 million and €59.7 million during 2018 and 2017, respectively. These amounts primarily include (i) interest income of €109.0 million and €65.0 million, respectively, and (ii) realized and unrealized losses due to changes in the fair value of financial instruments of €2.4 million and €5.8 million, respectively.

Income tax expense

We recognized income tax expense of €160.9 million and €58.5 million during 2018 and 2017, respectively.

The income tax expense during 2018 and 2017 differs from the expected income tax expense of €118.4 million and €17.7 million, respectively (based on the German group income tax rate of 32.47% for both periods), primarily due to the negative impact of certain permanent differences between the financial and tax accounting treatment of interest and other items.

For additional information regarding our income taxes, see note 14 to our consolidated financial statements.

Net earnings (loss)

We reported net income (loss) of €203.7 million and (€4.0 million) during 2018 and 2017, respectively.

Gains or losses associated with (i) changes in the fair values of derivative instruments and (ii) movements in foreign currency exchange rates are subject to a high degree of volatility and, as such, any gains from these sources do not represent a reliable source of income. In the absence of significant gains in the future from these sources or from other non-operating items, our ability to achieve earnings is largely dependent on our ability to increase our Adjusted Segment EBITDA to a level that more than offsets the aggregate amount of our (a) share-based compensation expense, (b) related-party fees and allocations, net, (c) impairment, restructuring and other operating items, (d) depreciation and amortization, (e) net financial and other expenses and (f) income tax expenses.

Subject to the limitations included in our various debt instruments, we expect that we will maintain our debt at current levels relative to our Covenant EBITDA. As a result, we expect that we will continue to report significant levels of interest expense. For information regarding our expectations with respect to trends that may affect certain aspects of our operating results in future periods, see the discussion under *Overview* above. For information regarding the reasons for changes in specific line items in our consolidated statements of operations, see the above discussion.

2017 compared to 2016

Revenue

Our revenue by major category is set forth below.

	Year ended December 31,		Increase (decrease)	
	2017	2016	€	%
		in millions		
Residential revenue:				
Residential cable revenue (a):				
Subscription revenue (b):				
Video	€ 1,038.2	€ 1,026.0	€ 12.2	1.2
Broadband internet	619.4	568.7	50.7	8.9
Fixed-line telephony	440.9	433.1	7.8	1.8
Total subscription revenue	2,098.5	2,027.8	70.7	3.5
Non-subscription revenue	146.1	158.5	(12.4)	(7.8)
Total residential cable revenue	2,244.6	2,186.3	58.3	2.7
Residential mobile revenue (c):				
Subscription revenue (b)	16.5	19.6	(3.1)	(15.8)
Non-subscription revenue	36.7	11.9	24.8	208.4
Total residential mobile revenue	53.2	31.5	21.7	68.9
Total residential revenue	2,297.8	2,217.8	80.0	3.6
B2B revenue (d):				
Subscription revenue	52.2	39.3	12.9	32.8
Non-subscription revenue	26.2	12.9	13.3	103.1
Total B2B revenue	78.4	52.2	26.2	50.2
Other revenue	6.1	7.4	(1.3)	(17.6)
Total	€ 2,382.3	€ 2,277.4	€ 104.9	4.6

(a) Residential cable subscription revenue includes amounts received from subscribers for ongoing services. Residential cable non-subscription revenue includes, among other items, channel carriage fees, installation revenue, late fees and revenue from the sale of equipment.

(b) Residential subscription revenue from subscribers who purchase bundled services at a discounted rate is generally allocated proportionally to each service based on the standalone price for each individual service. As a result, changes in the standalone pricing of our cable and mobile products or the composition of bundles can contribute to changes in our product revenue categories from period to period.

(c) Residential mobile subscription revenue includes amounts received from subscribers for ongoing services. Residential mobile non-subscription revenue includes, among other items, interconnect revenue and revenue from sales of mobile handsets and other devices.

