

CORPORATE RESPONSIBILITY REPORT 2018



LIFE IS FOR SHARING.

CONTENTS

5	ABOUT THIS REPORT
7	AWARDS
11	THE GERMAN SUSTAINABILITY CODE
12	INDEPENDENT ASSURANCE REPORT
14	STRATEGY & MANAGEMENT
15	FOREWORD TO THE 2018 CR REPORT
17	CR STRATEGY
29	CR CONTROLLING AND IMPACT MEASUREMENT
32	VALUES AND GUIDING PRINCIPLES
34	SUSTAINABLE FINANCE
36	SUSTAINABLE DEVELOPMENT GOALS (SDGS)
42	MATERIALITY & ADDED VALUE
45	STAKEHOLDER MANAGEMENT
48	COMPLIANCE
52	REPRESENTING POLITICAL INTERESTS
54	HUMAN RIGHTS
56	RISK AND OPPORTUNITY MANAGEMENT
58	PRIVACY AND DATA SECURITY
60	CUSTOMERS & PRODUCTS
61	INFRASTRUCTURE EXPANSION
64	SUSTAINABLE PRODUCTS AND SERVICES
79	SERVICE QUALITY
82	CONSUMER PROTECTION AND DATA SECURITY
83	Consumer and youth protection
87	Cyber security
89	Mobile communications and health (EMF)

91 SOCIETY

- 92 A RELIABLE PARTNER IN THE DIGITAL WORLD
- 94 Creating awareness
- 96 Honing skills
- 103 Supporting implementation
- 105 ENGAGEMENT@TELEKOM
- 109 CULTURAL AND SPORTS SPONSORSHIP

112 EMPLOYEES

- 113 CORPORATE CULTURE AS A SUCCESS FACTOR
- 115 DIGITALIZATION AND THE WORLD OF WORK
- 118 DIALOG AND COLLABORATION
- 123 OCCUPATIONAL HEALTH AND SAFETY
- 125 TRAINING AND DEVELOPMENT
- 131 DIVERSITY AND EQUAL OPPORTUNITY

134 SUPPLIERS

- 135 SUSTAINABLE PROCUREMENT STRATEGY
- 137 SUPPLIER MANAGEMENT
- 141 2018 audit results
- 145 RESOURCE SCARCITY AND RAW MATERIALS SOURCING

146 CLIMATE & ENVIRONMENT

- 147 CLIMATE STRATEGY
- 150 CO₂ emissions
- 156 Renewable energy
- 158 Energy efficiency
- 163 Sustainable products
- 164 CIRCULAR ECONOMY AND RESOURCE EFFICIENCY
- 168 OTHER ENVIRONMENTAL TOPICS

169 FACTS & FIGURES

170 ECONOMIC INDICATORS

170 Socially responsible investment

172 Suppliers

175 Sustainable products

176 Network development & innovation

179 Data security and protection

180 Financial performance indicators

182 Financial personnel indicators

187 ENVIRONMENTAL INDICATORS

187 Energy

195 CO₂ emissions

201 Enablement Factor

203 Mobility

205 Recycling

208 Other environmental data

210 SOCIAL INDICATORS

210 Social involvement

213 Employee satisfaction

216 Diversity

219 Compliance and human rights

220 Demography and company pension scheme

223 Training and development

226 Health and safety

228 Headcount and part-time work

231 Fluctuation and workforce management

234 Ideas management

235 Digital collaboration

236 IMPRINT

237 DISCLAIMER

ABOUT THIS REPORT

"Act responsibly. Enable sustainability." is the title of our 2018 CR Report. We chose this title to emphasize our commitment to sustainable activity along the entire value chain and to highlight the potential that our products and services hold when it comes to addressing environmental, economic and social challenges.

Deutsche Telekom has been involved in CR reporting for more than 20 years. The CR Report – in addition to the non-financial statement we published in the 2018 Annual Report – is our primary medium for informing our internal and external stakeholders about our challenges and progress as a responsible, sustainable company.

REPORTING PERIOD, SCOPE OF APPLICATION AND TARGET GROUPS

All quantitative information, indicators, and descriptions of key events and activities refer to the year 2018. Any deviations are marked accordingly. The 2018 CR Report is a Group report that includes many national companies in which Deutsche Telekom holds a majority stake. It also follows up on the 2017 CR Report.

This report is specifically addressed to Deutsche Telekom stakeholders. These include analysts and investors, CR ranking and rating agencies, non-governmental organizations, customers, employees, business partners and representatives from the fields of business, science, research, education and politics.

LOOKING BACK ON DEUTSCHE TELEKOM'S CR REPORTING

Deutsche Telekom has been reporting on its sustainability activities in various publications since 1996. From 2003 through 2006 we published a combined annual HR and Sustainability Report. An interim report issued in 2007 formed the transition to our current CR reporting. Since 2008 the Telekom Group has been publishing a comprehensive CR Report each year.

OUR ONLINE REPORT: FOCAL POINTS AND CONTEXT

We have been publishing our CR Report exclusively online since the 2010/2011 reporting year to meet the requirements and user preferences of our stakeholders.

The online 2018 CR Report has been available since March 27, 2019 in German and English. On the homepage we highlight current sustainability topics from different perspectives. The series starts with the topic of resource conservation. Further topics will be added during the course of the year. In addition, we keep you updated on important events and activities in short articles. We are also offering the homepage for the first time in simple language.

Each of the five main sections begins with an introduction and an overview of relevant events and developments on that topic. The subsequent pages are structured as follows:

- Sustainability relevance: explains what makes the topic significant to sustainable development and to Deutsche Telekom's long-term business success.
- Management approach: how Deutsche Telekom approaches key sustainability topics, what its goals are and how it intends to achieve them.
- Progress during the reporting period.

The report also includes information on "CR facts" and specific information for investors and rating agencies. This is background information on a variety of topics that can be accessed directly from the text via links. Readers can also access the "CR facts" section at any time by clicking on the footer. A download area, search and dialog functions and an interactive benchmarking tool make it even easier to navigate the report. What's more, the info cart lets readers select different content and create a customized PDF file.

SELECTION OF KEY TOPICS FOR THE 2018 CR REPORT

To identify the key topics for the report, we conducted a comprehensive materiality process. The process is a regular component of our annual CR reporting activities that helps us identify the topics with maximum relevance for us and our stakeholders.

STRUCTURE OF THE CURRENT ONLINE REPORT

The online 2018 CR Report has been structured as a progress report. It focuses on key developments during the reporting period, which are discussed in five central reporting sections:

- Customers and products
- Society
- Employees
- Suppliers
- Climate and environment

These are complemented by three additional sections:

- The Strategy and management section describes the management of CR processes and the Group-wide integration of Deutsche Telekom's CR strategy.
- The majority of our national companies whose CR activities are described in this report have their own profile page. The profile pages can be found under the "National companies" menu option.
- In the Indicators section, consolidated and commented indicators provide information about our progress in the past few years.

ADDITIONAL SOURCES FOR CR-RELEVANT CONTENT

In addition to this online 2018 CR Report, we also use the non-financial statement published in our Annual Report to provide information on how we assume responsibility in society. Further information about our current CR activities can be found under the "Responsibility" menu option of the Deutsche Telekom website. The national companies provide information about their CR commitment on their Internet portals and in their own publications. The online magazine "We Care" additionally offers varied and interactive information on key social challenges.

IMPLEMENTATION OF HIGH INTERNATIONAL REPORTING STANDARDS

Deutsche Telekom's 2018 CR Report 2018 complies with the internationally recognized guidelines (GRI Standards) of the Global Reporting Initiative (GRI). It also serves as a Communication on Progress (CoP) from Deutsche Telekom as part of the United Nations Global Compact. You can find an overview of specific measures being used to implement the Global Compact principles here. Deutsche Telekom also issues an annual, detailed Declaration of Conformity with the German Sustainability Code.

ASSURANCE ENGAGEMENT

Selected indicators from the 2018 CR Report for Germany and our national companies Magyar Telekom (Hungary), Slovak Telekom (Slovakia), OTE and Cosmote (Greece) and T-Mobile US were audited as part of an assurance engagement by auditing firm PricewaterhouseCoopers (PwC).

All of the audited indicators are identified by the symbol  and will apply unchanged until the next CR report is published. The independent assurance report can be found under the Assurance report menu option.

AWARDS

We are very pleased about being listed in renowned sustainability rankings and ratings and about the numerous awards and certifications we have received during the reporting period. Our national companies were also recognized for their CR commitment. You can find an overview of this on the profile pages of the national companies. We discuss our current position in ratings and rankings in the "Strategy and management" section.

AWARDS AND CERTIFICATES

Strategy & management

Deutsche Telekom AG

"German Sustainability Award" in the category "Holistic sustainability management at a large company"



Deutscher Nachhaltigkeitspreis

Deutsche Telekom AG

Named one of 2019 World's Most Ethical Companies by the Ethisphere Institute

Magyar Telekom and Deutsche Telekom AG First and second place in the "oekom Corporate Responsibility Review 2018" in the telecommunications industry



Deutsche Telekom AG Extel Award as the "Leading Investor Relations Team in Europe" for the fifth time in a row. Other Extel awards in 2018:

- European ranking for all industries: #1 Overall, #1 Professional, #2 CEO, #1 CFO
- German ranking for all industries: #1 Overall, #1 Professional #1 CEO, #1 CFO,
- Ranking for the telecom industry: #1 Overall, #1 Professional #1 CEO, #1 CFO

Deutsche Telekom AG Named a winner in numerous areas by the Institutional Investor trade journal in 2018:

- European ranking for all industries: #2 Overall, #1 Professional, #2 CEO, #1 CFO

- Buy side for all industries: #2 Overall, #1 Professional #2 CEO, #1 CFO,
- Sell side for all industries: #1 Overall, #1 Professional #1 CEO, #2 CFO,



Deutsche Telekom AG

Presented with the "German Investor Relations Award" 2018 by Extel WeConvene, WirtschaftsWoche and German investor relations association DIRK for firstplace in "IR Performance" (DAX30) and firstplace in "IR Manager" (DAX30)

Deutsche Telekom AG

IR-Magazine: Presented with the "IR Magazine Award" for winning firstplace in the telecommunications industry

Included in the Bloomberg Gender-Equality Index (GEI) 2019, which measures gender equality in internal company statistics, staff policies, external support and investment in the community and gender-conscious product offerings.



Deutsche Telekom AG

Voted test winner for strong "Sustainable Commitment" from the consumer viewpoint by FOCUS Magazin (issue 12/19).

Deutsche Telekom AG

3rd place in the large companies' category for the Sustainability Report 2017 in the Ranking der Nachhaltigkeitsberichte 2018 by the Institute for Ecological Economy Research (IÖW) and future e.V.

Customers

Deutsche Telekom AG
TÜV Rheinland: Awarded the “good” quality seal for Telekom Service



Deutsche Telekom AG
Distinguished by Focus Money magazine and the Check24 online portal for “Best Service with Double Flat Rates”



Deutsche Telekom AG
Distinguished in the “Germany Test” 2018 as “Service King”



Deutsche Telekom AG
Winner in the service quality segment for “New Customer Hotline 2018” in the categories “Mobile service provider” and “Fixed line and internet provider” by the CHIP trade journal.



Deutsche Telekom AG
Top Service in Germany 2018



Deutsche Telekom AG
Winner in the “International Business Excellence Awards 2018” in the categories “Customer Experience and Voice of the Customer” and “Telecommunications and Information”



Networks

Deutsche Telekom AG
Voted Best Network in the CHIP Mobile Network Test in 2019



Deutsche Telekom AG
First places in the 2018 Connect readers' choice (issue 6/2018) for Mobile Network Operator and Network Operator Prepaid Cards



Deutsche Telekom AG
Voted the best in Germany for 2019 by the Computer Bild magazine, with an overall rating of 1.8



Deutsche Telekom AG
A rating of “very good” by the Connect trade journal in the 2019 Mobile Network Test

Society

Teachtoday

Two “Comenius EduMedia” Awards from the Gesellschaft für Pädagogik und Information (Association for Teaching and Information). The first, in the “IT, communication and media education” category, recognized the initiative as a whole and the second, in the “General multimedia products” category, recognized the Scroller media magazine.



Scroller media magazine

Recommendation by Stiftung Lesen (German Reading Foundation) for promoting safe and competent media use; animated series “Schon gewusst?” (Did you know?) distinguished with the “German Design Award 2019” in the category “Audiovisual”



Deutsche Telekom AG

“Internship PLUS direct entry” program honored with the “HR Excellence Award 2018” for innovative lighthouse projects in HR management

Handbook Germany:

Distinguished with the bronze “German Digital Award 2018” in the category of Branded Content – Content Platforms / Digital Magazines” and the “German Award for Online Communication” in the Corporate Responsibility category.



Employees

Deutsche Telekom Services GmbH

“Gold” award by the “Pillar World Awards” 2018 for the future part-time model “Additional Days off” and a new time recording app.



Multiple awards from the German Stevie Awards 2018: Gold for Telekom Deutschland GmbH for “Digitalization. Simply. Make it happen - The digitalization podcast”, Gold for Deutsche Telekom Services Europe GmbH for the “Lead to Win Award” and the “Incapacity to work certificate app”

Deutsche Telekom AG

Recognized by Zentrum Ideenmanagement with an award for second place in the “Administration” category for an employee idea



Deutsche Telekom AG

Firstplace for the “Female Recruiting Award 2018”

Deutsche Telekom AG

Second place in the overall ranking of the market research institute Potentialpark, first place in the individual categories “Career website” and “Social media”



Deutsche Telekom AG

Winner of the “trendence Employer Branding Award 2018” in the category “Best Employer Branding for Students”

Suppliers

Deutsche Telekom AG
Included in the CDP A list in the Supplier Program category



Climate & environment

Deutsche Telekom AG
Included in the CDP A list in climate protection ranking



THE GERMAN SUSTAINABILITY CODE

Each year, as part of its Corporate Responsibility report, Deutsche Telekom publishes a comprehensive declaration of conformity with the German Sustainability Code. The German Sustainability Code aims to make companies' sustainability performance transparent and comparable under a binding framework. Deutsche Telekom's declarations of conformity for 2018 will follow. The German Sustainability Code was approved by the federal government's Council for Sustainable Development. Deutsche Telekom was one of the first companies to accede to the Sustainability Code.



INDEPENDENT ASSURANCE REPORT

Independent Practitioner's Report on a Limited Assurance Engagement on Sustainability Information*

To Deutsche Telekom AG, Bonn

We have performed a limited assurance engagement on the disclosures denoted with  in the Corporate Responsibility Report of Deutsche Telekom AG, Bonn (hereinafter: "the Company"), for the period from 1 January to 31 December 2018 (hereinafter: "Report"). Our engagement in this context relates solely to the disclosures denoted with the symbol .

Responsibilities of the Executive Directors

The executive directors of the Company are responsible for the preparation of the Report in accordance with the principles stated in the Sustainability Reporting Standards of the Global Reporting Initiative (hereinafter: "GRI-Criteria") and for the selection of the disclosures to be evaluated.

This responsibility of Company's executive directors includes the selection and application of appropriate methods of sustainability reporting as well as making assumptions and estimates related to individual sustainability disclosures, which are reasonable in the circumstances. Furthermore, the executive directors are responsible for such internal control as they have considered necessary to enable the preparation of a Report that is free from material misstatement whether due to fraud or error.

Independence and Quality Control of the Audit Firm

We have complied with the German professional provisions regarding independence as well as other ethical requirements.

Our audit firm applies the national legal requirements and professional standards – in particular the Professional Code for German Public Auditors and German Chartered Auditors ("Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer": "BS WP/vBP") as well as the Standard on Quality Control 1 published by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany; IDW): Requirements to quality control for audit firms (IDW Qualitätssicherungsstandard 1: Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis - IDW QS 1) – and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Practitioner's Responsibility

Our responsibility is to express a limited assurance conclusion on the disclosures denoted with  in the Report based on the assurance engagement we have performed.

Within the scope of our engagement we did not perform an audit on external sources of information or expert opinions, referred to in the Report.

We conducted our assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the IAASB. This Standard requires that we plan and perform the assurance engagement to allow us to conclude with limited assurance that nothing has come to our attention that causes us to believe that the disclosures denoted with  in the Company's Report for the period from 1 January to 31 December 2018 have not been prepared, in all material aspects, in accordance with the relevant GRI-Criteria. This does not mean that a separate conclusion is expressed on each disclosure so denoted.

In a limited assurance engagement the assurance procedures are less in extent than for a reasonable assurance engagement and therefore a substantially lower level of assurance is obtained. The assurance procedures selected depend on the practitioner's judgment.

Within the scope of our assurance engagement, we performed amongst others the following assurance procedures and further activities:

- Obtaining an understanding of the structure of the sustainability organization and of the stakeholder engagement
- Inquiries of personnel involved in the preparation of the Report regarding the preparation process, the internal control system relating to this process and selected disclosures in the Report
- Identification of the likely risks of material misstatement of the Report under consideration of the GRI-Criteria
- Analytical evaluation of selected disclosures in the Report
- Performance of webmeetings as part of the inspection of processes and guidelines for data collection at the following locations:
 - PASM GmbH
 - Strabag SE
 - T-Mobile US Inc.
- Comparison of selected disclosures with corresponding data in the financial statements, the consolidated financial statements and in the group management report Evaluation of the presentation of the selected disclosures regarding sustainability performance.

Assurance Conclusion

Based on the assurance procedures performed and assurance evidence obtained, nothing has come to our attention that causes us to believe that the disclosures denoted with  in the Company's Report for the period from 1 January to 31 December 2018 have not been prepared, in all material aspects, in accordance with the relevant GRI-Criteria.

Intended Use of the Assurance Report

We issue this report on the basis of the engagement agreed with the Company. The assurance engagement has been performed for purposes of the Company and the report is solely intended to inform the Company as to the results of the assurance engagement. The report is not intended to provide third parties with support in making (financial) decisions. Our responsibility lies solely toward the Company. We do not assume any responsibility towards third parties.

Düsseldorf, 27 March 2019

PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft

Hendrik Fink ppa.

Pia Schnück

Wirtschaftsprüfer (German Public Auditor)

***PricewaterhouseCoopers GmbH has performed a limited assurance engagement on the German version of the Corporate Responsibility Report and issued an independent assurance report in German language, which is authoritative. The following text is a translation of the independent assurance report.**

STRATEGY & MANAGEMENT

We are a company that acts responsibly. Our strategic approach includes clear leadership principles, measurable targets and tried-and-true management tools.

Interesting topics

Timotheus Höttges, Chairman of the Board of Management of Deutsche Telekom, on sustainability

Impact measurement: Our new approach to analyzing our activities

Our contributions to the Sustainable Development Goals (SDGs)

Participate in the stakeholder survey

Materiality: Our key topics

CR controlling: Managing our CR activities

FOREWORD TO THE 2018 CR REPORT

Dear Readers,

One event made an especially strong impression on me in 2018: When the German astronaut Alexander Gerst sent a video message to his future grandchildren from the International Space Station (ISS). He apologized that his generation would not leave them a world in the best of states – and also promised to do all he could “to enable the best future I can imagine.” What impressed me was his clear stance – and his belief that change for the better is possible.

Because what happens when this optimism in the future is lost was likewise demonstrated in 2018: In a world marked by a lot of upheaval, it is those who stoke fears about the future and lure people with seemingly simple truths who are gaining traction. After all, many are afraid of a loss of social status. The great pace of digital transformation is also partly to blame for that: People are worried that machines and artificial intelligence might do away with their job in the future. A sort of “aggressive nostalgia” is spreading in Europe at the moment: Vague fears about the future are vented as anger about the present.

We are actively tackling that by enabling people to participate in society. All people, in urban centers as well as in rural areas. At all times. Our task, our purpose, is to connect people. Our networks are the basis for that. Deutsche Telekom therefore believes it has the responsibility to encourage a society in which no one is left out, but everyone is included. We are aware that the success of the digital transformation in Europe – and hence prosperity and the quality of life of future generations – depends on our networks. That is why we build our networks for as many as possible and never for just a handful of privileged persons.

However, “what” we do is not only important – “how” we do it also counts. It is important for us to stand by our convictions. One example: If artificial intelligence evokes fears, we need to discuss what an ethical framework for its use might look like. That is why we drew up guidelines on the use of AI in 2018 and intend to develop them further in dialog with others. Because our company’s slogan is “Life is for sharing.” And we want to make that possible, because we believe that sharing brings people together. And that people can achieve more together than they could ever do on their own.

Our employees prove that day in, day out – not just in our core business, but also above and beyond. For instance, many of them have long been committed to preventing the waste of resources in their sphere of responsibility. For example, one team is targeting customers who are still receiving paper invoices by mail in order to convince them to switch to paperless online bills. In 2018 I launched the “Stop Wasting – Start Caring” initiative so that good ideas like that could be spread more strongly throughout the company. All employees can present their suggestions on how to save resources to our social network. In that way we can learn from each other and be inspired to follow suit.



Timotheus Höttges, Chairman of the Board of Management, Bonn, Deutschland

We at Deutsche Telekom have given a lot of thought to curbing climate change: In our climate strategy to date, we have defined ambitious targets for significantly reducing CO₂ by the year 2020. In 2018 we developed our climate strategy further and worked on new, science-based targets for the period after 2020. One focal aspect of our strategy will be to improve the potential of our products and solutions to protect the climate even further so as to help our customers save resources and cut CO₂ emissions.

Other colleagues devote their energies day after day to making it easier for the more than 400 refugees who started at Deutsche Telekom as interns, apprentices or employees in 2018 to settle in and learn the ropes. And others are committed to strengthening media literacy skills in society, thus counteracting the growing spread of half-truths, alternative facts and fake news on the internet: As part of the “1001 truths” initiative, they are creating exciting interactive workshops on highly topical issues such as online opinion-making.

We also report extensively and transparently on our diverse sustainability activities in this year's Sustainability Report.

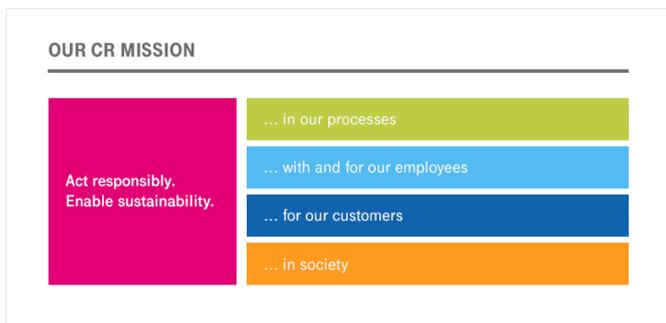
We remain committed to the principles of the United Nations Global Compact and the German Sustainability Code. Both of these frameworks, along with the UN Sustainable Development Goals, guide us in what we do.

I hope you find the report enjoyable reading!

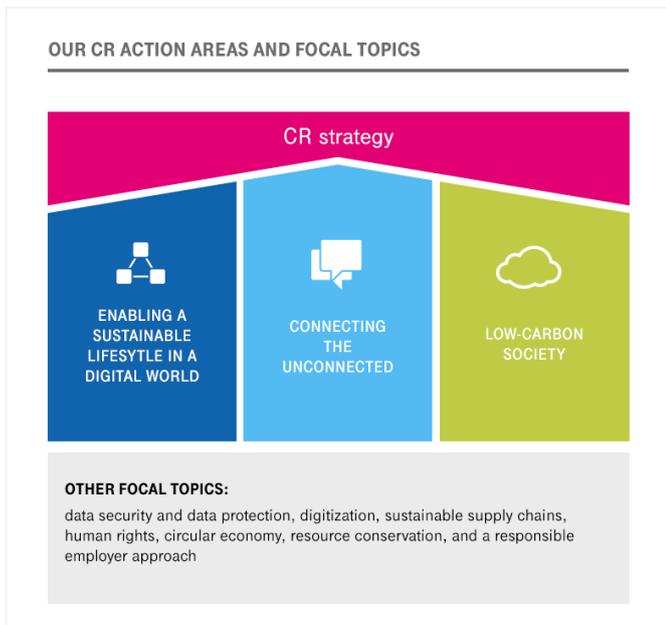
Best regards,
Tim Höttges

CR STRATEGY

Deutsche Telekom aims to be the leading European telecommunications provider. This corporate vision is the basis for our approach as a responsible company (CR approach) and our CR mission.



Our Group CR strategy also provides our national companies with a framework for their sustainability measures. The central components are our three CR action areas. They provide a framework for the focal topics of our sustainability management activities.



Our CR program states which specific goals we wish to achieve with which measures. We monitor our progress using key performance indicators (KPIs).

An integrated governance structure helps us to closely interlink strategic management and operational implementation of our CR strategy throughout the Group. Overall responsibility for sustainability lies with the Deutsche Telekom Board of Management.

CURRENT ORGANIZATIONAL STRUCTURE



Overall responsibility for CR lies with our Board of Management; it discusses and decides on important CR matters. The Chief Human Resources Officer decides which CR matters are to be classed as important and represents them on the Board of Management. The Group Corporate Responsibility (GCR) unit reports to the Human Resources (HR) Board department. It develops Group-wide policies and guidelines with the goal of advancing the corporate culture with a focus on sustainable innovation and social responsibility. GCR specifies a strategic framework for the activities of our international network of CR managers through our CR Policy.

GCR is advised by the CR Board, composed of the heads of key Group areas, in order to ensure direct feedback is always shared between CR and our core business.

Another pillar of our CR governance structure is the HR Leadership Team (HRLT), an advisory and decision-making body for the Human Resources (HR) Board department. Among other things, it provides support on decisions regarding positioning of CR issues and the strategic alignment of the CR department.

The CR managers from the different business units and national companies are responsible for implementing our CR strategy. They collaborate within the international CR Manager Network, where they coordinate their activities and share best practices.

CR GUIDELINE INTRODUCED AT EUROPEAN NATIONAL COMPANIES

Our CR Policy provides the formal, mandatory framework for the sustainability management activities at all Group units. We introduced the policy at Group Headquarters, Telekom Deutschland and T-Systems back in 2014 and at the majority of the European national companies (in the fixed-line and mobile communications area) at the end of 2017. In close cooperation with the U.S., we have also expanded collaboration there on CR topics in line with the policy.

BE SMARTER! - SUSTAINABILITY STRATEGY 2016 - 2020 AT MAGYAR TELEKOM

Magyar Telekom aims to make sustainability an integral part of its business. The company therefore developed a sustainability strategy for the period from 2016 to 2020 that was influenced by the expectations of responsible investors, EU directives, industrial and corporate trends, local conditions, and consumption patterns. Climate protection, education, and digitally enabled sustainability will be the major focus of the strategy until 2020. This strategy continues to remain valid and Magyar Telekom just extended its goals.

Climate Protection – The company goal is to help its customers become more climate conscious. The ambitious objective is to generate revenue from the company's climate protection activities while at the same time reducing its actual CO₂ emissions below 100,000 metric tons. This enables Magyar Telekom to enhance its activities directed toward decreasing emissions and specifically build on its “green” services.

Education – The company goal is to directly or indirectly reach 1,000,000 people in Hungary through a training program by 2020 with the objective of educating the public and the customers, and with edutainment/inspiration nonspot contents. Magyar Telekom is focusing primarily on programs aimed at eliminating the digital gap, expanding the succession pool in industry and helping customers recognize the digital benefits of NOW. The campaign Generation NOW aims at connecting everyone into the digital present and enable people to experience the unlimited potential it represents.

Digitally enabled Sustainability – As a sustainable digital company, Magyar Telekom enables its customers to use sustainable digital services. The company strives to pursue responsible marketing and activities that enable and inspire others. Awareness in the public domain of Magyar Telekom as a sustainable company is projected to reach 50 percent.

CERTIFIED HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT SYSTEM: ALMOST ALL WORKPLACES COVERED

We want to make sustainability a component of all our business processes and of our employees' everyday lives. Our integrated health, safety and environmental (HSE) management system assists with this at the Group level. The management system helps us to systematically plan, implement and improve our HSE processes. This promotes the health of our employees and has a positive effect on their performance. It is also beneficial when it comes to bidding on new projects, since an increasing number of potential customers now require their suppliers to provide HSE certificates.

Our Group-level HSE management system is covered by an umbrella certificate based on the international standards ISO 45001 (formerly OHSAS18001) for occupational health and safety and ISO14001 for environmental management. For some units, it also covers international standard ISO 9001 for quality management. Some of the national companies are not covered by an umbrella certificate because they have their own certifications which are, in part, even more comprehensive. This is the case in Greece, for example. This national company has an integrated management system, which in addition to the above-mentioned standards, also covers the international standards ISO 50001 for energy management and ISO 27001 for data security. Telekom Deutschland also has an environmental certification.

Through our compliance with legal regulations, we already meet the essential requirements for ISO45001 certification in Germany. 100 percent of our employees in Germany are employed at an ISO 14001- and ISO 45001-certified workplace. Internationally, 98 percent of employees are employed at an ISO 14001- and ISO 45001-certified workplace.

Our goal was to cover all companies that have more than 50 employees by the end of 2018. We were not able to meet this target. However, we want to further expand coverage in 2019: with certification of T-Systems Polska according to ISO 45001 and 14001 and certification of T-Systems Iberia according to ISO 45001.

ACHIEVING MORE TOGETHER: INTERNATIONAL COLLABORATION

How can international corporations put sustainability strategies into practice across borders? Deutsche Telekom employs CR managers for the relevant business segments and national companies to reach this goal. Through the CR Manager Network, CR managers attend regular face-to-face and online meetings to share best practices and discuss new challenges, thereby jointly promoting essential CR issues. The central Group Corporate Responsibility (GCR) department is responsible for managing the network.

In 2018, our CR Manager Network celebrated its tenth anniversary in its current form. It emerged from a network whose main focus was on environmental protection.

Two CR manager meetings took place in this anniversary year: the 19th CR manager meeting in Vienna in May, and the 20th CR manager meeting in Bonn in October. The main topics were advancement of the climate strategy, the international launch of our “Stop Wasting – Start Caring!” resource conservation initiative and the international expansion of our “Media, sure! But secure.” media skills initiative.

GERMANY'S MOST SUSTAINABLE LARGE COMPANY 2018

For its uniform sustainability management, Deutsche Telekom was awarded the German Sustainability Award in December of 2017.

The jury commended Deutsche Telekom's pioneering role, stating the following: Deutsche Telekom AG is setting the bar with its sustainable supplier management, enabling massive energy savings for its customers with its core operations and itself contributing to more energy efficient data transmission with various measures.

2018 CR PROGRAM

As part of its CR program, Deutsche Telekom specifies targets to be implemented throughout the Group in the relevant processes of its core business.

The CR program defines specific measures and a timeline for implementation. We also provide information on the implementation status in the CR program. Detailed information on the ESG KPIs, which we use to quantify our performance in each area, is provided in the CR Report.

CR PROGRAM 2018

STRATEGY AND MANAGEMENT

Objectives	Scheduled completion date	Measures	Status
Further development of CR governance	Ongoing	<ul style="list-style-type: none"> ▪ Gradually implement the Group Corporate Responsibility Policy at the national companies ▪ Drive the integration of CR into the Group's central business processes ▪ Integrate CR into the Group strategy 	<ul style="list-style-type: none"> ▪ The Group Corporate Responsibility Policy has been introduced at the majority of European national subsidiaries. In close cooperation with T-Mobile US, we have also expanded collaboration there on CR topics in line with the policy. ▪ Key ESG KPIs reported in the non-financial statement. ▪ Regular communication with Group Strategy and integration of CR development topics in the Group's trend radar. ▪ Honored as Germany's most sustainable large company 2018 (German Sustainability Award 2018)
Embrace corporate values, accompany the transformation process	Ongoing	<ul style="list-style-type: none"> ▪ Promote new forms of collaboration at the Group ▪ Participate in dialogue on topics relevant to society ▪ Regularly review all KPIs for the benefits they provide, make them mandatory throughout the Group with target values ▪ Develop guiding principles on the ethical use of artificial intelligence and other digitalization topics, such as big data and the Internet of Things 	<ul style="list-style-type: none"> ▪ Regular Group-wide implementation of programs and formats – as virtual or face-to-face events – including the annual Guiding Principles Day ▪ 19th CR manager meeting in May in Vienna and 20th CR manager meeting in October in Bonn. The main topics were the new climate strategy, the "Stop Wasting – Start Caring!" initiative and the expansion of the "1001 Truths" initiative. ▪ Dialogue on digital responsibility with experts from business, science, politics and society expanded via telekom.com and social media. ▪ Participation in social discourse on redesigned homepage for the CR Report ▪ New ethics guidelines on using artificial intelligence (AI) introduced.
Promote the Sustainable Development Goals (SDGs)	Ongoing	<ul style="list-style-type: none"> ▪ Expand measures for SDG target achievement ▪ Integrate key SDGs into CR processes and reporting ▪ Intensify use of SDGs for dialogue with customers and employees, also in terms of product assignment ▪ Set up impact measurement 	<ul style="list-style-type: none"> ▪ In-depth reporting of our potential for contribution to the SDGs in the annual report and the CR Report ▪ Pilot project continued to measure the impact of our contributions to the SDGs. ▪ ESG KPIs and other indicators allocated to the Sustainable Development Goals. Findings: SDGs prioritized by us are effectively covered by ESG KPIs or supplementary indicators. ▪ In 2017 we made employees aware of the SDGs. ▪ Engagement in cross-industry initiatives such as UN Global Compact, GSMA, and Econsense (SDG 17) ▪ The 2015 annual report received the „Building Public Trust Award“ as the best company in the SDG category ▪ Value contributions relating to the value chain were added to SDG contributions.

CR PROGRAM 2018

STAKEHOLDER INVOLVEMENT

Objectives	Scheduled completion date	Measures	Status
Ensure systematic stakeholder engagement	Ongoing	<ul style="list-style-type: none"> ▪ Continue stakeholder engagement strategy based on the principles of the Global Reporting Initiative (GRI G4). 	<ul style="list-style-type: none"> ▪ Stakeholders included in various ways, including. <ul style="list-style-type: none"> ▪ Dialogue with experts from the fields of business, science, politics and society regarding digital responsibility via Deutsche Telekom's own YAM platform ▪ International sustainability dialogue of the Joint Audit Cooperation (JAC) ▪ Supplier Development Program ▪ We Care magazine ▪ Magenta Security Congress ▪ Cyber Security Summit ▪ New 1001 Truths initiative on trust and opinion forming online ▪ Revision of „Fakten zu Mobilfunk und Gesundheit“ ("Facts about mobile communications and health") brochure ▪ SRI roadshows
Establish a materiality process	Ongoing	<ul style="list-style-type: none"> ▪ Conduct annual materiality analysis (materiality processes) 	<ul style="list-style-type: none"> ▪ Materiality analysis conducted for 2018. ▪ Materiality process was expanded to include systematic document analysis.

CR PROGRAM 2018

CLIMATE PROTECTION

Objectives	Scheduled completion date	Measures	Status
Reduce CO2 emissions throughout the Group by 20 percent compared to 2008 (absolute figures)	2020	<ul style="list-style-type: none"> ▪ Roll out climate protection activities internationally ▪ Introduce Group-wide monitoring ▪ Launch new CO2 target for new car purchases ▪ Continue migration of network infrastructure to energy-efficient IP technology ▪ Consolidate data centers 	<ul style="list-style-type: none"> ▪ Group-wide climate protection target approved by Group Board of Management in 2013. ▪ Annual status report to Board of Management implemented. ▪ Emissions from networks in Germany are higher than projected; we will analyze the effects and other measures to meet our target; already on track: an expansion of our commitment in the field of renewable energies. ▪ Change of method to calculate the climate target based on a market-based approach, in order to take renewables into account. ▪ Around 20 million lines switched over to IP in Germany. ▪ The PUE value in T-Systems Deutschland data centers is 1.57. ▪ New CO2 target for newly acquired cars (average of 95g CO2/km for newly acquired vehicles by 2020).
Reduce Scope 1 and 2 CO2 emissions throughout the Group by 90 percent compared to 2017 (absolute figures)	2030	<ul style="list-style-type: none"> ▪ Review existing climate protection strategy ▪ Introduce a target based on the Science-Based Targets method ▪ Achieve 100 percent renewable energies by 2021 ▪ Set up a new monitoring process to systematically increase the share of electricity from renewable energies. 	<ul style="list-style-type: none"> ▪ Revision of the currently integrated climate protection strategy was completed in 2018. ▪ The new climate protection strategy and the new climate targets were adopted by the Board of Management. ▪ Commitment made to the Science-Based Targets initiative.
100 percent renewable energies	2021	<ul style="list-style-type: none"> ▪ Increase the proportion of self-generated renewable energy ▪ Acquire guarantees of origin ▪ Conclude Power Purchase Agreements (PPA) 	<ul style="list-style-type: none"> ▪ The share of renewable energy Group-wide at the end of 2018 was 52 percent. ▪ 2018 saw Greece (OTE), Hungary, Albania and the Netherlands use 100 percent electricity from renewable energy sources.
Reduce emissions from the upstream and downstream value chain by 25 percent per customer compared to 2017	2030	<ul style="list-style-type: none"> ▪ Conduct joint workshops with key suppliers in order to lower emissions in the supply chain ▪ Inform customers and raise awareness with regard to their usage behavior 	<ul style="list-style-type: none"> ▪ In 2018, absolute emissions compared to 2017 rose slightly with an increasing number of customers – emissions per customer dropped by 2 %.
Standardize the method for calculating the enablement factor	2020	<ul style="list-style-type: none"> ▪ Identify and use business potential from climate-friendly services ("enabling") as well as opportunities in terms of product development and offerings (establish sustainable product portfolio) ▪ Determine relevant services and products for standardization 	<ul style="list-style-type: none"> ▪ Enablement factor: In Germany we enabled our customers to generate around 85 percent less CO2 than the amount generated by our company (factor: 1.85:1). In Europe (including Germany), our customers' savings potential remained at last year's level with a factor of 1.2.

CR PROGRAM 2018

MANAGEMENT SYSTEMS

Objectives	Scheduled completion date	Measures	Status
Implement an occupational health, safety and environmental management system in compliance with ISO 14001 and OHSAS 18001 at all national companies with more than 50 employees.	Ongoing	<ul style="list-style-type: none"> Implement an integrated management system based on both standards and harmonize the different management process levels at the national companies 	<ul style="list-style-type: none"> 100 percent of employees in Germany and 98 percent of employees outside Germany work in a workplace that is ISO 45001 certified. Some 100 percent of employees in Germany are employed at an ISO 14001-certified workplace. Internationally, we are at 98 percent coverage.

SUSTAINABLE CONSUMPTION AND LIFESTYLE

Objectives	Scheduled completion date	Measures	Status
Evaluate products and solutions regarding their contribution to sustainability	Ongoing	<ul style="list-style-type: none"> Implement the criteria and indicators developed in collaboration with external and internal stakeholders in company processes Integrate product-based sustainability controlling in business processes and ensure Group-wide harmonization Embed the topic of sustainable products in company processes and develop an overarching strategy Analyze products in terms of how they contribute to sustainability and what this can do for our business; include results in customer communication Participate in industry-wide solutions to evaluate products and solutions in terms of sustainability 	<ul style="list-style-type: none"> Overall, we have carried out in-depth analyses for 29 product groups with regard to their sustainability benefits and the corresponding business potential (as at end of 2018). According to an analysis conducted in 2018, we generated 42 percent of our total revenue in 2017 with sustainable products (40 percent in 2016).
Ensure stakeholder engagement and customer information	2020	<ul style="list-style-type: none"> Conduct regular stakeholder dialog on specific topics Develop sustainability-related customer orientation policies Drive international standardization, e.g., via seals of quality or certification in the ICT sector Get more products certified with the Blue Angel and TÜV Green Certified Product environmental labels 	<ul style="list-style-type: none"> Regular stakeholder dialogue on specific topics conducted. All DECT phones from our Sinus series as well as all phones from the Speedphone series bear the Blue Angel environmental label. The Media Receiver 401 and Media Receiver 601 received the Blue Angel. The entire Media Receiver family now carries the Blue Angel label Sustainability awards for our commitment and role as pioneer and multiplier for climate protection
Integrate life cycle assessment and usage behavior (sustainable consumption)	2020	<ul style="list-style-type: none"> Tap efficiency potential in the product life cycle and enhance products and solutions to include sustainability criteria Blacklist environmentally harmful materials (not prohibited by law) contained in our products 	<ul style="list-style-type: none"> Successful growth of leasing model usage for devices (e.g. Media Receiver) for the benefit of the recycling rate (e.g. Speedport PRO), duration of use, and more sustainable packaging Workshops conducted with suppliers on the voluntary blacklist, which was developed in cooperation with the Fraunhofer Institute for Reliability and Microintegration (Fraunhofer IZM).

CR PROGRAM 2018

SUSTAINABLE INNOVATION AND ENTREPRENEURSHIP

Goals	Scheduled completion date	Measures	Status
Objectives	2020	<ul style="list-style-type: none"> ▪ Establish general requirements to promote innovation in the sustainability field and identify and evaluate young companies and start-ups (partnering) ▪ Promote innovative business ideas through hubraum 	<ul style="list-style-type: none"> ▪ Since the establishment of hubraum, we have built up a strategic investment portfolio of more than 25 companies. Collaboration with approx. 300 startups from Europe and Israel in various areas relevant for digitalization ▪ A prototype program was established by hubraum to promote the development of innovative 5G-capable use cases in Europe. ▪ The first 5G field tests were conducted in Berlin and Hamburg with continued testing in 2019. ▪ Internet of Things innovation programs being conducted ▪ Promotion of innovations through our internal innovation program "UQBATE"

SOCIALLY RESPONSIBLE INVESTMENT

Objectives	Scheduled completion date	Measures	Status
Increase share of socially responsible investors in freely tradable stock	Ongoing	<ul style="list-style-type: none"> ▪ Further enhance rating results ▪ Direct dialog with investors at SRI roadshows and in SRI calls ▪ Improve communication with investors regarding our sustainability efforts 	<ul style="list-style-type: none"> ▪ Included once again in the RobecoSAM World and Europe Index, rated as Prime by oekom research and as Global Climate Change Leader (A list) and Supplier Change Leader (A list), and as a member of the Supplier Engagement Leader Board by the CDP ▪ At the end of 2018 around 18 percent of T-Shares were owned by investors who consider "Socially Responsible Investment" (SRI) criteria in their investment decisions at least to some extent. Three percent of T-Shares were held by investors who give priority to SRI aspects when managing their funds. ▪ Interested investors were informed through dedicated conference calls, two "SRI roadshows" held in France and the Netherlands, and participation in SRI conferences; numerous direct queries from rating agencies, analysts and investors were answered ▪ Deutsche Telekom's combined non-financial statement is contained in the management report of the 2018 annual report and gives interested investors an overview of the key performance indicators for sustainability.

CR PROGRAM 2018

SUSTAINABLE SUPPLY CHAIN

Objectives	Scheduled completion date	Measures	Status
Increasing the share of suppliers audited for sustainability	Ongoing	<ul style="list-style-type: none"> ▪ Weight sustainability aspects at 10 percent for bids ▪ Supplier Code of Conduct (SCoC) ▪ Perform supplier risk analysis ▪ Conduct mobile surveys with suppliers ▪ Conduct supplier surveys and self-assessments ▪ Implement supplier evaluation and development ▪ Enforce escalation process for violations 	<ul style="list-style-type: none"> ▪ Share of suppliers audited for sustainability in 2018: 80 percent ▪ 157 suppliers participated in the CDP Supply Chain program (this covers 71 percent of our procurement volume; target value for 2020 is 70% coverage) ▪ Monitoring of sustainability risks from all suppliers by two external audit firms (RepRisk & BvD) ▪ Inclusion of the supplier development program under the umbrella of the Global e-Sustainability Initiative (GeSI) ICT industry association and expansion as the industry-wide Sustainable Development Program (SDP)
Increase the share of CR-classified suppliers among our TOP 200 suppliers	Ongoing	<ul style="list-style-type: none"> ▪ Carry out self-assessments, audits, sustainability workshops for suppliers, and supplier development programs 	<ul style="list-style-type: none"> ▪ The share of CR-classified suppliers among our TOP 200 suppliers was 86 percent in 2018 (target for 2020 is coverage of 75 percent).
Implement a sustainable procurement strategy	Ongoing	<ul style="list-style-type: none"> ▪ Include commitment to protecting human rights and to the goals of the German National Action Plan on Business and Human Rights in the Code of Human Rights & Social Principles ▪ Incorporate sustainability principles into the Group's Global Procurement Policy ▪ Stakeholder engagement ▪ Established escalation procedure for serious cases ▪ Group-wide implementation by the Sustainable Procurement Working Group (SPWG) ▪ Employee training courses 	<ul style="list-style-type: none"> ▪ E-learning tool „Sustainability in procurement“ adapted and updated; used in the procurement joint venture “BuyIn” ▪ Participation in a dialogue event on sustainability in supply chains held by the Joint Audit Cooperation ▪ Sustainable Procurement ESG KPI is 81% for 2018 (target value for 2020 = 80%). ▪ TOP 200 CR-qualified Suppliers ESG KPI is 86% for 2018 (target value for 2020 = 75%). ▪ CDP Supply Chain ESG KPI is 71% for 2018 (target value for 2020 = 70%).
Improve sustainability in our supply chain	Ongoing	<ul style="list-style-type: none"> ▪ Set high ethical, social, ecological and human rights standards for suppliers through the Supplier Code of Conduct (also applicable for the BuyIn joint venture) ▪ Expand the supplier development program throughout the industry ▪ Carry out compliance training for suppliers 	<ul style="list-style-type: none"> ▪ Inclusion of the supplier development program under the umbrella of the Global e-Sustainability Initiative (GeSI) ICT industry association and expansion as the industry-wide Sustainable Development Program (SDP). Program opened up for other ICT companies. Started as a pilot project with four suppliers in 2018. ▪ Three workshops conducted on sustainability topics with relevant smartphone manufacturers ▪ 117 social audits performed. ▪ 18 mobile surveys performed at suppliers.