(d) B2B subscription revenue represents revenue from services to certain SOHO subscribers. SOHO subscribers pay a premium price to receive expanded service levels along with video, broadband internet, fixed-line telephony or mobile services that are the same or similar to the mass marketed products offered to our residential subscribers. B2B non-subscription revenue includes business broadband internet, video, fixed-line telephony, mobile and data services offered to medium to large enterprises and, on a wholesale basis, to other operators.

The details of our revenue increase during 2017, as compared to 2016, are set forth below:

	Subscription revenue	Non-subscription revenue	Total
		in millions	
Increase in residential cable subscription revenue due to change in:			
Average number of RGUs (a)	€ 40.4	€ —	€ 40.4
ARPU (b)	30.3	—	30.3
Decrease in residential cable non-subscription revenue (c)	—	(12.4)	(12.4)
Total increase (decrease) in residential cable revenue	70.7	(12.4)	58.3
Increase (decrease) in residential mobile revenue (d)	(3.1)	24.8	21.7
Increase in B2B revenue (e)	12.9	13.3	26.2
Decrease in other revenue	—	(1.3)	(1.3)
Total	€ 80.5	€ 24.4	€ 104.9

(a) The increase in residential cable subscription revenue related to a change in the average number of RGUs is attributable to the net effect of (i) increases in the average number of broadband internet and fixed-line telephony RGUs and (ii) a decline in the average number of video RGUs.

(b) The increase in residential cable subscription revenue related to a change in ARPU is attributable to (i) an improvement in RGU mix and (ii) a net increase due to (a) higher ARPU from video and broadband internet services and (b) lower ARPU from fixed-line telephony services.

(c) The decrease in residential cable non-subscription revenue is primarily due to the net effect of (i) a decrease in channel carriage fee revenue, (ii) a decrease in interconnect revenue, primarily due to a decline in fixed-line telephony termination rates and volumes and (iii) an increase in installation revenue.

(d) The increase in residential mobile non-subscription revenue is primarily due to an increase in revenue from mobile handset sales of €25.2 million associated with the fourth quarter 2016 launch of a wholesale handset program.

(e) The increase in B2B subscription revenue is primarily attributable to increases in the average number of broadband internet and fixed-line telephony SOHO RGUs. The increase in B2B non-subscription revenue is primarily due to (i) higher interconnect revenue, mainly due to higher fixed-line telephony volumes, and (ii) an increase in revenue from data services.

OpEx

The details of our OpEx costs are as follows:

	Year ended December 31,		Increase (decrease)	
	2017	2016	€	%
		in millions		
Direct costs (programming and copyright, interconnect and other)	€ 231.8	€ 206.7	€ 25.1	12.1
Core network and IT	145.5	148.9	(3.4)	(2.3)
Customer service costs	99.5	90.8	8.7	9.6
Personnel costs	85.9	93.8	(7.9)	(8.4)
Outsourced labor	28.6	29.2	(0.6)	(2.1)
Business services	17.5	16.6	0.9	5.4
Other indirect costs	12.0	8.8	3.2	36.4
Total	€ 620.8	€ 594.8	€ 26.0	4.4

Our total OpEx increased €26.0 million or 4.4% during 2017, as compared to 2016. This increase includes the following factors:

- An increase in direct costs of €25.1 million or 12.1%, largely due to the net effect of (i) an increase in mobile handset and other device costs due to higher mobile handset sales volumes associated with the October 2016 launch of a wholesale handset program, (ii) a decrease in interconnect and access costs, largely attributable to lower rates and call volumes and (iii) an increase in programming and copyright costs, primarily due to higher costs for certain premium content and growth in the number of enhanced video subscribers;

- An increase in customer service costs of €8.7 million or 9.6%, primarily due to higher call center costs; and

- A decrease in personnel costs of €7.9 million or 8.4%, largely due to the net effect of (i) lower staffing levels, (ii) a higher average cost per employee and (iii) lower incentive compensation costs.