CR PROGRAM 2018

SOCIAL COMMITMENT

Objectives	Scheduled completion date	Measures	Status
Integrate people into the knowledge and information society	Ongoing	<ul style="list-style-type: none"> ▪ Expand efforts to promote media literacy and the responsible use of media 	<p>Two company initiatives, Teachtoday and 1001 Truths, implemented and included as part of the new online platform, Media, sure! But secure. to promote safe and competent media use. Teachtoday further established as a flagship project.</p> <p>Results:</p> <ul style="list-style-type: none"> ▪ Teachtoday media obstacle course continues tour in Germany, course translated into simple language. ▪ "Media, sure! But secure." competition held on the topic of "Responsibility online". ▪ Teachtoday campaign day takes place on Safer Internet Day, teaching 50 schoolchildren about responsibility on the web. ▪ Training for over 300 media scouts run by Teachtoday at the "Media 2018" German Youth Conference in Rostock ▪ Further internationalization of the Teachtoday online platform: The platform is currently available in the following languages: German, English, Romanian, Polish, Croatian, Montenegrin and Hungarian. Scroller media magazine for children published twice in German and English. ▪ Relaunch of Scroller magazine's first edition, "Mobile ready" for display in T-Shops. ▪ Held Summit for Kids, the final event in the "Media, sure! But secure." competition. ▪ Launch of 1001 Truths initiative – an online platform with teaching and learning materials – addressing trust and opinion forming on the web as a way to contribute to digitalization in society. <p>The first two events were held in 2018 with the new Code+Design Camps format.</p> <p>Results:</p> <ul style="list-style-type: none"> ▪ Some 150 young people attending these camps – who may or may not have any prior experience with programming – learned about new technologies and developed their digital skills under the guidance of professional mentors. <p>Continued growth of longstanding collaborations with our partners for secure and competent media use</p>
	Ongoing	<ul style="list-style-type: none"> ▪ Offer work integration programs for refugees 	<p>Involvement in refugee aid continued with the focus on integration in the job market:</p> <ul style="list-style-type: none"> ▪ Provided a total of approx. 440 job offers for refugees. ▪ These included up to 100 training positions, places on entry-level training schemes and cooperative Bachelor's and Master's programs. ▪ Five applicant days held for future interns ▪ Continuation of the "Internship PLUS direct entry" initiative: 38 places were granted with prospects for follow-up employment in the "Ready for the German labor market" training to support long-term integration in the German labor market. ▪ "Welcome" grant program run by the Deutsche Universitätsstiftung supported to help students seeking refuge in Germany ▪ Ongoing provision of free Wi-Fi to refugee reception centers: 56 WiFi hotspots were established in refugee reception centers as of the end of 2018. ▪ 34 buildings provided as refugee accommodation and as offices for the German Federal Office for Migration and Refugees. ▪ Deutsche Telekom employees involved in volunteer refugee work, e.g., the eStart program of cooperation partner Volunteer Vision, received support. As of the end of 2018: 112 Deutsche Telekom employees supported one refugee each as language tutors.
		<ul style="list-style-type: none"> ▪ Evaluate "engagement@telekom" activities on an ongoing basis ▪ Continue to improve transparency regarding the effectiveness of our social commitment by conducting ongoing effectiveness measurements 	<ul style="list-style-type: none"> ▪ 655 volunteering projects completed, involving 35,836 employees and 68,403 hours volunteered. ▪ Effectiveness of social commitment measured through the Social Commitment ESG KPI, Community Investment ESG KPI, Beneficiaries ESG KPI and Media Literacy ESG KPI

CR PROGRAM 2018

NETWORKS

Objectives	Scheduled completion date	Measures	Status
Provide broadband to around 80 percent of the German population.	2018/19 (target adjusted)	<ul style="list-style-type: none"> ▪ Expand fiber optics infrastructure and equip/upgrade street cabinets with vectoring technology 	<ul style="list-style-type: none"> ▪ Expansion of vectoring structure continued ▪ The online ticker provides information on the number of connected households.
Provide LTE coverage to 95 percent of the population in Germany	2018	<ul style="list-style-type: none"> ▪ Set up additional base stations ▪ Continue LTE 1800 and LTE 800 network build-out 	<ul style="list-style-type: none"> ▪ Around 97 percent LTE coverage already achieved in Germany and Europe (end of 2018)
By the end of 2019 switch to IP in Germany for consumer, by the end of 2020 switch to IP in Germany for business completed	2019 for consumer, 2020 for business	<ul style="list-style-type: none"> ▪ VDSL vectoring build-out ▪ Migration to IP technology 	<ul style="list-style-type: none"> ▪ Around 400,000 lines monthly migrated to IP. ▪ By late 2018, more than 86 percent of existing customer lines had been implemented based on IP technology (i.e., around 95 percent of consumer broadband lines). ▪ 4.7 million lines switched to IP in 2018.

CR PROGRAM 2018

EMPLOYEES

Objectives	Scheduled completion date	Measures	Status
Establish human resources policies adjusted to different life phases	Ongoing	<ul style="list-style-type: none"> ▪ Continue to improve work-life balance offer ▪ Promote part-time study programs (Bologna@Telekom) 	<ul style="list-style-type: none"> ▪ Enhanced support for employees caring for family members through new advisory services and arrangement of assistance ▪ 25 parent-and-child offices set up at a total of 19 locations ▪ Flexible working time models expanded; lifetime work accounts for employees and civil servants available. A total of more than 11,000 lifetime work accounts were set up by the end of 2018.
Be the first DAX-30 company to achieve a quota of 30 percent for women in middle and upper management	2020	<ul style="list-style-type: none"> ▪ Ensure equal opportunity, freedom from discrimination and competitiveness ▪ Introduce target quotas along the entire talent pipeline ▪ Design and implement Managing Diversity module for manager training ▪ Improve work-life balance 	<ul style="list-style-type: none"> ▪ Percentage of women in managerial positions throughout the Group increased from 19 percent (February 2010) to 25.4 percent (December 2018) ▪ Quota development monitored, measures aligned, evaluated and redesigned where necessary ▪ Mentoring program to prepare employees for positions on the supervisory boards of German and international affiliated companies continued. 22 out of a total of 64 participants were appointed to supervisory board positions. ▪ Mentoring program for experts and managers during parental leave: successful start of third round with a total of 31 experts and managers (end of the round: January 2019).
Provide room for development and advancement	Ongoing	<ul style="list-style-type: none"> ▪ Introduce new forms of internal and external collaboration, agile work and improved service orientation and encourage entrepreneurial thinking and action ▪ Participate in the discourse on relevant topics within society in a structured way 	<ul style="list-style-type: none"> ▪ Start of the #Neues Arbeiten (New Way of Working) initiative (formerly Future Work) to experiment with and strengthen new types of collaboration ▪ Start of Agile Blueprint, the Group-wide initiative to facilitate a cultural shift toward an agile company ▪ Skills management program skillsUP! for revising existing job profiles. ▪ New leadership program levelUP! for executives: More than 1,400 managers from Deutsche Telekom took part in levelUP! in 2017 and 2018. ▪ Expanded digital learning formats, e.g., MagentaEINS; about 41 percent of all formal training hours were completed online; third MOOC (Massive Open Online Course) on design thinking was held with 4,500 participants from 32 countries. ▪ Part-time Cyber Security Professional training program: Training was opened up to employees from other companies; ten Deutsche Telekom employees and five employees from other companies took part in 2018. The Cyber Security Professional profile serves as an incentive to amend the list of existing skilled occupations in the IT segment in Germany.

CR CONTROLLING AND IMPACT MEASUREMENT

Deutsche Telekom's CR Controlling department plays a key role in controlling our CR activities. Controlling has been supported by an IT-based data collection system for the past nine years. The system makes sure that "environmental, social and governance (ESG)" data and KPIs are promptly and transparently recorded and reported. It supports standardized, mandatory processes at the Group and national level and enables Group-wide benchmarks. This IT support lets us focus on content analysis of ESG data and helps us measure early on in the process to what extent we have reached our CR targets and if we need to make changes.

We especially use ESG data to calculate relevant indicators and our ESGKPIs, with which we measure and control our CR performance throughout the Group. This information is published in our section on KPIs and in the interactive benchmarking tool of the CR report.

We are continuously improving our system for performance indicators on the basis of internal and external requirements. In this connection, in 2018 we once again expanded our reporting on Smart Innovation.

Since 2015 we have also analyzed the social impact of our corporate activity. In the following, we describe our general approach and the results of our impact measurement for selected topics.

ESG KEY PERFORMANCE INDICATORS

ESG KPIs (key performance indicators) are used as management tools for our CR involvement. They enable us to improve our performance on an ongoing basis. As they are relevant to our supply chain, we also address them in our annual report in the "Non-financial statement".

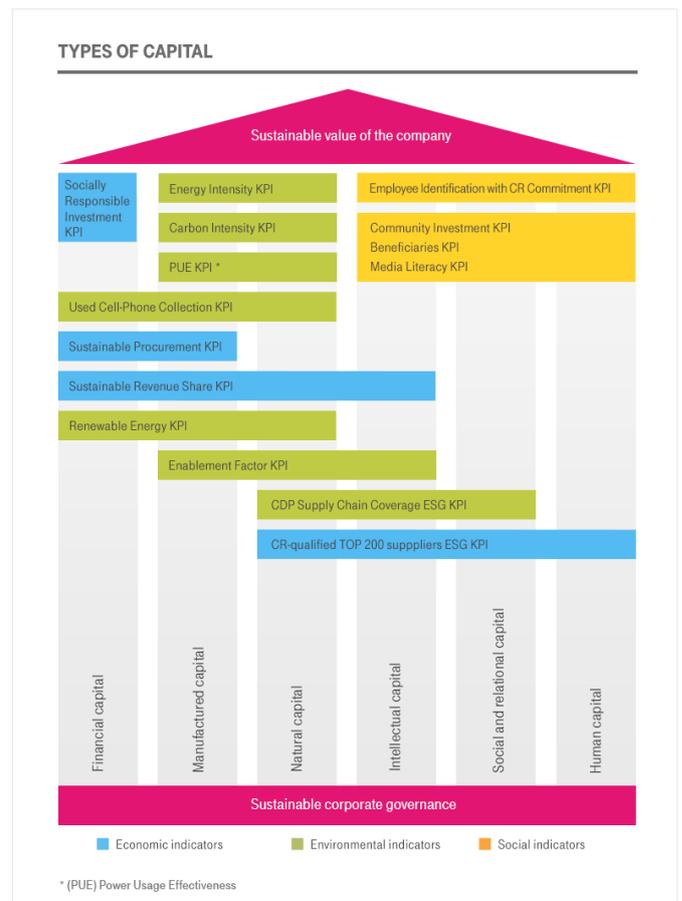
We use 13 KPIs that are valid Group-wide to manage our CR performance:

- Socially Responsible Investment (SRI) ESG KPI
- Sustainable Procurement ESG KPI
- Sustainable Revenue Share ESG KPI
- Energy Intensity ESG KPI
- Carbon Intensity ESG KPI
- Renewable Energy ESG KPI
- Power Usage Efficiency ESG KPI
- Enablement Factor ESG KPI
- Take Back Mobile Devices ESG KPI
- Community Investment ESG KPI
- Beneficiaries ESG KPI
- Media Literacy ESG KPI
- Employee Identification with CR Commitment ESG KPI

All of Deutsche Telekom's national companies that participate in the CR data collection process are obligated to record our Group-wide ESG KPIs. These national companies represent 99 percent of the Group's net revenue.

ESG KPIs cover types of capital

For the purpose of integrated financial and sustainability reporting, the KPIs map the six types of capital addressed in these reports and therefore also reflect the essential aspects of the sustainable value of our company (see diagram).



ESG KPI REPORTING IN THE ANNUAL REPORT

We have included selected ESG KPIs in our Annual Report since 2011. We published the following KPIs in 2018 within the framework of our combined non-financial statement. A detailed description of each KPI can be found in the Indicators section, which can be accessed with the following link.

- Socially Responsible Investment (SRI) ESG KPI
- Sustainable Procurement ESG KPI
- Sustainable Revenue Share ESG KPI
- Energy Intensity ESG KPI
- Carbon Intensity ESG KPI
- Renewable Energies ESG KPI
- PUE ESG KPI for Germany
- Enablement Factor for DT Group in Germany ESG KPI
- Community Investment ESG KPI
- Beneficiaries ESG KPI
- Media Literacy ESG KPI

IMPACT MEASUREMENT AND CONTROL: OUR APPROACH

We have set a target to continuously improve the positive social impact of our products, solutions and activities, and minimize their negative impact. Since 2015, we have made our contributions to achieving the Sustainable Development Goals (SDG) transparent in our reporting. This way we also fulfill the expectations of our external stakeholders.

In 2018 we began developing an overarching approach that will allow us to more precisely gauge the impact of our action – in what we call our blueprint. This six-step plan will let us determine the impact of our activities and identify the changes we have brought about. In addition, the blueprint will help us recognize and assess interdependencies.

The blueprint was developed and the impact of core topics measured in collaboration with external experts. In addition, to ensure that our blueprint can also meet additional requirements, we held an accompanying dialog with stakeholders from the fields of finance, science, human rights and the environment. We began by asking the experts about their expectations and experiences in relation to corporate impact measurement. The results of this dialog were included in the development of the blueprint. In our concluding talks, we presented the blueprint to stakeholders, discussed it with them and addressed specific suggestions.

To ensure transparency and comparability of the results, we use external frameworks to describe the effects of our contributions. These include, for instance, the Sustainable Development Goals (SDG) and the Universal Declaration of Human Rights.

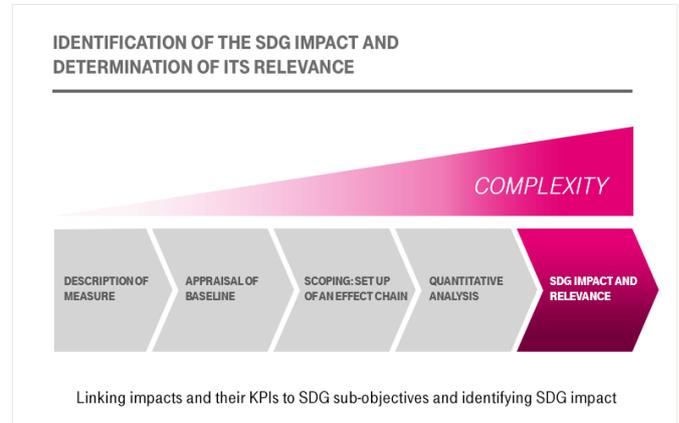
The impact measurement initially considers the impact of a project, product or measure on an SDG, for example, the positive ecological impact on relevant SDGs through switching from paper bills to online billing. We use the results for both internal control of the analyzed measure, project or product and for communication.

We can also view the impact on SDGs from a global perspective. For the measure mentioned above, for example, we would look at the size of Deutsche Telekom’s share in global paper consumption.

In the past year we conducted an impact measurement for various measures and products in connection with our materiality analysis, using appropriate methods and approaches. It is important for these to be comprehensible, based on solid data and assumptions, and to be valid for several years. It is also essential to have a clear description of the starting situation (baseline) in order to evaluate the specific impact. The results can be both qualitative and quantitative.

In the following paragraphs, we present several results from our impact measurement, for example, for the switch to online billing, the expansion

of the network infrastructure, an initiative for human rights, the use of environmentally friendly packaging materials and our activities aimed at strengthening media skills.



IMPACT MEASUREMENT: BROADBAND EXPANSION

In 2018, we once again took a close look at one of our core topics, broadband expansion. We were able to confirm our previous findings. In particular, we were able to more precisely define our impact on the Sustainable Development Goals (SDGs) of the UN.

The broadband expansion is making a positive impact on many areas of society and is helping us achieve the SDGs: Improved network coverage (SDGs9 and 17) can create new jobs, for instance, through increased company start-ups (SDG8). This will also lead to higher income and gross domestic product. Network expansion also lays the foundation for many other positive effects, such as improved access to digital services in the educational and health care field (SDGs3, 4 and 10).

The necessary underground work in connection with the infrastructure expansion phase will result in several temporary and one-time adverse environmental effects. Operating our network infrastructure can also lead to increased energy demand. In order to mitigate this effect, we are expanding the network in an energy-efficient manner and increasingly using renewable energies (SDG7). As a result, the positive impact will significantly outweigh any disadvantages in the long term.

IMPACT MEASUREMENT: ONLINE BILLING

Virtualization, or replacing physical infrastructure with digital solutions, is a core topic in our industry. It can be used in a wide range of areas, also opening up opportunities for sustainability. We have analyzed the gradual shift from printed to online bills at Deutsche Telekom in more detail using our new impact measurement concept.

The entire impact chain was assessed for both paper and online billing. The comparison shows that the negative environmental impact of online billing is substantially lower (> 50%), primarily due to the reduced consumption of paper and ink and reduced logistics services. The effects are particularly positive for SDGs 3, 6, 7, 8, 9, 11, 12, 13 and 14.

We also looked at adverse effects, such as sales losses for the wood and paper industry and the logistics industry. However, they do not influence the results as much as the positive effects; in addition, they are part of the overarching structural shift toward increased digitalization.

IMPACT MEASUREMENT: ECO-CONSCIOUS PACKAGING

Resource efficiency has long been a core topic of ecological sustainability. The topic of plastic and packaging in particular is of great interest to society. Within the company, our “Stop Wasting – Start Caring!” initiative has also made this clear.

With help from our new impact measurement approach, we analyzed the effects of packaging optimization planned for 2019 with one of our core products (use of less material and switch to alternative packaging materials).

Overall, the switch will have a positive impact on nine of the 17 SDGs. The effect on specific subtargets of SDGs 6, 12, 13, 14 becomes clear -through decreased water pollution and CO₂ emissions as well as reduced plastic consumption.

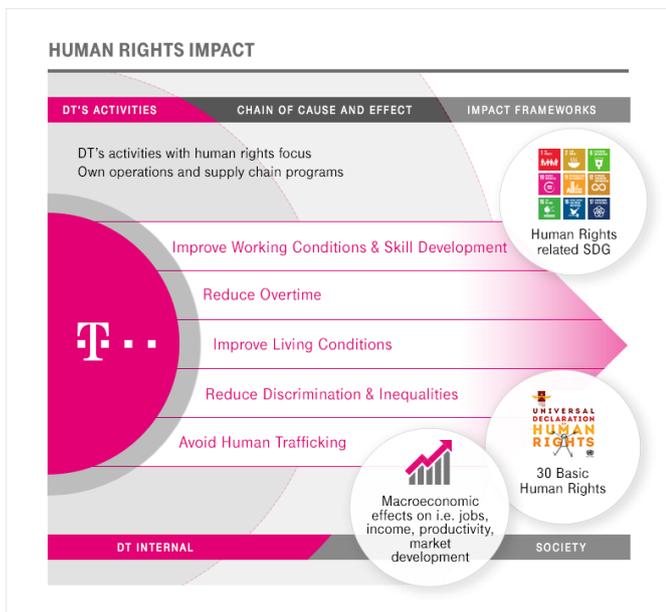
IMPACT MEASUREMENT: OUR CONTRIBUTION TO RESPECT FOR HUMAN RIGHTS

Observing human rights is a key topic for us, our customers, investors and society. As part of our impact measurement, we look at the topic both within our Group and in our supply chain.

The following diagram illustrates the positive impact that can be achieved in both our value chain and society through our commitment to human rights.

MEDIA LITERACY

We analyzed our “Teachtoday” initiative in the topic area of media literacy. This initiative contains an online platform as well as annual competitions and conferences on media use by children and teenagers. The learning methods employed with Teachtoday appeal to multiple senses. According to our results, which we obtained together with the auditors from PwC, such methods are more than twice as effective as learning methods that only appeal to one sense. This means that society benefits twice from our expenditures on specific media literacy measures (SDG4).



Reduced working hours in Brazil

A Human Rights Impact Assessment was carried out at our business unit in Brazil in 2018. It identified working hours as a relevant topic.

As a result of the review, we have agreed upon improvement measures. Our impact assessment looked at the correlations between working hours and mental and physical stress as well as accident rate, productivity and work-life balance. It shows chances that the through the Human Rights Assessments identified measures can have a positive impact on the local community beyond the workforce. In particular, we were able to discern a positive impact on SDGs 3 and 8 and on the recommendations of the United Nations Office of the High Commissioner for Human Rights.

VALUES AND GUIDING PRINCIPLES

Corporate responsibility (CR) is based on shared values. To solidify our value-based corporate culture, we convey the basic values of our company to all employees through binding Guiding Principles. We use various measures such as the annual “Guiding Principles Day” to remind employees of these values again and again, entrenching them in our everyday work. And the measures have been successful. According to our pulse survey in November 2018, 76 percent of our employees believe that the Guiding Principles are applied to our everyday work. The approval rating has therefore continued to remain at the same high level as in 2017.

Our Code of Conduct and the Code of Human Rights & Social Principles are other tools we use to ensure that our Group and our partners demonstrate corporate responsibility in their conduct. Our compliance management system, which guarantees that our business activities are in compliance with laws and regulations, is also based on these documents. They also entrench ethical standards and, in particular, human rights within the Group.

FIVE PRINCIPLES – OUR ATTITUDE – OUR GUIDING PRINCIPLES DAY

Our Guiding Principles were introduced in 2009 with the objective of defining a common system of values for all Deutsche Telekom employees worldwide. In September 2018, we held our ninth Group-wide Guiding Principles Day. Every employee worldwide was asked to think about and reflect on their own attitude. The motto of the day was “Five Principles – Our Attitude”. It once again underscored that our five principles form the basis for our attitude at the workplace.

To make this motto more tangible, we created a short comic that illustrates more negative attitudes of people in a meeting scenario. It motivated our employees to consider how the meeting could have turned out better through a positive attitude. The various ideas were discussed by the employees in YAM, our internal social network.

Managers and employees were asked about the topic of attitude in brief interviews, and these videos were posted on YAM on Guiding Principles Day. We also offered online team training sessions to address the topic in more detail. Overall, the internal website on our social network was viewed almost 18,000 times on Guiding Principles Day. The information posted on the internal portal of Human Resources was viewed more than 36,000 times. In addition, country-specific campaigns in connection with the motto of the day took place at our national companies.

COMMITMENT TO THE GERMAN “CODE OF RESPONSIBLE CONDUCT FOR BUSINESS”

We were among the first to sign the German Code of Responsible Conduct for Business, which was presented to the public in November 2010. All of the members of our Board of Management signed the code, making an express commitment to responsible corporate governance in line with the principles of the social market economy, to fair competition, cooperation with employee representatives, business excellence and sustainability.

We use our products and services to connect people and to increase the productivity of many processes. In this way, we help ensure that Germany and Europe can continue to make strides in international competition and that our well-being can continue to grow. Our goal is to simplify our lives for the long term. Our network helps us implement this broad social mission by acting as a lifeline: fast, reliable, secure and easily accessible to everyone. Our smart digital solutions are creating new ways to effectively address social challenges such as climate change.

We take our responsibility toward society and the environment very seriously and want to contribute to a climate-friendly society, to equal opportunities to participate in the information and knowledge society, and to sustainable supplier management. We work to guarantee respect for human rights without exception.

In line with the code, we continue to expand our leading position as a sustainable company as well as our ongoing efforts to optimize our value-added processes. Our integrated climate strategy is closely linked to our core business and comprises four aspects: CO₂ emissions, renewable energy sources, energy efficiency and sustainable products. For example, we are increasing the energy and resource efficiency of our networks, services and products and offering our customers sustainable products and services. We are also helping our suppliers to improve their sustainability performance. In these efforts – just like in everything we do involving our diverse stakeholders – we primarily rely on partnership and dialog. In 2018, we placed our multi-award-winning supplier development program under the umbrella of the Global e-Sustainability Initiative (GeSI) ICT industry association as an industry approach.

We set ourselves specific goals and monitor our progress using key performance indicators. We also want to make the impact of our business activities on society and the environment more transparent and, among other things, make clear what we are doing to achieve the Sustainable Development Goals (SDG). In 2018, we launched a project on impact measurement.

As a responsible employer, we show our employees the opportunities offered by the digital workplace. We create an environment in which we embrace change and offer our employees new work models, open work environments, social networks to enable flexible, interdisciplinary working, and innovative forms of learning. In 2018 more than 41 percent of all learning modules at our company were completed in digital form.

Our social commitment, however, is not just to our customers, partners and employees. We feel it is our responsibility to support the development of media literacy in our community. Our efforts in this area include the Teachtoday initiative under the “Media sure! But secure” umbrella which promotes safe and competent media use. For example, more than 140 children discussed the topic of data privacy at our 2018 “Summit for Kids”. In 2018 we also integrated the 1001 truths initiative with modules for adults in German, English and simple German.

For our holistic CR activities, we received the German Sustainability Award in 2017 as the most sustainable large company of 2018.

SUSTAINABLE FINANCE

Companies that rely on sustainable business practices are more competitive in the long term. Analysts from Deutsche Asset & Wealth Management and researchers at the University of Hamburg collaborated to analyze more than 2,000 studies on the topic. Their conclusion: The business case for sustainability has a sound empirical basis, and the vast majority of the studies analyzed pointed to a positive relationship between sustainability and financial performance. This is why investors who are interested in sustainability tend to focus on long-term yields instead of short-term profit. Socially responsible investment (SRI) can be an important component when it comes to securing capital for Deutsche Telekom AG in the long term.

SRI investment products consist of securities from companies that have passed an audit conducted in accordance with environmental, social, and governance (ESG) criteria. This is why the development of demand for T-Shares from socially responsible investors serves as an indicator for assessing our sustainability performance. With our Socially Responsible Investment ESG KPI we measure how the financial markets perceive our CR activities. Investors concerned with sustainability often refer to ratings published by specialized SRI analysts. For this reason the rating given to our company by SRI analysts has an impact on our ability to win over and retain socially responsible investors and achieve our goal of keeping our company's medium and long-term cost of capital at a low level.

In particular, an increasing number of investors are responding favorably to the concept behind the UN's Sustainable Development Goals (SDG). This is especially true with regard to the future orientation of the SDGs. It appeals to investors who are interested in companies engaging in more transparent reporting on their long-term strategic orientation and prioritization. In order to measure and quantify the effects of our activities, we launched an Impact Measurement pilot project in 2018. In doing so, we want to make our impact more transparent and highlight our contribution to achieving the SDGs, among other things.

We use different formats – both in our reporting as well as in direct dialog – to inform SRI analysts and investors of our CR activities. More and more investors and rating agencies are interested in receiving information on our CR activities; in this respect, we are seeing stronger integration of SRI approaches in the classic investment strategies of asset managers. Deutsche Telekom is regularly invited to present its CR strategy as best practice at roadshows and conferences; at Capital Markets Day 2018, CEO Tim Höttges used the opportunity to present Deutsche Telekom's CR activities to a wide audience of investors and analysts.

INVESTOR COMMUNICATION

We have been publishing important Deutsche Telekom ESG KPIs in our annual report for several years. Financial market players interested in sustainability can also review ESG information in the Socially Responsible Investment (SRI) section on our investor relations portal. Interested parties can find additional information on these topics in the CR rating info boxes provided as a supplement to this CR report.

In addition to our reporting activities, we also engage in targeted dialog with investors. In the reporting year, the Group Corporate Responsibility (GCR) and Investor Relations (IR) departments thus held several joint "Socially Responsible Investment (SRI) roadshows" in France and the Netherlands, where we offered answers to critical questions from our investors. We also held conference calls to keep interested investors informed and responded to numerous direct requests for information. In addition, we attended SRI conferences, organized conference calls and web conferences, and answered numerous direct queries from rating agencies, analysts and investors.

We covered the entire spectrum of ESG criteria: governance structure, data protection and data security, corporate responsibility controlling, sustainable supply chain, human rights, climate protection and business impact measurement.

CURRENT POSITION IN RANKINGS AND RATINGS

Deutsche Telekom's ESG (environmental, social and governance) performance is assessed within the scope of CR ratings, which provide investors with valuable information for their investment decisions.

As in previous years, the T-Share was again listed in leading sustainability indexes such as the DJSI World and the DJSI Europe Index from RobecoSAM in 2018. In addition, we were again listed in various rankings and ratings.

- In 2018, we once again qualified for the A list in the prominent CDP international climate protection ranking. CDP commends companies that report their CO₂ emissions in an extremely transparent and detailed manner. In addition to making it onto the A list, we were also included in the STOXX Global Climate Change Leaders Index.
- The rating agency oekom once again singled us out as the world's best telecommunications company in terms of ecological and social performance.
- We were also listed in the STOXX Global ESG Leaders Index for the eighth year in a row – as well as in the iSTOXX SD KPI since 2017. Once again, our share was listed in the FTSE4Good index and the UN Global Compact 100index in the reporting year.

- Our Gold status was confirmed at EcoVadis in 2018.
- In addition, we were rated number one in 2018 in the Good Company Ranking that assesses the sustainability performance of all DAX 30 companies on the basis of tested publications.
- Furthermore, at the beginning of 2019 we were once again named one of the most ethical companies worldwide by Ethisphere, an institute that promotes ethical business methods. We are the only German company among the 128 commended companies.

COMBINED NON-FINANCIAL STATEMENT IN THE ANNUAL REPORT

In 2014 the European Parliament and the EU member states adopted a directive that expands the reporting obligations of large, capital-market-oriented companies. The CSR Directive obligates such companies to report on important non-financial aspects, such as environmental, social and employee concerns as well as protection of human rights and combating corruption and bribery. Germany enacted this directive as national law in 2017 under the CSR Directive Implementation Act.

Deutsche Telekom's combined non-financial statement is contained in the management report of the 2018 Annual Report.

TAX POLICY GUIDELINES

The Group Tax department is responsible for ensuring that the Deutsche Telekom Group pays taxes and duties at the national and international level in accordance with the applicable laws.

Group Tax makes sure that the Deutsche Telekom Group complies with all its tax obligations in Germany and abroad, in particular that it pays taxes in accordance with the local laws and regulations applicable to the individual Group entities. This includes the Group's income taxes, which must also be regularly reported in our IFRS financial statements, as well as, for example, VAT and wage taxes payable within the context of customer transactions and for Group employees.

Group Tax also ensures that the Deutsche Telekom Group has an efficient tax structure within the framework of German and foreign tax laws as applicable in each country, i.e., that the Group does not carry any unnecessary tax burden. The goal is to achieve sustainable tax efficiency for the Group, which requires a transparent, trust-based cooperation with local tax authorities.

In addition, Group Tax undertakes to contribute to the greatest extent possible to the success of Deutsche Telekom's operations, e.g., by providing detailed tax advice regarding new business models or innovative technological developments. In such matters, Group Tax is particularly focused on clarifying upfront any unresolved tax law-related issues as well as providing practical solutions to meeting all applicable tax requirements.

The tax strategy – Tax Compliance, Sustainable Tax Efficiency, Tax as Valued Business Partner – was also adopted by the Deutsche Telekom Board of Management.

For detailed information on the work of Group Tax, its principles, and its responsible approach to tax, please see the related document.

SUSTAINABLE INVESTMENT AT DEUTSCHE TELEKOM

We are fully committed to sustainable finance. Correspondingly, we also apply our sustainability principles to the assets of the Telekom Pension Fund. We have pursued a sustainable investment strategy for the selection of these capital assets since 2013. In addition to financial aspects, we also take into account ecological and social principles as well as guidelines for good corporate governance.

We have pursued an optimized investment strategy since 2017. We have specified the list of negative criteria we employ and added to it best-in-class strategies and approaches to commitment. Accordingly, excluded from investment are companies that manufacture or do business with so-called controversial weapons (for example, anti-personnel mines, cluster ammunition, nuclear weapons, biological or chemical weapons). Also prohibited are investments in companies that have repeatedly violated the principles of the UN Global Compact.

We have also defined a best-in-class approach. Our investment managers select companies that boast the best sustainability performance in their respective sectors in which to invest. A decision was also made to effectively support the Sustainable Development Goals (SDGs) as shareholders with voting rights (shareholder engagement).

The investment managers will be selected based on their expertise in ESG issues. With this approach we aim to align attractive expected returns and sustainable value orientation with each other. By investing in stable values, we want to fulfill our fiduciary responsibility to our employees regarding capital investment. Our goal is also to avoid reputation risks and larger risks of loss.

SUSTAINABLE DEVELOPMENT GOALS (SDGS)

The member states of the United Nations (UN) adopted the 2030 Agenda for Sustainable Development in 2015. The Agenda's aim is to enable economic development and prosperity – in line with social justice and while taking into account the ecological limits of global economic growth. The Agenda applies equally to all nations of the world. All emerging and developing economies as well as industrial nations should play their part.

The core of the 2030 Agenda comprises 17 Sustainable Development Goals (SDGs). They officially went into effect in January 2016. The SDGs cover all three dimensions of sustainable development – social, environmental and economic – for the first time. Politicians, civil society and the business community must cooperate closely in order to achieve these ambitious goals. As such, companies are also called upon to make concrete contributions.

Deutsche Telekom has accepted this task and emphatically supports the SDGs. We are already making a contribution with many of our products, solutions and measures. Our transparent reporting on the SDGs has been distinguished in the past.

Our contributions toward achieving the SDGs have also had a positive effect on the continued development of Deutsche Telekom. In order to highlight the value contributions along the entire value chain of our company, we have divided them into five areas: Finance, Structure, Relationships, Employees and Environment. In other words, our cloud offerings improve energy and resource efficiency for our customers ("Resources"), for example. At the same time, we generate revenue with our sustainable products and services ("Finance"). The broadband expansion helps people to network and strengthens our infrastructure ("Structure"). The innovative solutions we develop in cooperation with our partners expand our networks ("Relationships"). And our ("Employees") benefit from our commitment to a diverse workforce.

OUR CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS

Information and communication technology (ICT) has the potential to help achieve the SDGs. This was the result of a study conducted in July 2017 by the International Telecommunication Union, a special agency of the United Nations. When used correctly, ICT can accelerate innovation and change, thereby promoting sustainable development.

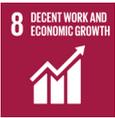
Our network infrastructure offers the technological foundation for diverse and innovative solutions for solving social and ecological challenges– and hence also for achieving many SDGs. That's why we believe we can make the biggest impact on SDG9: "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation."

The following overview illustrates our contribution to the SDGs and refers to specific examples from the current CR report.



As a responsible employer (SDG 8), we greatly value employee participation and a working environment that is fair and respectful; we encourage diversity and support our employees on their journey toward the digital working world. Furthermore, many of our products, services and activities make a concrete contribution to achieving additional SDGs. Our e-health services, for example, help improve medical care (SDG3). Our broadband expansion is giving many people access to digital educational media (SDG4) and is actively involving us in the construction and expansion of high-quality infrastructure and promotion of innovation (SDG9). Many European cities are able to use our SmartCity solutions to reduce traffic, control their street lighting in a needs-based and energy-efficient manner and increase security (SDG11). Our customers can use our SmartHome solutions to more effectively monitor, control and reduce their energy consumption. With these and other products and solutions, we can make an especially significant contribution to climate protection (SDG13). Our cloud solutions make it possible to reduce energy consumption and conserve other resources as well (SDG12,13). As part of our new initiative "Stop Wasting – Start Caring", we are reducing our resource consumption in all areas of the company. One aspect we emphasize is avoiding plastic waste (SDG12,14).

SDG	Target	Our contribution	Find out more
	End poverty in all its forms everywhere	By expanding our networks , we create the conditions for economic and social participation, among other things providing access to education - the lack of which is one of the main causes of poverty. We expect our suppliers to pay the minimum wages as set forth in the ILO Convention. We have explicitly formulated this in our Supplier Code of Conduct.	<ul style="list-style-type: none"> ■ Social commitment ■ Network expansion ■ Supplier Code of Conduct
	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Our efficient Smart Agriculture ICT solutions allow for higher harvest yields while reducing the use of resources such as seeds, water, fertilizers, and energy. What's more, our narrow-band radio communications also help maintain biodiversity.	<ul style="list-style-type: none"> ■ Use narrowband technology to combat bee mortality
	Ensure healthy lives and promote well-being for all at all ages	We promote health with our e-health solutions for the improvement of medical care and a number of health measures for our employees.	<ul style="list-style-type: none"> ■ Digital healthcare ■ Sea Hero Quest dementia study ■ Occupational health and safety ■ Mobile communications and health (EMF)Netz" and BAGSO ■ Integrating refugees into the job market
	Ensure inclusive and quality education for all and promote lifelong learning	We invest heavily in the training and development of our approx. 216,000 employees. In addition, we promote the development of media skills . The Deutsche Telekom Stiftung foundation supports a large number of STEM projects .	<ul style="list-style-type: none"> ■ Training and development ■ E-learning offerings ■ Teachtoday ■ STEM promotion ■ Partner for "Deutschland sicher im Netz" and BAGSO ■ Integrating refugees into the job market
	Achieve gender equality and empower all women and girls	We are committed to the systematic promotion of women in management, supervisory boards and STEM professions. Our employees benefit from a number of different offers we provide to improve their work-life balance . We expressly expect our suppliers to ban gender discrimination.	<ul style="list-style-type: none"> ■ Diversity and equal opportunities ■ Women's STEM Award ■ Promoting the diversity of our young talent ■ Flexible working hours models expanded further ■ Supplier Code of Conduct
	Ensure availability and sustainable management of water and sanitation for all	Our efficient Smart Agriculture ICT solutions help reduce water consumption and use of fertilizers.	<ul style="list-style-type: none"> ■ Smart Agriculture

	<p>Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<p>Our integrated climate strategy increases the share of green energy of our total energy consumption.</p>	<ul style="list-style-type: none"> ▪ Our approach for more renewable energy ▪ More green energy at European national companies ▪ Renewable Energy ESG KPI
	<p>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<p>We are committed to sustainable growth, provide excellent working conditions for our current and future employees and keep working toward a more sustainable supply chain.</p>	<ul style="list-style-type: none"> ▪ Dialogue and collaboration ▪ Protecting human rights ▪ Improving sustainability in the supply chain
	<p>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>	<p>We keep pushing the network infrastructure build-out forward and adding more innovative, sustainable products to our portfolio.</p>	<ul style="list-style-type: none"> ▪ Network expansion ▪ Sustainable product portfolio ▪ Internet of Things ▪ Supporting start-ups: creating space for ideas
	<p>Reduce inequality within and among countries</p>	<p>We employ adequate measures to connect the unconnected, providing access to the digital world for all.</p>	<ul style="list-style-type: none"> ▪ Diversity and equal opportunities ▪ Teachtoday ▪ Deutsche Telekom Stiftung foundation ▪ Refugee aid: integration into work, integration into society ▪ Accessible products and services
	<p>Make cities inclusive, safe, resilient and sustainable</p>	<p>Our innovative solutions help shape the transformation of cities into intelligent urban spaces (smart cities).</p>	<ul style="list-style-type: none"> ▪ Smart City
	<p>Ensure sustainable consumption and production patterns</p>	<p>We continually work on offering more sustainable product solutions and promoting more sustainable production patterns in the supply chain. At the same time we are committed to avoiding waste and to the recycling of valuable natural resources.</p>	<ul style="list-style-type: none"> ▪ Sustainable product portfolio ▪ Sustainable supply chain ▪ Responsible procurement of raw materials ▪ Waste reduction and recycling ▪ Collection of used mobile devices ▪ Stop Wasting – Start Caring!
	<p>Take urgent action to combat climate change and its impacts</p>	<p>We help protect the climate with measures conducted at the Group (energy efficiency and use of renewable energy) as well as with our sustainable products and services based on our integrated climate strategy.</p>	<ul style="list-style-type: none"> ▪ Climate protection strategy and climate protection measures ▪ Sustainable product portfolio ▪ Energy-efficient networks ▪ Energy efficiency in buildings



Reduce inequality within and among countries

We help reduce water consumption in agriculture and in private households through the use of ICT.

- Stop Wasting – Start Caring!



Protect, repair and promote sustainable use of terrestrial ecosystems

Our efficient Smart Agriculture ICT solutions allow for higher harvest yields while reducing the use of resources such as seeds, water, fertilizers and energy. We also conduct **projects to protect biodiversity**. We require our **suppliers** to protect the environment and use resources responsibly.

- Connected agriculture
- Protecting biodiversity
- Supplier Code of Conduct



Promote just, peaceful and inclusive societies

We have clearly expressed our commitment to complying with ethical principles and current legal standards. This commitment has been incorporated in our Guiding Principles and **Code of Conduct**. We also operate a comprehensive **compliance management system**. All our activities are compliant with legal regulations and our Binding Corporate Rules on Privacy.

- Compliance
- Privacy and data security



Strengthen the means of implementation and revitalize the global partnership for sustainable development

We collaborate with associations, institutions and companies at the national and international levels.

- Overview of memberships and collaborations
- Sustainable finance

Deutsche Telekom's value contributions



We have highlighted our contribution to the SDGs in our annual report: We indicate passages in our management report that are relevant for the SDGs with a corresponding icon. We also use this icon in our CR report. Beginning this year, we have also indicated in both publications where our efforts for the SDGs are having a positive impact on the continued development of Deutsche Telekom. We have structured these value contributions into the categories Finance, Structure, Relationships, Employees and Environment, and indicated them with corresponding icons in the management report and CR report.

Achieving more together: Cooperation for sustainable development

We cannot overcome global challenges alone. That is why we are committed to many initiatives, both within our own industry and in other sectors. The following institutions have started committees, working groups and initiatives with direct SDG relevance and in which we are involved: UN Global Compact, GSMA (an association representing the interests of mobile operators worldwide), GeSI (Global e-Sustainability Initiative) and econsense.

ALLOCATING THE SUSTAINABLE DEVELOPMENT GOALS TO OUR BENCHMARKS

Our commitment to sustainability also includes making a positive contribution to achieving the SDGs. In particular, we contribute to goals number 3: Good health and well-being, 4: Quality education, 5: Gender equality, 8: Decent work and economic growth, 9: Industry, innovation, and infrastructure, 11: Sustainable cities and communities, 12: Responsible consumption and production and 13: Climate action. We have been recording environmental, social and governance (ESG) performance indicators for many years as part of our CR controlling system. The following overview shows that our system of performance indicators purposely covers those SDGs that are relevant for our business activities. In addition to their relevance for control activities, the KPIs thereby make our positive contributions to SDGs internally and externally transparent. We continuously develop SDG relevance in our control and monitoring activities.

We look at more than just the SDGs as we develop how we deal with our benchmarks. In 2018, we launched a comprehensive impact measurement project (LINK; tbd wohin). It measures the positive and negative impacts of our business activity on the environment and society. As an important global frame of reference, the SDGs also play a role in this impact measurement.



With our infrastructure, our products and services, we make an indirect contribution to achieving SDG 1.



Product innovations on maintaining biodiversity and improving agriculture through NB IoT (Narrow Band Internet of Things).



- E-Health KPI and NB-IoT rollout
- Health rate
- Accident rate
- Employee satisfaction



- Media Literacy ESG KPI
- Training & education



- Percentage of women in total workforce
- Percentage of women in middle and upper management
- Percentage of women on the management board
- Percentage of women on the supervisory board at DT national companies



Based on our business activities, number 6 is not among the priority SDGs.



- Renewable Energy ESG KPI
- Energy Intensity ESG KPI



- Sustainable Procurement ESG KPI
- CR-Qualified Top 200 Suppliers ESG KPI
- Employee satisfaction
- Social Performance Report



- Network expansion in Germany
- Research and development expenditure
- Smart Innovation (pilot phase) NB-IoT rollout



- Sustainable Procurement ESG KPI
- CR-Qualified Top 200 Suppliers ESG KPI
- Refugee aid: Number of apprentice and internship positions
- People with disabilities



- Smart Innovation (pilot phase) NB-IoT rollout
- Sustainable Revenue Share ESG KPI



- Take Back Mobile Devices ESG KPI
- Sustainable Revenue Share ESG KPI
- CR-Qualified Top 200 Suppliers ESG KPI
- Waste volume
- Online billing
- Recovered copper cables



- Energy Intensity ESG KPI
- Carbon Intensity ESG KPI
- Renewable Energy ESG KPI
- Power Usage Efficiency ESG KPI
- Enablement Factor ESG KPI
- CDP Supply Chain Coverage ESG KPI



As part of the “Stop Wasting – Start Caring!” initiative, we are accepting our responsibility to avoid the use of, replace, reduce or properly recycle plastic and packaging in all stages of our business activity.

- Amount of Waste



Product innovations on maintaining biodiversity and improving agriculture through NB IoT (NarrowBand Internet of Things).



- Security Awareness Index
- Compliance-related tips (for example, Tell me! portal)
- Annual transparency report



- Public Private Partnership network expansion
- Partnerships in the field of social engagement: Community Investment ESG KPI and Beneficiaries ESG KPI
- Socially Responsible Investment (SRI) ESG KPI
- Listing in Rating & Rankings

MATERIALITY & ADDED VALUE

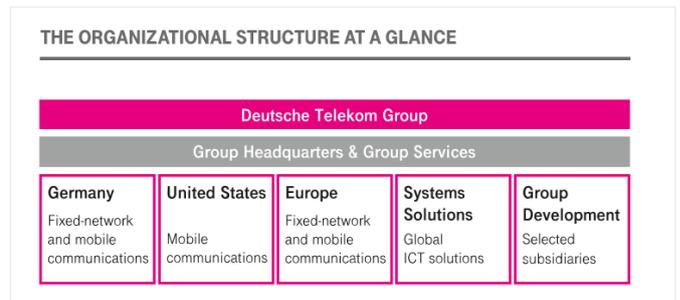
Which sustainability topics are relevant for our revenue development, capacity for innovation and reputation? In what areas and in what ways do our business operations impact society and the environment? Which topics matter to our stakeholders, e.g., our shareholders, customers and employees, as well as the public – and how do they rate our services? We need to know the answers to these questions if we want to be successful in financial and ecological terms as well as in the eyes of society, which is why our materiality process also takes into account the expectations and interests of our stakeholders.

BUSINESS ACTIVITIES AND ORGANIZATION

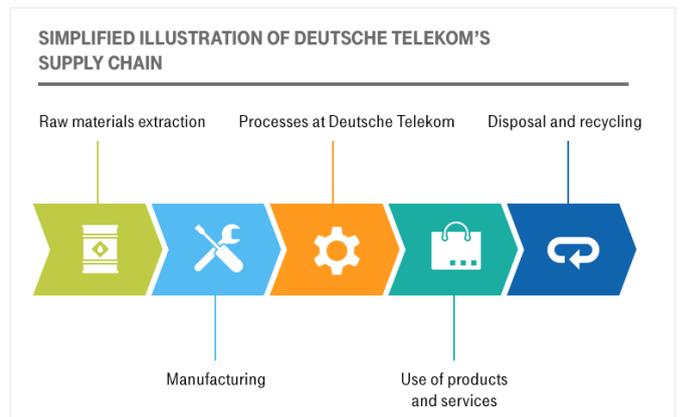
With 178 million mobile customers, around 28 million fixed-network lines and around 20 million broadband customers, we are one of the leading integrated telecommunications companies worldwide. We offer our consumers fixed-network/broadband, mobile, internet, and internet-based TV products and services, as well as ICT solutions for our business and corporate customers. We have an international focus and are represented in more than 50 countries. With a staff of some 215,675 employees throughout the world (December 31, 2018), we generated revenue of 75.7 billion euros in the 2018 financial year, around 68 percent of it outside Germany.

We believe that economic, social, and ecological aspects can be reconciled; sustainability is the guiding principle behind all our actions. A range of sector-specific and general conditions are crucial to our success: These include first-rate quality at reasonable costs, and the highest standards in data privacy and -security, customer service, and network expansion. Just as crucial are competent employees and good working conditions both within the Group and at our suppliers. It is also important to consider the potential consequences of climate change for our business activities, for example, to construct our network infrastructure in such a way that it is protected from severe weather conditions, changes in temperatures and high wind speeds. Our customers expect innovative products and services that help them reduce their carbon footprint, among other things. Furthermore – despite the rapid growth in data traffic and the network development this requires – we want to reduce our own CO₂ emissions Group-wide. Another important aspect: Even beyond our core business, we want to be a trustworthy companion in a world that is becoming increasingly complex. For us, this means conducting ourselves in a way that is ethical and compliant with the law and informing and involving our stakeholders in a transparent way.

As illustrated in the diagram, our Group consists of five operating segments.



We strive to make an effective contribution to sustainable development along all parts of our supply chain.



MATERIAL SUSTAINABILITY TOPICS: SYSTEMATIC PROCESS

We systematically identify which topics are of particular importance in defining Deutsche Telekom's sustainability management and sustainability reporting focus from the perspective of our stakeholders as well as from an internal corporate perspective. The materiality analysis is based on experience from previous years and incorporates current developments. In 2018 we expanded the materiality process to include a document analysis.

We have utilized the methodology of the Global e-Sustainability Initiative (GeSI) since 2015. The methodology covers 55 topics that are relevant for the ICT industry, and places them in nine categories: digital inclusion, employee relationships, climate change, circular economy, sourcing and manufacturing, customer relationships, freedom of expression and privacy, governance and management, and local community and environment impacts. These topics have been developed to pertain to a variety of companies and are therefore recognized in the industry.

Identifying material topics

In order to determine our stakeholders' expectations of our sustainability management, we have used an online survey since 2014. In this survey, our stakeholders can rate topics according to their importance and assess our performance in the different areas. However, willingness to participate in the survey has declined. In 2017, 218 people took the survey; in 2018, it was only 24. In order to still obtain representative feedback, we conducted an additional document analysis in 2018. This took into account legal texts, studies, position papers and media publications that provide information about the demands and expectations made of Deutsche Telekom with regard to sustainability management. The analysis also considered whether Deutsche Telekom has any influence on the respective topic and whether the expectations have an impact on Deutsche Telekom's business activity. You can see in the following tables when a topic is assigned high relevance.

Stakeholder perspective

High expectations for the relevant topic when ...

NGOs	...the majority of NGOs express specific expectations or demand compliance with certain targets or standards.
Competition	...multiple competitors actively communicate a more ambitious strategic objective or development concepts.
Legislation	...there are concrete regulatory objectives, laws or guidelines that directly impact the company.
Financial market	...the topic is part of the criteria for the ratings in question and is considered a top issue in the industry.

Company perspective

High expectations for the relevant topic when ...

Value creation	...all stages of the value chain are affected by the topic.
Sustainable Development Goals	...the topic is directly related to several SDGs.
Industry	...the industry is considered a major contributor and Deutsche Telekom holds a leading industry position on the topic.

In an internal workshop with experts from various departments, we compared the results of this document analysis and the current stakeholder survey with the results of our materiality process from the previous year. We also reviewed whether there was any change in the weighting for a topic from an internal perspective. To ensure that all of the topics are being addressed in full, interviews with other experts were conducted in the run-up to the workshops. The results of these interviews have been added to the workshop results.

We then used them as the basis for defining the material topics for our CR reporting. We presented the results of the analysis in a materiality matrix in accordance with the requirements of the Global Reporting Initiative (GRI).

Evaluating our sustainability performance

In connection with our survey, stakeholders also evaluated our sustainability performance – with the following result: Our stakeholders gave the major topics of service quality, data security and cyber security a good performance rating. In contrast, they see potential for improvement in the topics of EMF, and ICT and gender (as of December 2018).

RESULTS OF THE MATERIALITY ANALYSIS

Topics were rated as “very relevant,” “relevant,” “less relevant” and “not relevant” in the materiality analysis. We translate their weighting results onto a 100-point scale. Here are the results of the analysis.

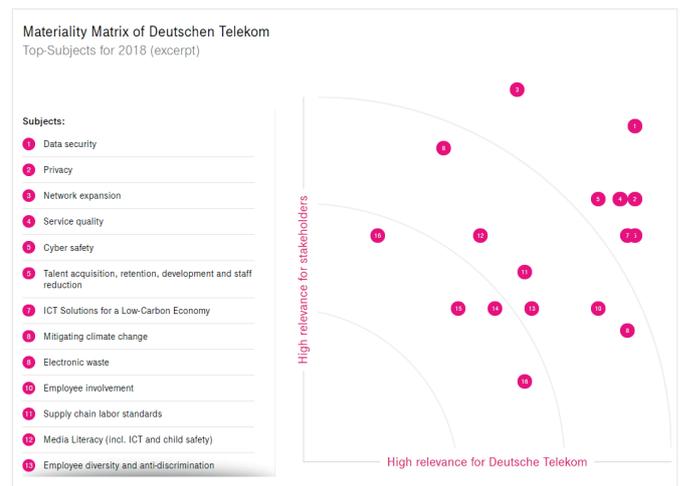
The overall result

The following illustration shows how all of the topics were rated by our stakeholders and from a corporate perspective on a scale of 0 to 100.



Top topics for Deutschen Telekom's sustainable business development

We consider all topics that achieved more than 70 points on average in the materiality process to be top topics. They are presented on a scale of 60 to 100 below.



MATERIAL ASPECTS MATCHED WITH GRI ASPECTS

The following overview indicates which GRI aspects can be matched with the material areas of the stakeholder survey.

#	Material aspects	GRI aspects	Management approach
1	Data security	<ul style="list-style-type: none"> ▪ Customer privacy 	<ul style="list-style-type: none"> ▪ Protecting consumers and minors
2	Data privacy	<ul style="list-style-type: none"> ▪ Customer privacy 	<ul style="list-style-type: none"> ▪ Ensuring effective data privacy
3	Network expansion	<ul style="list-style-type: none"> ▪ Indirect economic impacts 	<ul style="list-style-type: none"> ▪ Expanding our infrastructure
4	Service quality	<ul style="list-style-type: none"> ▪ Stakeholder engagement 	<ul style="list-style-type: none"> ▪ Ensuring excellent service quality
5	Cyber security	<ul style="list-style-type: none"> ▪ Customer privacy 	<ul style="list-style-type: none"> ▪ Protecting ourselves and our customers
5	Talent acquisition, employee retention, development and staff reduction	<ul style="list-style-type: none"> ▪ Training and further education ▪ Employment 	<ul style="list-style-type: none"> ▪ How we shape the digital world of work
5	Digitalization and the world of work	<ul style="list-style-type: none"> ▪ Training and further education ▪ Employment 	<ul style="list-style-type: none"> ▪ Shaping digital change
8	ICT solutions for a low-carbon economy	<ul style="list-style-type: none"> ▪ Products and services 	<ul style="list-style-type: none"> ▪ Developing sustainable products and services
9	Climate change mitigation	<ul style="list-style-type: none"> ▪ Emissions ▪ Energy 	<ul style="list-style-type: none"> ▪ Protecting the climate ▪ Operating energy-efficient networks
9	Electronic waste	<ul style="list-style-type: none"> ▪ Effluents and waste 	<ul style="list-style-type: none"> ▪ Saving resources and protecting the environment
11	Employee involvement	<ul style="list-style-type: none"> ▪ Labor/management relations ▪ Freedom of association and collective bargaining 	<ul style="list-style-type: none"> ▪ Shaping change at the company ▪ Protecting human rights
12	Supply chain labor standards	<ul style="list-style-type: none"> ▪ Procurement practices ▪ Forced or compulsory labor ▪ Supplier human rights assessment 	<ul style="list-style-type: none"> ▪ Improving sustainability in the supply chain ▪ Protecting human rights ▪ Managing sustainability in procurement processes ▪ Ensuring integrity and compliance
13	Media literacy (incl. ICT and child safety)	<ul style="list-style-type: none"> ▪ Customer health and safety 	<ul style="list-style-type: none"> ▪ Protecting consumers and minors
14	Employee diversity and anti-discrimination	<ul style="list-style-type: none"> ▪ Non-discrimination ▪ Diversity and equal opportunities 	<ul style="list-style-type: none"> ▪ Protecting human rights ▪ Supporting diversity
15	Ethical business practices and compliance	<ul style="list-style-type: none"> ▪ Socioeconomic compliance ▪ Anti-corruption 	<ul style="list-style-type: none"> ▪ Ensuring integrity and compliance
16	Employee health, safety and wellness	<ul style="list-style-type: none"> ▪ Occupational health and safety 	<ul style="list-style-type: none"> ▪ Promoting the health of our workforce
17	Socially relevant application of ICT products and services	<ul style="list-style-type: none"> ▪ Products and services 	<ul style="list-style-type: none"> ▪ Developing sustainable products and services
17	Transparency and reporting	<ul style="list-style-type: none"> ▪ Identified material aspects and boundaries ▪ Report profile 	

STAKEHOLDER MANAGEMENT

As a company, we are constantly balancing the expectations of a variety of stakeholders when managing our business. That is why our success depends on recognizing the interests and demands of our internal and external stakeholders and meeting and addressing these whenever possible and reasonable. Stakeholders also expect to be kept informed of how companies are responding to their demands. We go even further by actively surveying our stakeholders and involving them in our corporate activities.

Engaging in dialog with our stakeholders helps us identify trends early on, which fosters our innovation processes. A good example of this kind of dialog is the Berlin "Digitalization expert committee," which was launched in 2016 by Stefanie Kreusel (member of the Supervisory Board of Deutsche Telekom AG and T-Systems International GmbH) in cooperation with the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth. Alternating daily hosts invite interested driving forces from the fields of politics, business, science, and society, as well as citizens. In May 2018, Birgit Klesper, Senior Vice President for Group Corporate Responsibility at Deutsche Telekom, was the daily host for the topic of "Digital and corporate responsibility: '...just quickly save the world?'" The group discussed the social impact of digitalization at length.

The following overview shows our stakeholder groups and their top subjects:



Analysts, investors and their representatives

TOP-SUBJECTS:

- Cyber safety
- Privacy
- ICT Solutions for a Low-Carbon Economy
- Employee involvement
- Mitigating climate change

Stakeholder groups:

- Private investors
- Funds, asset managers and analysts
- (SRI) rating agencies
- Analyst organizations and associations
- Institutional investors

Customers, potential customers and their representatives

TOP-SUBJECTS:

- Data security
- Employee involvement
- Privacy
- Cyber safety
- ICT Solutions for a Low-Carbon Economy

Stakeholder groups:

- Youngsters and young adults
- Families
- Middle-aged people
- Senior citizens
- Small and medium-sized enterprises
- Large corporations
- Public authorities
- Consumer organizations and segment-specific interest groups
- Telekom Supervisory Board members

Business sector and its representatives

TOP-SUBJECTS:

- All top-subjects of the materiality analysis 2018

Stakeholder groups:

- DAX-listed companies
- Other large corporations
- Small and medium-sized enterprises
- Trade and industry associations
- Cooperation partners
- Competitors

Science, research and education

TOP-SUBJECTS:

- Employee involvement
- Socially relevant application of ICT products and services
- Cyber safety
- ICT Solutions for a Low-Carbon Economy
- Privacy

Stakeholder groups:

- CR and sustainability research institutions
- Political and business research institutions

- Universities
- Schools
- Day care centers
- Student organizations and university associations
- ICT, sociology and design research institutions

NGOs and special interest groups

TOP-SUBJECTS:

- Privacy
- Cyber safety
- Socially relevant application of ICT products and services
- Transparency and reporting
- ICT and child safety

Stakeholder groups:

- Humanitarian organizations and charities
- Business ethics groups
- Multi-thematic organizations
- Churches and their relief organizations as well as other religious and social groups
- Foundations
- Environmental protection organizations

Media

TOP-SUBJECTS:

- All top-subjects of the materiality analysis 2018

Stakeholder groups:

- CR and sustainability
- Players from politics and business
- Education
- Radio broadcasters, daily press, press agencies
- Online media and social networks
- Publishers
- Journalist associations/media groups
- ICT and communications

Politics

TOP-SUBJECTS:

- Privacy
- Cyber safety
- Socially relevant application of ICT products and services
- Transparency and reporting
- ICT and child safety

Stakeholder groups:

- Players at national level
- Embassies and consulates
- Supervisory and regulatory authorities
- Communities and their representatives
- International organizations
- Players at EU level

Employees, potential employees and their representatives

TOP-SUBJECTS:

- Data Security
- Privacy
- Cyber safety
- ICT Solutions for a Low-Carbon Economy
- Employee involvement

Stakeholder groups:

- Employees
- Managers
- Board of Management
- Applicants and prospective employees
- Trade unions and works councils
- Employees and students
- Endowed chairs
- Apprentices/trainees

Suppliers

TOP-SUBJECTS:

- Privacy
- Cyber safety
- Mitigating climate change
- Talent acquisition, retention, development and staff reduction
- Data Security

Stakeholder groups:

- Auditors and certification bodies
- Sub-suppliers
- Consultants
- First-tier suppliers

FOSTERING STAKEHOLDER ENGAGEMENT

We encourage stakeholder engagement in our corporate activities. In 2011 we developed a stakeholder involvement strategy to assist in this process. It is based on the three AA1000 principles developed by the NGO AccountAbility: materiality, inclusivity, and responsiveness. We reviewed compliance with these principles in 2013.

In addition to the annual stakeholder survey, we use various formats such as memberships, customer integration activities and events to enter into dialog with our stakeholders. We also use our NGO radar #and informal exchange to gather information on the needs of our stakeholders.

The feedback that we receive from our stakeholders is incorporated #into our CR activities. We regularly ascertain what our stakeholders think of our activities and modify our CR strategy, if needed. To this end, we primarily use our materiality process.

FORMATS FOR STAKEHOLDER ENGAGEMENT

The type and extent of our stakeholder engagement is based on the results of a case-related relevance analysis. Stakeholder relevance varies depending on the topic. In the sustainable finance area, for example, our investors are the most important stakeholders, which is why we are in regular communication with them. Our customers naturally play a decisive role in the development of sustainable products. The more #relevant a stakeholder group is to the topic or project concerned, the more intensive the stakeholder engagement can be. Depending on the intensity, we make a distinction between three types of engagement: participation, dialog and information.



Participation

- Stakeholder survey
- Development programs for suppliers
- YAM: information, discussion and awareness-raising
- Pilot project: Making impact measurable
- Strengthening our corporate culture, encouraging a speak-up culture
- Collaboration for the protection of minors
- Cooperating in the name of security
- Co-designing Deutsche Telekom products and services in the think tank
- Stop Wasting – Start Caring!
- Digitalization expert committee

Dialog

- 11. Sustainability Day at Magyar Telekom
- 1001 truths
- Expertise in the CR Report: You can ask Deutsche Telekom experts questions on selected topics, such as sustainable products and services
- Magenta Security Congress
- Cyber Security Summit
- SRI Roadshows
- Evaluating and implementing the EMF Policy

Information

- Teachtoday promotes media literacy
- Good to know: Internal CR newsletter for employees
- Data protection tips with our one-pager
- The We Care website: Publication of a new edition of the magazine
- Information Centre on Mobile Communications (IZMF)

OVERVIEW OF MEMBERSHIPS AND COLLABORATIONS

Business and industry associations

- American Chamber of Commerce in Germany
- Bundesvereinigung der Deutschen Arbeitgeberverbände (BDA, Confederation of German Employers' Associations)
- BITKOM industry association
- Corporate Digital Responsibility Initiative
- European Telecommunications Network Operators' Association (ETNO)
- Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V. (econsense, Forum for Sustainable Development of German Business)
- GSM Association (GSMA)
- International Chamber of Commerce (ICC)
- Bundesverband der Deutschen Industrie e. V. (BDI, the Voice of German Industry)

Climate protection and environmental organizations

- CDP
- B.A.U.M. e.V. environmental management organization
- Global e-Sustainability Initiative (GeSI)
- Stiftung 2° – Deutsche Unternehmer für Klimaschutz (2° Foundation – German CEOs for Climate Protection)
- Sustainability Leadership Forum (in collaboration with B.A.U.M.)
- European School of Management and Technology (ESMT) (Sustainable Business Roundtable)
- Global Compact
- Global Compact LEAD
- Caring for Climate
- Joint Audit Cooperation (JAC)
- Deutsches CSR-Forum (German CSR Forum)
- nachhaltig.digital (sustainable.digital)

Civic and aid organizations

- Bündnis für Verbraucherbildung (Alliance for consumer education)
- Charta der digitalen Vernetzung (Charter for Digital Networking)
- Deutschland sicher im Netz (Making Germany safe on the Net, DsiN)
- London Benchmark Group
- Help e.V. aid organization
- Bundesnetzwerk Bürgerschaftliches Engagement (National Network for Civil Society)
- CCCD – WIE
- Aktion Deutschland Hilft e.V. (Germany's Relief Coalition)
- Deutsches Rotes Kreuz (German Red Cross)
- DKMS Deutsche Knochenmarkspenderdatei gemeinnützige Gesellschaft mbH (German Bone Marrow Donor Center)
- Lebenshilfe e.V. aid organization
- SOS-Kinderdorf e.V. (SOS Children's Villages)
- Nummer gegen Kummer youth counseling line
- Telefon Seelsorge crisis counseling helpline
- Deutsche Telekom Stiftung
- Deutschlandstiftung Integration (German Foundation for Integration)
- Bundesarbeitsgemeinschaft der Senioren-Organisationen (BAGSO – German Association of Senior Citizens' Organizations)
- Code of Responsible Conduct for Business
- GIZ Private Sector Advisory Board
- Together

COMPLIANCE

At Deutsche Telekom AG we feel it is highly important that all of our employees and governance bodies comply with our values, rules of conduct and applicable laws at all times. Deutsche Telekom's understanding of what compliance means far exceeds pure legal compliance in business activity, i.e., compliance with laws and internal regulations. It focuses on the integrity of employees and governance bodies. Deutsche Telekom's central compliance organization (Group Compliance) plays a key role in establishing corporate governance structures and a corporate culture based on integrity. It promotes a culture and a set of values characterized by compliance at the company and encourages managers and employees to live these values.

GOALS	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Ensuring integrity and compliance throughout the Group and among business partners 	<ul style="list-style-type: none"> > Compliance organization > Compliance risk assessment > Code of Conduct > Policies > Consulting > Training > Communication campaigns > Business partner audits 	<ul style="list-style-type: none"> > "Tell me!" whistleblower portal > Transparent corporate culture > Compliance audits > Case studies > Punishing misconduct > Reporting

ENSURING INTEGRITY AND COMPLIANCE

We have clearly expressed our commitment to complying with ethical principles and current legal standards. This commitment has been incorporated in our Guiding Principles and Code of Conduct. We have introduced a comprehensive compliance management system. This is a way to effectively combat risks and make sure conduct throughout the Group is based on integrity and complies with our principles and regulations. All activities related to compliance management fulfill legal regulations and our Binding Corporate Rules on Privacy. This policy regulates how personal data is handled at Deutsche Telekom. Responsibility for the compliance management system lies with the top management level at Deutsche Telekom in the Board department for Data Privacy, Legal Affairs and Compliance. In addition, there is a member in each company of Deutsche Telekom at the Management or Board level who is responsible for compliance. The Chief Compliance Officer of Deutsche Telekom AG is responsible for the Group-wide structure, advancement and implementation of the compliance management system. This individual also heads up the Group Compliance unit. We also have compliance officers (COs) at each of our operating segments and national companies. These individuals are responsible for ensuring that the compliance management system and our compliance goals are implemented on site.

Goals of the compliance management system

At Deutsche Telekom, compliance refers to following the rules and doing the "right thing", which means compliance requires all employees to act with integrity. Within the meaning of our five Guiding Principles and Code of Conduct, integrity, and therefore compliance, forms the basis of all our business decisions and activities. It defines the behavior of all our employees when dealing with customers, employees and colleagues, investors, managers and Deutsche Telekom's general environment.

The goals of our compliance activities are based on these principles, the relevant regulations and legal standards as well as on our strategic objective of becoming the leading European telecommunications provider. Specifically, the purpose is to avoid compliance violations and business decisions that are not made with integrity. In addition, compliance should be integrated early on and permanently into business processes. This reduces liability risks for the company. Furthermore, compliance contributes to ensuring that our customers perceive us as a reliable partner. We ensure implementation of our overarching compliance goals in business activities by systematically applying the compliance management system in the areas of prevention, identification and response.

Focus on prevention

Each year, we carry out a Group-wide Compliance Risk Assessment. This helps us identify and assess our compliance risks and define focal points for conducting effective preventative measures, which are compiled in our compliance program.

The goal is to make sure that the conduct of our employees is ethical and compliant at all times, which is why we have set forth clear expectations on employee conduct in our Code of Conduct. We have introduced compliance-related Group policies for this purpose, such as regulations on anti-corruption measures, gifts, invitations, and events, as well as on handling consultants and agents. A policy database makes it easy for our employees to access and follow our policies (Group-wide implementation of the Code of Conduct).

Besides regular compliance training sessions, we also carry out comprehensive anti-corruption training (see GRI 205-2). We specifically address managers to act as multipliers to further raise awareness of compliance. Their feedback is analyzed carefully and used to initiate additional training sessions or other measures, if necessary.

Employees can also visit the "Ask me!" portal to have their compliance questions answered. The portal contains FAQs with example cases, as well as information on laws, internal policies, and behavioral standards.

Our employees can use it to contact the "Ask me!" advisory team, which will provide them with dependable answers if they are unsure about how they should act.

We have also introduced various measures to promote a culture of compliance at our company.

Identification and monitoring

Despite the best preventative measures, we are not always able to prevent breaches of law or serious violations of internal regulations at the company. We have created the Tell me! whistleblower portal to uncover non-compliant conduct. Our employees as well as external parties, e.g., business partners or customers, can use the portal to report misconduct (Protecting whistleblowers). Deutsche Telekom thoroughly investigates all reports within the limits of the legal framework and punishes such activity appropriately. We have introduced a Group-wide reporting process to control and monitor these activities, including regular internal and external audits of our compliance management activities.

Compliant interaction with business partners and suppliers

Our Code of Conduct specifies proper conduct for all of our employees. With our Code of Human Rights & Social Principles, we make a commitment to protecting and promoting human rights including compliance with the International Labour Organization's core labor standards. Our Supplier Code of Conduct stipulates that our suppliers must comply with the principles and values set forth by our Code of Conduct and the Code of Human Rights & Social Principles. We also expect our suppliers to require the same of their sub-contractors. Our suppliers are also under the obligation to take all steps necessary to prevent and punish active and passive forms of corruption. The Code of Conduct is part of the General Terms and Conditions for Purchasing, but does not replace the laws and regulations of countries where our suppliers are active. Rather, its aim is to facilitate compliance with these laws and regulations and guarantee that they are implemented faithfully and effectively. We have been offering e-learning on compliance to our suppliers since 2014.

We select our business partners based on compliance criteria and conduct risk-oriented compliance business assessments. This applies to customers and suppliers as well as consultants (Consultant Policy), sales agents, development partners, and joint venture partners.

Responsible use of artificial intelligence (AI)

Under the leadership of Group Compliance Management, we adopted guidelines on the ethical use of artificial intelligence (AI) in 2018. They define how we at Deutsche Telekom should use AI responsibly and how we should develop our AI-based products and services in the future. We do not claim that our guidelines constitute universally valid rules on the responsible use of AI, but instead want to develop them further in dialog with our employees and external stakeholders.

A CLEAR REFERENCE FRAMEWORK: OUR CODE OF CONDUCT

Integrity, respect and compliance with the law – this is the principle on which Deutsche Telekom's business activities are based. Our Code of Conduct sets forth the central reference framework for legally compliant and moral conduct. We revised the Code in 2017, with the goal of focusing on issues of compliance and integrity and finding a positive way to

raise employee awareness of, and motivation to tackle, these issues. The revised Code of Conduct continues to provide an overview of our understanding of values and of the basic principles that guide our actions. In some places, this overview provides more detail by referring to internal policies and regulations. The Code of Conduct makes a significant contribution to our business success by providing a fixed foundation for our business activities.

FURTHER COMPLIANCE MANAGEMENT CERTIFICATION

In 2018, we once again had our compliance management system certified with a focus on anti-corruption measures. This is our way of ensuring that we can confront risks consistently and that we have established effective processes in the company. Three further international companies were certified in 2018 (2017: 12 companies; 2016: 10).

The certification focused on processes in Procurement, Sales, HR, and Mergers & Acquisitions, as well as on events, donations, and sponsorships. The potential danger of corruption is greatest in these areas. The auditors completed their audit of the effectiveness of our compliance management system, and the system passed with flying colors. We document details regarding audit content and corporate departments that have undergone anti-corruption audits in our audit report.

Certificates and audit assessments play an ever-increasing role, for instance in bidding processes and decisions to award bids, offering a clear advantage whenever we are in competition with other companies. External auditors previously certified our compliance management system with a focus on anti-corruption measures and anti-trust law in 2010 and 2013.

STRENGTHENING OUR CORPORATE CULTURE, ENCOURAGING A SPEAK-UP CULTURE

A compliance management system is only effective if it is actually implemented in everyday activities. This is why we started the Transparent Company Culture initiative in 2016 with the intention of encouraging integrity and a speak-up culture within our company. In the following year we launched a large-scale study on the culture of compliance at Deutsche Telekom. On the basis of the results, we put together a broad set of measures to encourage the speak-up culture at the company. We continued these measures in 2018.

The results of our study on the culture of compliance

In 2018 we conducted an online survey in which 29,000 employees from national and international Deutsche Telekom companies took part. The European School of Management and Technology (ESMT Berlin) and Hertie School of Governance were our research partners in this extensive study. The initiative was supported by an expert committee created specifically for this purpose. The committee was comprised of Deutsche Telekom employees as well as representatives from non-governmental organizations, the business and scientific communities and society.

The results are very positive overall. 97 percent of those surveyed are committed to Deutsche Telekom's rules and are not willing to act in an unethical manner. The vast majority stand by their own values and would not stray from them, even under pressure. A large proportion of those surveyed also state that they would report specific misconduct

uncompromisingly. The strengths of the compliance culture include, among others, the clarity of the rules. One weakness that was identified was the lack of an open feedback culture. Some employees are wary about raising problems. Others have had a negative experience when doing so. Identified weaknesses were intensely discussed by the Board of Management and included in a set of measures for further strengthening the value-oriented compliance culture at the Group.

Current measures in 2018

One of these measures is the Speak-up Culture initiative. Employees should be encouraged to openly address grievances in critical situations, just as managers should be open to hearing these grievances. An environment should also be created wherein "critical minds" can voice their opinions. Both classroom and online courses are offered, nationally and internationally, to this end. We also want to reduce employees' inhibitions about addressing grievances and delicate issues. To foster that, we offer voluntary "Speak Up!" training courses for employees where we show them communication techniques that can be used in difficult situations.

As part of that, we staged special "Ethical Leadership" training courses with all members of the Board of Management and their management teams in 2018, with the goal of encouraging them to reflect on their own ethical conduct. We are also currently reviewing our recruiting processes so that ethical conduct will be taken into account more systematically in the future when new managers are hired.

We are currently preparing surveys of our employees, with the objective of enhancing our culture of communication even more purposefully on the basis of their feedback.

WITHOUT BORDERS: WORLDWIDE COOPERATION FOR COMPLIANCE

Different legal practices and cultural values in the countries where Deutsche Telekom is active represent a significant compliance challenge. The increasingly dynamic development of global markets and intensified international competition also influence our compliance strategy.

In line with the Group's international orientation, we discuss strategic issues with an international compliance advisory team twice a year. The team is a trend-setter of sorts for designing and implementing balanced compliance structures at Deutsche Telekom. We have also been promoting Group-wide compliance cooperation for years through meetings of the representatives of all compliance organizations from our international subsidiaries.

Compliance Days 2018 in Barcelona:

"Work internationally – Go digital – Stay compliant"

Our International Compliance Days took place for the 14th time in April 2018: Under the motto "Work internationally – Go digital – Stay compliant," around 100 compliance officers from more than 20 countries met in Barcelona, Spain. During the two-day event, experts discussed current compliance topics such as digitalization, Speak-up Culture, and principles of ethical leadership.

Deutsche Telekom rated one of the most ethical companies in the world in 2019

The Arizona-based Ethisphere Institute ranked Deutsche Telekom as one of the world's most ethical companies in 2018. We have now taken part in this survey for the second time and received this accolade – as the only company in Germany to do so. Ethisphere commends the excellent performance of companies with the highest ethical competence worldwide. In addition to Deutsche Telekom and T-Mobile USA, the ethics institute recognized another 128 companies in 21 countries and 50 industries as "2019 World's Most Ethical Companies".

PREVENTING AND FIGHTING CORRUPTION

We take many different actions and measures to prevent and fight corruption. The compliance risk assessment forms the foundation of our compliance management system. It helps us identify and evaluate compliance risks and develop appropriate preventive measures. We have established an annual process for this purpose Group-wide. It identifies responsible officers and defines clear assessment criteria that are documented in a traceable manner. The companies that will take part in the compliance risk assessment are selected using a model centered on how developed and complete their compliance programs are. 72 companies participated in the assessment process in 2018. It thus covered just under 98 percent of employees.

Our Group risk map is a key component of the compliance risk assessment that we use to assess risks that are particularly significant to our company. The risk map enables Deutsche Telekom's companies with their various business models to conduct systematic risk analyses. It currently covers 27 core risk categories ranging from corruption and anti-trust law violations to violations of the Group Code of Conduct. Each national company can add additional categories specific to their business needs. This involves defining which specific threat each risk poses to the national company and stating which measures have already been implemented to mitigate this risk. If necessary, additional measures are developed to reduce the risks to a manageable level. Responsibility for conducting the compliance risk assessment lies with the respective national company. Our central compliance organization provides support and advice in these matters.

The national companies' managing boards are informed of the results of the compliance risk assessment. Subsequently, the compliance program for the following year is defined, including specific measures and responsibilities. The managing board then passes a formal resolution to approve the program. The compliance program measures are monitored closely.

Investigation of suspected corruption based on clear criteria

Deutsche Telekom has specified clear criteria for investigating suspected cases of corruption. We start investigations if a violation of legal or internal regulations is reported with a sufficient degree of detail. Any tips that meet this requirement are investigated thoroughly. Any violations we uncover are punished appropriately. In some cases employment relationships have even been terminated for good cause. Claims for damages may also be asserted. Any weaknesses identified in the internal control system during the investigation are systematically analyzed and remedied.

"TELL ME!" PORTAL: 137 REPORTS RECEIVED

In 2018, 137 compliance-related reports were made to Deutsche Telekom via the "Tell me!" portal (146 reports were made in the previous year). 29 of those are still being reviewed for plausibility and investigations are being made into 68 plausible reports (as of January 3, 2019). 46 of these were confirmed as actual misconduct and were punished accordingly. Nine cases are still in the investigation phase. In confirmed cases, we impose systematic sanctions that are proportionate to the act and the guilt of the perpetrator and are in line with applicable legal provisions. Most of the tip-offs received in 2018 focused on "financial interests" (possible cases of fraud, breach of trust, misappropriation, theft, manipulation of targets, and unfair sales methods).

In principle, we always follow up on all compliance-relevant tip-offs, even those that reach us through other channels.

INVOLVEMENT IN ANTI-CORRUPTION INITIATIVES

Deutsche Telekom AG regularly joins forces with national and international organizations that deal specifically with compliance-related issues, including anti-corruption. As a member of associations and organizations such as the Compliance & Integrity forum of ZfW (Center for Business Ethics) and BITKOM (Federal Association for Information Technology, Telecommunications and New Media), we make use of the opportunity to exchange ideas and experiences related to compliance. Thanks to our collaborative approach and exchange of experiences, we not only make a contribution to anti-corruption within the Group, but also to initiatives in this field worldwide. We use the findings to work on continually improving our compliance management system.

MAJOR ONGOING LEGAL PROCEEDINGS

Deutsche Telekom is party to several proceedings both in and out of court with government agencies, competitors and other parties. The proceedings mentioned in the 2018 annual report are of particular importance from Deutsche Telekom's point of view.

REPRESENTING POLITICAL INTERESTS

Politics and regulatory agencies have an impact on the development and availability of network infrastructures, technologies and services. This directly impacts the competitiveness of telecommunications companies as well as business in general, which relies on having a fast network infrastructure as well as state-of-the-art telecommunications services. In addition, telecommunication networks, and the innovative applications and content that can be accessed over them, play a major role in promoting social cohesion in our information society, which is why we engage in active, ongoing dialog with all interested stakeholders from the spheres of politics and society.

LOBBYING TOOLS

Our partners from parliaments, governments and non-profit organizations need to uphold their independence and integrity. This principle is codified in Deutsche Telekom's Code of Conduct. Donations to political institutions, parties and political representatives are not allowed, for example. Instead, we place importance on factual communication, competence, credibility and integrity. As a result, politicians and stakeholders feel that the information we provide is authentic and credible and refer to this information when forming their own opinions. Deutsche Telekom is registered in the official transparency register for lobbyists in Brussels. Within the context of our collaboration efforts in associations and other bodies, we feel that we are under the obligation to comply with all ethical codes and legal provisions.

INVESTMENT INCENTIVE NEEDED FOR BROADBAND NETWORKS

Having a high-performance, reliable and secure broadband infrastructure is the basis of success for all business sectors and is a key factor in making a business location attractive. Deutsche Telekom has been making considerable contributions for years by investing heavily in the infrastructure for fixed-network and mobile (fiber-optic) internet. We show more commitment than any other company to providing full-area coverage, particularly in rural areas.

In order to drive network expansion, network operators in Germany need investment incentives, legal and regulatory planning security, and technological freedom of action. That enables them to respond flexibly to the circumstances of enterprises and households and meet political, economic, and social requirements. This is the only way to fully tap private network expansion potential using all available technologies. In areas where broadband roll-out is not economically feasible, it is up to the public sector to develop far-sighted technology and provider-independent incentive programs to help effectively finance these efforts. Legal frameworks and regulatory practice need to actively support private-sector investment in new fiber-optic networks and prevent unnecessary financial burdens and red tape for the network operators investing in networks.

In view of the fact that the internet and telecommunications market are converging rapidly and in light of the growing market power of a few global internet players, sector-specific regulation of telecommunications is creating more and more of an imbalance. The same laws and regulations that apply to telecommunications companies also need to apply to internet companies providing the same services. The objective here must be to create equal competitive conditions and enable fair distribution of the financial burden involved in broadband expansion.

PROTECTING THE OPEN INTERNET

As part of the EU Telecoms Package, regulations on network neutrality were adopted and went into effect on April 30, 2016. The regulations particularly address permitted traffic management, once again raise transparency requirements and limit commercial product and service differentiation on the internet.

Deutsche Telekom remains committed to preserving an open internet. Content and services will continue to be available online in accordance with the best effort principle, meaning they will be available to the extent permitted by the available resources. We continue to expand and optimize our infrastructure so that we are able to cope with rapidly increasing amounts of data traffic and constantly upgrade our network. As a result, we meet our customers' increasing demands and live up to the requirements of online content and application providers who also want to be able to provide their services in high quality in the future.

Building on the best effort internet, we are developing an innovative network architecture – 5G networks – which can better and more flexibly meet the various transmission quality requirements of the various services. We thereby fulfill business and regulatory requirements and enable innovation in the services we offer on our networks. Content will in no way be controlled, however. We support internet freedom and do not influence user or provider content in any way. We will continue to take a non-discriminatory approach to marketing services with different quality-of-service levels in competition with other network operators.

CONSUMER DIALOG

Deutsche Telekom aims to become the leading European telco. That is why we again gave high priority to consumer-related topics in 2018.

Main topics included the following:

- Maintaining consumer data privacy, such as in the online advertising business,

- Improving comprehensive, cross-technology protection of young people at national and EU levels (in particular by advancing a comprehensive, Group-wide minimum standard within the EU and ongoing dialog with organizations involved in the protection of minors both nationally and at EU level),
- Improving customer service standards,
- Improving consumer protection in telecommunications (e.g., during ongoing IP migration and when switching providers for fixed-line and mobile connections), and
- Our efforts to provide better transparency for our customers (e.g., the data protection one-pager and the product information sheet on the Transparency Ordinance).

Within the scope of ongoing IP migration in the fixed-line network, Deutsche Telekom has switched most of its customers to IP, especially in the last four years, and has undertaken numerous measures to make the migration as easy and seamless as possible for customers. Deutsche Telekom is also continuing its commitment in issues of provider switching, with the goal being to make it easier for both fixed-network and mobile consumers to switch providers without any service interruptions. In all these areas, Deutsche Telekom stands for a constructive and solution-oriented approach that is geared to both the consumers' interests and the interests of our company.

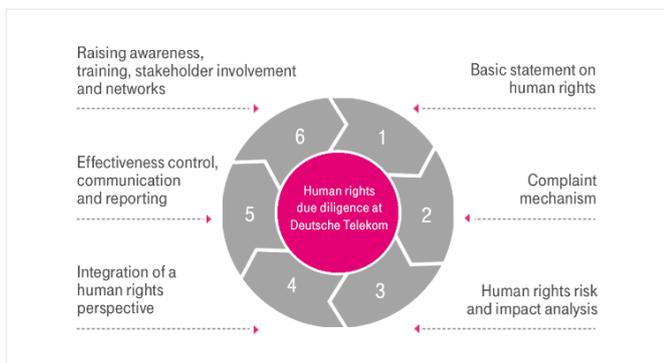
HUMAN RIGHTS

As an international player, the Deutsche Telekom Group assigns high priority to human rights compliance, especially since the ICT sector is frequently criticized for deficiencies in its supply chain. That is why we have established comprehensive social standards at Deutsche Telekom and implement these using appropriate methods. We attach particular importance to granting the right to collective bargaining and supporting diversity and equal opportunities, among other things. We expressly require our suppliers to assume responsibility as a way of making sure human rights are also protected outside of our Group.

GOALS	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Ensure protection of human rights within the Group > Implement the obligation to protect human rights in the value chain 	<ul style="list-style-type: none"> > Human rights due diligence program 	<ul style="list-style-type: none"> > Contact point for human rights > Human Rights and Social Performance Report > Effectiveness analyses

PROTECTING HUMAN RIGHTS

Deutsche Telekom has made an express commitment to the UN Guiding Principles on Business and Human Rights published by the United Nations Human Rights Council in 2011. These principles require businesses to systematically identify the impact their operations have on human rights, and to prevent, mitigate or compensate these where necessary. In order to meet these requirements, we have developed an extensive program to implement the UN Guiding Principles and introduced an ongoing process comprised of several interconnected measures and tools (see diagram).



The obligation to respect human rights, including personal rights and freedom of opinion, is anchored in Deutsche Telekom’s basic policies, our Guiding Principles and the Code of Human Rights & Social Principles. Deutsche Telekom’s Employee Relations Policy and its Diversity Policy are also important in this context.

Tools for assessing potential impact on human rights

We use two tools in particular to assess our Code of Human Rights & Social Principles. First, every year we prepare a central Human Rights & Social Performance Report: In the 2018 report, all 120 companies surveyed confirmed that they comply with the principles of the Code of Human Rights & Social Principles. The report indicated no violations for 2018. Second, in 2013 we established a central point of contact for human rights issues. This contact point can be reached via various channels, for example the public e-mail address humanrights@telekom.de. Tip-offs can be reported via the anonymous whistleblower portal without providing any sender information. All relevant contact information can be found on our whistleblower portal “Tell me!”. We look into all tip-offs and reports received and introduce countermeasures as soon as the information is identified as plausible. You can find out how we handled the reports we received in 2018 here. In addition, since 2013 we have integrated human rights aspects in due diligence activities conducted in the context of mergers and acquisitions.