SG&A

The details of our SG&A expenses are as follows:

	Year ended December 31,		Increase (decrease)	
	2017	2016	€	%
	in millions			
Personnel costs	€ 107.1	€ 98.6	€ 8.5	8.6
Marketing and selling	87.6	96.3	(8.7)	(9.0)
Business services	32.4	31.2	1.2	3.8
Core network and IT	4.5	3.1	1.4	45.2
Other indirect costs	19.4	23.1	(3.7)	(16.0)
Total	€ 251.0	€ 252.3	€ (1.3)	(0.5)

Our total SG&A expenses decreased €1.3 million or 0.5% during 2017, as compared to 2016. This decrease includes the following factors:

- A decrease in external sales and marketing costs of €8.7 million or 9.0%, primarily due to lower costs associated with advertising campaigns; and

- An increase in personnel costs of €8.5 million or 8.6%, primarily due to higher staffing levels.

Related-party fees and allocations, net

We recorded related-party fees and allocations, net of €234.3 million during 2017, compared to €193.1 million during 2016. For additional information, see note 16 to our consolidated financial statements.

Impairment, restructuring and other operating items, net

We recognized impairment, restructuring and other operating items, net, of €9.1 million during 2017, compared to €75.0 million during 2016. The 2017 amount includes (i) provisions for legal contingencies of €9.7 million, (ii) gains on disposal of assets of €5.2 million and (iii) restructuring charges of €2.4 million. The 2016 amount includes (a) restructuring charges of €77.0 million associated with employee severance and termination costs related to certain reorganization activities and (b) a €3.2 million gain on disposal of assets.

Depreciation and amortization expense

Our depreciation and amortization expense decreased €51.3 million or 6.1% during 2017, as compared to 2016. This decrease is primarily due to the net effect of (i) an increase associated with property and equipment additions related to the installation of customer premises equipment, the expansion and upgrade of our networks and other capital initiatives, (ii) a decrease in the amortization of customer relationships, (iii) a decrease associated with certain assets becoming fully depreciated, (iv) a decrease in accelerated depreciation related to the disposal of certain assets in 2016 and (v) an increase in the amortization of subscriber acquisition costs.

Net financial and other expense

As further described below, we recorded net financial and other expense of €417.1 million and €377.9 million during 2017 and 2016, respectively.

Interest expense – third-party

Our third-party interest expense increased €4.8 million or 1.3% during 2017, as compared to 2016, primarily due to the net effect of (i) higher average outstanding third-party debt balances and (ii) lower weighted average interest rates. We have completed various financing transactions that have lowered average interest rates and extended debt maturities. For additional information regarding our outstanding indebtedness, see note 13 to our consolidated financial statements.

Interest expense – related-party

Our related-party interest expense increased €3.0 million or 13.5% during 2017, as compared to 2016, primarily due to (i) higher weighted average interest rates and (ii) higher average outstanding related-party debt balances. Our related-party interest expense relates to (a) the Shareholder Loan and (b) the UMI Loan. For additional information, see note 16 to our consolidated financial statements.

Realized and unrealized gains (losses) on derivative instruments, net

Our realized and unrealized gains (losses) on derivative instruments, net, were (€309.0 million) and €45.0 million during 2017 and 2016, respectively. The loss during 2017 is attributable to the net effect of (i) a net loss associated with changes in the relative value of the U.S. dollar and the euro and (ii) a net gain associated with changes in certain market interest rates. In addition, the loss during 2017 includes a net loss of €57.8 million resulting from changes in our credit risk valuation adjustments. The gain during 2016 is attributable to the net effect of (a) a net gain associated with changes in the relative value of the U.S. dollar and the euro and (b) a net loss associated with changes in certain market interest rates. In addition, the gain during 2016 includes a net loss of €1.4 million resulting from changes in our credit risk valuation adjustments.

For additional information regarding our derivative instruments, see notes 6 and 7 to our consolidated financial statements.

Foreign currency transaction gains (losses), net

We recognized foreign currency transaction gains (losses), net, of €304.1 million and (€67.7 million) during 2017 and 2016, respectively. These amounts primarily relate to the remeasurement of our U.S. dollar-denominated indebtedness.