Based on need, we also introduce special evaluation processes to assess employer-employee relations in the national companies with which we implement our Employee Relations Policy. In this context, we also take into account the results provided by our Human Rights & Employee Relations Cockpit. This is a tool to measure progress at our national companies on the basis of five indicators pertaining to human rights:

- Employee satisfaction (source: semi-annual pulse survey)
- Willingness to recommend Deutsche Telekom as an employer (source: semi-annual pulse survey)
- Health rate (source: HSE cockpit)
- Number of employees giving notice (source: HSE cockpit)
- Human rights risks at national companies (according to Maplecroft Human Rights Risk Index)

Our national companies are classified according to a traffic-light system for their results in each indicator: green (requirements met), yellow (requirements partially met) and red (requirements not met). The results are then discussed with the regional managers at the national companies and measures such as human rights impact assessments and employee relations policy reviews are arranged as necessary.

Human rights in the supply chain

We expressly require our suppliers to assume responsibility as a way of making sure human rights are also protected outside of our Group. To this end, we supplemented our sustainable procurement strategy with supplier management to improve our sustainability performance in our supply chain and ensure respect for human rights. The detailed results of our Group-wide auditing program are available here.

CODE OF HUMAN RIGHTS & SOCIAL PRINCIPLES

In 2017, we revised our Social Charter and renamed it Code of Human Rights & Social Principles, which was adopted by the Board of Management in November 2017. This update underscores our commitment to protecting human rights and to the goals of the German National Action Plan on Business and Human Rights adopted by the Federal Government in 2016. There were only some minor content changes. Among other things, a statement was incorporated summoning all employees to respect and promote human rights and social principles. We also changed some of the wording. The human rights principles are now mentioned more explicitly, and our existing processes and strategies explained in more detail. The reason for the revision was primarily the increased expectations of governments, NGOs and other stakeholders. In 2018, we announced the Code of Human Rights & Social Principles in all companies Group-wide and carried out a communication cascade.

Additionally, the Code of Human Rights & Social Principles is our commitment to complying with the guidelines and the Declaration of Principles concerning Multinational Enterprises and Social Policy issued by the International Labour Organization (ILO), the Organisation for Economic Co-operation and Development (OECD), the Universal Declaration of Human Rights as well as with the UN Guidelines for Business and Human Rights and the UN Global Compact.

REPORTS AND INQUIRIES TO THE CONTACT POINT FOR HUMAN RIGHTS

We established a contact point for human rights at Deutsche Telekom in 2013. Between January 1 and December 31, 2018, the contact point received nine reports related to human rights, submitted either directly to the contact point or through the (anonymous) whistleblower portal. Not all of these tip-offs were deemed plausible. Most of the inquiries and reports related to the topic of "compliance and verification of human rights at Deutsche Telekom". A few reports related to the topic of ongoing professional education. We also received several fundraising and support questions, which we forwarded to the appropriate departments. Of course, all reports were treated as confidential.

RISK AND OPPORTUNITY MANAGEMENT

For us, comprehensive risk and opportunity management also means considering the opportunities and risks arising from ecological or social aspects or from the management of our company. To this end, we actively and systematically involve all relevant stakeholders in the process of identifying current and potential risks and opportunities. We also participate in a number of working groups and committees. In parallel with our ongoing monitoring of ecological, social and governance issues, we systematically determine our stakeholders' positions on these issues. The key tools we use here include our year-round open online survey for all stakeholders, our bi-monthly NGO report which systematically analyzes press publications of the NGOs relevant for us, our involvement in working groups and committees of numerous national and international business associations and social organizations, for example, GeSI, BDI, BITKOM, econsense and BAGSO, stakeholder dialogue formats organized by us and our various publications, such as the press review and newsletter. We also integrate the biggest sustainability risks in our internal compliance assessment, thereby recording the associated positioning and development of measures in the various business areas.

We have identified the following as our main sustainability management issues:

REPUTATION

How we deal with sustainability issues also entails both opportunities and risks for our reputation. A high level of service quality is one of the most important factors for improving customer perception. Customer satisfaction has been embedded in our Group management as a non-financial performance indicator to underline the importance of this issue. Transparency and reporting help to promote the trust of other external stakeholders in our Group. Our annual and CR reports also serve this purpose. However, issues such as business practices, data privacy and work standards in the supply chain and conduct in relation to human rights also entail reputation risks. If our brands, products or services are connected with such issues in negative media reports, this can cause substantial damage to our reputation. As part of our sustainability management activities, we continuously review such potential risks and take measures to minimize them. This includes systematically incorporating them in the Group's internal compliance management system, so as to determine the relevance of the risks in relation to sustainability issues and their effect on reputation across units. We also ascertain how our products and services make a positive contribution to sustainability in order to enhance our reputation.

CLIMATE PROTECTION

We pursue an integrated climate strategy, which means focusing not only on the risks that climate change poses for us and our stakeholders, but also on the opportunities it presents. By 2030, ICT products and services will have the potential to save up to ten times as much in CO₂ emissions in other industries as the ICT sector itself generates (according to the GeSI SMARTer 2030 study). This creates an opportunity to save 20 percent of global CO₂ emissions in 2030 and to keep worldwide emissions at 2015 levels with simultaneous economic growth. The additional revenue potential here amounts to 6.5 trillion U.S.dollars, 2.0 trillion U.S.dollars of which is for the ICT industry alone. Furthermore, ICT solutions can save a total of 4.9 trillion U.S.dollars in costs. To give a specific example: The broadband rollout in Germany has the potential to save an aggregate amount of 19 million metric tons of CO₂ between 2012 and 2020. What's more, the economic momentum triggered by rolling out broadband can create an aggregate number of 162,000 new jobs and increase GDP by 47 billion euros between 2015 and 2020. We are supporting this trend by evaluating our product portfolio to identify sustainability benefits. In addition, we want to continuously improve the ratio of the emissions that our products and services save to those generated by our own value chain. In 2018, for example, we saved 85 percent more emissions in Germany than we produced.

Among the risks that climate change harbors, meteorological extremes are one we are already experiencing. This is having a direct effect on our stakeholders, e.g. our customers, suppliers, and employees. The risk is assessed in relation to the continuation of operations as part of risk management and is managed at an operational level in the business units. We can take further preventive action in this area by also reducing our own CO₂ emissions, which is one of the reasons we set ourselves the goal of achieving a 20 percent reduction in our Group-wide emissions – leaving aside our United States operating segment – by 2020 (baseline: 2008). Climate protection also carries financial risks, whether from the introduction of a levy on CO₂ emissions or an increase in energy costs. The measures we are taking to counter these risks include measuring our own energy efficiency and finding ways to improve it. In addition, we are developing a new Group climate goal based on the Science-Based Target for the period after 2020, which is set to be adopted in 2019. Furthermore, in 2018, four of our subsidiaries (Magyar Telekom in Hungary, OTE in Greece, T-Mobile Netherlands, and Telekom Albania) covered 100 percent of their electricity requirements with renewable energy, while a further four (T-Mobile Austria, T-Systems Austria, Hrvatski Telekom and T-Systems Netherlands) almost met this target, thus reducing climate risks. As a member of the Renewable Energy 100, T-Mobile US has already undertaken to cover 100 percent of its electricity requirement with renewable energy from 2021.

SUPPLIERS

We see more sustainability in our supply chain as an opportunity – for our reputation and our business success. Apart from the general risks associated with our global procurement activities, we can be exposed to country- and supplier-specific risks. These include, for example, the use of child labor, the conscious acceptance of environmental damage or inadequate local working and safety conditions. We reduce these risks by systematically reviewing our suppliers. We conduct these audits within the scope of the Joint Audit Corporation (JAC). The aim of the JAC is to reduce sustainability risks in our supply chain and to improve ecological and social aspects, including the issue of human rights. As such, the audit is compliant with internationally recognized guidelines and standards, such as the ILO Core Labour Standards, the UN Guiding Principles on Business and Human Rights, and the OECD Guidelines for Multinational Enterprises. Our partnerships with suppliers that comply with international sustainability standards ensure a high level of product quality and reliable procurement. We have a special development program in place to help strategic suppliers introduce business practices that are both socially and ecologically acceptable while remaining economically efficient. This program again showed measurable successes in the reporting period and has three major advantages: It has a positive impact on our suppliers' working conditions, enhances their profitability, and makes the economic relevance of sustainability clear for both sides, i.e., for our suppliers and for the Group alike. For instance, better working conditions at our suppliers reduces the number of work-related accidents as well as the staff churn rate. That, in turn, ensures high product quality and increases productivity, while at the same time lowering costs for recruitment and training. Thus, not only are we strengthening our suppliers' profitability and CR performance, we are also significantly reducing identified risks.

HEALTH AND ENVIRONMENT

Mobile communications, or the electromagnetic fields used in mobile communications, regularly give rise to concerns among the general population about potential health risks. This issue continues to be the subject of public, political, and scientific debate. Acceptance problems among the general public concern both mobile communications networks and the use of mobile devices such as smartphones, tablets and laptops. The discussion also has repercussions for the build-out of mobile communications infrastructure and the use of mobile devices. In the fixed network, it affects the use of traditional IP and DECT (digital cordless) phones and devices that use Wi-Fi technology. There is a risk of regulatory interventions, such as reduced thresholds for electromagnetic fields or the implementation of precautionary measures in mobile communications, e.g., amendments to building law, or also the risk of a labeling requirement for handsets.

Over the past few years, recognized expert organizations such as the World Health Organization (WHO) and the International Commission on Non-Ionizing Radiation Protection (ICNIRP) have repeatedly reviewed the current thresholds for mobile communications and confirmed that – if these values are complied with – the use of mobile technology is safe based on current scientific knowledge. The expert organizations, currently the ICNIRP, regularly review the recommended thresholds on the basis of the latest scientific findings.

We are convinced that mobile communications technology is safe if specific threshold values are complied with. We are supported in this conviction by the assessment of the recognized bodies. Our responsible approach to this issue is manifested in our Group-wide EMF Policy, with which we commit ourselves to more transparency, information, participation and financial support of independent mobile communications research, far beyond that which is stipulated by legal requirements. We aim to overcome uncertainty among the general public by pursuing an objective, scientifically well-founded and transparent information policy. We thus continue to see it as our duty to step up our close dialog with local authorities and ensure that this dialog leads to success. This particularly applies since our longstanding collaboration with municipalities to expand the mobile network was enshrined in law in 2013; previously, this collaboration was based on voluntary self-commitments by the network operators.

PRIVACY AND DATA SECURITY

Few internet users – whether they are using the internet for private or professional purposes – are aware that every click leaves behind data traces online that can potentially be traced. Hackers can take advantage of this to collect specific data and identify vulnerabilities in hardware and software. Almost every second German internet user (49 percent) has already been a victim of cybercrime at one time. That's the result of a representative survey of 1,017 internet users carried out on behalf of the digital association Bitkom and published in 2017. Our customers' trust is the basis for our business as an ICT company, which is why data privacy and data security are of key importance to us.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Guarantee effective data privacy and create trust 	<ul style="list-style-type: none"> > Board department and Group unit for Data Privacy > The Telekom Security business unit > Independent Data Privacy Advisory Board > Privacy and security by design through our Privacy and Security Assessment procedure > Transparent communication and annual reporting > Employee training courses 	<ul style="list-style-type: none"> > Annual Group data privacy audit to measure the standard of data privacy within the Group > Risk-based annual audit program and ad-hoc controls > Certifications

ENSURING EFFECTIVE DATA PRIVACY

The highest standards of data privacy and data security are core characteristics of our brand identity. In 2008 we created a Board of Management department for Data Privacy, Legal Affairs and Compliance as well as the Group Privacy unit. This has given us the necessary capacities for effective data protection. The responsible Board member is supported by the independent Data Privacy Advisory Board, which comprises renowned experts from politics, science, business and independent organizations. The Board was founded in February 2009.

The Telekom Security business unit commenced operations at the beginning of 2017. The new unit combines the security activities from various Group areas, thereby reinforcing our portfolio of cyber security solutions.

Consistent transparency toward the public

Transparent communication on the topic of data protection is a long-standing tradition at our company: We have been providing information about our activities since 2008, initially in regular data protection reports and, since 2016, on our data protection website www.telekom.com/en/corporate-responsibility/, where we now provide up-to-date and important information about new developments related to data protection and secure handling of personal data.

Since 2014, we have also been publishing an annual transparency report. In the report we disclose our obligations to cooperate with German and international security agencies. The section on protecting consumers and minors elaborates on how we ensure the safety of our products and services.

Regular employee training courses

Telecommunications companies are obliged to provide new employees with information on data privacy regulations. We go above and beyond these legal requirements. Every two years, we train all of our employees in Germany and commit them to data privacy and telecommunications secrecy. Corresponding requirements for our national companies are in place. We have also introduced specific training in the customer and human resources departments, where the risk of data abuse is higher. This training includes online courses for independent learning, presentations on data privacy and face-to-face courses on specific topics such as data protection at call centers. This helps us make sure that all employees have in-depth understanding of the relevant data privacy policies.

Annual review of measures through audits and certifications

We conduct an annual Group data privacy audit to measure and improve the general data privacy standards throughout the Group. 30 percent of the Group employees, who are randomly selected, are asked to participate in an online survey. The Group data privacy audit is supplemented by self-assessments completed by the data privacy officers at the national companies on implementation of the requirements defined in our "Binding Corporate Rules on Privacy."

Based on the results, the Group Privacy department identifies need for action at the respective departments and requires them to implement improvement measures. To this end, the Global Data Privacy Officer holds personal meetings with the responsible directors, managers and data privacy officers at the different departments. The Group Privacy department supports implementation of the improvement measures by providing information and advice and conducts a follow-up evaluation. Unusual audit results are taken into consideration when planning the follow-up audit.

We also have our processes and management systems as well as products and services certified by external, independent organizations such as TÜV, DEKRA and auditing firms. The technical services company TÜV Nord confirmed once again this year that Deutsche Telekom's IT systems are secure.

IMPLEMENTATION OF THE EU GENERAL DATA PROTECTION REGULATION

The EU General Data Protection Regulation (GDPR) entered into force in May 2016 and after a two-year transition period, the regulation has been binding since May 25, 2018. Since laws always require interpretation as to how they should be implemented in day-to-day life, the Group Privacy department has now prepared uniform rules for the entire Group: the Binding Interpretations. They were compiled in collaboration with data privacy experts in the national companies. The Binding Interpretations include specific recommendations and best practice examples to implement the EU regulation. For example, they explain what a customer consent must entail, or how customer data has to be erased, if this is requested by the customer. From January 2017 to May 25, 2018, the new requirements based on the Binding Interpretations were introduced throughout the Group in a second phase. This involved checking and, where necessary, adjusting all the IT-systems. All employees were informed about the General Data Protection Regulation and more than 10,000 experts received intensive training. The implementation was followed by the third and last phase of the EU-wide project: the control phase. In this phase, all affected entities of the Group were asked whether they had implemented all relevant requirements. In addition, spot checks for compliance with the GDPR were carried out at 28 entities.

PUBLICATION OF INTERNATIONAL TRANSPARENCY REPORT

Telecommunications companies are legally obligated to cooperate with security agencies. This includes surveillance measures to record telecommunications connections or disclosure of customer information. Deutsche Telekom has been publishing an annual transparency report for Germany since 2014, which covers the types and amount of information we disclose to security agencies. The transparency report was expanded to include all the national companies in 2016. The international transparency report was last published in February 2018.

International legal framework conditions differ considerably. In some countries it is illegal to disclose security measures, while in others surveillance is directly conducted by the authorities without the involvement of telecommunications companies. You can find more information on the local situations in the various country reports at <http://www.telekom.com/transparency-report>.

We consider it the responsibility of the authorities to ensure transparency regarding security measures and called for improved online security in the context of a ten-point program in January 2015. Until our requests are met, we will strive to provide the necessary transparency within the legal possibilities.

CUSTOMERS & PRODUCTS

We are building the network for the gigabit society. Digitalization means making our lives more efficient, comfortable and sustainable. Our aim is to offer these advantages to as many people as possible, while keeping them safe from the potential dangers of the Internet.

Interesting topics

Comfort Charge: expanding the charging infrastructure for electric vehicles

GDPR: EU General Data Protection Regulation became binding

Analysis of our products' sustainability benefits: Filter logic updated

Initial field tests: preparations for 5G in full swing

Responsible use of artificial intelligence: Guiding principles adopted

Internet of Things

INFRASTRUCTURE EXPANSION

A well-developed network infrastructure enables economic performance and participation in the knowledge and information society. As a result, demand for ever faster, full-coverage data services is immense. That is why we continue to rapidly expand our infrastructure and improve transmission speeds with new, secure technology.

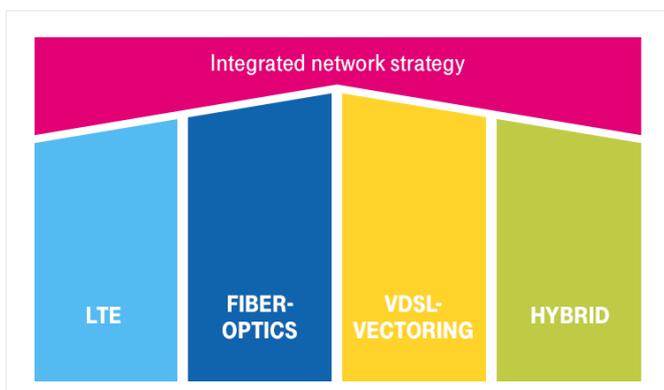
OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > 95 percent LTE coverage by 2018 > 80 percent VDSL - vectoring coverage by 2018/19 	<ul style="list-style-type: none"> > Integrated network strategy > Migrate to IP 	<ul style="list-style-type: none"> > Network coverage status

EXPANDING OUR INFRASTRUCTURE

The amount of data transmitted worldwide is growing rapidly. A study conducted by the International Data Corporation concludes that the global data volume will rise from around 33 trillion gigabytes at present (2018) to 175 trillion gigabytes by 2025. Networks need to be continually expanded to be able to handle this volume.

We have been the largest investor in this area in Germany for years now and will continue to drive network expansion. The main objectives of our pan-European integrated network strategy (INS) form the basis for these activities: growth, efficiency and quality. We will continue to expand our networks, increase the efficiency of our systems and further strengthen our role as a leader in network quality. Our integrated network strategy is in line with the network expansion goals specified by the EU Commission and the German federal government (digital agenda and broadband strategy).

Deutsche Telekom's integrated network strategy for Europe is based on the four pillars of LTE, fiber optics, VDSL vectoring and hybrid. In addition to expanding the LTE mobile network, fiber-optic expansion is the focus of Deutsche Telekom's INS for Germany. Moreover, we are in the process of implementing the new 5G standard, having demonstrated the first 5G data connection in Europe's live network in Berlin in 2018.



We even exceeded the targets we had set ourselves in Germany by 2018 for implementing our integrated network strategy: At present, about 98 percent of the population can use LTE (target 2020: 99 percent). Furthermore, 26.5 million households in Germany can already order a rate with up to 100 Mbit/s on our fixed network. This figure keeps growing daily, as can be followed in our online ticker.

Upgrading our network architecture

We intend to make our networks faster and more efficient. To do this, we are deactivating all analog public switched telephone network (PSTN) platforms that we no longer need and switching our entire telephone network to IP-based lines. 90 percent of the current technology was already replaced with IP technology at the end of 2018.

We will rely on fiber optics when updating our network architecture in order to meet our customers' demands for fast network connections. Using the fiber optic-based super vectoring technology speeds up download data transmission rates to up to 250 Mbit/s and up to 40 Mbit/s when it comes to upload transmission rates. These figures will rise even more in the future.

Irrespective of the expansion and renewal of our infrastructure, we aim to operate our networks in the most stable and failure-free manner possible. We thus ensure that the network is still available as normal even when major events like festivals or political summits are taking place. Our Disaster Recovery Management also takes effect in natural disasters like floods so that those affected can communicate again quickly.

NEW COMMUNICATIONS STANDARD: PREPARATIONS FOR 5G IN FULL SWING

The current LTE communications standard is the fourth generation standard (4G). LTE is continually developing and can so far fully meet the requirements of consumers for ever greater bandwidth. The new 5G communications standard will not only offer significantly improved network capacity and higher speeds, but also lower latencies, greater reliability and security, and improved network flexibility for customized solutions. As a result, 5G will enable a host of applications in industry and the logistics sector that are not yet even conceivable by today's standards.

Eight-point program for 5G development

In October 2018, Deutsche Telekom presented an eight-point program for developing a 5G network infrastructure. The goal: In Germany, we plan to cover 99 percent of the population and 90 percent of the country with 5G by 2025.

The further expansion of LTE/LTE Advanced contributes to the future 5G infrastructure, because LTE is the basis for 5G and will remain an

integral part of it. There will be no standalone version of 5G at the start. Instead, in line with the standardization and development plans, parts of the implementation of 5G will initially be mapped in LTE. Implementing 5G is an evolution: Thanks to a fiber optic connection, the S-RAN (Single Radio Access Network) modernization currently underway, and new services such as LTE900 or 4x4 MIMO, the more than 27,000 mobile sites in Germany will be ready, if they are not already, for the new standard and able to map initial 5G applications.

Step one: 5G test field in Berlin

Since May 2018, the first 5G antennas in Europe to fully support the new communications standard have been operating under real conditions in Deutsche Telekom’s network in downtown Berlin. The antennas are part of a 5G test field in the heart of the capital.

They are based on the future 5G standard for the non-standalone version of mobile communications component 5G New Radio (5G NR) - in other words, 5G networks based on 4G core network infrastructures. The standard was approved by the international standardization body 3GPP (3rd Generation Partnership Project) in December 2017. 5G NR is ideally suited for 5G applications using the medium frequency band below 6 GHz, which supports a good mixture of key characteristics, including broad coverage, high multigigabit range data throughput and low latencies in the order of just a few milliseconds. The antennas in Berlin are currently using the 3.7 GHz range under a test license. The licenses and frequencies issued by Germany’s Federal Network Agency will provide the basis for the 5G spectrum system and related planning in Germany in 2019.

Testing applications

To allow innovative developers to test their ideas for 5G in Berlin under real-world conditions, Deutsche Telekom has launched the 5G prototype program together with its start-up incubator hubraum.

In a world first, the Hamburg Port Authority, Deutsche Telekom, and Nokia are testing new aspects of the 5G standard using various applications in real-world industrial conditions at the Port of Hamburg in Germany. The around 8,000-hectare site has been a test field for testing the industrial capability of the future technology since January 2018: the transmission of movement and environmental data in real time, reliable traffic light controls, and virtual reality applications. The field test allows us to develop new and innovative solutions for industry, and serves as a basis for defining other aspects of the 5G standard.

The field test was also made possible by a new 5G installation on the Hamburg television tower. It was installed as part of the EU research project “5G-MoNArch”. The aim of the project is to test concepts for the 5G mobile architecture in practice.

CONTINUING EXPANSION OF THE FIBER-OPTIC NETWORK

Deutsche Telekom operates the largest fiber-optic network in Europe, covering a length of 500,000 kilometers in Germany alone. We are further expanding our fiber-optic network to keep pace with demand for higher bandwidths in the network. We use our online ticker to report on our progress.

To reach this goal, we are using FTTC (fiber to the curb) technology and are expanding FTTH (fiber to the home) as well. In the scope of the FTTC expansion, fiber optics are laid to the gray street cabinets on the curb. From there we can supply our customers with large bandwidths via existing infrastructure by means of super vectoring. With FTTH, the fiber-optic cables are taken right into the customer’s home.

	DSL 16.000	FTTC with super vectoring	FTTC
Download	up to 16 Mbit/s	up to 250 Mbit/s	up to 1,000 Mbit/s
Upload	up to 2.4 Mbit/s	up to 40 Mbit/s	up to 500 Mbit/s

Super vectoring compensates for electromagnetic interference that arises between the copper lines on the way to the households. The technology allows for faster data transmission with speeds of up to 250 Mbit/s. The technology for this is installed in the cable distribution box.

CONTINUING EXPANSION OF THE LTE MOBILE NETWORK

The expansion of LTE mobile technology in the Deutsche Telekom network ensures more extensive reach and higher speeds. LTE network coverage had reached about 98 percent of the population in Germany and 97 percent in Europe by the end of 2018, putting our European national companies in line with their target coverage.

FASTER INTERNET ACCESS ON BOARD

Together with satellite operator Inmarsat, we will provide airline passengers in Europe with even better internet access on airline flights. We are currently establishing the European Aviation Network (EAN) within the scope of a strategic partnership with additional partners. EAN is the first integrated solution worldwide that consists of a satellite and a complementary LTE-based ground network. Other partners are telecommunications company Nokia and aerospace specialist Thales.

Deutsche Telekom and Nokia completed the project’s ground network at the start of 2018: 300 antenna locations were installed and the network was connected. At the same time, Inmarsat and Thales completed the satellite test in orbit. Following successful flight tests, the EAN service is now functional.

Our first customer, airline group IAG, has equipped multiple airplanes with EAN hardware and performed an internal pilot project. The EAN service is slated to be commercially available for passengers starting in the spring of 2019. The Europe-wide introduction of EAN for the entire IAG fleet is planned for 2019.

PAN-EUROPEAN NETWORK (PAN-NET) IS TAKING SHAPE

To date, the European national companies have operated their own infrastructures and developed their services independently. The switch to IP technology, however, will make it possible to develop new services together and share them across borders. We hope to tap into this potential by creating a pan-European network.

Individual services such as text messages, voicemails, and emails will be made available to all countries in the pan-European network as “product building blocks.” Our Pan-Net cloud will serve as the basis for

this. Every national company can then use the building blocks to create an offer that suits their local market and customer requirements. We can also use this technology to offer new solutions throughout Europe within just a few days. Pan-Net build-out continued in 2018. To date, the network is already available for 45 million customers served by eleven national companies in Europe.

The Pan-Net cloud is an association of data centers distributed throughout Europe. These are located in Hungary, Poland, Greece, North Macedonia, Romania, Slovakia, the Czech Republic and Germany. Six data centers were added in 2018: two in Greece, two in Croatia, and one each in Hungary and Germany.

SWITCH TO IP TECHNOLOGY ADVANCES

Thanks to IP technology, phone calls are no longer transmitted via analog channels or using ISDN technology but in the form of data packets over the secure Deutsche Telekom network, a method that has been the standard in online and mobile communications services for some time now. The switch to IP-based lines is the basis for faster internet connections and increasingly complex applications. We will thus meet the growing demands of our customers. At the same time, energy use with IP technology is considerably lower than with the network technology previously used. The switch therefore also helps us decrease our CO₂ emissions.

In total, we have already switched 20.3million lines to IP, two million of which are for business customers. In the other EU countries, we also increased the number of IP lines. In Croatia, Montenegro, NorthMacedonia, Slovakia and Hungary, all lines have already been switched to IP. In Greece, 74percent of the lines are running on IP technology, and in Romania the figure is 47percent.

AWARD FOR MOBILE NETWORK IN GERMANY



Best Network 2019

Computer Bild (issue 25/2018)

Computer Bild voted Deutsche Telekom's mobile network the best in Germany for 2019. With an overall score of 1.8, we headed the field of competitors.



Several first places in the 2018 Connect readers' choice (issue 6/2018)

We are the best mobile network operator and the best fixed-network provider. This was once again the conclusion of the annual choice of the readers of the trade journal Connect. Our products and services also won additional prizes in the following categories:



- Mobile network operators
- Network operator prepaid cards
- Fixed-network providers
- German cloud services



- Complete smart home systems
- Email services



CHIP (issue 1/2019)

We came out on top in CHIP's mobile network test and were voted best network.



Connect mobile network test (issue 1/2019)

We were also the overall winner of the 2019 Connect mobile network test, with a rating of "very good". The testing examined the voice and connection quality during phone calls as well as data communication via mobile internet. The measurements were taken at various locations, such as cities and small towns as well as on trains.

SUSTAINABLE PRODUCTS AND SERVICES

Our products, services, and activities help us tackle ecological and social challenges, as was made clear in a comparison with the 17 sustainability goals (SDGs) set forth by the United Nations. That’s because information and communications technology (ICT) allows industries, service providers and consumers to be more sustainable. By way of example, according to the GeSI SMARTer2030 study, greenhouse emissions could be reduced by 20 percent by 2030 through targeted use of ICT. It also offers great market potential: The study estimates that ICT-supported services will be able to generate additional sales totaling some 6.5 trillion U.S. dollars by 2030.

However, sustainability means more than just climate protection. Technology can contribute to lower resource consumption, for example, in connection with smart city projects. In the health care sector, digitalization of patient documents is reducing paperwork. And even the introduction of digital bills is helping to conserve resources.

In our current consumer model, products are usually discarded after use. This leads to the loss of valuable resources while garbage piles grow. The idea of a circular economy, where resources return to the production process through recycling. In keeping with the motto “avoid, reduce, reuse” we also make careful use of natural resources at our company. The idea of a sharing economy goes a step further than this. This is a “share instead of own” concept, which reduces the amount of consumer goods per person. What’s more, repairing objects increases their life cycle. Both save valuable resources. Many sharing economy concepts like car sharing or city bikes wouldn’t be possible without digital networking. ICT is thus an important prerequisite for more sustainable business.

As a telecom company, we are doing our part to decrease the resource consumption of ICT products: In our leasing model for routers and media receivers, discarded devices are refurbished for reuse. This extends their life cycle. And with our cell phone collection program, we can also ensure that valuable raw materials are returned to the value chain. We are in regular and intensive communication with our suppliers to further embed sustainability in our products. Thanks to solutions such as cloud computing, our customers can also forgo their own servers, thereby conserving resources. In addition, ICT helps stabilize electricity networks, simplify workflows and further improve medical care.

As a modern technology company, we want to help shape the development of products and services that contribute to sustainability. That is why we continuously expand our offer of sustainable products and innovative ICT solutions for private and business customers.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Increase the share of sustainable products and services in the overall portfolio 	<ul style="list-style-type: none"> > Create a sustainable product portfolio > Product certification (e.g., Blue Angel ecolabel) > Promote innovation 	<ul style="list-style-type: none"> > Increasing the share of sustainable products in total sales > Used Cell-Phone Collection KPI



Just what is corporate digital responsibility – a new term for something that’s old hat?

Yes and no. As with corporate responsibility, it basically denotes enterprises’ responsibility for society and the environment, but with a particular focus on the impact of digitalization.

Why is that so important? Does the digital revolution increasingly harbor risks for society and the environment?

First and foremost, digitalization delivers many advantages. It connects people – across borders and boundaries. The internet creates access to knowledge and education worldwide. And digital solutions even help us conserve resources. In agriculture, for example. More and more farmers are using sensors to record the temperature, pH level or soil moisture. That data can help them dose water and fertilizer in a precise and pinpointed way and hence reduce the resources they use. There are many good approaches and a genuine chance for a better, more sustainable future. Yet there are just as many unresolved questions, for example about issues such as IT security, informational self-determination, or technology ethics. Corporate digital responsibility is about formulating the opportunities presented by digitalization for society – without concealing the risks. It’s also about breaking down fears about change and showing that we can help to shape the future. As well as about creating transparency and establishing game rules.

It's said digitalization can help save energy. But doesn't the network need vast amounts of energy?

That's true, the network needs energy to run. At the same time, it enables solutions that save far more energy than it itself consumes. Cars will be able to communicate with each other in real time in the future thanks to the new 5G communications standard. That means the vision of safe, congestion-free road traffic will become reality, which in turn will cut fuel consumption and CO₂ emissions. And there are smarter and smarter ways of finding a place to park. Our Park & Joy app helps drivers find free parking spots quickly, which not only saves a lot of hassle, but also fuel. Last but not least, the network is a crucial factor in the energy transition. It wouldn't be feasible without networking, in other words, without digitalization. Nevertheless, the network's power consumption needs to be minimized. That's why we're also ensuring that our infrastructure is as energy-efficient as possible.

That sounds highly promising. But what about the security of data?

People will use sustainable digital solutions only if they can trust in their personal data being kept secure. That's why we're doing all we can to make Deutsche Telekom's network not only exceptionally energy-efficient, but also exceptionally secure. To successfully protect ourselves and our customers against hacking, we operate one of the largest and most advanced defense centers in Europe, for example. We're focusing on short-distance internet: It is crucial that data does not pass through other jurisdictions when being moved around. It's also necessary to ensure that people have complete control of their digital data, in other words, can object to use of that data. Data must only be allowed to be analyzed in anonymized form.

Data protection is one aspect. What else is needed so that users can move about the internet securely?

People must know how to use digital media properly and be able to assess potential risks realistically. They must be able to differentiate between credible and deliberately misleading information. Skills like that go far beyond questions of protecting personal data. We're committed to fostering media literacy skills to strengthen users in these areas. On our "Media, sure! But secure." website, for example, we offer tutorials on subjects such as online opinion-making or data privacy and security, as well as information on subjects like the darknet or digital legacy. The content is available in several languages and can be used for self-learning and for teaching or workshops.

So what do you do about people who are afraid of losing their job due to digitalization? That could easily affect many of your colleagues ...

It goes without saying that digitalization is also impacting the world of work. There are activities that will be automated in the future. For starters, no one would argue against robots taking over hard and monotonous work. But whether machines will actually take over all our work or rather become new colleagues, and at the same time new fields of work for people will emerge – those are questions no one can answer with certainty. One thing's for sure: The way we work will change. The future world of work will be digital and agile and will demand completely new skills and job profiles. So that employees learn how to handle these changes, enterprises must break down fears, realign their skills and promote lifelong learning. Collaboration with employee representatives is vital in that: After all, the changes have to be reconciled with employees' interests, and their trust in their employer has to be strengthened. But the main point is that we need to shape the future together.

What role does analysis of data play in increasing sustainability?

A key role! Data analyses are important if we want digitalization to serve people. Data is the raw material of our age. However, added value and prosperity are created only where raw materials are processed and refined. We must therefore leverage data to our advantage – such as for research into diseases or smart traffic management. But one thing is certain: That's only possible if people retain control of their personal data and analyses are always anonymous. Among other things, we're one of the first companies to enshrine that in binding form in our data privacy principles so that we can ensure we meet the high requirements we've set in relation to the use of big data.

Artificial intelligence is also a much-discussed issue at present. What is it and what is your stance toward it?

Artificial intelligence is basically software that replaces brainwork. Its task is to help people, expand their abilities, and not to confine them. Many of us aren't aware that we use artificial intelligence in our everyday activities, such as in searches on the internet or in navigation systems. Chatbots – digital dialog systems with which users can communicate via text or voice – are also based on AI. We at Deutsche Telekom also use such a digital service assistant to complement our personal customer service. The adaptive system is becoming better and better at answering customers' inquiries with every passing day. If the service assistant can't answer a query, the customer is forwarded to a customer advisor. Even though artificial intelligence is still in its infancy, ideas that still seem like science fiction today may become reality down the road. We therefore need guidelines in a digital world that's changing at a terrific pace. They will help us recognize what's important and right. In 2018 we adopted guiding principles on the ethical use of artificial intelligence, defining how we at Deutsche Telekom aim to handle this issue. The guiding principles are a starting point for further developing rules on the responsible use of artificial intelligence in dialog with our stakeholders – with politics, science, and society. Because we can only define what "digital responsibility" means together.

PROMOTING SUSTAINABLE PRODUCTS AND SERVICES

We are committed to systematically using the sustainability potential of ICT. Our primary focus in these efforts is on growth segments such as Internet of Things (IoT), smart cities, smart home and e-health. Sustainable products are also an important pillar of our integrated climate strategy.

Managing the issue of sustainable products calls for systematic measures to be implemented throughout the supply chain. This is why we begin with procurement: We can thereby ensure that sustainability criteria are complied with along the supply chain.

We aim to have our products certified by recognized environmental labels such as the Blue Angel and the TÜV "Certified Green Product" label. The strict requirements of these labels help us see how we can further improve our products. They also help us inform our customers of the benefits of choosing sustainable products.

We also want to make our product packaging more sustainable: Wherever possible, packaging is getting smaller. To protect products in the packaging, we will be utilizing more insulating elements made from non-plastic materials.

At the end of a product's life cycle, we contribute to its reuse or recycling. For example, we regularly carry out used cell phone collection campaigns.

Sustainable solutions for today and tomorrow

Our services contribute to the increasing digitization of workflows and business processes, resulting in decreased consumption of resources. We provide not only the necessary network for these processes, but also offer numerous solutions. Some examples of this are approaches in connected agriculture or cloud computing offerings, which eliminate our customers' need for their own servers and storage media. At the same time, we want to give as many people as possible the chance to participate in the information society and to use the opportunities it offers. We promote media skills, for instance, and offer solutions that enable people with limitations to use modern means of communication. We develop products and services that meet their needs and continue to work on improving user friendliness. In addition, in Germany and in several national companies, we offer subsidized rates that allow low-income customers and people with disabilities to have cost-efficient phone service and data rate plans.

When developing new, sustainable ICT solutions, we also cooperate with various partners and communicate with our stakeholders.

Furthermore, we invest in extensive research, for example, in the field of the Internet of Things. We invested a total of 57.7 million euros in research and development throughout the Group in 2018. We also finance professorships, collaborate with universities and encourage innovative business concepts with our start-up incubator, hubraum.

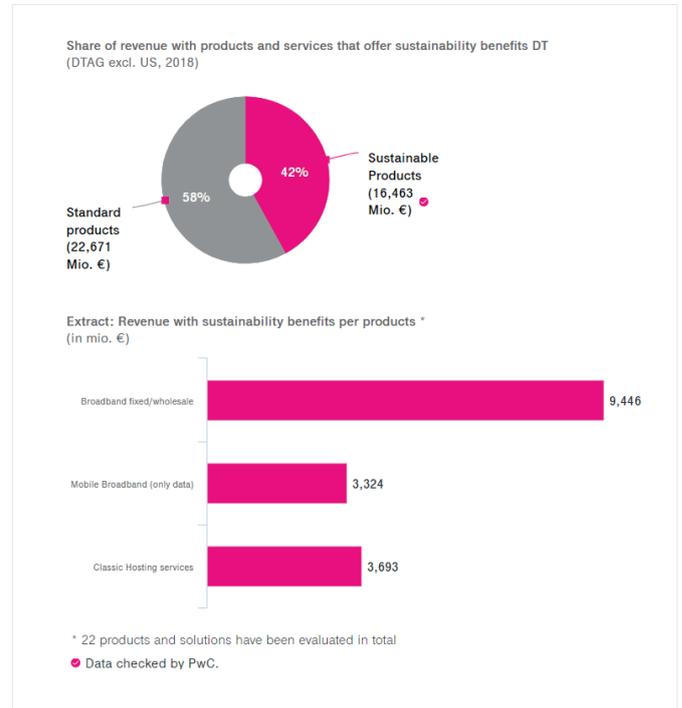
Making progress measurable

We measure our progress by means of various KPIs. For example, we use the Sustainable Revenue Share ESG KPI to measure the share in sales of products and services that are classified as sustainable based on a risk-benefit analysis. In 2018, 42 percent of our overall revenue in Germany and Europe was generated with such products. We measure the impact of our collection campaigns with our Take Back Mobile DevicesESG KPI.

CONTINUED ANALYSIS OF OUR PRODUCTS' SUSTAINABILITY BENEFITS

In 2014, we began analyzing our product portfolio together with external experts based on sustainability criteria. This is an ongoing process in which we most recently revised the filter logic of our approach in 2018 in order to better depict current developments. Along with slight adjustments we are placing greater emphasis on the role of information security and circular economy as part of our analysis. We measure the result with the Sustainable Revenue Share ESG KPI. The share of such products was already 42 percent in 2018 (excluding T-Mobile US).

42 of Deutsche Telekom's products and services provide a sustainable benefit



Examples of such sustainability benefits include:

- Reduced CO₂ emissions thanks to virtualization (for example, through online meetings instead of business trips)
- E-health solutions (telemonitoring, for example, enables health care at home)
- Internet of Things solutions (remote diagnostic solutions shorten repair cycles and help reduce field service calls)
- Reduction in resource-intensive or harmful processes (the Park & Joy app speeds up the search for parking spaces, for instance)

Overall, we have carried out in-depth analyses for 29 product groups with regard to their sustainability benefits and the corresponding business potential (as of year-end 2018). We have illustrated the benefits of some selected products based on all three pillars of sustainability (ecological, social and economic):

T.. LIFE IS FOR SHARING.

UP TO **1.2 MIO TONS CO₂**
EMISSIONS REDUCTION IN GERMANY

ENERGIE WENDE
ENABLER OF SMART GRIDS

CONTRIBUTION
TO GERMANY'S CO₂ EMISSIONS REDUCTION TARGET OF 40%

CLIMATE PROTECTION

SMART METERING
ENERGY CONSUMPTION HOTSPOTS IDENTIFICATION

ENERGY SAVINGS
UP TO **8%**

ENERGY REVOLUTION

HOUSEHOLD SOLUTION
EFFICIENT ENERGY USE

SECURE MODULAR SYSTEM

UP TO 90€
OF COST SAVINGS PER HOUSEHOLD PER YEAR

SUSTAINABILITY BENEFITS OF BROADBAND EXPANSION IN GERMANY

ENVIRONMENTAL BENEFITS

CO₂ emissions reduction
19.15 Mio tons

of CO₂ emissions could be saved in total through broadband in Germany between 2012-2020, from which 4.53 Mio tons of CO₂ emissions savings are attributed to broadband expansion only

YEARLY ADDITIONAL EFFECT OF 0.12 MIO TONS VIA BROADBAND EXPANSION

2012	2013	2014	2015	2016	2017	2018	2019	2020
1.62*	1.75	1.87	2.00	2.12	2.25	2.38	2.50	2.63

by enabling additional employees to work from home by telecommuting

by enabling small and medium enterprises to switch on-site software to cloud

by enabling additional students to use distance e-learning

*expected annual savings with current broadband access, based on the performance achieved in 2012

ECONOMIC BENEFITS

GDP growth
€ 47 Billion
could be realized by external economic impulses of broadband expansion**

Employment opportunities
162,000 people
could be additionally employed by external economic impulses of broadband expansion**

Increased tax revenue
€ 10.6 Million
could be additionally collected via different types of taxes through broadband expansion**

**cumulative additional effect through broadband expansion 2015-2020 in Germany

SOCIAL BENEFITS

Education
556,400 students
could graduate in total via distance e-learning in Germany between 2012-2020, from which 75,400 graduates are attributed to broadband expansion only

Health improvement
3.8 Mio sickness days
on national economy level, between 2015-2020, through broadband expansion due to:

- less people unemployed
- less stress related illness days caused by commuting
- less illness days caused by non fatal road accidents

Benefits were calculated for selected enabled services assuming that DTAG's share of all households' and SMEs' broadband access is on average 50% in a timeframe from 2012-2020, with 2012 as base year. Detailed list of underpinning assumptions is available from Deutsche Telekom Broadband Internet.

SUSTAINABILITY BENEFITS OF B2B CLOUD SOLUTIONS IN GERMANY

FOR SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

ENVIRONMENTAL

CO₂ emissions reduction
21 tons
of CO₂ emissions

EQUIVALENT TO

1%
of the company's total CO₂ emissions could be saved per year*

ECONOMIC

Cost savings
€ 7,000
of electricity costs

EQUIVALENT TO

-9%
9%
of the company's total electricity costs could be saved per year*

*calculated benefits for SMEs with 100 employees

FOR SOCIETY

ENVIRONMENTAL

CO₂ emissions reduction
300,000 tons
of CO₂ could be saved per year between 2015-2020

due to broadband internet enablement of B2B cloud solutions for all SMEs in Germany

Benefits calculated for Germany based on SMEs with 100 employees, using on-site mail, CRM and groupware, and switching all three services to cloud. Detailed list of underpinning assumptions is available from Deutsche Telekom B2B Cloud Solutions Unit.

SUSTAINABILITY BENEFITS OF VIRTUALIZED TV STB IN GERMANY

FOR TV USERS

ENVIRONMENTAL

CO₂ emissions reduction
20.44 kg
of CO₂ could be saved per year due to reduced and more energy efficient end consumer hardware*

ENVIRONMENTAL

Reduced material consumption
1.8 kg
of material from STB devices could be saved when adopting Virtualized TV STB*

ECONOMIC

Cost savings
€ 63
of costs could be saved per year due to elimination of STB rental costs and energy savings*

*calculated average benefits per TV user

FOR SOCIETY

Society can benefit from a complete replacement of classic TV STBs with Virtualized TV STB, thereby achieving:

ENVIRONMENTAL

CO₂ emissions reduction
47,000 tons
of CO₂ could be saved in total per year

ECONOMIC

Cost savings
€ 146 Mio
of aggregated costs for all TV users could be saved per year

ENVIRONMENTAL

Reduced material consumption
4,200 tons
of materials from STB devices could be saved in total

Benefits calculated for Germany considering the replacement of classic TV STBs with Smart TVs, TV-Sticks or Mini-STBs. Detailed list of underpinning assumptions is available from Deutsche Telekom Virtualized TV STB.

To date, there is no industry-wide established system that provides customers with sustainability information about ICT products and services. We have started to create just such a system using our product analyses – that is, to find out which sustainability contributions our products can make at all. Future plans also include keeping our customers better informed of these sustainability benefits, thereby sharpening our competitive edge.

INTERNET OF THINGS

Machines and products are becoming increasingly intelligent. Cars can communicate with repair shops, containers with logistics service providers. The technologies that make these developments possible are bundled under the term Internet of Things, or IoT. By 2020 the number of connected machines and devices worldwide is expected to increase to 2.5 billion. IoT is an important area of growth for us.

IoT can help ideally coordinate the processes of various devices, vehicles and entire industrial facilities. This helps increase industrial productivity, ensure efficient logistics, reduce energy consumption, and conserve resources.

We also support the German federal government's Industry 4.0 initiative through our involvement in IoT. The initiative's objective is to maintain Germany's competitive edge in the technology sector.

New wireless technology allows for innovative applications

Our networks are the basis for a number of IoT applications, as mobile network technology is the key transmission channel of every IoT connection. In this respect, the NarrowBand Internet of Things (NB-IoT) is gaining significance. As opposed to broadband applications, which enable transmission of large amounts of data, narrowband technology is specifically designed to reliably transfer very small data packages. Benefits of NB-IoT include its low energy requirements, extensive reach and low-cost device networking. NB-IoT is particularly suitable for use in logistics. When tracing transport containers, all that is needed is for the current position to be transferred once an hour. Only very small amounts of data need to be transferred in small data packages – and not necessarily in real time. NB-IoT is even used to protect biodiversity, in a technology that beekeepers can use to protect their bees.

We had a leading role in the development of a uniform NB IoT standard and are consistently driving its expansion: With available networks in ten countries, including nationwide network coverage in the Netherlands, Austria, Slovakia and the U.S., we are one of the leading mobile providers in the NB IoT environment.

Across Europe, we work with more than 500 business customers from various sectors who develop and sell devices and applications based on NB IoT (as of the end of 2018). These include applications for measuring energy consumption (smart metering), traffic solutions (e.g., parking apps or applications to monitor train traffic) and solutions for waste management.

EU project AEOLIX: A platform for more efficient and climate-friendly logistics chains

The goal of the EU project AEOLIX is to build a new ICT platform that networks numerous, previously isolated individual logistics systems across the EU. At the same time, practical services will be developed and tried out in 11 European test zones. T-Systems is participating in

test zone 1: Intermodal Logistics in the Hamburg – Frankfurt Transportation Corridor. This zone will test a smartphone app that helps truck drivers drive in an ecologically responsible manner. Around 958,230 metric tons of CO₂ could be spared in ongoing customer projects by analyzing driving profiles and ecodriving functions. The project will run until 2019.

AUTOPILOT – autonomous driving services for more efficiency

The goal of the EU project AUTOPILOT is to test autopilot services on the market. This also includes self-driving cars in short-distance traffic, self-parking cars and real-time car sharing. Such solutions are particularly efficient and environmentally friendly, resulting in an estimated 10 percent fewer CO₂ emissions as compared to conventional driving practices. The project launched in 2017 will run until 2019. Thereafter the services will be incorporated into regular operations. T-Systems is the project partner of AUTOPILOT and supports analyses on the feasibility and market launch of the new services.

Connected Car: Preventing traffic jams with connected cars

T-Systems has been developing and operating Daimler's Connected Car platform (Daimler vehicle backend) worldwide since 2013. The platform is the technical basis for the Live Traffic service, which provides drivers with real-time traffic information, thereby helping them avoid traffic jams. Live Traffic prevents about 30 % of traffic jams per vehicle. This means that the approximately 7.5 million vehicles equipped with Live Traffic consumed about 9.3 million liters less fuel. This translates into CO₂ savings of about 22,500 metric tons.

Roambee: "Bees" make the logistics chain transparent

Since the beginning of 2017 we have offered businesses a real-time solution for tracking and locating deliveries and assets and for monitoring the status of goods: Shipment & Asset Monitoring powered by Roambee. Our solution gives businesses – worldwide, regardless of transport route – answers to the most important questions about their goods: Where is the freight? What condition is it in? Will the delivery arrive on time? This is made possible by a "bee" included with the shipment. The device has sensors that record information such as temperature, humidity, light and movement and store the information in the cloud. The bee measures all information in real-time. A web portal gives users anytime access to a full overview including the device status, location and details on deliveries and assets.

Combating smugglers

T-Mobile Netherlands is working with Dutch app developer Itude Mobil to develop another product for the logistics sector – the "Babbler" cargo tracker. It looks like an ice hockey puck and is affixed to the inside of container doors. The device measures light, temperature, impacts, movement and magnetic fields and can be activated via an app on a smartphone. Every movement of the container is recorded. If anyone anywhere in the world removes the container door hinges, the transportation company will receive a notification. Deutsche Telekom is providing the required network for the application, which has to reach deep into the hold of container ships.

Intelligent building monitoring for improved indoor climate

Which room is being used when? Are the doors and windows closed at night? How is the air quality in the conference room? The new IoT complete solution, Building Monitoring & Analytics, offers answers to these questions. Room sensors log movements of people, the status of windows and doors, temperature, humidity, brightness and CO₂

content. This information is encrypted and transmitted to Deutsche Telekom's Connected Things Hub IoT platform where it is stored in compliance with data protection regulations. If certain threshold values are exceeded or problems detected, in-house technicians are notified and can take action. This helps lower costs for facility management and improve service.

SMART CITIES: INNOVATIVE SOLUTIONS FOR SMART URBAN SPACES

The majority of worldwide CO₂ emissions come from cities – an effect that is being intensified by increasing urbanization. At the same time, cities can also be the driving force behind and the origin of sustainable solutions. New offerings such as car and bike sharing, as well as measures such as setting up green zones are helping to reduce CO₂ emissions. However, these alone are not enough to achieve the climate targets set by the global community in the Paris climate accord. Smart city concepts provide opportunities for additional, urgently needed efficiency improvements. In this context, Deutsche Telekom offers various solutions of its own as well as products developed jointly with partners. These include the parking app Park & Joy that shortens the time spent looking for a parking spot, smart street lighting that lowers electricity consumption, or connected waste containers that help avoid waste pickup when the containers are empty.

Starting with one of our first Smart City projects, "T-City" Friedrichshafen, our activities in this field have continued to develop. In 2016 we joined the mySMARTLife EU initiative, in 2017 we established the European Smart Solutions Center, and in 2018 we launched the cross-segment initiative Leveraged Smart Cities with the goal of combining our activities in this field. We have already supported the implementation of Smart City solutions in 18 cities in 10 European countries.

Partnership with the smart city program of the United Nations

In 2018 we entered into a partnership with the United Smart Cities program of the United Nations Economic Commission for Europe. The program has been running since 2014 and connects existing smart city activities across the globe. It helps cities and other players work together, share solution concepts and drive forward smart city projects. It will thus, among other things, make a contribution to achieving the Sustainable Development Goals. We support the program with our expertise in networking and smart solutions.

Digital Cities and Regions: working together on challenges

Together with the German Association of Towns and Municipalities we launched the Digital Cities & Regions initiative in the spring of 2018. The goal of the project is to jointly advance digitalization in municipalities and develop intelligent solutions. The top priority in this is to improve the quality of life and benefits for the local citizens. More than 23 cities and communities were involved in the development work. In the future, we plan to look at individual aspects of a digital city and develop specific solutions at quarterly Design Sprint meetings.

mySMARTLife in Hamburg

The city of Hamburg, together with the cities of Nantes and Helsinki, were awarded the EU lighthouse project mySMARTLife in 2016. Numerous measures intended to launch the Smart City transformation are slated to be implemented by 2021. The core topics of these light-

house projects are increased use of renewable energies, climate-friendly living and environmentally friendly mobility. For example, use of electric vehicles will be promoted in the Hamburg-Bergedorf project region. Intelligent street lighting will also be employed. All projects involve active citizen participation. The Hamburg project proposal was backed by a total of 14 partners, including the borough of Bergedorf, HafenCity University, the HAW Hamburg university of applied sciences, electricity grid operator Stromnetz Hamburg, public transport operator Verkehrsbetriebe Hamburg-Holstein and Volkswagen. The project is being funded as part of the European Union's Horizon 2020 research and innovation program. The project results will be compared to other lighthouse projects in the EU. The project will also examine which measures can be implemented in the next mySMARTLife project cities – Varna (Bulgaria), Bydgoszcz (Poland), Rijeka (Croatia) and Palencia (Spain).

Digital City Darmstadt

In June 2017, Darmstadt won the Digital City contest. The aim of the competition, organized by Bitkom, is to create a model digital city in Germany and Europe. Darmstadt won out against the competition and since then has implemented various solutions in connection with its Darmstadt program to make the city more sustainable, easier on the environment and more livable. Deutsche Telekom is providing support, among other things, with networking solutions, sensors to measure air quality, intelligent parking sensors and infrastructure for operating autonomous trams.

Smart City Bonn

In Bonn, we began connecting street lighting and waste containers with intelligent sensors and measuring air quality at the end of 2017. The street lamps can be dimmed and, with the help of motion sensors, automatically become brighter when pedestrians approach. The public utility company is also notified when a bulb needs to be replaced. On average, this technology saves up to 60 percent of the street lamps' operating costs. Additionally, we measure the fill level in a number of recycling containers using installed sensors. The municipal garbage service need not come for the container until it is actually full. Another sensor measures the air quality of the inner city. We also provide the associated analysis software.

Smart Cities app

By 2022, Germany must provide online access for all standard administrative services such as driver's license or passport documents – as required by the online access law. Deutsche Telekom and the German Association of Towns and Municipalities are helping local administrative authorities with the development and implementation of digital services. These should be as simple, citizen-friendly and standardized as possible.

The city of Monheim am Rhein laid the foundation in 2018 when it commissioned Deutsche Telekom to develop the Monheim Pass. The app bundles digital services for the public sector, such as adjusting registration details or applying for a driver's license and, in the future, will also enable the use of mobility solutions such as car and bike sharing, for example. The app also provides information on local recreational activities.

Developer community for smart cities and municipalities

At the Mobile World Congress telecommunications fair in February 2019 Deutsche Telekom called on cities and municipalities to join a developer community for the Smart Cities app. After all: Challenges such as scarce resources, legal requirements and ongoing operations are easier to overcome when the community works together. Dortmund and Bonn have already joined the developer community.

Park and Joy – Digital parking management

Preventing traffic jams and reducing CO₂ emissions – these goals pose major challenges to cities and communities. Digital applications can help improve traffic flows and lower harmful emissions with a small amount of administrative effort. One example of this is the “Park and Joy” app we launched in Hamburg in 2017. In 2018, users could search for around 30,000 parking spots in 45 cities with the app, thus exceeding the target of 28 cities set at IFA 2018. The app displays available parking spaces and navigates drivers to them. Users can also pay the parking fee directly on the app and even extend their parking time flexibly while on the go. Expansion of the app to numerous other cities is planned for 2019. With the help of sensors, the forecasting capacity of the algorithm to find a parking space will continue to be improved. The first sensors have already been installed and more are planned.

Hackathon: Ideas competition on life in the city

Implementing ideas for a livable city of the future – that was the topic of Hackathon: Smart Public Life in the spring of 2018 in St. Pölten, Austria. Within 24 hours, 60 developers in 13 groups created their own ideas for an innovative city. In the end, 13 ideas for minor adjustments in the city were presented that aim to simplify the life of residents in St. Pölten. The Hackathon was a great opportunity for the developers to make new contacts and enhance their skills.

SMART CITY PROJECTS IN OUR NATIONAL COMPANIES

Hrvatski Telekom

HT's EV Charging Network with more than 120 EV Chargers

Hrvatski Telekom has opened 11 networked EV chargers on the island of Krk, offering a range of functionalities, such as an option to book charging. It is a part of Krk's long-term strategy to become the first “smart island” in Croatia. Hrvatski Telekom's e-mobility solution is the most advanced complete ecosystem of service infrastructure and “turn-key” charging. HT's EV charging network currently has 120 publicly accessible EV chargers equipped with 165 charge points in 75 cities throughout Croatia, and the network is expanding continuously.

Hrvatski Telekom and Go2Digital start Modernization of Public Payphones

Hrvatski Telekom and the Croatian agency for digital out-of-home advertising – Go2Digital – have signed an agreement to modernize payphones. Existing payphones only offer telephony and they will be replaced by digital payphones and a number of IoT-based smart solutions. This will give the public access to many new features, ranging from wireless charging for mobile devices, to information about pollen levels in the air by means of special sensors inside the booths, to the SOS key that can be used to call for emergency help in the event of an accident. Each booth is also a WiFi Hot Spot providing free, unlimited Internet that gives users and passers-by connectivity. At least 25 payphones throughout Croatia will be replaced annually in a rolling program.

Smart Parking for Disabled Persons in Split

Hrvatski Telekom and its partner Mobilisis rolled out a smart parking solution for people with disabilities in Split. This will contribute to increasing the quality of life for people with disabilities in Split and reduce city traffic in the center of Split. A total of 12 sensors from Mobilisis were installed in parking spaces intended for people with disabilities at the junction of Antun Gustav Matoš Street and Zrinsko-frankopanska Street in Split (Stari plac). The sensors operate on the Narrowband IoT network of Hrvatski Telekom. They are connected to the Split parking app that allows users to see accessible parking spaces.

Telekom Romania

Making Transport as Smart as possible

In Sibiu Telekom Romania teamed up with Banca Comercială and Global Payments to roll out a system on Tursib's local transport system that encourages their use. It is a payment solution based on contactless Mastercard and Visa cards. Any holder of a contactless bank card can use this system regardless of whether the issuing bank is in Romania or abroad, and this enables them to travel around more easily than ever before. They can immediately pay for the trip in a fully secure environment by simply swiping their card over devices available in the Tursib transport system. The infrastructure implemented by Telekom Romania consists of POS printers for issuing tickets and 3G communications equipment.

Smart Parking and Waste Management Solutions implemented by Telekom in Cluj Napoca

Telekom Romania has implemented two smart solutions in Cluj Napoca: parking and waste management that contributes to the city's cleaner air and improves the urban landscape. Smart Parking can monitor the occupancy level of the public parking lots and display the availability on board or in the app. Next in line is a smart traffic management solution based on sensors which will adjust green/red light frequency and duration in order to reduce traffic jams.

Another useful solution is the waste management system. This involved placing garbage bins in underground platforms with an external dispenser. The disposal trucks no longer need to come regularly, but only when the sensors give an alert that the bins are full.

Smart City Solution in Alba-Iulia: Smart Lighting System for a Secondary School

Telekom Romania implemented a Smart City solution in Alba-Iulia: a smart lighting system installed in secondary school 7 Mihai Eminescu. The old neon-based lighting system at the school was replaced with a smart lighting system implemented in all the 28 classrooms, corridors, bathrooms, and teachers' meeting room. The smart lighting system implemented by Telekom Romania includes LED lighting units that allow light intensity and flow in the school to be controlled according to the time of the day and season. Energy consumption and related reductions in cost for the school are among the benefits of implementing the system. It allows the lighting to be adjusted to match natural light in every room and the lights switch off automatically during breaks. The corridors were equipped with dimming LEDs fitted with sensors that switch on and off in response to people walking along them. Creating a balance between the exterior and interior light also stimulates pupils' attention, concentration capacity, and motivation.

T-Systems Iberia

Gijón-In: a new integrated concept of smart cities

In the city of Gijón (Spain), T-Systems is developing "GIJÓN-IN", an innovative, intelligent and integrated city management project. The project aims to achieve more efficient administration and provision of municipal services based on Big Data techniques, IoT technology, and ICT solutions. The project has been sponsored by the European Regional Development Fund (ERDF) and it is responsible for implementing up to 22 different schemes in the Spanish city over a period of 36 months. The 16 initiatives to make Gijón a truly 'smart city' cover various topics, such as complete digitalization of municipal services, promotion of citizen and business participation, and activities for sensing and handling information generated in the city.

Telekom Albania

Wi-Fi coverage in public places

Making technology available to society at large is one of the pillars of Telekom Albania's corporate responsibility. Within this framework, the company supported a project organized by the city authority in Tiranato to cover a very busy tourist area in the city with a Wi-Fi signal. The service is offered free of charge to citizens and tourists who are empowered to navigate freely on the Internet. This project neatly combines technology with access for all groups in society.

Smart City conference highlights Danish-Albanian dialogue

The Royal Danish Embassy in Zagreb organized a business event in Tirana on 7 June 2018. The goal of this event is to showcase Danish and Albanian achievements in organizing and managing smart towns and cities. A further aim is to inspire further progress in smart solutions for urban planning, mobility, people's well-being, and in the field of energy and environment. The event included presentations of case studies and a panel discussion with representatives from different cities. Mr. Daniel Michel, Vice President for Smart Cities at T-Systems, was invited to share Telekom's case studies. The event also held networking sessions for B2B meetings.

COMFORT CHARGE: EXPANDING THE CHARGING INFRA-STRUCTURE FOR ELECTRIC VEHICLES

Since the fall of 2018, we have been working with our subsidiary Comfort Charge to expand our German network of charging stations for electric vehicles: We are upgrading parts of the existing telecommunications infrastructure into charging stations. To do this, we are using the power supply from our street cabinets which is needed for our fixed line and internet connections. The gray boxes at the side of the road, which house a separate power supply and digital measuring point from the broadband expansion, can be upgraded to include charging points relatively easily. This sustainable use of existing infrastructure will help avoid additional structures in the cityscape and enable rapid implementation. Each charging station can supply two vehicles with 11kW each through type-2 charging plugs. These "destination charging points" will supply enough power in one hour for a range of 50-75 kilometers – depending on the vehicle type. While the first destination charging points will be set up in selected cities in 2019, we have been at work since the fall setting up a nationwide rapid charging network at network nodes with charging capacities of more than 100kW which is already fit for the next generations of vehicle batteries. The electricity for our charging network comes from renewable energy sources.

Our charging points in Germany have a uniform price per minute, although rapid charging costs around a third more than regular charging due to higher set-up costs.



SUSTAINABLE PRODUCTS AND SERVICES IN GREECE

In 2018, the OTE Group launched and developed several products and services to help customers improve their sustainability performance. The Group also successfully implemented some significant projects with the same objective. A number of examples are listed below:

In 2018, COSMOTE in collaboration with the Kir-Yianni winery in Naoussa, implemented a pilot application called "Smart Wine" which ensures the quality conditions of the wine being stored or transported step by step until it reaches consumers. This approach utilizes innovative Narrow-Band Internet of Things (NB-IoT) technology. Smart Wine application allows the conditions to be monitored throughout the wine's route from the producer to the distributor and on to the consumer.

Using Narrow-Band Internet of Things (NB-IoT) technology, the first "smart university campus" was launched by COSMOTE in Xanthi in collaboration with the Democritus University of Thrace (DUTH). The pilot project fully utilizes the advantages of the NB-IoT technology for implementation of smart applications to enhance air and water quality monitoring, and management of the campus's lighting and heating oil.

Various digital transformation projects were implemented during 2018 for the private and public sector. The innovative v-Banking service, which is unique at European level, was implemented for EUROBANK and it modernizes banking transactions giving priority to businesspeople and businesses. Eurobank's clients are now able to have personalized customer service within a secure digital environment without having to visit a bank branch.

Fraport Greece upgraded 14 regional airports by installing COSMOTE state-of-the-art IT and telecommunications Solutions to make a substantial contribution to uninterrupted and secure communication at airports, enhance the efficiency of business operations, and optimize services for passengers.

Coca-Cola HBC has selected the OTE Group to provide IT support services in 19 countries. This is a new investment in Greece that safeguards business continuity and creates more than 80 new jobs in the IT sector. The IT support services are provided by the OTE Group so as to ensure efficient management and issue resolution across all enterprise information systems of Coca-Cola HBC. The services offer support to 26,000 Coca-Cola HBC users in 14 languages 24/7 and 365 days a year.

A new project in the field of e-civilization was implemented for the Fund of Archeological Proceeds during 2018. Visitors to the Acropolis, Knossos, Messini, and the Museum of Heraklion are able to get a digital ticket on the Internet and avoid waiting in queues and encountering bad experiences. After two months of operation, the e-ticket already managed to generate a 13 % increase in tickets.

The Fire Brigade project was delivered in 2018. It has been designed to collect and analyze geographic data received from Fire Service vehicles and organizations, and from unmanned drones. This allows Fire Service units to use smartphones, tablets, and PNDs (Personal Navigation Devices) to access crucial information about ongoing fires and the resources available near the seat of the fire so that they can better coordinate fire-fighting.

Alongside implementing crucial digital transformation projects for the private and public sector, COSMOTE offered a number of services for small to medium-sized enterprises and for very small enterprises to help them grow.

The COSMOTE Business One proposition offers fixed, mobile, and cloud services. This allowed us to offer COSMOTE Digital Office providing cloud PBX (a PBX as a service with no investment) and new advanced digital tools and "smart" solutions to ensure maximum flexibility and cost-efficiency. Professionals can organize video conferences by sharing their computer screen (screen sharing) with their partners wherever they are.

COSMOTE Office Assistant is a brand new service offering remote secretarial support (e-secretary). This new innovative service helps professionals to manage their time more efficiently and focus on activities that are a top priority for their business. A cost-effective low entry package allows the business to manage a large volume of simultaneous calls, broaden service hours, and receive instant and regular notifications.

COSMOTE provides a new offering of mobile plans to cater for the seasonal needs of business in the tourism sector. COSMOTE Business Mobile Tourism is a custom-made solution designed to meet the needs of hotel owners, tour operators, and car rental businesses. It reduces the operational costs of their business since there is no need to pay the monthly costs for employees' mobile devices while the business is closed in the off season.

COSMOTE offers COSMOTE Click & Site for very small enterprises to create their own online presence. With just one click, the entrepreneur can give their business an own website based on its Facebook page. The new innovative service includes a free domain, e-shop, and access to an e-booking service.

During 2018, COSMOTE offered COSMOTE My Internet for EU. The COSMOTE My Internet service now operates even when COSMOTE customers are traveling in the European Union. It provides genuine cost control and the security that travelers will not be charged after they have used their available MB allocation.

DIGITAL HEALTH CARE: OPPORTUNITIES FOR THE BEST MEDICAL CARE

A uniform telehealth platform permits cross-case, standardized data sharing among health care providers. Telehealth assistance systems can support patients and their families in everyday tasks, help bridge long distances to medical care, and optimize the care process. We are helping shape the digital health care system with numerous pilot projects:

- We are involved in developing a solution for antibiotic treatment consultation at the St. Georg Hospital in Leipzig. The primary goal is to enable fast, secure data exchange between doctors, patients, and health insurers. The State of Saxony sponsored the project with over EUR 1.2 million at the beginning of 2017. It will run until mid-2019.
- The main objective of the "Psychological Trauma Telehealth Network for Saxony (Tele-NePS)" project is to sustainably improve the integrated treatment chain for post-traumatic stress disorders. The goal is to enable straightforward and location-independent access to the treatment network, make expertise universally available among general practitioners and specialists in Saxony, and guarantee cross-institution documentation and coordination of the health care process. The EU and the State of Saxony will be funding the project, which will run until 2020, with EUR 1.4 million.
- We are supporting hospitals in Essen (Kliniken Essen-Mitte, KEM) in advancing their digital transformation. During the course of the partnership, set up for ten years, the aim is to develop standardized information systems, and implement electronic patient files and connected appointment management systems. All drug administration and diagnostic findings are to be recorded digitally in future, which should reduce the organizational overhead and allow more time for patients. By January 1, 2019, we had replaced the existing hospital information system with our iMedOne solution at two of the clinic's locations.

In addition to customer projects like these we are also developing our own solutions for digital health care:

- Our telehealth platform is being used by increasing numbers of participants in Germany. The platform is based on the first Europe-wide open, trans-regional network, East Saxony CCS Telehealth (THOS). The platform allows patients, doctors, hospitals, nursing staff, pharmacies, and health insurers in a specific region to exchange data such as health parameters, findings, drug administration, or other information over a specially encrypted data network. New applications are added to the platform continually. In April 2018, we presented the new "Teleneurologie Parkinson" application at the world's largest health care IT trade fair ConhIT. In addition to the family doctor or neurologist, the new solution also allows patients suffering from Parkinson's disease to consult with a teleneurologist. The teleneurologist follows the physical examination of a patient by means of a video consultation, guides colleagues and the patient, and poses questions to the patient's relatives.

- Diabetes is one of the most widespread diseases in Germany. Together with the partner Emperra, the telehealth platform is currently being used as the basis for developing a therapy-supporting solution for patients with type 2 diabetes. The patient is offered recommended treatments by means of special algorithms that analyze blood glucose readings and the amount of insulin used. Based on a simple traffic light system, patients can better understand the effects of their lifestyle on their illness and thus positively influence the course of their illness on a long-term basis.
- Our Telekom Healthcare Cloud (THC) provides health professionals with a reliable and simple path toward the digital transformation of their work structures. One of our customers in this area is Gesundheit Nordhessen Holding (GNH). We support the group of hospitals by providing our cloud for its daily work.

RAPID ENTRY INTO SMART HOME BUSINESS

A smart home can make life easier for its occupants in many ways, allowing them to control and monitor various devices remotely – from security systems and home appliances to home electronics. Of course, one big challenge remains, in that a provider's smart home solution is often not compatible with the functions and devices of other manufacturers. That is why we have set up the open, vendor-neutral smart home platform QIVICON. This platform gives consumers the option of combining devices from different companies simply and individually.

QIVICON: More devices in more countries

The Deutsche Telekom national companies in Greece and Austria launched their smart home initiative in 2018 based on our white-label portfolio, which allows companies to develop a smart home portfolio for their customers. As a result, the QIVICON platform is now available in seven European countries. Customers of T-Mobile Austria can use the Safety, Comfort, and Easy packages to quickly and easily set up a smart home solution that they can configure individually with a variety of compatible devices from different manufacturers and brands. Cosmote in Greece also offers smart solutions relating to security, comfort, and energy. Using a range of different compatible connected devices, users can likewise control their homes conveniently via an app.

We were able to further increase the number of devices that are compatible with the QIVICON platform during the reporting period. Products by the companies Bosch Siemens Hausgeräte, Bose, Grohe, and Ikea give consumers an even better selection of security and lighting options. Even today they can choose from among several hundred different smart home appliances.

Security and data protection at QIVICON

QIVICON is at the heart of Deutsche Telekom's smart home system. The home base handles the integration and control of devices from different manufacturers and sets up a secure connection to the Telekom cloud, where the data required for monitoring and controlling the system is stored.

In 2018, we commissioned the testing institute AV-TEST GmbH for the fourth time to check how secure the QIVICON Smart Home platform and the Magenta Smart Home app are. Once again, the rating was "very good protection".

Open platform

We use our Software Development Kit (SDK) to make the QIVICON platform available for companies. They can use the platform to integrate their devices themselves with ease and develop their own innovative smart home ideas.

RESPONSIBLE USE OF AI

Artificial intelligence (AI) is a future topic for many. But AI is already reality and so too are questions regarding the responsible use of AI. Even though, or precisely because, the state of artificial intelligence is still in its infancy compared to its expected capabilities, we need to address the ethical issues it raises now. This is the only way we can set the right course for the future.

In 2018, under the guidance of the Compliance unit, we therefore adopted guidelines for the ethical use of artificial intelligence. They define how we at Deutsche Telekom should use AI responsibly and how we should develop our AI-based products and services in the future. We do not claim that these guidelines constitute universally valid rules on the responsible use of AI, but instead want to develop them further in dialogue with our employees and external stakeholders.

PROTECTING RESOURCES WITH CLOUD COMPUTING

With cloud computing, our customers no longer need to be bothered with their own servers and storage media. In most cases, cloud computing is more resource and energy-efficient than running your own infrastructure outside of the cloud. Our data centers require up to 80 percent less energy thanks to more effective capacity utilization and less hardware. We are also continuing to work on further improving the efficiency of our data centers.

The cloud for the public sector

For companies that want to convert their systems to cloud solutions, T-Systems offers a program called The Cloudifier. We analyze the customer's IT landscape and identify which applications can be transferred to the cloud. Building on this, we developed the Cloudifier4Public in 2017 – a service with which T-Systems designs and implements customized cloud strategies for the public sector in Germany. The design is tailored to the objectives and particulars of German public administration. Key aspects are data protection and information security, safeguarding of statutory tasks and compliance with legal framework conditions.

Less paper consumption through cloud billing

Integrating billing processes into our cloud offering is a next logical step for us. IoT real-time data for billing can thus be obtained directly from the cloud, making it easier, for example, to bill intelligent sensor services. The idea behind it is that the process is simplified and takes place online through to the bill.

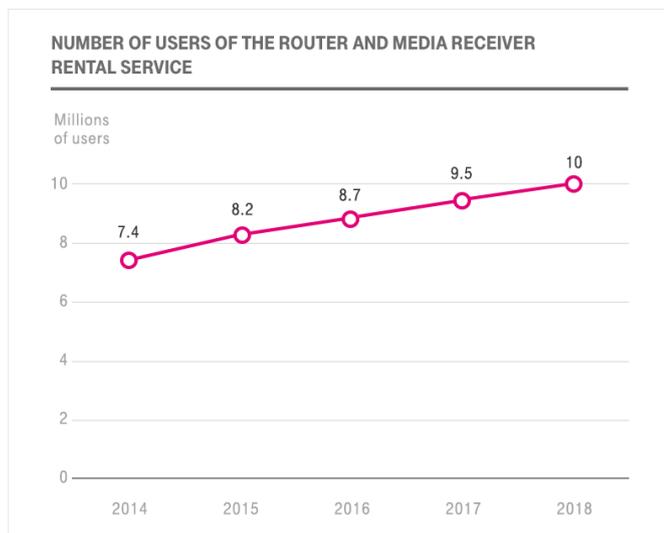
"Digital twin" conserves resources

The Internet of Things allows companies in the manufacturing industry to make a digital model of a physical product. These digital twins accompany real products as real-time copies from their generation to their disposal, meaning they are constantly updated with the real objects' status, behavior and performance data. Companies can thus already perform virtual stress tests during product planning, identify

problems early on and initiate improvements in development, production, sales and service. This enables more accurate planning and saves resource-intensive test phases or even failures.

DON'T BUY, RENT

We want to make sure that used routers and media receivers don't just end up in the trash. That is why we promote the "Don't buy, rent" approach. Our rental services conserve resources, reduce electronic waste and CO₂ emissions. Customers return the devices if they cancel their contract. The devices are then either refurbished and rented out again or properly recycled. We have simplified the return process by introducing a returns portal. The online portal enables customers to manage their own returns. We actively and effectively promote the rental service in many ways including at TelekomShops, online, via customer service and in product flyers. The offer has been well received by our customers; the number of people using the rental service increased to just over 10 million by the end of 2018.



MORE SUSTAINABLE SIM CARDS FROM THE SUPERMARKET

Customers who value sustainability when shopping at the supermarket have also been able to buy more sustainable mobile SIM cards at EDEKA since 2018. The new "EDEKAsmart" mobile rate, developed by Deutsche Telekom and EDEKA as part of a strategic partnership, offers various sustainability benefits: These include a smaller SIM card holder that saves 50 percent material, and packaging that is climate-neutral and printed on grass paper. This paper is made half from sun-dried grass and recycled paper. Production of this grass packaging – which takes place entirely without process chemicals – saves up to 75 percent in CO₂ emissions. What's more, one euro of each start kit sold goes to the WWF's forest conservation program. If a cell phone breaks later, "EDEKA smart" customers can have their device repaired at a discount. And if a repair is no longer viable, old cell phones and SIM cards that aren't needed anymore can be sent to the Telekom Recycling Center. We have hence created an additional mobile device return option, in addition to our other various drop-off sites and collection campaigns, which we discuss in our CR Report.

We already started reducing the size of SIM card holders at the company in 2017. In 2018, we successfully saved 1.4 metric tons of plastic within the Group. For 2019 we expect to achieve savings of more than 17 metric tons.

END TO PAPER: FEWER PAPER BILLS THANKS TO OPT-OUT SOLUTION

Since mid-2018, we have informed our customers that we will gradually stop using paper bills – unless our customers actively object. Sending bills by post consumes resources, including wood for making the paper, ink for printing and fuel for transport. Electronic bills will be issued in our online customer portal. Customers who want to continue receiving their bills the traditional way can of course request this and will continue to receive them – free of charge – in their mailbox.

SUSTAINABLE PRODUCT AND PACKAGING DESIGN

Our aim is to make our products as sustainable and green as possible – from the packaging to the device. One example is the new Speedport Pro router. Its inner workings consist of recycled plastic. To protect it during transport, we also use PaperFoam – a material made of industrial starch, cellulose fibers and water that can be disposed of with paper waste or composted. The soft surface of the material means that we can also omit the additional protective casing when packaging the Speedport Pro. The router will come on the market in 2019.

The use of sustainable materials and processes when designing a product is usually associated with higher costs. This is especially critical with products for which our customers are less willing to pay more. It is therefore important in these cases to find compromises between our sustainability standard on the one hand and economic constraints on the other.

PRODUCT CERTIFICATIONS: DEMONSTRABLY SUSTAINABLE

Sustainable products are a key factor in competition for us. In order to inform our customers about the sustainability benefits of our products, we rely on recognized ecolabels, such as the Blue Angel in Germany. Most fixed-line phones and our entire media receiver product family boast the Blue Angel label. In 2018, the 401 and 601 SAT media receivers also received the certificate as additional models in the series. Devices certified with this ecolabel also contain information for customers as to how the products can be used in an energy-efficient manner. In addition to the Blue Angel, we have also increasingly been using the TÜV Green Product Label. In addition to ecological criteria, this also requires inspections of working conditions at production sites. A number of our routers, including the Speedport Neo, have already been certified by the TÜV Green Product Label.

The labels not only serve as information for our customers, however. Their strict requirements also help us see how we can further improve our products.

CLOTHING THAT CONNECTS

Clothing has many functions: It should keep us warm, flatter our figure and type, and at times also make a statement. But clothing can do even more. In the future it will help us, for example, to lead a healthier life. Or it will transform the idea of inclusion into material and thread.

The designers of "Project Love" show what that could look like. They help provide people whose bodies don't match "normal sizes" with fashionable clothing that fits perfectly. They produce tailor-made items of clothing using body scanners, 3D printers and conventional sewing machines. The two German designers from "Smart Orthosis" also focus on another important topic. They have developed a top that eases back pain. It's equipped with heating areas and vibration elements. It thus corrects the posture of the wearer and reduces pain.

The top can be connected to a smartphone via Bluetooth and controlled by an app.

Deutsche Telekom wants to promote ideas at the interface between technology and fashion, which is why we launched the “Fashion Fusion” program in 2016 together with partners. As part of the program, an ideas competition was held for the third time in 2018, aimed at start-ups and young entrepreneurs from the fields of fashion, technology and product design – such as “Project Love” or “Smart Orthosis”. Those taking part in the competition had the opportunity to develop prototypes of their ideas. They were provided with the necessary work materials and could draw on expert knowledge. In 2018, a top-class jury selected three winning teams from eight finalists at the Berlin Fashion Week.

CONNECTED T-SHIRTS SAVE FIREFIGHTERS' LIVES

The development program Connected Things Integrator by Deutsche Telekom's subsidiary T-Systems developed an innovative shirt to protect people in high-risk jobs like firefighting. It tracks the person's vital signs and also tells the incident commander the location, movements, and recent body orientation of a missing team member. In 2018, the Krefeld Fire Department tested the innovation during a practice operation to experience the opportunities telematics can offer for minimizing the risk in fire-service operations.

The shirt is equipped with a “pod” – a telematics unit located right below the nape of the wearer's neck. Thin, barely perceptible heat- and sweat-resistant wires run through the fabric in random, meandering loops that allowed the shirt to be stretched and washed. They transmit the firefighter's heart rate as captured by two sensors on the side of the chest. At the same time, a next-generation accelerometer in the pod detects the firefighter's every movement. An algorithm combines the rotation and translation of the GPS-enabled pod over six different axes. The advanced mathematics allows the device to track the wearer's location and movements. A memory chip records the raw data in order to instantly recognize any type of adverse event. A fall, for example, could be instantly reported wirelessly to an IoT platform in the cloud. The platform generally communicates with the Incident Commander's tablet over the Internet, but also manages the pods and pushes out regular updates to them.

Firefighters respond to home fires in Germany with some 200,000 operations every year and this innovation can mean a significant improvement to the safety of firefighters in life-threatening situations. The Connected Things Integrator will continue to work on developing the shirt further in order to incorporate additional helpful information channels. And if the invention can save just one life, it will already have been a resounding success.

FAIRPHONE 2 AT T-MOBILE AUSTRIA

T-Mobile Austria actively supports Dutch company Fairphone in its efforts to raise awareness of fair electronics and promote responsibility in the industry. In 2018, the company extended its support to Austrian Fairphoners, the first Austrian Fairphone community. It also provided financial aid for the Global 2000 Fairness Run community fund in Vienna and the Südwind Street Festival. The Austrian Fairphoners community aims to connect Fairphone users in Austria and to spread the word about the Fairphone movement.

T-Mobile Austria is one of the first mobile network providers in the world and the only provider in Austria to combine a mobile contract with Fairphone 2, the first sustainable and socially responsible smartphone. The company has been offering this product since early 2016. It gives new and current customers an opportunity to choose a sustainable way of life when it comes to their smartphones.

Fairphone focuses on four main challenges: to make mining at the beginning of the value chain, design, production, and the product life cycle more sustainable and transparent. In order to achieve this goal, the company cooperates with initiatives for the extraction of tin and tantalum from conflict-free mines in the Democratic Republic of Congo and sources conflict-free tungsten from Rwanda. It also created the first pilot supply chain for fair-trade gold in smartphones and promotes longevity through the modular product design of Fairphone 2. Spare parts for Fairphone 2 can also be ordered through T-Mobile Austria so as to facilitate long-term use of the product.

COLLECTION OF USED MOBILE DEVICES IN GERMANY

Germany's recycling and reuse rate for small electronic appliances is too low. Too many used cell phones, smartphones and tablets are stuck in drawers or disposed of illegally with the household waste. But these devices should be refurbished and reused or properly recycled to help us conserve valuable resources. We have been offering different ways for people to hand in their devices since 2003. Customers have been able to return their used, high-end cell phones and smartphones to Telekom Shops under a buyback program since 2013. They receive store credit from the Telekom Shop reflecting their old device's current value, which they can use to purchase a new device, or they can choose to have the amount booked to their customer account. Business customers can send in their used cell phones and smartphones through a special buyback portal, which we created in 2016. After the device's value has been determined, the amount can be paid out or donated to a charitable organization. Together with company Teqcycle Solutions we also operate the Cell Phone Collection Center online portal. Through this portal, authorities, associations and other organizations have the opportunity to start collection campaigns for donating used cell phones and smartphones. The website provides an overview of these partners and the collection campaigns they conduct. Campaigns took place in Bavaria, Baden-Württemberg, Hesse, Saarland and North Rhine-Westphalia during the reporting period. At the end of the year we donated the proceeds from the devices collected through recycling and reuse to Netzwerk Entwicklungspolitik Saarland e.V. and the Freiburg “Natur und Mensch” (Nature and man) museum to thus support educational projects.

In 2018 we collected exactly 187,028  used cell phones and smartphones throughout Germany and either reused them or had them properly recycled. During the cell phone collection campaign we use a data erasure process that is DEKRA certified and complies with strict data protection requirements. Defective cell phones or devices where certified data erasure would be too costly are properly recycled using state-of-the-art, environmentally friendly processes at the Telekom Recycling Center. Up to 100percent of the materials can then be reused – as recycled metals or for energy generation.

We depict the relationship between commercially sold and collected cell phones with our Take Back Mobile Devices ESG KPI. Around 308,000 mobile devices were collected throughout the Group (not including T-Mobile US, AMC, Maktel, Crnogorski Telekom) in 2017.

Support of various collection campaigns

As in previous years, we supported the Die-Handy-Aktion cell phone campaign conducted by different church-affiliated groups in the state of Baden-Württemberg in 2018 as well. Together with the Ministry of the Environment of Baden-Württemberg, the campaign partners carried out a large number of measures in the educational sector. For example, they redesigned the "cell phone raw materials kit" with the German Mineral Resources Agency and presented it to school classes and youth groups. The kit contains various minerals that are used in cell phones. Using accompanying teaching materials, teachers can explain the significance of the raw materials in smartphones to their students.

The "Responsibility and Sustainability. Join in!" collection campaign in the state of Saarland, which we have been supporting since 2014, was renamed "Handy-Aktion Saarland" (Saarland cell phone campaign) in 2018. We are still a cooperation partner to the campaign, which focuses on projects such as providing special course material on the topics of cell phone collection and resource efficiency. Mutual cell phone collection campaigns with Saarland companies and institutions are a further focus.

Information and recycling for World Environment Day

As part of World Environment Day we informed our customers in June 2018 about sustainable smartphone use and recycling used phones. On a special website set up for World Environment Day they were able, for example, to find out how the life of a smartphone can be extended and which collection points they can take their phone to at the end of its life cycle for it to be repaired or recycled. The tips were compiled by the Deutsche Telekom "Computerhilfe" service and additionally provided in the form of a readily understandable infographic. The infographic also includes current facts and figures on valuable resources in smartphones and their recycling. In the short video "Telekom Netz Tour 2018: Zerstören für die Nachhaltigkeit" (Telekom network tour 2018: destroying for sustainability) we also explain how we recycle and re-use smartphones.

HANDSET REUSE AND RECYCLING IN AUSTRIA

Since 2014, all smartphones sold by T-Mobile Austria have been sold unlocked. This makes it easy to pass on used devices to friends and family, or sell them online. It therefore increases the value of the original investment.

T-Mobile has been offering to repurchase used mobile devices since 2011. The "How I want it Principle" ("Wie-Ich-Will-Prinzip") has given this program new dynamic momentum. The "Mobile Phone Purchase" app provides transparent information about the expected sales value of the used device. It is purchased by T-Mobile shops in return for credit notes. The buyback is also offered to customers of other operators.

Recycling is carried out in partnership with Teqcycle Solutions. The Munich-based company is certified for its high environmental standards and ensures secure deletion of the device memory so that personal data cannot fall into unauthorized hands. The devices are then refurbished and resold by mobile phone shops, online exchanges, and other channels. If the devices are broken or their technology is outdated, Teqcycle ensures that they are recycled in Europe under controlled conditions.

As part of its legal obligation, T-Mobile naturally also accepts old devices from customers when they no longer function properly and the devices are appropriately recycled. This process supports DEBRA Austria (the association for those affected by the skin disease epidermolysis bullosa, also known as "butterfly children") and Children's Cancer Aid in Austria: T-Mobile makes a donation to one of the two organizations for each mobile phone handed in.

HANDSET RECYCLING IN THE USA

T-Mobile USA's device recycling program mobilizes customers to help reduce environmental and human health impacts from improper recycling. This program also increases access to quality reusable and refurbished equipment for those who need it, while conserving our limited natural resources.

Any wireless consumer can bring any make, model or carrier phone, battery, accessory, tablet or netbook into any T-Mobile USA location to be recycled for free. Through the JUMP! and Mobilize programs, T-Mobile USA incentivizes its customers to trade in their used devices and accessories for great deals on the latest technology. Those trade-ins are all reused, refurbished or recycled.

T-Mobile USA launched the recycling program for its customers in 2008, resulting in over 22.9 million devices being resold since then. 85% of the devices that are taken back are resold, with the rest being responsibly recycled by providers selected on the basis of their leading industry environmental certification. With the program, T-Mobile USA is contributing to the group-wide initiative "Stop Wasting – Start Caring!".

In 2018, T-Mobile USA collected 3,917,572 used cell phones.