Losses on debt modification and extinguishment, net

We recognized losses on debt modification and extinguishment, net, of €77.2 million and €3.9 million during 2017 and 2016, respectively, attributable to (i) the payment of redemption premiums of €64.2 million and €3.1 million, respectively, and (ii) the write-off of unamortized deferred financing costs and discounts of €13.0 million and €0.8 million, respectively.

For additional information, see note 13 to our consolidated financial statements.

Other income, net

We recognized other income, net, of €59.7 million and €35.6 million during 2017 and 2016, respectively. These amounts primarily include (i) interest income of €65.0 million and €40.1 million, respectively, and (ii) realized and unrealized losses due to changes in the fair value of financial instruments of €5.8 million and €4.9 million, respectively.

Income tax expense

We recognized income tax expense of €58.5 million and €27.9 million during 2017 and 2016, respectively.

The income tax expense during 2017 differs from the expected income tax expense of €17.7 million (based on the German group income tax rate of 32.47%), primarily due to the negative impact of certain permanent differences between the financial and tax accounting treatment of interest and other items.

The income tax expense during 2016 differs from the expected income tax benefit of €20.5 million (based on the German group income tax rate of 32.78%), primarily due to the negative impact of certain permanent differences between the financial and tax accounting treatment of interest and other items.

For additional information regarding our income taxes, see note 14 to our consolidated financial statements.

Net loss

We reported net losses of €4.0 million and €90.4 million during 2017 and 2016, respectively.

Liquidity and Capital Resources

Sources and Uses of Cash

Cash and cash equivalents

Although our consolidated operating subsidiaries generate cash from operating activities, the terms of our subsidiaries' debt instruments restrict our ability to access the liquidity of these subsidiaries. At December 31, 2018, substantially all of our consolidated cash and cash equivalents was held by our subsidiaries. In addition, our ability to access the liquidity of our subsidiaries may be limited by tax and legal considerations or other factors.

Liquidity of Unitymedia

Our sources of liquidity at the parent level include (i) our cash and cash equivalents, (ii) amounts due under the 2012 UPC Germany Loan Receivable, the 2015 UPC Germany Loan Receivable and the 2016 UPC Germany Loan Receivable, (iii) funding from UPC Germany (and ultimately from Liberty Global or other Liberty Global subsidiaries) in the form of loans or contributions, as applicable, and (iv) subject to certain restrictions as noted above, proceeds in the form of distributions or loans from Unitymedia Hessen, Unitymedia NRW, KBW or other subsidiaries.

Our corporate liquidity requirements include (i) corporate general and administrative expenses and (ii) interest payments on outstanding debt. From time to time, we may also require cash in connection with (a) the repayment of our debt, (b) the satisfaction of contingent liabilities or (c) acquisitions and other investment opportunities. No assurance can be given that funding from UPC Germany (and ultimately from Liberty Global or other Liberty Global subsidiaries), our subsidiaries or external sources would be available on favorable terms, or at all.

Liquidity of Unitymedia Hessen, Unitymedia NRW, KBW and our other operating subsidiaries

In addition to cash and cash equivalents, the primary sources of liquidity of Unitymedia Hessen, Unitymedia NRW, KBW and our other operating subsidiaries is cash provided by operations and, in the case of Unitymedia Hessen and Unitymedia NRW, any borrowing availability under the Unitymedia Credit Facilities. At December 31, 2018, we had aggregate borrowing capacity of €500.0 million under the Unitymedia Credit Facilities. For information regarding our borrowing availability under the Unitymedia Credit Facilities, see note 13 to our consolidated financial statements.

The liquidity of Unitymedia Hessen, Unitymedia NRW, KBW and our other operating subsidiaries is generally used to fund capital expenditures, debt service requirements and other liquidity requirements that may arise from time to time. For additional information regarding our consolidated cash flows, see the discussion under *Consolidated Statements of Cash Flows* below. Our subsidiaries may also require funding in connection with (i) the repayment of outstanding debt, (ii) acquisitions and other investment opportunities or (iii) distributions or loans to Unitymedia (and ultimately to Liberty Global or other Liberty Global subsidiaries). No assurance can be given that any external funding would be available to our subsidiaries on favorable terms, or at all.