HAZARD INFORMATION VIA SMARTPHONE

Major fires, the spread of hazardous substances, power failures, storms or floods: To ensure that citizens can respond quickly to hazardous situations, the Federal Office of Civil Protection and Disaster Assistance (BKK) has developed NINA, the emergency information and notification app. It warns citizens within 30 seconds via a push alert, thus showing how digital solutions can not only make our lives easier, but also safer. In addition, NINA provides assistance to users through recommendations on how to behave in a given situation and general emergency tips on how to best prepare for risks. The app is currently already being used by more than four million people, and the figure should rise to five million by 2020. The BKK is working with T-Systems to implement NINA. The fail-safe and powerful infrastructure of T-Systems forms the basis for the mobile warning system.

ACCESSIBLE PRODUCTS AND SERVICES

Deutsche Telekom wants to make it easier for people with disabilities to have access to the knowledge and information society.

Services for the hearing impaired

We set up a hotline (Deaf Hotline) for deaf and hearing-impaired customers in 2003. Up to 50 people currently call the hotline every day to get help with connections to their DSL routers, to find out more about special cell phone rate plans or to make an appointment with a technician. The employees of the Deaf Hotline are equipped with live consultant workplaces that have HD cameras, among other things. Customers and live consultants can see each other using a video-based live chat application and can communicate with each other in sign language.

For deaf customers and members of the German association for the deaf, Deutscher Gehörlosen-Bunde.V., we operate a special online distribution site. There we offer a discounted mobile communications and fixed-line portfolio that is tailored to the exact needs of deaf people. Customers can order their desired plans directly on the website, can contact the employees of the Deaf Hotline or be forwarded to the information exchange platform Deaf-Café in the Telekom Hilft community. The Deaf-Café provides a safe space to discuss or clarify questions about Telekom offerings together with other deaf people in groups and forums.

In addition, all of our fixed-line Entertain products, including on HD stations, have featured subtitles since 2018. They thus give hearing-impaired customers barrier-free access.

Since the summer of 2018, hearing-impaired people in Germany have had access to a 24-hour emergency call service with sign language interpreters through the Tess/Telesign interpreter relay service for emergency situations. Accessibility and trouble-free transmission of this service are now possible thanks to sufficient data volumes in the mobile phone contracts and adequate network coverage. Tess/Telesign is jointly financed by the mandatory social security contribution paid by Deutsche Telekom to Germany's Federal Network Agency.

Engagement for hearing impaired people in Slovakia

About 1 % of the population in Slovakia is hearing impaired, and Slovak Telekom is very active in developing comprehensive programs and activities to support them in ordinary everyday living situations. We also help families with hearing-impaired children to master their everyday lives. Another aim is to raise public awareness about the challenges they face.

As a carrier, we provide significant support for the hearing impaired and offer them an advantageous plan and a mobile data package. In 2018, Telekom updated its special mobile plan for hearing-impaired people that includes unlimited SMS and up to 8GB of mobile data at a price of € 12 per month. In addition, Telekom offers hearing-impaired people a preferential Mobile Internet L Plan with 15 GB of data for € 0.99 per month. This represents a discount of more than 95 percent.

Navigation stick for visually impaired people in Czech Republic

As a socially responsible company, T-Mobile Czech Republic aims to support visually impaired people. We have been cooperating with the Czech Technical University to develop a unique navigation solution for the blind. Connecting global navigation satellite systems (GNSS) and wireless data transfer networks has created one of the most advanced orientation solutions for visually impaired people. T-Mobile Czech Republic has supported the development of this navigation solution by providing connectivity in 3G and 4G, data SIM cards and modems. The newly developed navigation stick for blind people is connected to the navigation center. Based on a 2G-4G app, the service enables navigation data, voice communication, and images to be transferred. Formerly, the stick was connected to the smart phone but now the communication interface, camera and mobile phone are installed directly in the stick. Camera is utilized for orientation in buildings where GNSS does not work. A testing phase was completed in 2017 and pilot operation was running in 2018. After a redesign and various improvements, a prototype of a new-generation stick has been completed. The final product has to be certified by the Ministry of Labour and Social Affairs as a special aid tool in order to offer it to the visually impaired people for free. The production should be launched in Q3 this year. The supplier will be Svarovsky Ltd., the largest manufacturer of sticks for visually impaired people in the EU.

SUPPORTING START-UPS: CREATING SPACE FOR IDEAS

hubraum is the leading Deutsche Telekom start-up program. Its mission is to connect external start-ups with relevant business units at our Group in order to jointly develop innovative products for our consumer and business customers. To that end, hubraum offers entrepreneurs seed funding from a separate investment fund and targeted innovation programs with a view to strategic growth fields and technologies of Deutsche Telekom.

Since the establishment of hubraum in 2012, we have built up a strategic investment portfolio of more than 25 companies and worked with an additional approx. 300 start-ups in Europe and Israel – in areas such as Realtime Gigabit Society (e.g., 5G and Edge Cloud), Smart Data Economy (e.g., AI and process automation) and Internet of Things (e.g., Narrowband IoT and Industry 4.0).

The hubraum campus at the Berlin location has one of the first 5G networks in Europe and is equipped with an edge cloud infrastructure. In addition to an office space for teamwork and mentoring, start-ups there have exclusive access to networks, product platforms and test data from our Group and can thus accelerate setting up their business. In 2018, 30 projects were implemented in the hubraum Edge and 5G prototyping programs. These will be continued in 2019.

During the same period, 36 projects were carried out in the IoT innovation program – with solutions for NB IoT or LTE M networks and our Group's Industrial IoT portfolio. Examples of start-ups that took part in our LTE M program:

- The Slovenian start-up Trapview offers a solution for agriculture: Sensors determine if and to what extent plants have been infested with pests. This enables accurate coordination of the use of pesticides to match actual need and reduces any resulting adverse impact on the environment.

- Neebo, a start-up from Great Britain, has developed a sensor wristband for babies. It allows the child's vital signs, such as breathing and pulse, to be monitored via smartphone.
- HUBforKIDS is an initiative from hubraum in Krakow whose goal is to use technology to set up global CSR projects and support their growth in order to promote the future sustainability of society. In its current stage, the initiative is focusing, for example, on improving the situation for children in Polish orphanages.

Support for internal “start-ups”

Since 2011 we have been helping our employees develop their own concepts for new services and business areas at Deutsche Telekom into projects that are eligible for funding within the context of the UQBATE internal innovation program. Employees can present their ideas to interested colleagues on the UQBATE platform, create teams and then work together to turn their ideas step by step into products that are ready to go to market. Examples of concepts that have been implemented include the eParkomat and IndeeWork projects.

TAKE-OFFS PROGRAM SUPPORTS REGIONAL START-UPS IN CZECH REPUBLIC

2018 saw the eighth round of the Take-offs program. The T-Mobile Czech Republic program provides financial support, long-term professional advice, and expertise to regional start-ups. The overall aim is to help potential entrepreneurs, who often come from vulnerable backgrounds (people in regions of high unemployment, women on maternity leave, senior or handicapped citizens, students without work experience).

Out of 483 registered projects this year, 40 regional winners were chosen and announced by an expert jury at 9 regional workshops, free of charge for all interested participants and with 500 participants. The regional winners all receive support from experts in marketing, communication, and finance, as well as tangible, financial support worth EUR 4,500.

The public was invited to select the overall winner from 40 regional winners. More than 11,000 people took part in the online voting and selected Filip Hausknecht and his “Social Roof” project (social bistro that employs homeless people and people released from prison) as the overall public winner to receive an award worth EUR 4,600. A professional jury also selected a national winner. This year Pavel Buben and his Glucly project (application for people with diabetes) was selected as the national winner and received prizes worth a total of EUR 21,150.

The Take-offs again enjoyed significant media coverage. The winners were invited to present their projects on TV and radio, as well as in various print and online media.

ENVIRONMENTAL DATA FROM SPACE

Deutsche Telekom was commissioned by the European Space Agency (ESA) to develop a Cloud Platform providing access to satellite data. T-Systems will use the Copernicus Data and Information Access Service (Copernicus DIAS) to provide mass data from the European Earth observation program through the Open Telekom Cloud. Companies can then access the data free of charge and use it directly in the cloud for commercial purposes. The high-quality photographs generate valuable environmental parameters in six areas: land monitoring, marine monitoring, atmosphere monitoring, climate change, emergency management response, and security. Indeed, Copernicus data and information have been used to show the extent and magnitude of damage caused by forest fires (Italy, Spain, Greece, Portugal), earthquakes (Mexico), hurricanes (countries hit by hurricanes Harvey, Irma and Maria), and floods (Ireland, Germany), and helped rescue teams deal with these natural disasters.

Because Copernicus DIAS is a Cloud service, it is able to democratize access to European satellite data. In the past, few companies could afford the time and resources for downloading, saving and processing this continuously generated data.

Copernicus DIAS from the Open Telekom Cloud has been available since 2018. In addition to providing up-to-date earth observation data in the Open Telekom cloud, Deutsche Telekom is also maintaining a comprehensive database archive.

SERVICE QUALITY

As a service-oriented and socially responsible company, our approach also involves taking the needs and feedback of our customers into consideration. That's why we have set up a comprehensive customer relationship management system. We encourage dialogue with our customers by giving them opportunities to quickly and easily contact us, for example, online, via app, phone or e-mail or at a Telekom Shop.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Perfect service for our customers and a high degree of customer satisfaction > Expansion and improvement of digital service offerings > Involving customers in designing the service 	<ul style="list-style-type: none"> > New service orientation: more reliable, more direct, simpler and more personal > Technical service and customer service from one source > More transparency and flexibility through additional digital service options 	<ul style="list-style-type: none"> > TRI*M method > Telekom Digital Share

ENSURING EXCELLENT SERVICE QUALITY

We want to offer impeccable service that satisfies all of our customers. To achieve this objective, we bundled the Deutsche Telekom service units – with the exception of the Telekom shops – under one roof back in 2017. This enables optimal coordination and alignment of the service processes from beginning to end from the customer's viewpoint – from the initial contact with the hotline to problem resolution. This has allowed us to already reduce the number of complaints by almost 50 percent.

Our landline and mobile customers can reach us around the clock in Germany using our service numbers, including for internet and TV issues. Our online channels are becoming more and more important: our homepage, the "Telekom hilft" community in social networks and our app. More than 40 percent of all service inquiries at Telekom Deutschland are solved by support provided by our overarching online platforms (as of the end of 2018). We expanded our digital offering with new functionalities in 2018: For example, customers can arrange the relocation of a line using an app or track the arrival of a Deutsche Telekom technician. In addition, we simplified hotline authentication for customers.

"Telekom hilft" – Europe's largest community

Our customers can also reach us on social networks. Our digital service platform "Telekom hilft" now has more than one million registered users, making it Europe's largest telecommunications community. Consumers and business customers can help each other on the www.telekom.de/community web portal as well as on Twitter and Facebook or seek advice and support from one of the around 120 service employees.

Measuring customer loyalty and willingness to recommend our products and services to others

We use the TRI*M index to precisely gauge customer loyalty and regularly participate in benchmarkings. The basis for the census is a customer survey in all markets where we are active. The benefit for the Deutsche Telekom Group consists in data aggregation across all country values (excluding the U.S.). The index itself is calculated from four individual issues (competitive edge, performance, continued use and recommendation). The Group-wide TRI*M index was 67.7 points in the 2018 reporting year, representing a slight increase over the 2018 benchmark figure of 67.2 and thus allowing us to achieve our Group target. The TRI*M index for Germany was 59 points, compared to the previous year's 59 points. That means we didn't attain our goal of a slight increase. One of the reasons for this is that our service provision for business customers was deemed to be capable of improvement. Our target for 2019 is to achieve a further improvement for the Group as a whole and to increase the TRI*M index by one point for the Germany segment.

The results for our customers' satisfaction and loyalty are in part tied to our managers' variable salary components and thus play a role in their performance assessments.

NEW SERVICE ORIENTATION: DOING EVEN MORE TO MEET OUR CUSTOMERS' NEEDS.

Customers help shape service

Our customers should be given the opportunity to help actively shape Deutsche Telekom's products and services. It was with this in mind that we launched the Telekom Ideenschmiede (think tank) online platform in 2018. Ideas for improving our offerings are now shared here by more than 4,600 registered users. Community members present their ideas, rate suggestions from other community members, or express their opinions on suggestions and questions from Deutsche Telekom. In addition, online surveys are conducted and personal meetings arranged with members. Based on the feedback received from the think tank, we have already started to make Deutsche Telekom bills simpler and more customer friendly, for example.

Innovative callback services shorten wait times

Our innovative callback services allow us to avoid unnecessary wait times. If the customer does not want to stay on the line for the announced wait time, they can request a callback to a number of their choice by means of a voice prompt. Many customers would also like to speak to the same contact again and not to have to explain their query repeatedly. Thanks to our personal callback service, this can be done really easily within 48 hours, both from a fixed-network or mobile phone. And to also reduce the time the customer has to wait for the technician, we aim to also reduce the time frame for appointments with technicians.

Additional improvement measures planned for 2019

To further improve our service, we systematically evaluate our customers' inquiries and complaints to identify the root of the problem and continuously make improvements. This has already allowed us to reduce the number of complaints, for example, by around 40 percent. We also almost reached our target in 2018 of ensuring that no appointment with one of our technicians is canceled at short notice. In cases (less than 2 percent) where an appointment needed to be unexpectedly canceled nonetheless, the customer was promptly informed of this and a new appointment was scheduled. At the same time, we are continuing to work on improvements across all channels – whether person-to-person, over the phone, online or via app. The focus is on increasing the first resolution rate – in other words, the number of customer requests that can be resolved on first contact – and further improving the punctuality of our technicians.

Independent tests carried out by the magazines Connect, CHIP, and Focus Money and by audit firm TÜV also confirmed that a large number of measures and closer collaboration under the umbrella of our new service unit have already delivered countless improvements.

OUR INNOVATIONS FOR BETTER SERVICE

In addition to improving existing contact channels, we are also working on innovative new service offers.

- Customers want a fast and simple overview of their contracts and the services they have booked. The "MeinMagenta" (My Magenta) app makes that possible. The app provides information at a glance via tablet and smartphone on contract status, data volumes, inclusive minutes, and much more. In addition, the app offers important questions and answers, help videos, and community posts. Direct access to a personal contact via chat or video chat is also possible. The app was made even more user friendly in 2018 and new features were added. With the addition of the shop, customers now have the opportunity to conclude new contracts, renew their contracts, and book new tariff options. More than four million customers are already using the app and give it an average rating of four out of five stars.
- Our customers can optimize their internet access in their home Wi-Fi network using the "Mein WLAN" (My Wi-Fi) feature in the "DSL Hilfe" help app. This allows them to check the quality of the Wi-Fi connection in a flash and determine the range of their wireless network. In addition, the self-service Wi-Fi check offers useful tips and tricks for improving reception – from moving the router and adjusting the antennas to installing additional repeaters.
- Our digital service assistant – an automated text chat function that can engage in text-based dialogue with customers around the clock – offers help on more than just faults. It also supports customers with other issues – whether it's a help, advice, or service query. The assistant has been using AI technology since April 2018, allowing it to learn: Its answers are increasingly accurate, thus providing customers with the best possible assistance. If an issue arises that the assistant cannot answer, the customer is forwarded to a customer adviser. The text chat function has gone down very well with our customers. It is already being used more than 130,000 times a month, and the figure is rising.

- Few have not been burdened with the tedium of searching for customer numbers or passwords. For this reason, we introduced the "SprachID" (VoiceID) in 2018 to make it easier for our customers to authenticate themselves on the service hotline. Anyone wanting to use this service has to repeat a predefined sentence three times when registering. Voice characteristics are converted into a numeric value in the process and stored in compressed form. To authenticate themselves later on, customers simply have to utter the sentence "At Deutsche Telekom, my voice is my password" (in German) and the system can identify them uniquely. After just five months, more than 200,000 customers have already registered for the service.
- Our customers have been able to use our online application "Mein Telekom Techniker" (My Telekom Technician) since summer 2018 throughout Germany to track the arrival time of the Deutsche Telekom technician. The service is used on average around 4,000 times a day. "Mein Telekom Techniker" (My Telekom Technician) is being further developed together with our customers. Customers give this service an average rating of 4.7 out of 5 stars.

We use the opportunities offered by digital transformation in areas where it offers added value for customers, relieves the workload for our employees and is accepted by them. Our service always remains empathetic and human-centric as a result.

AWARDS FOR OUR SERVICE



TÜV Rheinland: a "good" rating for Deutsche Telekom's service

For the sixth time in a row, TÜV Rheinland awarded our hotline, our technical service, and the Telekom shops the coveted "tested customer satisfaction" quality seal based on a representative survey. Some 2,550 customers in Germany were polled for the study in a representative random sampling. The three service organizations earned high marks in the areas of reliability, competence, and friendliness, in particular.



DEUTSCHLANDTEST 2018: Service King

For the fourth time in a row, DEUTSCHLANDTEST surveyed customers' service experiences in 34 branches nationwide. Deutsche Telekom was the winner in the Telecommunications category for the third time in a row, with customers confirming that Deutsche Telekom offers excellent service. Customers in the 40 largest German cities were surveyed for the test. A total of over 300,000 votes were recorded and evaluated.



Double flat rate for internet and phone

Focus Money tested the best double flat rate for making landline calls and surfing the web in collaboration with the online portal Check24, scrutinizing aspects such as price, service, and rate conditions. Deutsche Telekom came out on top in this comparison in the "Service" sub-category.



2018 CHIP hotline test for fixed-line and mobile telecommunications

In collaboration with Statista, one of the largest market research companies, CHIP completed a major hotline test in 2018. Over an eight-week time frame, the hotlines for new customers of a total of 141 companies from 12 industries were tested. More than 8,600 tests were carried out and subsequently summarized in rankings. The testing focused particularly on the topics of customer service, availability, wait time, and transparency. Deutsche Telekom was rated as “very good” overall in the “Mobile Communications” category for its hotline and was the test winner in the Customer Service category. In the “Fixed Network” category, the hotline was also rated as “very good” in the overall assessment.



Connect 2018 “Broadband Hotline Test”

The magazine Connect carries out an annual review of the broadband/fixed-network hotlines of the various providers.

The current test confirms that Deutsche Telekom offers the best fixed-network infrastructure and the best hotline. Aspects such as accessibility, wait time, costs, friendliness of employees, and the quality of information were assessed.



Connect 2018 “Best Service App”

The trade journal Connect asked which was the “Best Service App” in the telecommunications sector this year. The service apps of network operators Deutsche Telekom, O2, and Vodafone were tested. Deutsche Telekom’s MagentaSERVICE app was the test winner with a rating of “exceptional”.

Honored with the International Business Excellence Award 2018

Deutsche Telekom once again won the “International Business Excellence Award” in 2018 in the categories “Customer Experience and Voice of the Customer” and “Telecommunications and Information” for its Voice of the Customer program, an international customer contact analysis. The program collects customer feedback across all contact channels. More than five million feedback responses are collected this way every year and used to optimize customer service. The system is already in use in twelve European countries.

T-Mobile Austria wins “International Customer Experience Award”

T-Mobile Austria received two distinctions for its messaging service at the ceremony to mark the 2018 International Customer Experience Awards. The T-Mobile service won the coveted award in the categories “Contact Center” and “Best Digital Strategy”. The messaging function offers customers a location-independent service that is not tied to opening hours. Service advisers therefore have time for longer investigations, which in turn allows the customer to remain in contact with a single contact until the case is resolved.

CONSUMER PROTECTION AND DATA SECURITY

After the European Court of Justice determined in 2015 that the Safe Harbor Agreement between the EU and the U.S. was invalid, there was initially great uncertainty regarding the transmission of personal data. The follow-up agreement that came into effect in 2016, Privacy Shield, provided more clarity: The EU-U.S. Privacy Shield Agreement regulates data protection between the EU and the U.S. On the one hand, the agreement defines the data protection regulations that the U.S. grants European citizens and companies. On the other, it addresses what European companies need to consider when they send data to the U.S. The agreement emphasizes the protection of personal data that is transmitted from EU countries into the United States.

Needless to say, all parties benefit from a reliable legal foundation. This also includes cross-national agreements. These agreements uphold the rights of data subjects and provide clarity for companies. At the same time, such agreements with the European Union must not be allowed to compromise the rights that the General Data Protection Regulation (GDPR) accords to European citizens and companies. This is a position that Deutsche Telekom strongly supports.

European business customers are critical of data storage outside of Europe; demand for secure cloud services “made in Europe” is growing. Our security solutions meet this demand. We guarantee the same high security standards at all of our data centers. We also develop products for consumers, such as products offering end-to-end encryption, and solutions for SMEs to detect and fend off hacker attacks in real time. In addition to data security, we have also introduced measures for consumer and youth protection.

To us, security is more than just protecting data and infrastructure - it also means protecting the public's health. We have established a Group-wide basis for this with our EMF policy.

CONSUMER AND YOUTH PROTECTION

We stand for the highest possible standards when it comes to consumer and youth protection. We want to teach children and young people in particular how to use digital media safely and effectively and protect them from inappropriate content, which is why we work throughout the Group to improve their media skills in a variety of projects. We also work with a variety of initiatives and partners to create a child-friendly internet. We have reinforced our stance with numerous national and international voluntary commitments and internal codes of conduct. In doing so, we often exceed the standards required by national regulations.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Best possible protection of users and minors 	<ul style="list-style-type: none"> > Developing data privacy products > Binding Corporate Rules on Privacy > Promoting media skills > Partnerships and alliances 	<ul style="list-style-type: none"> > Online reporting about data protection measures and activities

PROTECTING CONSUMERS AND MINORS

Data privacy and data security are very important to us. In 2008 we created a Board of Management department for Data Privacy, Legal Affairs and Compliance as well as the Group Privacy unit. Since 2009, the Board of Management has been advised by an independent Data Privacy Advisory Council comprising reputable experts from politics, science, business, and independent organizations. In addition, we were the first DAX company to have our data privacy organization reviewed and certified according to the IDWPS980 standard in September 2014. At Deutsche Telekom, data protection and data security are subject to the Group's Binding Corporate Rules on Privacy and the Group Policy on General Security. The Binding Corporate Rules on Privacy govern the handling of personal data. The related document Binding Interpretations contains specific recommendations and best practice examples for implementing the EU General Data Protection Regulation, which was enacted in May 2018. The Group Policy on General Security includes significant security-related principles followed within the Group. Both guidelines set forth binding standards that are in line with international standard ISO 27001. These policies allow us to guarantee an adequately high and consistent level of security and data privacy throughout the Group. Deutsche Telekom has been publishing an annual transparency report for Germany since 2014, which covers the types and amount of information we disclose to security agencies. In doing so, we are fulfilling our statutory duty as a telecommunications company. We also provide up-to-date and transparent information about all of our activities and measures regarding data protection and data security on our Group website.

Our products and services have always provided a high degree of data privacy and data security. Growing volumes of data require special precautions to protect the privacy of citizens, which is why we approved eight mandatory principles for handling big data, or large amounts of personal data, in 2013. In 2015, we also approved specific measures to protect data and infrastructure in our "Ten-point program for increased cyber security." We also developed new protective products including our Mobile Encryption app designed to ensure end-to-end encryption of mobile communication.

Data privacy and security also play a key role in the development of our other products and services. Our Privacy and Security Assessment (PSA) procedure allows us to review the security of our systems in each step of the development process. This procedure applies to newly developed systems as well as existing systems that undergo changes in technology or in the way data is processed. We use a standardized procedure to document the data privacy and data security status of our products throughout their entire life cycle. Youth protection aspects are also taken into consideration in our product and service design. In Germany we involve our youth protection officer in all issues regarding planning and designing offers for young people. The youth protection officer can then recommend restrictions or changes. We have appointed a Child Safety Officer (CSO) at each of our national companies within the EU who is responsible for issues pertaining to the protection of minors. The CSO acts as a central contact for members of the community in the respective market. The CSO also plays a key internal role in coordinating topics related to the protection of minors. These measures increase the consistency and transparency of Deutsche Telekom's involvement in protecting minors.

Strategic approach to protecting minors from unsuitable media content Our strategy to protect children and young people from harm when using digital media is based on three pillars:

- We provide attractive, age-appropriate offers for children and give parents and guardians tools (filters) that they can use to restrict the access minors have to harmful content,
- we participate in combating child abuse and its depiction to the extent that this is permitted within the national legal framework, and
- we promote skills to help people use the internet safely.

We also collaborate closely with prosecuting authorities and NGOs as well as other partners from business, politics, and society to ban online content that is harmful to children and young people. We have documented our commitment to protecting minors from unsuitable media content in Germany in relevant codes and introduced minimum stand-

ards. In 2007, we committed ourselves to fighting child pornography on the internet throughout the European Union. At a global level, we have been a member of the global association of mobile providers, GSMA, since 2008, which pursues the same objectives. In order to better coordinate our activities within the Group, we also approved a list of general guidelines in 2013 for our activities to help protect minors from unsuitable media content and made these guidelines mandatory at international level, thereby setting new standards in our markets. In consideration of their particular cultural situation and business model, each international subsidiary in the European Union can further specify these measures, adopt additional measures, and also determine their own strategic focal points.

Because protecting minors from unsuitable media content poses a challenge that affects many industries, we cooperate with different organizations for the protection of minors and participate in coalitions that coordinate the involvement of companies and organizations from the internet and media sector. For example, we are a member of the "Alliance to better protect minors online", whose goal is to make the internet a safer place for kids. We have also taken a leading role in the "ICT Coalition for Children Online". In this coalition, we pursue a comprehensive cross-industry approach based on six principles that expressly includes helping young people learn media skills.

In 2013, as part of both coalitions, we announced plans to implement an EU-wide set of measures based on the principles of the ICT Coalition. We provide regular and transparent updates regarding implementation of the set of measures adopted in 2013; our most recent report was in 2017. The ICT Coalition published an annual report in 2014 on the implementation of corresponding measures at all of the companies represented in the ICT coalition. The report, which was written by an independent expert from the Dublin Institute of Technology, comes to the conclusion that Deutsche Telekom's approach to implementing the ICT Coalition's principles is exemplary.

New strategic Cyber Defense and Security Operation Center

In 2017, the Telekom Security unit expanded the Cyber Defense Center in Bonn into an integrated Cyber Defense and Security Operation Center (SOC). This new defense center is one of the largest and most modern of its kind in Europe, analyzing one billion pieces of security-relevant data from 3,000 data sources every day in a nearly fully automated process. It currently registers up to 16 million cyber attacks.

PROTECTING PERSONAL DATA

Protecting our customers' data is one of our top priorities. We also provide up-to-date information about all of our data protection activities on our Group website under data protection and data security. The following examples serve as a brief excerpt of our recent activities: The GDPR took effect in May 2016. After a two-year transition period, the regulation has been binding since May 25, 2018.

International cooperation for cyber security

In 2018, we once again promoted data security on an international level. Among other things, we are a founding partner of the Charter of Trust, which was signed at the Munich Security Conference in February. One of its objectives is to establish general minimum standards for cyber security that are aligned with state-of-the-art technology. Together with our partners, we have identified ten action areas which call for more activity in order to ensure cyber security.

Furthermore, in November 2018 we underscored our commitment to security in the digital world by signing the Paris Call for Trust and Security in Cyberspace. We thereby pledged to intensify and actively shape collaboration in support of integrity and security in the digital world.

Commendation for handling of customer data

For the third time, in 2018 we were commended by the independent testing authority TÜV Informationstechnik (TÜViT) for our handling of customer data. TÜViT certified that our processing of customer data, as it relates to billing, for example, is done in a secure and careful manner.

Security on the go

Since November 2017, we have partnered with the company Check Point Software Technologies to offer the Protect Mobile security solution for smartphones to our consumer customers. Protect Mobile provides reliable protection from cyber attacks through a combination of network protection and app on the smartphone – for downloading apps, doing online banking or surfing in the browser. Deutsche Telekom customers can add this option free of charge to their existing mobile phone contract. For the most complete protection, the app is available for Android and iOS from app stores.

Simple data privacy statements for everyone

Data Privacy Notices are often incomprehensible to the layperson. Our one-pager provides our customers with an easy-to-read overview of data privacy at our company. It contains simple, condensed information on the basics behind our data processing activities. It does not replace our formal data privacy statement, to which we link in the document and which complies with legal requirements. Instead, it provides users with transparent information on how and to what extent we process and use personal data. With this one-pager, we have followed an initiative launched by the National IT Summit, supported by the Federal Ministry of Justice and Consumer Protection.

Encryption for all

Together with the Fraunhofer Institute for Secure Information Technology (Fraunhofer SIT), we launched the "Volksverschlüsselung" encryption solution in 2016. It is a simple, free way to encrypt emails. We operate the solution at a high-security data center. The keys are generated on the user's device. The user is the only person with access to them; they are not sent to the infrastructure operator. To use the encryption, users only need to install the software and identify themselves as part of a simple one-time process. This product supports the federal government's digital agenda. What's more, we fulfill the requirements of the Charter for the Promotion of Trustworthy Communications ("Charta zur Stärkung der vertrauenswürdigen Kommunikation"), which was proposed and signed by representatives from the business and scientific communities as well as by political representatives.

Other examples of our comprehensive data protection and security services:

- At the start of 2018, we published practical data protection tips for our customers on our website. We offered these tips with the aim of helping our customers manage, for example, the requirements of the General Data Protection Regulation (GDPR).

- Information on cyber criminals, malware and phishing is distributed over thousands of websites on the internet. The www.sicherdigital.de website brings this information together, providing users with easy access to security issues. Young people, adults and businesses can find useful information and specific tips concerning security and data protection.
- The “Confidential” issue of our We Care magazine talks about how dangerous hacker attacks can be and how users can protect themselves. In the issue Inkognito we discuss how to protect one’s privacy without becoming a digital outsider.
- Users can track cyber attacks on our website in real time using our security dashboard. We show the countries where the cyber attacks are coming from on a map. For more information on this, go to www.sicherheitstacho.eu.
- Our Netzgeschichten (Network Stories) also discuss issues regarding protection of minors and consumers. You can watch all of our videos on YouTube: <https://www.youtube.com/user/deutschetelekom>

EU GENERAL DATA PROTECTION REGULATION (GDPR) BECAME BINDING

Laws have to be interpreted in order to be enforced in everyday situations. Group Privacy has drawn up a set of standardized rules for the Group as a whole; they are called Binding Interpretations. They were developed in collaboration with data privacy experts in the national companies. The Binding Interpretations include recommendations and best practice examples to implement the EU regulation. For example, they explain what a customer consent must entail, or how customer data has to be deleted, if this is requested by the customer. From January 2017 to May 25, 2018, the new requirements based on the Binding Interpretations were introduced throughout the Group. This involved checking and, where necessary, adjusting all the IT systems. All employees have been informed about the GDPR and numerous training sessions have been conducted. Once implementation was complete, the monitoring phase began. Affected entities of the Group were asked whether they had implemented all relevant requirements. In addition, spot checks for compliance with the GDPR were carried out at 28 entities. They confirmed that the requirements had been implemented.

Our collaboration in the AUDITOR project is also representative of how we are dealing with the new legal conditions. The goal of the project is to develop and test EU-wide data protection certification of cloud services. In particular, its focus is on translating specifications of the GDPR into international data protection certifications.

COLLABORATION FOR THE PROTECTION OF MINORS

We want to create a safe and positive online experience for children and young people. We offer them attractive, exciting content on age-appropriate websites.

Promotion of standardized child protection offers

In 2016, we joined the non-profit organization JusProge.V. The organization operates the child protection program JusProg. The software protects children and young people on the internet by blocking content through filter lists or customized settings for parents.

This software is a general child protection program in Germany that has been officially recognized by Freiwillige Selbstkontrolle Multimedia-Diensteanbieter e.V. (FSM, the Association for the Voluntary Self-Monitoring for Multimedia Service Providers) pursuant to statutory requirements (Interstate Treaty on the Protection of Human Dignity and the Protection of Minors in Broadcasting and in Telemedia). The software was most recently evaluated in March 2017.

We decided in 2016 to donate the rights to the program code behind our child protection software (Windows) and our child protection app, Surfgarten, (iPhone/iPad) to JusProg e.V. in order to expand our involvement in child protection efforts.

Commitment to FSM

We are a founding member and part of the executive board of FSM, the Association for the Voluntary Self-Monitoring for Multimedia Service Providers. The association published the “Index for Youth Media Protection” for the first time in 2017. It indicates the extent to which the protection of young people from negative experiences online is anchored in the concerns, attitudes, knowledge and actions of parents, learning specialists and teachers, and young people themselves. It provides the basis for recognizing strengths and weaknesses in today’s media regulations for youth media protection and the available support measures for media education, which provide starting points for their continued development. The 2018 youth media protection report specifically addressed teachers and educational specialists.

Teachtoday in the Aktionsbund Digitale Sicherheit (Digital Security Action Alliance)

In addition to these solutions, we also promote safe and responsible media use among children and young people with our Teachtoday initiative. The initiative supports children and their families with practical and everyday tips and materials.

FIGHTING CHILD PORNOGRAPHY

We consider it our obligation to take rigorous action against depictions of child abuse on the internet. We have been involved in an EU-wide fight against the depiction of child abuse since 2007 in the European Framework for Safer Mobile Use by Younger Teenagers and Children. Since 2008 we have been committed to combating the spread of such content together with other mobile providers in a global association.

Since 2013 we have been actively participating in two cross-industry coalitions committed to fighting child abuse on the internet, the “CEO Coalition to make the internet a better place for kids” and the “ICT Coalition for Children Online.”

For more than 20 years, we have been active as a founding member in the FSM, the Association for the Voluntary Self-Monitoring for Multimedia Service Providers. Together with eco, the Association of the Internet Industry, it operates theinternet-beschwerdestelle.de, a website for reporting child abuse on the internet. It is the German point of contact for internet users to submit complaints and part of INHOPE, the global umbrella association of internet hotlines for complaints. A particular focus of the hotline is the fight against “gray areas”.

ALL-ROUND SECURITY FOR LIFE IN THE DIGITAL WORLD

In 2016 we launched the Computerhilfe Plus service that offers competent support from experts in the event of cyber bullying and libel on the internet. Since its launch, the demand for support in matters related to digital security has continued to grow. That's why we introduced the Digital Schutzpaket (Digital Protection Package) in 2018.

The Digital Protection Package combines all relevant security services in one product and offers a central point of contact for all topics related to home networks and Wi-Fi, internet and social media. A service number provides access to Deutsche Telekom experts for support on protecting the home network from external attacks, or help on the secure use of the internet, social networks and passwords. In the event of data loss, we look after recovering files where possible. Other service components include financial protection from fraudulent use of bank details, fraud in private online trading, and protection and effective counter-measures against cyber bullying or insults on the internet.

CYBER SECURITY

Criminal hackers are getting more and more professional by the day. Private individuals as well as public organizations or companies are all at risk. Weaknesses in computer systems are often taken advantage of within hours, with attacks being run fully automatically.

As a responsible ICT provider, we are fighting this trend. Our business model includes guaranteeing our customers a high degree of security and effectively protecting the data and infrastructure of the people and companies who use our services from unauthorized access.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Maximum protection of our infrastructure from attacks > Guaranteeing data security 	<ul style="list-style-type: none"> > Establish a cyber defense and security operation center > Analyzing attacks > Developing defense strategies > Entering into collaborations 	<ul style="list-style-type: none"> > Web portal: Data privacy and data security > Web portal: Telekom Security

PROTECTING OURSELVES AND OUR CUSTOMERS

In line with our Group strategy, we promote our business with security products and services throughout Europe. In 2016 we united all security-related departments Group-wide under one roof, thereby expanding our abilities to detect cyber attacks early on and also to quickly introduce countermeasures. Our Telekom Security unit focuses on internal security issues and develops security solutions for consumers as well as business customers. This approach enables us to provide our customers even more efficiently with the perfect security solutions along the entire value chain, from product development to applications through to secure, high-performance networks and high-security data centers.

We are always working to develop new ways to defend against attacks. We launched a Cyber Emergency Response Team (CERT) in the mid-1990s, which is responsible internationally for managing security incidents for our information and network technologies. Since then, we have continued to expand our activities in relation to cyber defense, information on attacks, and information sharing. In 2017, we opened a new Cyber Defense Center with integrated Security Operation Center (SOC) in Bonn. There we analyze behavioral patterns on the internet and draw up defense strategies. This new defense center is one of the largest and most advanced ones of its kind in Europe, analyzing 2.5 billion pieces of security-relevant data from 3,300 data sources every day. What's more, the cyber defense center processes about 200 requests, filters about 5,000 viruses and malware programs, and scans about 100 million incoming emails for spam every day. This is how we protect our infrastructure, and hence also our customers' data. Some 200 security experts work round the clock at the new SOC in Bonn and its affiliated national and international locations.

The measures that we undertake to fight cyber attacks on our own infrastructure are also available to other companies. More than 30 German DAX companies and SMEs employ our services for their own protection.

New dangers require new solutions

Technological innovations can bring new dangers. That is why we develop targeted measures for combating potential new security risks – such as those associated with drones, for example. We developed the Magenta Drone Shield together with our partner Dedrone.

Collaborating in the name of security

Cyber security is a communal task. In order to further improve collaboration in the area of digital defense, we regularly host the Cyber Security Summit in collaboration with the Munich Security Conference. The last summit was held in May 2018. We also organized the Magenta Security Congress in 2018 for the third time.

In addition, we collaborate with research institutes, industry partners, initiatives, standardization committees, public institutions, and other internet service providers on a global scale. Together, we want to fight cybercrime and improve online security. We collaborate, for example, with the German Federal Office for Information Security (BSI) throughout Germany and with the European Union Agency for Network and Information Security (ENISA) at a European level.

We also provide up-to-date information about all of our data protection activities on our Group website under data protection and data security.

CYBER SECURITY SUMMIT

Together with the Munich Security Conference, we organized the Cyber Security Summit (CSS) in May 2018 for the sixth time. The venue for this year's event was Tallinn. About 150 high-ranking international politicians, top managers, and scientists met at the conference to discuss the biggest cyber security challenges. Key topics included critical infrastructures as a target of hacker attacks, strategies to combat terrorist use of the internet and the impact of artificial intelligence or the Internet of Things (IoT) on the future of international conflicts. The summit also discussed which new rules are needed in the digital age. CEO Timotheus Höttges called for an early warning and coordination system based on the model of the World Health Organization (WHO), which deals with and combats the dangers in virtual space like epidemics.

MAGENTA SECURITY CONGRESS

How can I sufficiently protect myself and my company from cyber attacks? What are the latest security trends and solutions? How high is the risk of elections being hacked in Germany? Questions such as these were the focus of the Magenta Security Congress, which took place on March 7 and 8, 2018 in Bonn. There Deutsche Telekom teamed up with experts in the security sector for the third time to share current cyber security developments with national and international partners as well as customers.

IT DRONE DEFENSE SHIELD

Commercial drones can make many processes easier and more efficient – for example, in the film and surveying technology or logistics sectors. But the technical opportunities drones provide can also be misused for illegal and criminal objectives. Since the end of 2016, the Magenta Drone Shield has offered our customers a solution that protects them from the increasing danger of drones. Business customers with critical infrastructures, data centers, stadiums, and authorities can secure their premises from remote controlled flying objects with the shield and thus defend themselves against espionage, smuggling, and vandalism.

The Magenta Drone Shield was developed to defend against professional perpetrators who fly commercial drones by remote control or GPS. Various national and international providers of detection systems and providers of multi-sensor platforms for detecting and combating drones were rigorously tested under the strictest secrecy. The best available technologies based on video and audio analysis, radar, and frequency scanners were bundled for the drone shield into a simple and comprehensible graphical user interface. Drone defense is also being implemented at a government level using electronic jammers.

MOBILE COMMUNICATIONS AND HEALTH (EMF)

Electromagnetic fields (EMFs) are a prevalent element in our connected world, even if we are not able to perceive them directly. Their effects on our health remain a topic of discussion. It is very important to make sure that the EMFs employed do not present a problem for people or the environment when we use them in mobile communications.

The effects of electromagnetic fields have been thoroughly researched over past decades in numerous scientific studies. The World Health Organization (WHO) analyzes the findings of scientific research and recently made a statement regarding the results in October 2014. In its statement the World Health Organization concludes that the current threshold values for electromagnetic fields ensure that mobile communications technology can be used safely but that further research is required.

Deutsche Telekom has made a commitment to actively address scientific research on mobile communications and health. We provide detailed information on the Group website on the latest technology and scientific risk assessments published by expert committees. To this end, we published a brochure titled "Fakten zu Mobilfunk und Gesundheit" ("Facts about mobile communications and health") and last revised it in 2017. The document is available on our Group website.

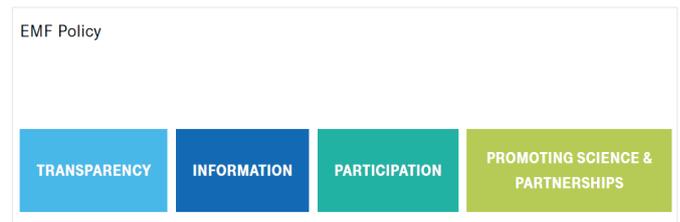
OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Protect people's health 	<ul style="list-style-type: none"> > EMF Policy > Voluntary commitment 	<ul style="list-style-type: none"> > Evaluating the EMF Policy

STRIVING FOR SECURE MOBILE COMMUNICATIONS

We want to make our mobile communications infrastructure and our new products, as well as the processes on which they are based, as resource-efficient, secure and safe for health as possible. In Germany these activities are based in particular on voluntary commitments by mobile communications providers and an agreement with local authorities' associations. Compliance with these voluntary commitments is reviewed every two years by external experts. In 2018 we once again submitted a current annual mobile communications expert report, coordinated by Deutsches Institut für Urbanistik (German Institute for Urban Studies), to the German Federal Government. According to the report, mobile communications expansion is progressing for the most part free of conflict. 95 percent of the municipalities surveyed said that they had had little or no controversial decision-making cases. The report was published by the German Federal Environment Ministry. What's more, in collaboration with Telefónica, we also support the information portal www.informationszentrum-mobilfunk.de.

Our Group-wide EMF Policy, which we adopted in 2004, plays a pivotal role. The policy specifies standardized minimum requirements in the area of mobile communications and health, requirements that by far exceed those set forth by national laws. Our policy provides our national companies with a mandatory framework that makes sure that the topic of mobile communications and health is addressed in a consistent, responsible way throughout the Group. All of our national companies have officially accepted the EMF Policy and implemented most of the required measures.

Our EMF Policy stipulates the following principles and measures:



Transparency

We place importance on discussing issues involved in mobile communications openly. We make all relevant information regarding our mobile communications equipment in Germany accessible to the public, e.g., on the EMF database operated by the German Federal Network Agency.

Information

We provide consumer information that is easy to understand and pursue a fact-based, sound information policy. On our Group website we provide the latest information to those interested. We also provide our customers with information on the SAR levels of their devices. In addition, customers can get information on SAR levels at many of our shops, via our free environmental hotline or via e-mail.

Participation

We rely on close collaboration and constructive dialog with all those involved, including communities, when it comes to network expansion. Our goal is to find amicable solutions and negotiate acceptable compromises, which can only be achieved by responding fairly to critical arguments and being ready to learn from mistakes.

Promoting science & partnerships

Our guidelines call for promoting targeted research, scientific excellence, transparency, objectivity and intelligibility.

We conduct ongoing reviews of compliance with our EMF Policy. The findings are used to improve individual aspects and develop solutions in different working groups such as our EMF Core Team and the EMF Technical Working Group.

EVALUATING AND IMPLEMENTING THE EMF POLICY

We want to seamlessly implement our EMF Policy throughout the Group. We help our national companies do this by providing specific tools. For example, we formulated standardized policies for funding research, for example, and published these on the Deutsche Telekom website. The national companies take these policies into account when formulating their own funding programs. We also rely on our national companies' own initiative and encourage them to continue to improve their measures even after they have fully implemented the EMF Policy. The dialogue conducted by the Deutsche Telekom national companies with other network providers and with consumers, politicians and scientists plays a central role in this context.

Regular reviews show us that the EMF Policy is being implemented consistently in all of our action areas. We are also working on expanding our country-specific activities. In 2018 we proactively addressed 5G technology. This involved carrying out measurements at the first 5G sites in Berlin.

Deutsche Telekom is continuously building small cells, an innovative, high-performance mobile communications technology. These small cells add additional capacity to our mobile communications network in places with high traffic volumes. Small cells generally emit weaker electromagnetic fields than traditional macrocells as they are used in mobile communications networks. Due to the small distance, the cell phone's transmission power can be reduced with small cells. Because cell phone transmission levels are often the main source of electromagnetic fields in our immediate environment, reducing these is a particularly effective way to reduce EMF exposure.

We have already been working with the state capital of Munich since 2016 on developing small cell technology paying particular attention to environmental factors such as the propagation of electromagnetic fields. A pilot experiment in 2016 has since led to a continuous exchange on processes for the responsible and environmentally conscious development of mobile technology. For example, RWTH Aachen carried out a study in 2017 on practical methods that can be used to assess the effect of small cells on people and the environment. The results of the study were presented to the city of Munich. In Austria, the citizens' mobile communications forum gives interested citizens the opportunity to ask experts questions about mobile communications directly and online. The forum is an initiative sponsored by the industry association Forum Mobilkommunikation (FMK). Over time, it has grown into a knowledge platform containing answers to the most important questions regarding the topics of mobile communications technology and mobile communications and health.

SOCIETY

We want to give as many people as possible the opportunity to participate equally in the knowledge and information society. To this end, we are involved in social concerns with our own initiatives and programs and support charitable organizations. In addition, we are committed to integrating refugees into the job market, and encourage the volunteer efforts of our employees.

Interesting topics

“Media, sure! But secure.” pools activities on online opinion forming and trust building

Digital language coaching: More and more Deutsche Telekom employees working as volunteer online mentors for refugees

Code+Design Camps@Deutsche Telekom – an adventure playground for young programmers

New guiding principles on human responsibility for artificial intelligence

Breaking down reservations and broadening horizons through new sports experiences

Promoting and showing appreciation for early childhood education work: The daycare competition “Forschergeist” (Inquisitive minds)

A RELIABLE PARTNER IN THE DIGITAL WORLD

The digital revolution is changing our lives. The technological opportunities that come along with it are almost infinite. Digitalization has the potential to make the world a better place to live in – by providing easy access to information, enabling greater transparency and providing a previously unheard-of capacity to create networks. However, it also poses certain risks, for example to our privacy and to the integrity of society, with some sections of the population leading digital advances while others are left playing catch-up.

Digitalization must therefore be designed to work for people – a task that challenges everyone in politics, business and civil society. In addition, people must be put in a position where they can utilize opportunities and avoid risks. In this context we as a telecommunications company believe we have a responsibility.

This also raises many general ethical issues: How much technology is (still) good for human beings? What defines humans and differentiates us from machines and robots? We have developed Group policies that address questions such as these. For example, in 2018, we added to our existing guiding principles for the Internet of Things and Big Data by introducing a guideline setting out an ethical and responsible approach to artificial intelligence. As early as 2016 we faced up to our corporate digital responsibility by launching an initiative entitled “Are we stumbling blindly into digitalization? We need digital responsibility!” Under this initiative, we are seeking dialog with experts, opinion leaders, but also regular citizens. Furthermore, we are also engaged with partners in numerous other initiatives and through other activities.

In order to ensure everyone can participate equally in the knowledge and information society, it is important that they know how to use digital media safely, competently, and responsibly. Through our numerous media skills projects and initiatives in Germany and Europe, we target children and young people as well as adults and people of a more advanced age.

As one of the largest employers it remains part of our social responsibility to support people seeking refuge in Germany with cultural integration and inclusion in the employment market.

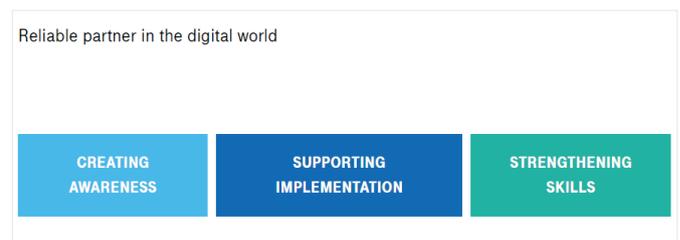
OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Strengthen equal opportunities and media literacy for people of all ages > Provide broad access to digital technologies > Ensure better access to education for children and young people 	<ul style="list-style-type: none"> > Media literacy projects > Educational projects > Engagement for refugees > Providing technical infrastructure 	<ul style="list-style-type: none"> > Social Commitment KPIs > Network coverage status

WHAT MAKES US A RELIABLE PARTNER IN THE DIGITAL WORLD

The extent of digitalization in Germany is continuing to grow. This can be seen in the Digital-Index 2018/2019, which is supported by Deutsche Telekom and managed by D21, Germany’s biggest not-for-profit network for the digital society. The index shows that the proportion of people outside the digital bubble has dropped by 4 percent since 2017. Over the same period, the group of people at the leading edge of digital progress has grown by 3 percent. Nonetheless, there are still major differences between various sections of the population. Having access to modern information technologies is the basis for the ability to participate in the knowledge and information society. We are committed to ensuring that everyone, regardless of age, background or education, can participate in digital society. That is why we are continuing to rapidly expand our infrastructure and improve transmission speeds with new, secure technology. At the same time, we use our social initiatives to reduce potential obstacles to ICT use. We develop our own offers and support partner initiatives with our expertise in this area. In doing so, we always set specific targets – whether for ourselves or in collaboration with our partners.

As we work toward giving as many people as possible the opportunity to participate in the digital world, we set the following focal points for our commitment:

Our activities focus on the following:



Creating awareness

The only way to effectively shape the digitalization process is in collaboration with the worlds of business, politics and society. We have taken on the task of driving forward the social discussion on digital responsibility. To do this, we participate in various alliances and partnerships such as the “Corporate Digital Responsibility” initiative run by Katarina Barley, German Federal Minister of Justice and Consumer Protection. We also want to work with our stakeholders to continue developing our new guidelines for working responsibly with artificial intelligence, which we published in 2018. By signing the Charter of Digital Networking we emphasize our commitment.

If the digitalization process is to succeed, it is vital that people have faith in the confidentiality of their personal data. Data protection and data security are top priorities for us. However, handling personal data with due care and attention is also an important element. We promote this approach through our online advice portal sicherdigital.de and a focus topic in our sustainability magazine "We Care", for example. The question of whether and how information and news on the internet can be identified as "true" is also vital to ask. In 2018, we launched our new landing page "Media sure! But secure." This supports a responsible and critical approach to media and improves people's participation in the digital world.

Supporting implementation

With our expertise, we support projects and initiatives that offer digital solutions for social challenges:

- As part of our Corporate Volunteering activities, our staff are involved in the eStart program run by the organization Volunteer Vision. They use a video platform to help refugees learn German.
- We are making a contribution to dementia research through the virtual reality game "Sea Hero Quest VR".
- We are supporting external initiatives, for instance through our membership of the association Deutschland sicher im Netz e.V. (DSiN – Making Germany Safe on the Net), which serves as a central point of contact for IT security and data protection issues.

We are also working to further improve access to modern information technology. Within the scope of the Telekom@School initiative, we offer free broadband access to schools throughout Germany. This gives children and young people the opportunity to learn how to use digital media irrespective of their family background.

We also offer special rates to enable low-income customers and people with disabilities to make phone calls and surf the web at reasonable prices. More than one million customers in Germany take advantage of these special plans each year.

Strengthening skills

Teachtoday is part of our engagement "Media sure! But secure." and focuses on promoting safe, competent use of media by children, young people and parents as well as teachers by offering hands-on tips and materials. One example is the free children's magazine "Scroller". The initiative uses this magazine to encourage children to think about how they use media and play a part in shaping the digital world.

Our commitment also encompasses the following:

- We have been staging "Code+Design Camps" since summer 2018. Young people attending these camps – who may or may not have any prior experience with programming – get to know new technologies and develop their skills under the guidance of professional mentors.

- We support the Digitale Nachbarschaft (Digital Neighborhood) project, which trains people to be volunteer IT ambassadors.
- We are also involved in the Digital-Kompass (Digital Compass) project, which offers volunteers a platform to help seniors navigate the internet.
- In partnership with Bundesarbeitsgemeinschaft der Senioren-Organisationen (BAGSO, German Association of Senior Citizens' Organizations), we promote media literacy among older people and also support the Goldener Internetpreis (Golden Internet Award) for competent internet users age 60 and up.
- Along with four other foundations, the Deutsche Telekom Stiftung fosters the education and digitalization forum Forum Bildung Digitalisierung that aims to improve education and equal opportunities using digital media.
- The Deutsche Telekom Stiftung carries out numerous initiatives and projects that cover the full range of institutional education and utilize countless activities and programs to boost achievement in STEM subjects (science, technology, engineering, and mathematics).

CREATING AWARENESS

We want to be a reliable partner in the digitalized world. This is why we work to raise awareness of the opportunities and challenges that digitalization brings and encourage public dialog. This led us to join forces with the Federal Ministry of Justice and Consumer Protection and five other companies to form the “Corporate Digital Responsibility Initiative”. As an IT company, we are also aware of our special responsibility with regard to developing and using artificial intelligence (AI), which in 2018 prompted us to draw up our own guiding principles on the ethical use of artificial intelligence. Furthermore, we emphasize our determination to implement digitalization responsibly with our commitment to the Charter of Digital Networking.

“MEDIA SURE! BUT SECURE.” POOLS ACTIVITIES ON OPINION FORMING AND TRUST ONLINE

The digital revolution is changing almost every area of our lives. It is affecting the everyday routines of all generations. We aim to play our part in enabling everyone to make positive, active and equal contributions to these changes. This also means using digital media responsibly and critically. We are therefore advocating opinion forming and trust building online using the Deutsche Telekom initiative “Media sure! But secure.”

Under the umbrella of www.medienabersicher.de, we have brought together a range of activities to boost the media skills of children, young people, and adults of all ages. Information is available for everyone to find on their own online, but there are also activities that involve problem-solving in teams. Special guidelines are also available for disseminators such as teachers and volunteers. The content covers core issues such as data protection and security using educational methods tailored to suit a range of target groups, but also includes less familiar topics such as “digital legacy”. The information includes everything from the legal frameworks and technical background to practical examples and application guidelines. All materials are provided in at least three language versions – German, English and simple language.

The “Teachtoday” initiative, which we have been responsible for since 2014, and the associated children’s magazine “Scroller”, are also part of “Media sure! But secure.” Our new activities relating to the “1001 TRUTHS” initiative have also been brought under the umbrella of “Media sure! But secure.” This initiative is primarily targeted at adults, and addresses the latest digital issues. The idea came about at a campaign day in July 2017, co-hosted by Deutsche Telekom AG and the Deutsche Telekom Stiftung. One of the aims was to inform participants about the differences between half-truths, hoaxes, and facts posted online and to raise their awareness of the need to question the reliability of sources. The “Media sure! But secure.” platform also addresses these issues. The team that is responsible for the platform uses innovative, didactically effective formats to develop the material together with state-

of-the-art technologies to create the modules. We showcased “1001 TRUTHS” on “Digitales Ehrenamt” day (Digital Voluntary Work Day) during the 2018 Woche des bürgerschaftlichen Engagements (Community Volunteering Week) and at the 2018 Deutscher Arbeitgebertag (German Employers’ Day).

The initiative also occupied a guest slot at our first vacation programs for young people, run in our flagship store in Düsseldorf during October 2018. This innovative program offers a wide range of activities for young people between the ages of 14 and 21, including interactive workshops on topics such as virtual reality and digital responsibility. The concept was co-devised and organized by a number of Deutsche Telekom units, the retail company Telekom Shop-Gesellschaft, and Code+Design Initiative e.V..

NEW GUIDING PRINCIPLES ON HUMAN RESPONSIBILITY FOR ARTIFICIAL INTELLIGENCE

AI plays a role in an increasing number of ICT products and services. We already use it on a daily basis – be that in internet searches or navigation systems. AI offers many advantages, but also presents new challenges. For instance, how do we ensure AI is always developed with the focus on benefiting humanity? How do we tackle the changes to the working environment brought about by AI? Under the auspices of Compliance, in 2018 we introduced guiding principles for the ethical use of artificial intelligence. These explain how Deutsche Telekom defines “responsibility” in relation to AI. They also describe how we wish to develop AI-based products and services in the future. Having said that, our guiding principles are meant as a starting point for developing rules to govern responsible approaches to AI in collaboration with our employees and external interest groups. We also debated the potential and challenges of AI in a panel discussion at our AI Day, held at the Group headquarters in Bonn, on December 5, 2018. Some 300 guests came along to discuss the subject with Deutsche Telekom Board of Management member Claudia Nemat, Prof. Christian Bauckhage from the University of Bonn, Senior Director of Corporate Research at Nuance Nils Lenke, and robot ethics expert Dr. Janina Loh from the University of Vienna. The members of the panel all agreed that our understanding of “ethics” is not static, but instead evolves over time.

DEVISING CORPORATE DIGITAL RESPONSIBILITY

In 2018, we and five other companies signed up to the “Corporate Digital Responsibility” initiative launched by Federal Minister for Justice and Consumer Protection Katarina Barley in May of that year. The aim is to steer the digital revolution in a direction that benefits society. This includes ensuring the process of digitalization not only spawns new technical solutions, but also promotes values such as justice, participation, trust, autonomy, transparency and sustainability. In October 2018, we discussed specific plans for the initiative with Katarina Barley and

the other partners, drafting preliminary principles and cornerstones for responsible commercial behavior in the digital world. The first step taken by the members of the initiative was to agree a common understanding of “responsibility” in this context. This included tightening the basic terminology used with regard to Corporate Digital Responsibility, drafting initial common guiding principles, identifying specific fields of action, and agreeing the next steps forward. The initiative is due to be broadened to admit other interested parties in the future. In addition to this, we have also been involved in other dialog and stakeholder forums addressing digital responsibility, such as the Charter of Digital Networking and an event run by the Bertelsmann Stiftung foundation entitled “Corporate responsibility in the digital era”, not to mention our own expert groups.

SAFETY FIRST – OUR COMMITMENT TO SECURE HANDLING OF DATA

Deutsche Telekom works continuously on providing even clearer and more transparent information on data protection for internet users, and on raising their awareness of the need to handle data securely. The [sicherdigital.de](#) advice portal, for example, provides information on online risks and protective measures. Our Teachtoday initiative and our commitment to “Deutschland sicher im Netz (Making Germany safe on the Net)” also help foster more secure and competent media usage. We also explain how internet users can maintain an overview and control over their own data in the section on “Responsibility” on our Group website and in a specially developed self-learning module about this topic on the new 1001 TRUTHS platform. There are also freely accessible workshop concepts that disseminators can use to address this subject in schools or seminars, for example. We are using these measures to boost media users’ digital self-determination.

We also ensure the maximum possible data protection and security with regard to our own products and services. We protect our infrastructure, and with that our customers, with state-of-the-art cyber defense measures. To ensure binding high standards throughout our Group, we have also installed a series of our own rules and guiding principles. Furthermore, we regularly have our activities audited and certified to recognized standards.

HONING SKILLS

Digitalization is changing almost every area of our lives. We work to ensure everyone – across all generations – can enjoy the opportunities of digitalization and make a confident, positive, active and equal contribution in shaping these changes. One of the ways we do this is by providing practical information and support. Our platform www.medien-bersicher.de/en pools a range of offerings that promote media literacy among children, young people and adults. One example is our 1001 TRUTH platform, which takes a practical look at aspects of the digital world that are relevant to wider society.

The Deutsche Telekom Stiftung foundation is committed to improving education in terms of digital teaching and learning and STEM subjects (science, technology, engineering and mathematics). To this end, the foundation provides independent support for projects and programs across the entire institutional education chain.

A dedicated protection of minors page that is integrated into our Group website sets out our child protection activities in Germany. This meets the transparency requirements associated with our international voluntary commitments, such as the ICT Coalition and the Alliance to Better Protect Minors Online, which aim to make the internet a safe environment for children and young people.

TEACHTODAY – AN INITIATIVE FOR SAFE, COMPETENT MEDIA USE

The Teachtoday initiative supports children, young people, parents, grandparents and teachers by providing practical tips and materials on how to use media safely and proficiently – irrespective of age, previous experience or potential limitations. One of the tools developed by the initiative is a media obstacle course that offers a fun way of learning about how to use digital media safely. In 2018, some of the stations in the obstacle course were translated into simple language versions and presented at a summer event hosted by an organization based in Bonn that helps people with disabilities live with greater independence.

All information and materials are available at www.teachtoday.de in seven languages (German, English, Croatian, Montenegrin, Polish, Romanian and Hungarian) and cover a wide range of topics centering on family, school and leisure time. The materials prompt families and teachers to communicate with each other and to encourage children and young people to develop appropriate skills and help shape the digital world.

Teachtoday also has its own YouTube channel with short catchy videos about safe, proficient internet use, data protection, and how truthful people are online.

Projects win awards at the Summit for Kids

In 2018, the annual “Media sure! But secure.” competition focused on the topic of “Responsibility online”. A call was put out for projects that show how children and young people can take responsibility online. After qualifying for the final in a public online poll, six teams presented their concepts at this year’s Summit for Kids in November 2018. First place was awarded to Class 7a from Georg Friedrich Händel Grammar School in Berlin for their video featuring a song they wrote that shows typical ways children and young people use digital media and offers tips on how they should behave.

Events with our partners – taking online safety on tour

As part of 2018’s Safer Internet Day, the Teachtoday initiative invited children to attend a day of campaigning at the Deutsches Museum Bonn. Under the slogan “Create, connect and share respect: A better internet starts with you”, Dr. Thomas Kremer, Board of Management member for Data Privacy, Legal Affairs and Compliance at Deutsche Telekom, talked with over 50 schoolchildren from Elisabeth Selbert Comprehensive School about their responsibilities when using the web. Afterwards, the children attended workshops on the challenges young people sometimes face when using messenger services, YouTube or social media. The participants created their own comics and animations to show that you can’t share other people’s photos without asking them first, that there are fundamental rules for chatting online too, that you shouldn’t blindly follow influencers and there are some private things that don’t belong on the web.

Teachtoday was also present at the “Media 2018” Federal Youth Conference held in March 2018 in Rostock. More than 300 “media scouts” took part – specially trained young people who advise their fellow students on how to use the internet. During the event, Teachtoday showcased its wide range of materials that the media scouts can use at school, including a media proficiency test and the media obstacle course.

An award-winning initiative

In 2018, Teachtoday received two “Comenius EduMedia Awards” from Gesellschaft für Pädagogik und Information (Association for Teaching and Information). The first, in the “IT, communication and media education” category, went to the initiative as a whole and the second, in the “General multimedia products” category, went to the Scroller media magazine.

Deutsche Telekom also secured victory in the #SaferInternet4EU Awards, which were launched in 2018 as part of the campaign of the same name formed by Mariya Gabriel, the EU Commissioner for the Digital Economy and Society. The objective of this campaign is to help

schools, associations for young people, parents, children and young people make the internet a safer place. The awards recognized exemplary projects by organizations, teachers and schoolchildren that work towards the same aim. DeutscheTelekom's Teachtoday initiative came second place in the "Organizations" category.

CODING WORKSHOPS FOR KIDS IN POLAND

Coding is a serious matter for many people and it is associated with complex and painstaking work to save hundreds and perhaps thousands of lines of code. However, programming language is no different from the language we use every day as far as IT specialists are concerned. That's why thousands of volunteers encourage ordinary citizens to learn about coding in the EU Code Week and help them to understand the principles of programming.

For the second year in a row, together with the CoderDojo Foundation, T-Mobile Polska has been promoting coding projects throughout the year 2018. During the summer holidays, the children of the company's employees had a chance to participate in a day camp, where they learned to program in Scratch and built robots. T-Mobile Polska also holds coding classes every week at the company facilities in Warsaw. There are also classes in Łódź and 15 other cities. These classes are open for everybody who would like to get familiar with the world of coding.

These activities culminated in SuperDojo 2018, organized by T-Mobile and the CoderDojo Poland Foundation. It took place on 20 October at the T-Mobile headquarters at ul. Marynarska 12 in Warsaw and was attended by about 350 people. Clubs from all over Poland and the most interesting finalists of the T-Mobile Cool Grants competition all held presentations, lectures and workshops.

Super Dojo is a part of The EU Code Week which is a grassroots initiative set up six years ago by the Young Advisors' Group working with the European Commission. Clubs from all over Poland held free and open workshops for children and young people. An important element of the initiative is to engage participants from a variety of sectors, such as teachers, engineers, the business world, non-governmental organizations, schools, etc. in their actions.

FOSTERING EDUCATION AND DIGITALIZATION IN GREECE

Access to the Digital World Program

Because "digital skills do not go with age...", COSMOTE has been contributing to the development of technological skills among older people with the "Access to the Digital World" Program. The program has been running since 2012 and aims to promote lifelong learning, improve quality of life, and contribute to the development of technological skills among people with an average age of 64 years. Over the past 5 years, more than 7,000 people have participated in the program. In 2018, a total of five educational centers operated in Athens and Thessaloniki. All the participants learned how to use the tablet, navigate the Internet, enter the "world" of social media, and use applications to make their everyday lives easier (notes, calendar, notifications, webcam, maps, etc.).

COSMOTE Scholarship Program

COSMOTE ran its Scholarship Program for the 17th consecutive year. The program provides 36 scholarships for first-year students facing financial and social difficulties with a total value of € 650,000. Alongside financial support, COSMOTE offered the scholars fixed and mobile products and services free of charge to cover their telecommunication needs for the duration of their studies along with cable TV services. Over a period of 17 years, the program has provided a total of 658 scholarships valued at more than € 5.5 million.

SAFER INTERNET & COSMOTE FAMILY IN GREECE

In 2018, COSMOTE Family was launched: A series of services, activations, and tools had been designed to help families enter the digital world with safety. The proposition was based on three dimensions: educate parents, join forces with recognized bodies, and launch new services. Parent education included the e-parenting.gr portal, where parents can navigate through articles, e-learning courses, and interviews. This was all reinforced by collaboration with organizations, such as the Hellenic Safer Internet Center run by the Foundation for Research and Technology (FORTH) and the Hellenic Society for the Study of Internet Addiction Disorder. Finally, the services launched were mobile family rate plans, with data limits for appropriate child use and an advanced parental control application for safe navigation of children on the Internet and social media.

GETTING A HEAD START WITH DIGITAL TECHNOLOGIES - OUR SCROLLER MAGAZINE FOR CHILDREN

The Teachtoday initiative's media magazine Scroller was published twice in 2018. Aimed at children aged nine to twelve, it features exciting stories and interviews revealing what using media safely and proficiently is all about. Handy tips help readers get to grips with the world of digital media. Do-it-yourself elements, games and puzzles encourage children to actively question how they can use media safely. The magazine also provides information for parents and teachers in special supplements. Scroller is available online or as a free printed version that has a circulation of 20,000 and 18,000 subscribers. The scroller.de portal is available in German and English. The first edition "Mobile ready" was reprinted in 2018 and put out in T-Shops.



In 2018, Scroller was once again recommended by the German Reading Foundation (Stiftung Lesen) as a way of promoting safe, proficient media use. The publication also won the 2019 German Design Award in the "Audiovisual" category for its animation series "Did you know?".

DIGITAL INCLUSION OF SENIOR CITIZENS AND SCHOOL CHILDREN IN CZECH REPUBLIC

As part of its e-safety strategy, T-Mobile Czech Republic has issued a brochure called "Safely on the Net" that will be distributed free of charge to our customers in the shops. The illustrated and lifestyle-like publication was written in cooperation with a specialist on e-safety. It is intended for all users of the Internet but with the main focus on parents. It includes tips on avoiding risks when using computers, the Internet, and social networks in particular.

The main part is dedicated to tips on the protection of children from potential abuse and the Školák ("Schoolchild") package is a special offer for parents of schoolchildren. Independently of the child's mobile credit, parents can purchase the package to keep an eye on their children's movements, protect them against inappropriate content on the Internet and keep track of their mobile credit. The package is linked to the "Surfie" application. This app is provided free of charge and makes it possible to track the location of children and restrict viewing of Internet content.

The app is in the Czech language, works with iOS and Android operating systems and includes three licenses. These can be used to protect three children or they can be installed on three different devices. The app requires Internet access and the bundle therefore contains a 10 MB data allowance per month for the child. After the data allowance has been used up, the Internet access speed slows down. However, children will still be able to use the app.

CODE+DESIGN CAMPS@DEUTSCHE TELEKOM – AN ADVENTURE PLAYGROUND FOR YOUNG PROGRAMMERS

Getting young people excited about IT is the aim behind the "Code+Design Camps@Deutsche Telekom". We organized the first of these camps in 2018, from August 23 to 26 in the Telekom Dome, Bonn, and October 22 to 27 in our flagship store in Düsseldorf. Under the professional guidance of dedicated employees from our IT department, some 150 youngsters aged 14 to 21 got to grips with new technologies and honed their IT skills, designing and programming apps, websites, games and robots based on their own concepts and ideas. Previous knowledge of programming was not a prerequisite to attending the event. The camps, which gave our staff a chance to discover intergenerational learning, too, also focused on teamwork and creativity. What's more, an exciting entertainment program got the ideas flowing in Düsseldorf, with participants given the chance to try out a 3D printer, enter the world of virtual reality, compete with a professional eSports team and have a go at DJing. The one-week event was complemented by talks on topics such as the darknet, digital friendships, digital loneliness and proper conduct on social networking sites.

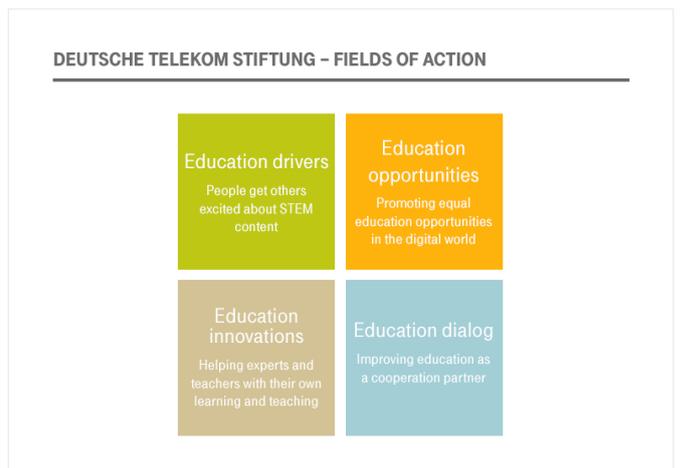


On November 21 and 22, the Telekom Dome in Bonn also played host to a "Code+Design Camp Special" for employees of the Data Privacy, Legal Affairs and Compliance Board department. Among other things, the program included a programming and robotics workshop and a taster session on topics such as hacking, social engineering and the darknet.

The concept for the camps is based on a collaboration between the Berlin-based start-up Code+Design Initiative e.V. and Deutsche Telekom AG. This new training and development format stems from the IT@Motion transformation initiative launched by Deutsche Telekom IT. Further Code+Design Camps are planned for 2019 in various departments and Group locations.

SHAPING EDUCATION – THE DEUTSCHE TELEKOM STIFTUNG FOUNDATION

The Deutsche Telekom Stiftung is dedicated to promoting quality education for a digital world, with a special focus on science, technology, engineering and mathematics (STEM). The foundation combines its activities under the categories of "education drivers", "education opportunities", "education innovations" and "education dialog". In November 2018, Germany's former Federal Minister of the Interior, Dr. Thomas de Maizière, joined the Deutsche Telekom Stiftung foundation as Chairperson, succeeding Professor Wolfgang Schuster. Professor Ulrike Cress, Executive Director of the Leibniz-Institut für Wissensmedien (IWM) in Tübingen, was appointed as the foundation's Deputy Chairperson with effect from July 1, 2018.



Forum Bildung Digitalisierung (Digitalization education forum)

Together with six other German foundations, the Deutsche Telekom Stiftung lends its support to the Forum Bildung Digitalisierung ("Digitalization education forum"). The aim is to enhance the education system and promote equal opportunities and participation using digital media. The three core topics are "personalized learning", "developing skills", and "shaping change". When it comes to personalized learning, digital media can be used to give different target groups access to different learning approaches, including people with disabilities, particularly talented people and refugees. The goal of the second core topic is to convey the media skills necessary for living an independent life. "Shaping change" focuses on developing an educational concept for using digital media at educational institutions and within the education system. The "schulentwicklung.digital" workshop focuses on changing the school and learning culture through the use of digital media. In the 2018/19 school year, 25 schools that are already successfully incorporating digital media into lessons have been invited to attend this workshop.

"Inquisitive minds" day-care center competition

"Inquisitive minds" is a nationwide day-care center competition in Germany initiated by the Deutsche Telekom Stiftung and the Little Scientists' House foundation. The competition picks out and presents awards to outstanding projects that spark young children's interest in science, technology, engineering and mathematics. Its founders aim to show their appreciation for the dedicated efforts of day-care center staff and encourage them to continue their excellent work in the field of early learning. The 16 state champions, who received their awards in June 2018 in Berlin, were each given 2,000 euros. On top of that, each of the five national champions also received 3,000 euros to support educational work in their day-care center. Special awards of 2,000 euros were also handed out, with the total prize money amounting to 80,000 euros.

The Future of STEM Learning

Since 2018, the Deutsche Telekom Stiftung foundation has supported the initiative "The Future of STEM Learning", developing and testing concepts for high-quality STEM lessons in the digital world and integrating them into teacher training programs in collaboration with five German universities. In their development work, the universities receive support from experts based in Germany, Estonia, the Netherlands and Austria – including media educationalists, teaching and learning researchers, STEM pedagogy specialists, and school teachers. In total, the Deutsche Telekom Stiftung has invested 1.6 million euros in this project.

Vocational schools going digital

What must vocational schools teach young people to equip them for their professional and personal lives in a digitalized world? Since 2018, the Deutsche Telekom Stiftung has been cooperating with ten German vocational schools to determine which inter-professional and occupation-specific digital skills vocational school students need to learn – and which conditions need to be established in such schools to incorporate digital media into their lessons and everyday routine in a beneficial way. Findings are made available to other schools. Researchers from the Institute for Information Management at the University of Bremen supervise the project. Four workshop meetings open to all participants are scheduled by the end of 2019; the first was held on June 4 to 5, 2018 in Bonn, Germany. In return for their dedicated efforts, the schools receive approximately 20,000 euros in funding, opportunities to share ideas with experts and development support throughout the project.

The STEM reading mentors

In collaboration with the German Reading Foundation, the Deutsche Telekom Stiftung looks for volunteer reading mentors to get children between the ages of 3 to 10 excited about STEM content. By the end of 2018, around 1,600 reading mentors had signed up for the initiative. The reading mentors receive training in both classroom and online formats. They are then able to work with children at day-care centers and elementary schools. At the end of 2018, the Deutsche Telekom Stiftung and the German Reading Foundation were able to offer around 135 media and action tips in ten languages. In the reporting year, STEM reading events were held in Germany, Austria, Romania, Spain and the United States. Moreover, a collaborative agreement with the Progress Foundation was made in 2018 with a view to forming a network of STEM reading mentors in Romanian libraries.

Early studies in STEM subjects

At more than 60 universities across Germany, schoolchildren can experience university-level studies thanks to support from the Deutsche Telekom Stiftung. Helping promote excellence in Germany's higher education system, the foundation enables universities to offer what is known as "early studies", whereby highly talented and hard-working schoolchildren are given the chance to attend normal lectures and take university exams during term time. The STEM subjects of mathematics, IT, chemistry and physics are particularly popular among participants. This was confirmed by a non-representative survey conducted by the Deutsche Telekom Stiftung in the 2018 summer semester at the relevant German universities, which found that schoolchildren taking part in the initiative often tend to choose courses in STEM subjects.

Other school projects run by the Deutsche Telekom Stiftung

- GestaltBar – the digital workshop
- Calliope Mini – minicomputers for elementary school students
- Junior Engineer Academies

FundaMINT

FundaMINT is the Deutsche Telekom Stiftung's grant program for student teachers in STEM subjects. It helps student teachers get ready for their future career. Up to 35 grants are awarded every year for a period of four semesters each. Since 2017, the Vector Foundation has acted as a project partner and funded five FundaMINT grants in each cohort. As of 2018, this number has increased to ten. Since 2016, the Deutsche Telekom Stiftung has offered its grant holders the chance to complete a school placement in selected countries in Central, Eastern and South-Eastern Europe as part of the Klaus Kinkel scholarship program. This part of the FundaMINT program is run in collaboration with the Pädagogischer Austauschdienst (PAD), a department of the Standing Conference of the Ministers of Education and Cultural Affairs, and the Central Agency for German Schools Abroad.

STEM Didactics Fellowship program

In 2018, the Deutsche Telekom Stiftung invited applications for the STEM Didactics Fellowship program for the third time. Up to nine fellowships are granted each year to young researchers and scientists in the fields of mathematics, physics, chemistry, biology, computer science, technology and science education. The young fellows can attend seminars and workshops on topics such as job negotiations and supervising doctoral candidates and are involved in the Deutsche Telekom Stiftung network.

The “Yes, I can!” initiative supports another 82 digital competence projects

With the “Yes, I can!” initiative, the Deutsche Telekom Stiftung teaches young people key skills for an independent and confident life in the digital world. In 2018, the initiative funded 82 open youth work projects focused on teaching media and digital skills. Under the banner “key skills for the digital world”, 340 institutes submitted their concepts. As in previous years, the total funding in 2018 amounted to approximately 600,000 euros. The age of the children and young people in the funded projects is between 9 and 16. Just under 1,300 projects throughout Germany have already received funding from the “Yes, I can!” initiative, with more than 6 million euros being awarded since it was launched eight years ago.

Media Prize for Educational Journalism

The Media Prize for Educational Journalism, which the Deutsche Telekom Stiftung has presented since 2014, is the only award in the whole of Germany to exclusively honor contributions to educational journalism. The aim of the award is to raise public awareness of education issues and give educational journalists the appreciation they deserve for their vital work. From 100 or so submissions, a panel of five judges led by Hans Werner Kilz selected the following winners:

- **Print category:** Bastian Berbner and Henning Sussebach for “In Braunschweig, 48 percent of students are qualified to enter university. In Cloppenburg, it’s 18 percent. How is that possible?” (featured in DIE ZEIT, March 15, 2018)
- **Audio/Video/Multimedia category:** First prize awarded to Alexander Kleider for “Berlin Rebel High School” (Dok-Werk Filmkooperative/Westdeutscher Rundfunk, cinema release on May 11, 2017)
- **Best short piece:** Award winner Christine Roskopf for “What do you believe? When religions learn together” (tvision/Westdeutscher Rundfunk for DAS ERSTE, June 17, 2017)

Sonar education magazine

In today’s digital age, we are consuming information at an increasingly rapid pace. Getting to the heart of complex topics often calls for more than a cursory glance, however. We need to take the time to consider such matters from all angles and other perspectives, which is precisely what the Deutsche Telekom Stiftung’s “Sonar” education magazine sets out to achieve. Published twice a year, the magazine discusses relevant educational topics in the form of interviews, essays and service articles across 32 pages.

PROMOTING STEM EDUCATION IN GERMANY

As a future-minded telecommunications and technology company, we depend on well-qualified talent, in particular in the STEM areas (science, technology, engineering, mathematics). We therefore plow a great deal of effort into introducing young people to these subject areas and sparking their interest in STEM content. One example of how we do this is with our Code+Design Camps, where IT experts help youngsters carry out their own IT projects. We also aim to improve training and development in IT professions, which we do by devising new job profiles such as cyber security professionals. It is particularly important to us to increase the ratio of women in STEM education. We are convinced that diversity helps us remain competitive around the world with good

ideas and outstanding products and consolidate our position as an attractive employer. It is still difficult, however, to interest young women in technical training, which is partially down to the fact there is still an insufficient number of female role models in the field. In our technical cooperative study programs we were able to increase the ratio of women from eleven percent in 2010 to almost 16 percent by the end of 2018 – but we don’t consider this to be enough, by far.

International Women’s STEM Award

By presenting the Women’s STEM Award, we aim to increase the attractiveness of STEM subjects and encourage women to choose careers in these areas. The prize is awarded annually in collaboration with the “audimax” student magazine and the “MINT Zukunft schaffen” (Creating a STEM future) initiative. It is presented for thesis papers written by female STEM graduates from across the globe that focus on one of the following key growth areas: cloud technology, the Internet of Things, artificial intelligence, cyber security, or networks of the future.

For the 2017/18 award, 30 thesis papers were submitted by candidates in different countries such as Finland, the UK, India, Italy, Croatia, the Netherlands, Austria, Romania, Russia, and the United States. Among the subjects covered, artificial intelligence (AI) proved to be the firm favorite. Karolina Stosio from Technische Universität Berlin was chosen as the overall winner for her paper on how AI can recognize an image using a minimum amount of information. At the award ceremony on June 21, 2018 in Bonn, Germany, Stosio received a 3,000-euro cash prize for her work.

RoboNight in Saarland

During the “RoboNights” at the University of Applied Sciences (HTW) in Saarbrücken, students are introduced to technical subjects in a fun way. The event gives schoolchildren in grades six to eleven an insight into the mechanical engineering and programming of robots. As in previous years, Deutsche Telekom was the main sponsor of the 2018 RoboNight, bringing virtual reality to life at its booth. Teams of schoolchildren were given the opportunity to take part in a competition and show off their skills in engineering and programming robots. The lucky winners received a robot kit and an invitation to the Telekom Design Gallery in Bonn. There, they can see for themselves what will be possible with robots in the future, in virtual reality, and in the connected home.

STEM projects run by the Deutsche Telekom Stiftung

The Deutsche Telekom Stiftung promotes STEM education, too, conducting various projects including STEM reading mentors, The Future of STEM Learning, the “Inquisitive minds” day-care center competition, the FundaMINT grant program for student teachers, and the annually awarded STEM Didactics Fellowship aimed at young scientists.

PARTNER IN THE DEUTSCHE ARBEITGEBERPREIS FÜR BILDUNG (GERMAN EMPLOYER PRIZE FOR EDUCATION) – COOPERATION WINS

Together with Deutsche Bahn, Deutsche Telekom sponsors the annual Arbeitgeberpreis für Bildung. This prize recognizes educational ideas, initiatives, and concepts at all levels of education – early-years, school, vocational, and university – that successfully implement new, pioneering ways of learning. It is presented at the Deutscher Arbeitgebertag in front of an audience of thousands drawn from society, politics, and the business world.

In 2018, the focus was on projects that exemplify how innovations and educational success can result from taking new, perhaps even unfamiliar approaches. The awards went to projects where conventional educational institutes are working together with partners such as parental initiatives, committed individuals, other educational institutes, or businesses.

EDUCATIONAL STEM ACTIVITIES IN CROATIA

Support for Pupils and Students through Scholarships and Donations

By helping to prepare Croatia for a new wave of technological change, Hrvatski Telekom is making a significant contribution to the popularization of STEM knowledge and skills, and the application of modern technologies in all segments of life. One of the goals of HT's projects and cooperation with educational institutions is the exchange of STEM knowledge and practices. This means we are often able to facilitate participation by students in international projects during the initial years of their studies and we offer them scholarships or professional mentoring opportunities.

One of the highlights from last year is that HT donated HRK 300,000 to the Institute for Youth Development and Innovation of Youth (IRIM) for the project entitled "Advanced Internet of Things Technologies (IoT) in Croatian Schools". Over 100 schools throughout Croatia are participating in the project. As a result of the financial assistance provided by HT, Internet of Things (IoT) equipment is available for use in these schools. The basic prerequisites for training and encouraging pupils' creativity in identifying smart IoT solutions have been met through the equipment provided and appropriate teacher training.

HT also supports students in various expert and sports competitions. We supported the team of the Croatian Robotics Society at the RoboCup international robotics competition in Canada, as well as MIOC students at the prestigious All-Star ACSL informatics competition in the United States. Students from Vinkovci High School were also supported at the WERcontest international competition for educational robotics in China, where they won the second place among 8,000 students in robot programming and testing. We supported FOI's students at the student STEM competition in knowledge and sports – STEM Games.

The most Renowned Robot in Croatia – Pepper

A special place in the promotion of STEM subjects is also held by our humanoid ambassador – robot Pepper – who plays a major part in HT's STEM program alongside her marketing role. Pepper promotes STEM subjects in elementary and high schools, and educates the young generation about the importance of digital skills of the future. Pepper was the first robot in Croatia to win the honorary title of robotics assistant in the class Robotics and the Future at Juraj Dobrila University in Pula. The robot gave her first interview on the opportunities offered by new technologies and supported the presentation of the Student Entrepreneur Incubator and the VISIO Science and Technology Institute.

She belongs to a more advanced generation of humanoid robots, speaks fluent Croatian, uses gestures, moves her hands and body, and likes to hug. She is 1.2m tall, weighs 30 kilos, and is equipped with 12 sensors, four microphones, two loudspeakers, and two cameras on her forehead and in her mouth.

REFUGEE AID: INTEGRATION INTO WORK, INTEGRATION INTO SOCIETY

In 2018, Deutsche Telekom made approximately 440 job offers to refugees – predominantly as part of a training course, in the form of internships or through our "Internship PLUS direct entry" program.

Deutsche Telekom's commitment to working with refugees started with a first-aid task force in 2015, which provided, for example, free Wi-Fi in refugee reception centers and properties to be used as refugee housing. In addition, employees were assigned to the Federal Office for Migration and Refugees, and employees involved in volunteer refugee work received support. In 2016, the first-aid initiative developed into the current "Deutsche Telekom helps refugees" project, which we successfully continued in 2018. By now, the focus is on integration of refugees into the labor market. In 2018 alone, there were more than 250 new job placements in the various programs. Up to 100 training positions, entry-level training schemes and cooperative Bachelor's and Master's programs were offered. Recruitment days were hosted to find candidates for internships, with the main focus on letting recruiters and applicants get to know each other, rather than inquiring about previous experience or viewing certificates. In 2018, five recruitment days were held at different locations, during which the majority of the more than 100 internships available were filled. Setting our sights in 2018 on long-lasting integration into the world of work, we arranged subsequent training or direct access to employment for as many interns as we could. We succeeded in filling approximately 30 percent of the longer-term positions with candidates who had previously completed an internship at our company.

Internship PLUS direct entry: integration into the working world

In 2018, Deutsche Telekom also continued and developed the "Internship PLUS direct entry" program, which started off as a collaboration with the Federal Employment Agency, the Deutsche Post DHL Group and Henkel in 2016. For example, we created new jobs in areas in particularly urgent need of staff, such as technical service and customer service. An orientation phase lasting three to six months is followed by a two-year employment contract. The advantage is that refugees have time to improve their language skills and to gradually find their feet in their new roles while working at the same time. In total, we once again assigned 38 relevant positions at Deutsche Telekom in 2018. The first graduates will complete the program at the start of 2019. To help them integrate into the professional world for good, at the end of 2018 we gave the first cohort the unprecedented opportunity to take the "Fit for the German labor market" training course. Those who pass this course also receive a TÜV certificate. In 2018, we received the HR Excellence Award for innovative lighthouse projects in human resources management for our "Internship PLUS direct entry" program.

Scholarships open up opportunities

As a sponsor of the "Welcome" grant program initiated by the Deutsche Universitätsstiftung, we help those who have taken refuge in Germany gain academic qualifications. The program offers refugee students in Germany one-on-one counseling with a lecturer from their field of study who lives near their university.

Handbook Germany – the A to Z of life in Germany

Refugees and anyone new to Germany can find information about living, studying, and working in Germany at www.handbookgermany.de. Handbook Germany emerged from the refugee portal we launched in 2015 in collaboration with the Federal Chancellery and Neue Deutsche Medienmacher (New German Media Professionals). Information is currently offered in seven languages, with Pashto (spoken in Afghanistan/Pakistan), French and Turkish joining German, Arabic, English, and Farsi in 2018. The site thus provides the majority of the asylum seekers from the top ten countries of origin in 2017 with reliable information in their mother tongues or the common official/commercial languages used in their home countries. Deutsche Telekom supports the site's editing team in its capacity as technology partner. In 2018, Handbook Germany was presented with the Bronze German Digital Award in the category of Branded Content – Content Platforms / Digital Magazines. It also won the German Award for Online Communication in the Corporate Responsibility category.

Refugee portal

A technology partnership for the Handbook Germany refugee portal that offers information on the asylum process and life and work in Germany. Information in Pashto (Afghanistan/Pakistan), French and Turkish was added in 2018. The portal is now available in seven languages.

Recruiting

Support for the Federal Office for Migration and Refugees provided by over 500 civil servants employed at Deutsche Telekom.

Involvement of DTAG employees

DTAG employees involved in volunteer refugee work, e.g. the eStart program of cooperation partner Volunteer Vision, received support. By the end of 2018, 112 Deutsche Telekom employees had given refugees support as German language tutors.