Capitalization

At December 31, 2018, our outstanding consolidated third-party debt before deferred financing costs and accrued interest, together with our finance lease obligations, aggregated €8,017.2 million, substantially all of which is not due until 2024 or thereafter. For additional information regarding our debt maturities, see note 5 to our consolidated financial statements.

Our ability to service or refinance our debt and to maintain compliance with our leverage covenants is dependent primarily on our ability to maintain or increase our Covenant EBITDA and to achieve adequate returns on our property, equipment and intangible asset additions and acquisitions. Our ability to maintain or increase cash from our operations will depend on our future operating performance, which is in turn dependent, to some extent, on general economic, financial, competitive, market, regulatory and other factors, many of which are beyond our control. In addition, our ability to obtain additional debt financing is limited by the incurrence-based leverage covenants contained in our and our subsidiaries' various debt instruments. In this regard, if our Covenant EBITDA were to decline, our ability to obtain additional debt could be limited. No assurance can be given that we would have sufficient sources of liquidity, or that any external funding would be available on favorable terms, or at all, to fund any such required repayment.

We believe that our cash and cash equivalents, together with our other sources of liquidity described above, will be sufficient to fund our currently anticipated working capital needs, capital expenditures and debt service requirements during the next 12 months, although no assurance can be given that this will be the case. However, as our maturing debt grows in later years, we anticipate that we will seek to refinance or otherwise extend our debt maturities. No assurance can be given that we will be able to complete these refinancing transactions or otherwise extend our debt maturities. In this regard, it is not possible to predict how political and economic conditions, sovereign debt concerns or any adverse regulatory developments could impact the credit markets we access and, accordingly, our future liquidity and financial position. Our ability to access debt financing on favorable terms, or at all, could be adversely impacted by (i) the financial failure of any of our counterparties, which could (a) reduce amounts available under committed credit facilities and (b) adversely impact our ability to access cash deposited with any failed financial institution and (ii) the tightening of the credit markets. In addition, sustained or increased competition, particularly in combination with adverse economic or regulatory developments, could have an unfavorable impact on our cash flows and liquidity.

Consolidated Statements of Cash Flows

Consolidated Statements of Cash Flows – 2018 compared to 2017

Summary. Our consolidated statements of cash flows for 2018 and 2017 are summarized as follows:

	Year ended December 31, 2018	Year ended December 31, 2017	Change
	in millions		
Net cash provided by operating activities	€ 1,003.1	€ 1,134.0	€ (130.9)
Net cash used by investing activities	(1,167.9)	(991.2)	(176.7)
Net cash provided (used) by financing activities	164.0	(143.3)	307.3
Net decrease in cash and cash equivalents and restricted	€ (0.8)	€ (0.5)	€ (0.3)

Operating Activities. The decrease in net cash provided by our operating activities is primarily attributable to the net effect of (i) a decrease in cash provided by our Adjusted Segment EBITDA and related working capital items, (ii) an increase in cash provided due to lower cash payments for interest, (iii) an increase in cash provided due to higher cash receipts related to derivative instruments and (iv) a decrease in cash provided due to higher payments for taxes.

Investing Activities. The increase in net cash used by our investing activities is primarily attributable to the net effect of (i) an increase in cash used of €285.8 million to fund advances to UPC Germany and (ii) a decrease in cash used of €109.5 million associated with lower capital expenditures.

The capital expenditures that we report in our consolidated statements of cash flows do not include amounts that are financed under capital-related vendor financing or finance lease arrangements. Instead, these amounts are reflected as non-cash additions to our property, equipment and intangible assets when the underlying assets are delivered and as repayments of debt when the principal is repaid. In this discussion, we refer to (i) our capital expenditures as reported in our consolidated statements of cash flows, which exclude amounts financed under capital-related vendor financing or finance lease arrangements, and (ii) our total

property, equipment and intangible asset additions, which include our capital expenditures on an accrual basis and amounts financed under capital-related vendor financing or finance lease arrangements. For further details regarding our property, equipment and intangible asset additions and our debt, see notes 8 and 13, respectively, to our consolidated financial statements. A reconciliation of our consolidated property, equipment and intangible asset additions to our consolidated capital expenditures as reported in our consolidated statements of cash flows is set forth below:

	Year ended December 31,	
	2018	2017
	in millions	
Property, equipment and intangible asset additions	€ 751.1	€ 716.2
Assets acquired under capital-related vendor financing arrangements and finance lease obligations	(338.8)	(233.1)
Changes in liabilities related to capital expenditures (including related-party amounts)	(27.6)	11.1
Capital expenditures	€ 384.7	€ 494.2

The increase in our property, equipment and intangible asset additions during 2018 is primarily due to the net effect of (i) a decrease in expenditures for the purchase and installation of customer premises equipment, (ii) an increase in expenditures to support new customer products and operational efficiency initiatives, (iii) an increase in expenditures for new build and upgrade projects and (iv) an increase in capitalized expenditures related to third-party commissions. During 2018 and 2017, our property, equipment and intangible asset additions represented 30.3% and 30.1% of our revenue, respectively.

Financing Activities. The change in net cash provided (used) by our financing activities is primarily attributable to an increase in cash of €267.1 million due to higher net borrowings of third-party debt.

Consolidated Statements of Cash Flows – 2017 compared to 2016

Summary. Our consolidated statements of cash flows for 2017 and 2016 are summarized as follows:

	Year ended December 31,		
	2017	2016	Change
	in millions		
Net cash provided by operating activities	€ 1,134.0	€ 1,036.3	€ 97.7
Net cash used by investing activities	(991.2)	(1,277.5)	286.3
Net cash provided (used) by financing activities	(143.3)	242.0	(385.3)
Net increase (decrease) in cash and cash equivalents	€ (0.5)	€ 0.8	€ (1.3)

Operating Activities. The increase in net cash provided by our operating activities is primarily attributable to the net effect of (i) an increase in cash provided by our Adjusted Segment EBITDA and related working capital items, (ii) a decrease in cash provided due to higher cash payments for interest, (iii) an increase in cash provided due to lower payments for taxes and (iv) an increase in cash provided due to higher cash receipts related to derivative instruments.

Investing Activities. The decrease in net cash used by our investing activities is primarily attributable to the net effect of (i) a decrease in cash used of €371.6 million to fund advances to UPC Germany and (ii) an increase in cash used of €87.2 million associated with higher capital expenditures.

A reconciliation of our consolidated property, equipment and intangible asset additions to our consolidated capital expenditures as reported in our consolidated statements of cash flows is set forth below:

	Year ended December 31, 2017	Year ended December 31, 2016
	in millions	
Property, equipment and intangible asset additions	€ 716.2	€ 634.1
Assets acquired under capital-related vendor financing arrangements and finance lease obligations	(233.1)	(162.2)
Changes in liabilities related to capital expenditures (including related-party amounts)	11.1	(64.9)
Capital expenditures	€ 494.2	€ 407.0

The increase in our property, equipment and intangible asset additions during 2017 is primarily due to increases in (i) expenditures for the purchase and installation of customer premises equipment, (ii) expenditures for new build and upgrade projects and (iii) expenditures for baseline expenditures, including network improvements and expenditures for property and facilities and information technology systems. During 2017 and 2016, our property, equipment and intangible asset additions represented 30.1% and 27.8% of our revenue, respectively.

Financing Activities. The change in net cash provided (used) by our financing activities is primarily attributable to the net effect of (i) a decrease in cash of €236.5 million due to higher net repayments of third-party debt and finance lease obligations, (ii) a decrease in cash of €108.2 million due to a change in cash collateral, (iii) a decrease in cash of €76.7 million associated with higher payments of financing costs and debt premiums and (iv) an increase in cash of €29.9 million due to higher cash receipts related to derivative instruments.

Contractual Commitments

The euro equivalents of our contractual commitments as of December 31, 2018 are presented below:

	Payments due during:						
	2019	2020	2021	2022	2023	Thereafter	Total
				in millions			
Debt (excluding interest):							
Third-party	€ 622.7	€ 3.0	€ 2.9	€ 2.8	€ 787.0	€ 6,585.7	€ 8,004.1
Related-party	—	—	—	—	—	478.0	478.0
Finance leases (excluding interest)	3.0	2.7	2.5	2.0	0.6	2.3	13.1
Operating leases	103.0	99.2	95.8	94.5	92.0	592.0	1,076.5
Purchase commitments (a)	120.6	36.7	4.6	4.6	4.6	4.6	175.7
Network and connectivity commitments	39.0	8.9	3.8	3.6	3.5	23.8	82.6
Programming commitments	37.1	15.9	—	—	—	—	53.0
Other commitments	0.1	0.1	0.1	0.1	—	—	0.4
Total (b)	€ 925.5	€ 166.5	€ 109.7	€ 107.6	€ 887.7	€ 7,686.4	€ 9,883.4
Projected cash interest payments on third-party debt and finance lease obligations (c)	€ 324.3	€ 333.8	€ 333.5	€ 333.3	€ 316.7	€ 754.9	€ 2,396.5

(a) Includes €10.0 million of related-party purchase obligations due during 2019.

(b) The commitments included in this table do not reflect any liabilities that are included in our December 31, 2018 consolidated balance sheet other than debt and finance lease obligations.

(c) Amounts are based on interest rates, interest payment dates, commitment fees and contractual maturities in effect as of December 31, 2018. These amounts are presented for illustrative purposes only and will likely differ from the actual cash payments required in future periods. In addition, the amounts presented do not include the impact of our interest-rate

derivative contracts, deferred financing costs or original issue premiums or discounts. Amounts associated with related-party debt are excluded from the table.

For information concerning our debt and finance lease obligations as of December 31, 2018, see note 13 to our consolidated financial statements. For information concerning our contractual commitments as of December 31, 2018, see note 17 to our consolidated financial statements.

In addition to the commitments set forth in the table above, we have significant commitments under derivative instruments, pursuant to which we expect to make payments in future periods. For information regarding our derivative instruments, including the net cash paid or received in connection with these instruments during 2018 and 2017, see note 6 to our consolidated financial statements.

Projected Cash Flows Associated with Derivative Instruments

The following table provides information regarding the projected cash flows associated with our derivative instruments at December 31, 2018. The euro equivalents presented below are based on interest rates and exchange rates that were in effect as of December 31, 2018. These amounts are presented for illustrative purposes only and will likely differ from the actual cash paid or received in future periods. For additional information regarding our derivative instruments, see notes 5 and 6 to our consolidated financial statements.

	Payments (receipts) due during:						
	2019	**2020**	**2021**	**2022**	**2023**	**Thereafter**	**Total**
				in millions			
Projected derivative cash payments (receipts), net:							
Interest-related (a)	€ (40.5)	€ (71.1)	€ (50.6)	€ (54.2)	€ (48.8)	€ (109.8)	€ (375.0)
Principal-related (b)	—	(10.6)	—	—	(155.4)	3.8	(162.2)
Total	€ (40.5)	€ (81.7)	€ (50.6)	€ (54.2)	€ (204.2)	€ (106.0)	€ (537.2)

(a) Includes (i) the cash flows of our interest rate swaption and swap contracts and (ii) the interest-related cash flows of our cross-currency and interest rate swap contracts.

(b) Includes the principal-related cash flows of our cross-currency swap contracts.

Critical Accounting Policies

Our critical accounting policies include our policies with respect to:

- Impairment of property and equipment and intangible assets (including goodwill);
- Costs associated with construction and installation activities;
- Fair value measurements; and
- Income tax accounting.

For additional information concerning these policies, see notes 3 and 7 to our consolidated financial statements.