Awards

Handbook Germany: Winner of the Bronze German Digital Award in the category of Branded Content – Content Platforms / Digital Magazines and the German Award for Online Communication in the Corporate Responsibility category. Internship PLUS direct entry – presented with the HR Excellence Award in the Corporate Social Responsibility category.

Wi-Fi provision

By the end of 2018, 56 free Wi-Fi hotspots had been set up in refugee reception centers.

Properties

Some 34 Deutsche Telekom buildings provided for use by the Federal Office for Migration and Refugees.

Training offers

Up to 100 entry-level training schemes, training positions, and cooperative Bachelor's and Master's programs. More than 100 paid internships offered across Germany and in different Group companies.

"Internship PLUS direct entry"

Two-year employment of refugees following a six-month orientation phase. Pilot initiative initiated in cooperation with Deutsche Post DHL Group, Henkel and the German Federal Employment Agency.

SUPPORTING IMPLEMENTATION

We want to motivate people to find creative digital solutions to social challenges. To do this, we provide tangible support and make it easier for them to realize their ideas. Our efforts include, for example, our involvement with the “Deutschland sicher im Netz” association and our collaboration with the German National Association of Senior Citizens’ Organizations (BAGSO) to sponsor media literacy projects for seniors. Furthermore, we support the development of innovative solutions, such as new apps, and we develop our own sustainable products and services. We want to be a reliable partner in the era of digitalization, which is why we closely evaluate all of the feedback we receive. Our stakeholder dialog gives stakeholders the opportunity to rate sustainability topics according to their importance and assess our performance in the different areas.

PARTNER FOR “DEUTSCHLAND SICHER IM NETZ” AND BAGSO

The Deutschland sicher im Netz e.V. (DsiN – Making Germany Safe on the Net) association has served as a central point of contact for consumers and small businesses interested in the topics of IT security and data privacy for twelve years now. Thomas Kremer, Deutsche Telekom Board Member for Data Privacy, Legal Affairs and Compliance, is chairman of the board at DsiN. As a member of the association, we are committed to working with other companies and organizations on projects such as the IT-Sicherheit@Mittelstand series of workshops (IT security for SMEs), the Digitale Sicherheit (Digital Safety) campaign network, and Digital-Kompass (Digital Compass). We are also contributing to the Sicherheitsbarometer (SiBa, Safety Barometer) app for digital self-protection.

Furthermore, we are supporting the project Digitale Nachbarschaft (DsiN, Digital Neighborhood). This trains people as volunteer IT ambassadors who will pass on their knowledge and expertise to neighbors and colleagues. The project once again showcased its work during the launch event of the “Woche des bürgerschaftlichen Engagements” (Community Volunteering Week) in Berlin in September 2018. Our own company initiative 1001 TRUTHS, which aims to promote responsible media usage, also presented its aims and strategies there.

As a member of the “Security, protection, and trust for society and business” platform, which is part of Germany’s national Digital Summit, we worked with the DsiN to develop a new educational tool for artificial intelligence. KIInsights! is an interactive showroom that offers an insight into the latest AI technologies. Various experts (including scientists, ethicists, data protection officers) offer their views on practical current scenarios from day-to-day life that range from AI-controlled spam filters and chatbots to disaster management using AI. The tool was unveiled to the public by Prof. Günter Krings, Parliamentary State Secretary at the Federal Ministry of the Interior, Building and Community, at the Digital Summit on December 4, 2018.

We work with BAGSO, the German National Association of Senior Citizens’ Organizations, to promote media literacy among seniors. As a partner, we sponsor the Goldener Internetpreis (Golden Internet Award). The award recognizes people over the age of 60 who use the internet skillfully and help others to get started in the online world. The last round of prizes in 2017 included a special “Letting ideas grow” award for the Hamburg-based “KulturistenHoch2” (“Culturists squared”) project. The project, which brings younger and older people together, received support through 2018 and beyond, including advice on how to expand into other cities. In November 2018, all the prize winners met up again in Berlin to review how their projects from the previous year had gone. The next award ceremony is planned for November 2019.

In 2018, we again took part in the Deutscher Seniorentag (German Senior Citizens’ Day), which BAGSO organizes every three years. During the event, we showcased products and services that are aimed at people aged 65 years and over. These included mobile telecommunications, fixed-line and MagentaEINS offerings, special apps for seniors, and security products for Magenta SmartHome. Visitors to our booth had the chance to use a variety of services. For example, we had two technicians available to set up mobile devices and answer technical questions. As an advisory board member, we are also involved in Digital-Kompass (Digital Compass), a joint project by BAGSO and DsiN. Digital-Kompass uses materials and regular meetings on digital issues to support internet guides who help seniors get online and explore the internet. A total of 75 Digital-Kompass locations are also being set up across Germany. Internet guides based at these locations create a trustworthy (learning) environment for seniors and help them try out digital services and build confidence in using the internet. The Digital-Kompass locations are also hubs for others who want to get involved in the project or learn new skills with a view to passing them on.

INNOVATIVE SOLUTIONS TO SOCIAL CHALLENGES

Technology can also be used to address social challenges. That is why we promote the development of appropriate solutions and educational offerings. These include, for example, the IRMGARD app, which helps adults learn to read and write in German. It is aimed at both German speakers who have difficulties with reading and writing and people who are learning German as a foreign language. The following related developments also took shape in the year under review:

Sea Hero Quest – baseline study confirms positive contribution to dementia research

Dementia is a huge medical challenge. Some 47 million people suffer from dementia today – a number that is set to triple by 2050. Our “Game for Good” initiative aims to help scientists develop new procedures so they can diagnose dementia earlier. Over the last three years, we have worked with scientists and games developers to create the cellphone

game "Sea Hero Quest" (2016) and virtual-reality game "Sea Hero Quest VR" (2017). The games collect anonymous data about the spatial navigation skills of players, since disorientation in place is one of the early signs of dementia. In 2018, a baseline study run by University College London and the University of East Anglia in the UK confirmed that the games are helping advance global research into dementia.

More than four million people around the world are already playing Sea Hero Quest and thereby helping to support dementia research. The virtual reality version "Sea Hero Quest VR" gathers particularly accurate data about players' sense of spatial orientation. Collected anonymously, the data is being continuously evaluated by scientists to provide a basis for hopefully developing an application for the early detection of dementia by 2022.

The VR game can be downloaded for free at the Oculus Store and in Google Daydream. The mobile game is no longer available in the App Store or Google Play as the scientists have sufficient data and the quantity and quality of this data have exceeded expectations by far.

EDUCATIONAL ROBOTICS IN GREECE

COSMOTE contributes to a better world for all through the development of digital skills of children from all over the country. Over the last 5 years, COSMOTE has been a strategic partner of Non-Profit Organization for Educational Robotics and Science WRO Hellas, implementing a series of initiatives intended to disseminate educational robotics and STEM (Science Technology Engineering Mathematics) educational methodology throughout the Greek educational system. The following initiatives were launched in 2018:

- **"ROBOGIRL", the first Greek fiction movie about educational robotics** and the experience children gain from it was presented by COSMOTE. It is a family comedy about the power of the team and the capability of children to implement even the most incredible ideas. The movie tells the story of a young girl named Sofia, who although she is not associated with Science decides to sign up for the course on educational robotics. The challenges she faces enable her to discover new things about herself, her friends, her capabilities, and about the achievements a person can accomplish with commitment and perseverance. ROBOGIRL premiered on the COSMOTE YouTube channel and was aired on COSMOTE TV in December 2018. To watch the full movie, [click here](#).
- **The Pan-Hellenic Educational Robotics Competition for Primary, Junior High and High School Students 2018** was completed with more than 3,500 children taking part. More than 1,500 teachers were trained to enable the student teams to design and build a complete robotic model. Moreover, the digitized projects from the educational robotics competition were uploaded on the WRO Hellas Digital Platform for educational documents to provide unlimited access to knowledge for every teacher in the country. In September, the Pan-Hellenic Educational Robotics Competition for Primary, Junior High and Senior High School Students 2019 was launched. The competition will finish in March 2019. A new pilot category for kindergarten children is included in this competition for the first time.
- **The National WRO Competition 2018** was organized with more than 600 students participating from all over Greece. The students tried to provide solutions for critical issues facing our planet such as sustainable food production and food security with the aim of achieving the United Nations' No 2 Sustainable Development Goal of "Zero Hunger" by using their robotics structures. The winning teams from Greece took part in the 14th World Robot Olympiad WRO 2018 held in Thailand under the topic "Food Matters" in November. Two teams won the fourth place, and three more teams claimed significant distinctions.
- **CodeAthon** is a new initiative to enhance coding for students. It was organized in the context of Europe Code Week 2018 in October in 4 Greek cities. The aim is to encourage their creativity in programming, to help them develop programming skills, and to empower team working. The 300 students aged 8 to 16 years old participated in this initiative and completed an unfinished electronic game, within 4 hours. The projects of the participating teams were uploaded on an open platform to help other children learn about coding.

ENGAGEMENT@TELEKOM

As a company, we see ourselves as part of society and actively take on our responsibilities. This attitude is reflected in no small part by our social commitment. For us, this also means encouraging our employees to get involved in volunteering. In doing so, they play a major role in strengthening social cohesion and act as ambassadors for our values. Volunteering is also very beneficial when it comes to internal HR development. It broadens the horizons of the individual, while also having a positive impact on social skills and teamwork. That's why our corporate citizenship program engagement@telekom pursues two aims – to support our employees' current involvement and encourage them to find new ways to contribute to society. We give our employees a wide range of opportunities to volunteer, preferably in teaching projects that help develop media skills. This is one of the ways we help simplify and enrich the lives of those around us on a sustainable basis.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Use our core areas of expertise to benefit society > Support society as a trusted partner 	<ul style="list-style-type: none"> > Corporate volunteering > Corporate giving > Donation Policy > Cooperation with non-profit organizations 	<ul style="list-style-type: none"> > Social Commitment KPIs > Reviewing compliance with our Donation Policy

TAKING RESPONSIBILITY IN OUR SOCIETY

We contribute to society in a number of ways with our corporate citizenship program, engagement@telekom. engagement@telekom is based on two pillars:

- Long-term partnerships with non-profit organizations
- Corporate volunteering (supporting our employees in their volunteering activities) and corporate giving (our donation activities)



In times of digital transformation, we want to be a trusted partner to society. We contribute our core expertise and the commitment of our employees to these efforts.

The work we undertake to honor our social commitment is often done within the context of our long-standing partnerships with organizations such as the TelefonSeelsorge crisis hotline. In addition, we promote media literacy among senior citizens in collaboration with the "German National Association of Senior Citizens' Organizations" (BAGSO). As a member of "Deutschland sicher im Netz e.V." (DsiN – Making Germany Safe on the Net), we support its work for IT security and data protection. Beyond this, we participate in the "Civic Involvement Week" sponsored by the National Network for Civil Society. On numerous Social Days, we give our employees the opportunity to get involved in social or environmental projects as volunteers – including with our partners.

Corporate volunteering programs give our employees the opportunity to actively contribute by teaching media literacy. They can do this, for instance, through the initiative "Media sure! But secure.", which provides teaching materials that our employees can use for workshops. In doing so, they help people better understand digital phenomena, thus laying the groundwork for participation in the digital world. However, Deutsche Telekom's corporate volunteering expands into other areas, too. For instance, we also encourage our employees to help integrate refugees into society and support them in learning German online as part of the "eStart" project. Volunteer work is another important part of our training and development programs, and we recognize our apprentices' dedication with the Group-wide competition "Responsibility Wins".

Through our corporate giving program, we support the work of aid organizations worldwide – preferably in the form of long-standing partnerships – and provide rapid assistance in disaster situations. Our Group Donation Policy lays out the guidelines for these activities. For example, we have been working with Germany's Relief Coalition, Aktion Deutschland Hilft, since 2003.

We cooperate closely across national borders when it comes to our social involvement and share experience and best practices. We use a set of KPIs to measure our success:

- The "Social Commitment" ESG KPI reflects our performance.
- The "Community Investment" ESG KPI reflects our social commitment in terms of financial, human, and material resources.
- The "Beneficiaries" ESG KPI measures the large number of active contributors as well as the many people they reach as target groups.

- The “Media Literacy” ESG KPI highlights the high percentage of projects and activities that help people use media proficiently. It is highly relevant to us, as it correlates closely with our core business.

These KPIs are also the basis for our collaboration with partner organizations that help us to continuously control and evaluate our project measures and goals. These are monitored closely throughout the project year to enable us to adjust our target ranges or goals accordingly. A study by Beyond Philanthropy and goetzpartners from 2017 shows there is a clear link between our donation activities aimed at promoting media literacy and our core business.

Our measures are based on the Sustainable Development Goals (SDGs) of the United Nations. We have listed the activities with which we are pursuing SDGs in an overview.

**INCENTIVES FOR DIVERSITY AND EQUAL OPPORTUNITY:
THE DEUTSCHLANDSTIFTUNG INTEGRATION AND START-STIFTUNG FOUNDATIONS**

We are convinced that cultural diversity enriches our society and offers opportunities for the innovative strength of our country’s industry. This conviction is, for example, reflected in our strategic partnership with Deutschlandstiftung Integration (the German Foundation for Integration). The foundation supports young people with a migrant background, for example, by helping them to take their first steps into the world of work and offering the support of a large network. The patron of the foundation is German Chancellor Dr. Angela Merkel. In December 2018, Deutschlandstiftung Integration celebrated its tenth anniversary in Deutsche Telekom’s Berlin Representative Office. Head of the Board of Trustees, former President of Germany Christian Wulff, welcomed 600 guests from politics and business, public administration and culture, and several current and former beneficiaries and mentors of the “Go Your Own Way” scholarship program.



In October 2017, Deutschlandstiftung Integration began working with START-Stiftung (START Foundation). START-Stiftung has been supporting the integration of young migrants and immigrants for 15 years by awarding educational scholarships. The joint social media campaign “Mein Land. Dein Land. Deutschland.” (My Country. Your Country. Germany.) was launched in 2018 and has been running on the online channels of both foundations, where beneficiaries of START-Stiftung and Deutschlandstiftung Integration share their thoughts and ideas on issues of belonging, identity, home, and solidarity in short videos.

Scholarship program “GO YOUR OWN WAY”

The scholarship and mentor program “GO YOUR OWN WAY” run by Deutschlandstiftung Integration places young people with migrant backgrounds with mentors from politics, business, the media, culture, and science. We have been a partner of the program since it was launched in 2012. Over 600 mentors support the scholarship recipients in their professional and personal lives. So far, they have contributed over 35,000 hours of volunteer work to this program. The program also offers coaching, themed workshops, internship marketplaces, and networking events such as the “Summer Festival of Integration”. In late 2018 – just in time for the foundation’s tenth anniversary – over 900 young people had either completed or were still involved in the program, making “GO YOUR OWN WAY” one of Germany’s largest sponsorship programs for people with migrant backgrounds.

CORPORATE VOLUNTEERING: OUR EMPLOYEES IN ACTION

As part of our corporate volunteering program, employees volunteer for social action activities. We support this social commitment through a variety of projects and campaigns that give our employees the opportunity to make valuable contributions to strengthening our society. At the same time, however, by volunteering on meaningful projects, they are learning new skills, which also has a positive effect on their everyday work. In 2018, we supported the following projects:

eStart – digital language coaching for refugees

Deutsche Telekom actively supports the eStart program facilitated by the organization Volunteer Vision. By late 2018, 112 Deutsche Telekom employees had helped refugees learn German via a video platform. They meet with their students in a video chat once a week for one hour. With the help of integrated learning materials, they jointly practice homework assignments from a German course. The program is part of our wide-ranging commitment to helping people who have come to Germany as refugees.

IT@school

Encouraging children to play an active and self-confident role in shaping the digital age – that is the idea behind the IT@school initiative, launched by Deutsche Telekom in 2018. As part of this initiative, our employees visit schools, libraries, kindergartens, and youth centers, where they, for example, teach programming courses or hold workshops on media literacy. By late 2018, almost 250 Deutsche Telekom employees were already involved in IT@school at 35 locations throughout Germany. Thanks to their dedication, we were able to offer 23 introductory IT courses at elementary and secondary schools in 2018. These courses utilize the Calliope minicomputer, which is designed for children and helps introduce the subject of programming to elementary school students in an age-appropriate way. The Deutsche Telekom Stiftung has already provided 30 schools with one class set (max. 30 devices) each, which they can keep – additional sets are to be provided to support the “Corporate Volunteers” project.

This approach has helped more than 300 children develop basic knowledge and skills for the digital age, such as logical thinking, an understanding of algorithms, and problem-solving skills. Moreover, we have trained over 40 school and kindergarten teachers in IT topics through the IT@school initiative and given 500 parents a better understanding of media literacy at parents’ evenings. Our employees also go into three day-care centers, two libraries, and two elementary schools to teach

STEM subjects (science, technology, engineering, and mathematics) in a fun way. Around 100 children benefited from this approach in 2018. In total, our employees volunteered 750 hours of their time for the IT@ school initiative in 2018. We are already in talks with an additional 30 schools regarding future collaborations.

STEM reading mentors

Working in partnership with the German Reading Foundation, the Deutsche Telekom Stiftung is looking for volunteer STEM reading mentors, both in Germany and abroad, who can inspire children aged between three and ten to take an interest in books that deal with mathematics, natural sciences, and technology. By late 2018, a total of around 1,700 STEM reading mentors had signed up to the network – including 80 Deutsche Telekom employees (as of October 2018).

Christmas toy drive

Each year, the annual “Social Day” of our Start up! initiative gives start-ups sponsored by Deutsche Telekom the opportunity to contribute to a charitable cause. In 2018, they supported a toy drive for Eastern European children in need, which involved collecting and wrapping Christmas gifts. In December 2018, the gifts were sent to Bulgaria, Romania, Moldova, and Ukraine and handed out in orphanages, hospitals, institutes for the disabled, kindergartens, and schools in remote and rural areas.

Christmas campaign – making children’s wishes come true

In 2018, Deutsche Telekom employees once again volunteered to make the Christmas wishes of children and young people living in institutions come true. The children and young people write their name, age, and wish on a paper star. Each star has a maximum value of 30 euros. Employees take one or several stars, buy the desired present, wrap it in festive gift wrap, and hand it in to the organizational team. Once all presents are gathered, they are handed over to the homes.

Donations for “Ein Herz für Kinder”

In December 2018, 1,040 Deutsche Telekom employees supported the television show in aid of the “Ein Herz für Kinder” children’s charity by volunteering at ten locations. This meant that 140 more Deutsche Telekom employees got involved in the campaign this year compared to last year. They volunteered at service centers collecting donations from TV viewers over the telephone.

Support for “Aktion Deutschland Hilft”

We have been supporting the charitable projects of “Aktion Deutschland Hilft” (Germany’s Relief Coalition) with the help of our employees since 2003. As a long-time partner of the organization, Deutsche Telekom is committed to providing emergency aid and thus supports reconstruction and disaster prevention projects. Deutsche Telekom also made a donation of 50,000 euros immediately after the catastrophic earthquakes and tsunami on the Indonesian island of Sulawesi in September 2018.

HELP MEASURED IN KILOMETERS AT T-MOBILE POLSKA

Help Measured in Kilometers is a nationwide campaign launched in 2013 and organized by T-Mobile Polska since then. It aims to support physically disabled children by providing prostheses and rehabilitation. All smartphone users who run, cycle, rollerblade, walk, or take part in wheelchair sports are able to join the campaign. The kilometers covered are tracked using the free Endomondo Sports Tracker app installed by all the participants on their smartphones.

The secret of the campaign’s success is a combination of three elements: new technologies, a passion for physical activity and a desire to help kids. Since the beginning of the campaign, T-Mobile Polska has been able to continuously increase the number of kilometers collected. After gathering 40 million kilometers in 2013, we notched up more than 150 million kilometers in 2018.

In 2018, we invited deaf people to join our project. All our media materials were also translated into sign language.

For the sixth time running, T-Mobile Polska has turned the collected kilometers into zlotys to help children in need. This campaign has already donated 6 million zlotys to the TVN Foundation “You are not alone”.

COOPERATION WITH THE MINISTRY OF MIGRATION IN ALBANIA

Telekom Albania is cooperating with the Ministry of Migration on a new program offered to migrants. The program assists migrants and asylum seekers returning to Albania by helping them to reintegrate in the socio-economic life of Albania. Migrants who are underpaid or unemployed are given access to higher paying jobs through training courses and job placement schemes. The program includes training in information technology and foreign languages taught by experts in these areas. Participants are given courses lasting 30-40 hours, alongside interview preparation, sector-based job placement services, and career advice.

The target group is migrants and asylum seekers of different ages who have returned to Albania. The program is intended to help them reintegrate in the social life they left behind, in schools and workplaces, or to set up a new business.

Telekom Albania’s IT infrastructure is used to facilitate these courses.

DISASTER RESPONSE IN THE USA

From the Hawaii Volcano, to the California wildfires, to hurricanes Lane, Florence, and Michael, T-Mobile USA has been mobilizing its resources and people. T-Mobile’s 24/7 crisis teams worked tirelessly to ensure network reliability and respond to customers in need. We’ve also donated millions of dollars in calls, texts, and equipment to assist relief efforts around the world. The company’s disaster response efforts support communities with network response teams, telecommunications infrastructure, and employee volunteers to lend a hand and ensure network reliability.

- The T-Mobile engineering and rapid response teams quickly activated emergency equipment such as fuel trucks, mobile Cell on Wheels (COWs) and back-up power solutions, including portable generators.

- As long as it's safe for them to remain open, our stores and other facilities have helped customers and impacted employees, by providing water, mobile generators, device charging stations, phones, car and wall chargers, and other supplies available
- T-Mobile also rallies customers and employees through its own disaster response fundraising efforts. In 2017 and 2018, we activated text-based giving channels in support of hurricane relief for T-Mobile customers to make it easy for them to give via their mobile phones. For each of the disasters above, we have also matched employee giving at an increased rate of 2:1. for US-based disasters where our people and customers were impacted.
- Free Texting & Calling: During the hurricanes and for weeks following, T-Mobile offered customers in affected areas the ability to call or text anywhere in the US for free. Customers in affected areas who were not on the T-Mobile ONE plan were also given unlimited data (T-Mobile ONE customers always have unlimited data).
- To support relief efforts during the latest Hurricane season, T-Mobile leveraged its partnership with Major League Baseball, for the second year in a row, and pledged USD 10,000 to Team Rubicon for every postseason home run, and an additional USD 1 every time consumers tweeted their support using #HR4HR. During the World Series, T-Mobile doubled that number to USD 20,000 for every home run and USD 2 for every fan tweet.

For the California Wildfires, Hurricanes Florence and Michael, and the Hawaii Volcano, T-Mobile donated USD 2.6 million in in-kind donations (hotspots, phones, etc).

CULTURAL AND SPORTS SPONSORSHIP

Culture and sports are a source of pleasure and inspiration for society. They create a sense of community and help us come together with others from different cultural and political backgrounds. As an international business, we believe that sponsoring cultural activities and sports is part of our corporate social responsibility.

GOALS	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Broad access to culture > Promoting competitive and recreational sports 	<ul style="list-style-type: none"> > Sponsorship Policy > Promoting school sports, recreational sports and inclusion projects > Supporting cultural offerings 	<ul style="list-style-type: none"> > Reviewing compliance with the Sponsorship Policy

HOW WE PROMOTE CULTURE AND SPORT

We are one of the leading sponsors of culture and sports in Germany, and our national companies are also engaged in this cause. In addition to providing funding, we help artists, athletes, event organizers and associations with their communication and marketing activities. Being involved in the regions where we are based is another important aspect.

Music sponsorship is a long-standing tradition at Deutsche Telekom and a key part of our company's brand communication activities. It is our goal to facilitate access to cultural events and give people an outlet to share their thoughts and ideas. Our main sponsorship focus is placed on events such as the Beethovenfest and the International Telekom Beethoven Competition in Bonn, which has acted as a springboard for young pianists from all over the world for the past 14 years.

We are a partner of Junges Theater Bonn and sponsor a number of projects, including a media education school project aimed at encouraging children at elementary school to learn about new media through fun and creative activities.

As part of our sport sponsorship activities, we promote both competitive and recreational sports. Our main focus is on soccer partnerships with DFB (the German Football Association), FC Bayern Munich, and other major German league soccer teams. As a Bonn-based Group, we also devote particular effort to supporting the Telekom Baskets Bonn. We also assist athletes through Deutsche Sporthilfe (a German sports aid foundation), the DFB's Sepp Herberger Foundation, and the National Paralympic Committee Germany. In 2018, we extended our collaboration with the latter by another two years.

Furthermore, we focus in particular on the aspects of sport that foster a sense of community. Our efforts revolve around recreational sports, school sporting activities, and athletes with disabilities. Our partnership with Deutsche Sporthilfe will continue until at least 2020 and will center on Paralympic sponsorship and athlete career transition – in other words preparing athletes to embark on a new career on leaving their sport.

SPARKING A PASSION FOR SPORT WITH THE TELEKOM BASKETS

We take responsibility for our immediate social environment, which is why we sponsor the Telekom Baskets in Bonn. As part of our "Tix for Kids" ticket campaign, for example, we raffle off two school group ticket sets (2 x 30) for every home game among schools in Bonn, all of which are eligible to participate in the raffle.

Baskets@school student training project

Deutsche Telekom's Baskets@school initiative gives students in fifth through to tenth grade the chance to meet their sporting idols at school. In a training session lasting around 90 minutes, children and young people experience professional basketball training, with the pros on the Telekom Baskets team teaching them the tricks of the trade. The participants also receive their own Baskets@school T-shirt and three Baskets-branded balls per class. School classes were able to apply for two training sessions on November 30 and December 6. The project strengthens team spirit and teaches students from the region more about basketball.

A particular highlight during the season was when the Baskets visited Tannenbusch Gymnasium (a secondary school) in Bonn in November 2018. Classified as an elite sporting school by the German Olympic Sports Confederation, Tannenbusch Gymnasium helps young athletes strike a balance between competitive sport and schooling. Under the slogan "Baskets against blades", the school's young fencers and the professional basketball players spent two hours showing off their sporting abilities to each other. First the schoolchildren, clad head to toe in fencing attire, demonstrated their foil, épée and sabre techniques to the team, then the Baskets put on a display of their dribbling, passing and throwing skills.

Baskets Primary School Challenge

In 2018, we teamed up with the Telekom Baskets to continued the Baskets Primary School Challenge in collaboration with the City of Bonn. This training project is aimed at encouraging second and third graders to take an interest in exercise and nurturing their sporting ambitions. The students are given the opportunity to train with Telekom Baskets players – and then go head to head in a challenge against other primary schools. What's more, Deutsche Telekom provides a free box with training equipment that the schools can keep after the project has finished. The first training session in 2018 was also attended by Ashok Sridharan, the Mayor of Bonn. Primary school classes from Bonn and surrounding areas interested in taking part can register online. In 2018, the number of participating schools rose to 31, compared to 21 in the previous year.

STEPPING INTO THE UNKNOWN BROADENS HORIZONS – TRYING SOMETHING NEW IN SPORT

Working in partnership with the National Paralympic Committee Germany, the DFB's Sepp Herberger Foundation and Deutsche Sporthilfe, we run the "Experiencing new sports" support project, which allows young people to step out of their comfort zone and try their hand at a new sport. Fostering team spirit and allaying initial fears are key elements of the project.

With this in mind, the project gives young people the opportunity, among other things, to discover what life is like for people with an impairment. Different disabled sport training sessions are designed to promote mutual respect, tolerance, a willingness to help, and empathy for people living with a disability. The "Blind soccer" training session allows teams of players aged 12 and over to learn specific techniques involved in blind soccer. In 2018, two disciplines, parkour and wheelchair basketball, were added to the "Experiencing new sports" project. In "Parkour meets school", students can have a go at this high-speed activity – which involves integrating walls, stairs and roofs into movement sequences, and using them for tricks – and, in doing so, discover that physical strength and agility go hand in hand with courage and team spirit. Parkour also stimulates creativity and body awareness. As for wheelchair basketball, sporting associations can experience this parasport first hand in their sports hall in up to three consecutive one-and-a-half-hour sessions, which are led by experienced professional coaches and players from the Köln 99ers basketball club.

Given that sport, too, is becoming increasingly digital, the "Experiencing new sports" project collaborated with FJMK, North Rhine-Westphalia's specialist agency for youth media culture, to launch a pilot gaming/eSport event in 2018 for parents and schoolchildren. During the event, held at Erzbischöfliches Irmgardis-Gymnasium in Cologne, students in grades five to seven and their parents attended workshops led by experienced specialists to learn about eSport and responsible gaming.

SPORT IS GOOD CAMPAIGN IN ROMANIA

In 2018, Telekom Romania continued to support the Romanian National Football Team as its main sponsor. This initiative is in line with Telekom's strategic commercial direction of offering customers top sports content and experiences, and it reflects the Deutsche Telekom International sponsorship strategy.

Another project exerting a major impact on the community is the Telekom Skating Arena operated by the Ion Tiriac Foundation. The company supported the establishment of the only existing rink in the Bucharest Ilfov district at the current time with the aim of encouraging sport among children, young people, and support for sports teams.

In January, the company supported the 8th edition of the Gerar Half Marathon organized at the campus of The Polytechnic University. The project is intended to promote outdoor running in any weather. Approximately 700 runners took part in the two categories of cross-country (10 km) and the half marathon (21 km). Telekom Romania's employees had an opportunity to participate as runners, or as volunteers in the organizing team for the event.

The "Biggest Sports Hour" 2018

During June and August 2018, Telekom Romania in partnership with SmartAtletic organized the eighth edition of the sports event "The Biggest Sports Hour" in Ploiesti, Brasov and Iasi. Telekom Romania launched a national survey on "Romanians' Attitudes and Behaviors related to Sport", in order to find out about the preferences of Romanian citizens in relation to sports, developments since the "Sport is Good" campaign was started, and identify the number of people choosing to adopt a healthy lifestyle.

- The study entitled "Romanians' Attitudes and Behaviors relating to Sport", was conducted by Quantix Marketing Consulting for Telekom Romania. According to the study, 83% of Romanians would like to do more sport than is currently the case. The main barriers to this aspiration are pressures on time and work commitments;
- Telekom Romania is the telecommunications company perceived as the most involved in supporting sports in Romania in elite and amateur competitions;
- "Sport is Good" is a campaign promoting sport and a healthy lifestyle powered by Telekom Sport. It attracts the highest number of participants in amateur sports events.

The event was attended by more than 56,000 outdoor sports and health enthusiasts and their supporters. It was coordinated by 134 national and international instructors. In addition to the new locations of Ploiesti and Iasi, this year's edition brought new classes and sports, including Les Mills Body Pump, Functional Training, Les Mills Grit, Fight Klub Khai Bo, Kangoo Jumps marathon, Basketball, and Capoeira. BTL Medical Equipment Romania provided medical tests, recovery and esthetics sessions at the event for more than 1,500 people and Red Cross Romania provided 146 first aid courses.

RON 12,590 were collected in aid of the social cause being supported by this year's edition of the festival. The amount represents the donations made through the Galantom platform, the donations made at the three events and the participation fees from the UpDown Run Cross organized within the program of activities in Brailov. More than 250 people including 30 Telekom employees ran to support the cause of Elena Bunea, the only Romanian patient alive with Berdon Syndrome. The Telekom Romania Foundation is topping up this sum by donating an amount up to RON 25,000 for the intestinal transplant operation that can be carried out at a specialized medical center in Birmingham, United Kingdom.

COMMITTED TO CULTURE – SUPPORTING YOUNG ARTISTS FROM EASTERN EUROPE

Art Collection Telekom was launched in 2010 and focuses on contemporary art from Eastern and South-Eastern Europe. The collection aims to promote a broader understanding of Europe's cultural diversity. Contemporary art should be seen, experienced, and discussed. That's why it is very important for Art Collection Telekom to make the collection accessible to a broad audience and regularly show it in new contexts. Deutsche Telekom has been working with institutional and private partners to hold international exhibitions since 2014.

One of the highlights of 2018 was the "I AM THE MOUTH" exhibition, which ran from January 19 through March 18 at the Museum of Contemporary Art in Zagreb (MSU) and included several pieces from Art Collection Telekom. Visitors to the 52nd ART COLOGNE fair were also able to experience a virtual tour of "I AM THE MOUTH". Deutsche Telekom presented the "Art Cologne Award for New Positions" to young artists for the fifth time at the fair. This year, the award went to Lito Kattou from Cyprus, whose sculptures, installations, and performances take space and time as their subjects. Art Collection Telekom launched its own art format in Bonn, the "Young Art Lovers", to run in parallel with ART COLOGNE. This is an artistic journey through Deutsche Telekom headquarters that gives young people an exclusive look at the company's own art collection. The Polish artist Iza Tarasewicz opened the event by presenting her expansive art installation "ONCE INFORMATION HAS PASSED INTO PROTEIN" in person.

Videos by Art Collection Telekom were the focus of the exhibition "Temporary Structures 4", which opened in Ostrava, Czech Republic, in November 2018. Pieces from the collection were also shown at the 2018 viennacontemporary art fair.

UNIQUE CONCERT EXPERIENCES – BEETHOVENFEST AND JAZZFEST

In 2018, we returned as the main sponsor of Beethovenfest in Bonn and funded two inspiring evening concerts in September. The pianist Alberto Ferro honored Claude Debussy's memory with a recital entitled "Pour le piano – Debussy zu Ehren" ("For the piano – in honor of Debussy"). Fans of experimental classical music also got their money's worth – the Music: Eyes ensemble transformed the music of Ludwig van Beethoven into an audiovisual sound experience. The concert was organized by eight students from five secondary schools in Bonn. They are the protagonists of this year's "Beethovenfest student manager" initiative, which Deutsche Telekom has been supporting for the past eight years. Every year, the team of students spends several months organizing, financing, and promoting the concert.

During the period under review, we called on pianists to enter the International Telekom Beethoven Competition, which has been held every other year since 2005. This allows us to sponsor young professional pianists and offer them an international platform. One of the main things we expect from applicants is that they bring their own interpretations and ideas to their performance. The competition will take place from December 6 through 14, 2019, in Bonn.

We also returned as the main sponsor of Jazzfest Bonn in April 2018. As such, we presented a double concert at the sold-out Telekom Forum on April 27, where gripping performances by Brazilian multi-instrumentalist and soul jazz singer, Ed Motta, and the legendary British acid jazz group, Incognito, wowed an audience of approximately 1,200.

OTE GROUP TELECOMMUNICATIONS MUSEUM: CHAMPION MUSEUM FOR 2018 IN GREECE

The OTE Group Telecommunications Museum was selected as the Honored Museum for 2018 in Greece by the Hellenic Committee of the International Council of Museums (ICOM) on the occasion of the International Museum Day on 18 May. Under the slogan for this year's International Day "Hyperconnected Museums: New Approaches, New Publics", the Telecommunications Museum has scheduled a series of events and educational programs for children, families, and the elderly hosted at the museum's renovated premises. Visitors to the museum

use new augmented and virtual reality tools integrated in the renovated Permanent Exhibition Hall of the museum to interact with the museum's collections and gain a unique and positive experience to share after their encounter. The Telecommunications Museum provides informal education, implements educational programs, and organizes events that reflect its outreach policy and dynamic relationship with society.



LOTS OF THEATER FOR YOUNG PEOPLE – OUR PARTNERSHIP WITH JUNGES THEATER BONN

Since 2004, we've maintained a successful partnership with Junges Theater Bonn (JTB), Germany's most popular theater for children and young people. Like JTB, we believe theater can make a valuable contribution to the development and education of young people, especially in the age of the internet and smartphones. To allow as many children and young people as possible to visit the theater, regardless of where they come from or their social background, we're offering the "Deutsche Telekom five-euro ticket" in collaboration with JTB, a discounted ticket category for children, young people, and families. On top of that, we also fund around 700 "Deutsche Telekom Sozialtickets" every year for children in school or kindergarten whose parents cannot afford to visit the theater due to their economic circumstances.

We've also been running a media education project with JTB since 2015, the aim of which is to teach children to use the internet, smartphones, and social media responsibly. The project centers on working with young schoolchildren to stage an original play. In it, the children demonstrate how they experience the web, and what opportunities and risks come with being so interconnected – both for the individual and society as a whole. This day-long project is offered every year to fourth-graders from Bonn and the surrounding areas. Drama teachers are there to help the children combine the short scenes they have developed into a full play. We plan to continue working with JTB till at least 2020.

EMPLOYEES

We shape the digital world of work and offer our approximately 217,000 employees an environment that supports new forms of cooperation. We encourage independence, create development opportunities and offer systematic health management, all the while placing a high degree of importance on dialog, participation and fairness.

Interesting topics

Birgit Bohle, Chief Human Resources Officer and Labor Director, on digital renewal and corporate culture at Telekom

Leading in the digital world: levelUP! program prepares 1,400 managers for the issues of the future

Work in the future: study "Work 2028" extends an invitation to dialogue

Welcome to the Supervisory Board: 22 graduates of the internal training program selected

Digitalization and health – joint project with health insurer BARMER expanded

#Neues Arbeiten (New Way of Working): Group-wide initiative strengthens new understanding of the future work culture

CORPORATE CULTURE AS A SUCCESS FACTOR

Ms. Bohle, you took over the role of Chief Human Resources Officer at Deutsche Telekom on January 1, 2019. Your previous career path included stops at McKinsey and Deutsche Bahn, where you were successful in the role of CEO of DB Fernverkehr AG. What motivated you to move to Deutsche Telekom?

It is the people that determine whether a company will achieve lasting success. I have always enjoyed guiding, leading and motivating people – and, in doing so, influencing the success of the business. In my new role as Chief Human Resources Officer, I am responsible for all activities related to human resources – my team and I therefore make an important contribution to the skills, efficiency and motivation of all employees. I was attracted by this new challenge. And the many remarkable people I have been able to meet at Deutsche Telekom in the past months confirm my decision.

Moreover, the telecommunications industry is one of the most exciting sectors right now. And Deutsche Telekom is the leading player in Europe – we are building the digital infrastructure of the future. Our innovative solutions are changing our lives and society. That was an important reason for my move to Deutsche Telekom. What I also like is that Deutsche Telekom is shaping these changes in a responsible manner. And that's why I also look forward to continuing to shape this commitment together with the colleagues from Corporate Responsibility.

Focusing on customers and employees is a critical success factor for you. What is your first impression of Deutsche Telekom in this regard?

I can see that many areas of Deutsche Telekom have a real pioneering spirit, one that you might otherwise normally expect to find at a younger company. There is so much happening here – from digital forms of collaboration to new, agile methods, for example. These are excellent prerequisites when it comes to identifying customer needs at an early stage, developing innovative products, and offering great service. Of course, at a large company it takes time for new developments to find their way through the entire company, that much is clear. And you have to take a close look again and again at what works and what doesn't. But I have already seen a whole host of exciting things in my first few months. I very much look forward to shaping this path together with our employees.

What role does diversity play for you in this regard?

There are numerous studies showing that diverse teams are more successful. For me, diversity means more than just gender, it also includes age, technical background and nationality or culture, for example. By looking beyond our own horizon, we can generate new ideas and better results.



Birgit Bohle, Chief Human Resources Officer and Labor Director

Shortly after joining Deutsche Telekom, you asked all employees to share their thoughts and wishes with regard to the corporate culture. What is the idea behind this appeal?

The culture of a company determines its success. The question is, which culture is the right fit for future business and market trends? What motivates people? Do they enjoy going to work, do they feel appreciated, are their accomplishments recognized? How do we want to work together? Right at the start of my new job, it is important for me to "take inventory" to begin with.

The feedback is very good. We have a strong culture and many of our colleagues identify with our company and our brand. We need to further reinforce that. And, of course, we also see areas that we need to work on in order to be successful over the long term. The most important for me is that the corporate culture can't just exist on paper; it has to be tangibly put into practice.

Deutsche Telekom is committed to society and the environment in a variety of ways. Do you see particular key areas for 2019 that you want to tackle?

The scope of our social commitment is indeed very broad. And not only in Germany, but internationally. We have already been supporting physically disabled children in Poland, for example, through the "Hilfe nach Kilometern" (Help Measured in Kilometers) campaign. In Romania, on the other hand, we are involved, among other things, in promoting popular and competitive sport. We will also continue to focus on topics that are directly related to our core business. Climate protection is especially worth mentioning. Digitalization means that the network will use more energy. We are therefore setting ourselves ambitious goals to reduce CO₂ emissions from our infrastructure despite growing data volumes. We want to shift our Group-wide electricity consumption to 100 percent renewable energy by the end of 2021. In addition, we are supporting the development of products and solutions that reduce energy consumption in other areas thanks to digitalization, such as our Smart City projects.

Another issue very close to my heart is education. As a driver for digitalization, it is our responsibility to ensure that people can participate in digitalization and use it to their advantage. This involves not only network expansion, data protection and data security, but also promoting media literacy and digital skills. That applies not only to our employees. Teaching and learning with digital media must become an integral part of school development in order to be successful. Together with Deutsche Telekom Stiftung, we are committed to education and digitalization in schools through the Forum Bildung Digitalisierung, our forum for digital education. This project is also particularly important for our employees. In the employee project IT@school, our colleagues offer programming courses at schools, for example, on a voluntary basis.

DIGITALIZATION AND THE WORLD OF WORK

The digital transformation changes the way we live and work. While it opens up new opportunities, it also presents new challenges. Today's working world is already shaped by flexible work arrangements and the separation of value creation from time and place. Keywords such as artificial intelligence and virtualization are indicators of the revolutionary changes we face. They bring about competitive advantages through automated standardization of products and processes on the one hand and greater user centricity on the other. Both developments call for creativity, which emerges from heterogeneous teams in particular. The effectiveness of these teams is increasingly determined by factors such as diversity, cross-team collaboration and the ability to derive social and ecological meaning from the work. Employees and companies alike must be willing to embrace change and keep on learning new things.

SHAPING DIGITAL CHANGE

The pace of digital transformation captivates many people, but also unsettles them at the same time. Exciting new opportunities are emerging, accompanied by concern about an uncertain future. The surrounding political debate is often shaped by populism. But the figures say something else: Open and inclusive societies improve prosperity and keep the working population at a record level – despite, or even because of, digitalization. Achieving this primarily requires a modern communications infrastructure, which forms the backbone for the digital transformation of society and the economy, and fair access to this infrastructure. Deutsche Telekom aims to help shape the digital transformation: by expanding our networks and developing innovative solutions. With our company's slogan "Life is for sharing," our focus is on people, on both customers and employees. A crucial aspect in dealing with change successfully is optimism about the future. That is why we show our employees the opportunities offered by the digital workplace and create an environment that provides easier access to new ways of working. We want to promote an innovative culture of cooperation that is allowed to question the status quo. It should create space for testing and experiments, where failure is understood as a way to improve performance and quality. We support this development on both a staff and organizational level with new ways of working and innovative learning methods.

We laid the foundation for dealing with the digital transformation of the working world in 2017 with our position paper ([external link](#)). In it, we set forth our stance on shaping the digital world of work. One thing is clear: We do not have a patent recipe, but must try out new things, fail and learn. One of our first steps on this path are new work models, open work environments, digital work tools, and social networks to enable flexible, interdisciplinary working.

- We are trying out and strengthening new ways of collaboration with the initiative #Neues Arbeiten (New Way of Working)
- Under the "Agile Blueprint" project we provide initial help to all those company units that decide to implement agility
- Online learning platforms, MOOCs, concise learning modules for on the go, and learning games enable individual learning paths and promote lifelong learning
- We are taking new approaches in skills management with skillsUP!
- We support our managers with levelUP!

We are also trying out innovative approaches to foster dialog across disciplines and hierarchies. One example of this is our "Kitchen Talks" – informal sessions where topical issues are discussed. The members of the Board of Management also hold regular open discussions, such as the town hall meeting about our Corporate Social Responsibility in September 2018. "You and Me" (YAM), the social network for our employees, has helped us foster a lively culture of dialogue for years and offers employees the chance to engage directly with board members and managers. In 2017 we launched the blog "We like Working in the Digital Age" where we share our knowledge and experience on the subject of working in the digital world with our employees and interested persons outside our Group.

LOOKING INTO THE FUTURE: WORK 2028

What will our working world look like in 2028? How are digitalization and artificial intelligence (AI) impacting our work and life? What will managing people be like in ten years' time? How will companies have changed? We have examined these and other questions together with our consulting firm Detecon and Henley Business School. 50 influential business leaders from a wide variety of industries and sectors in various countries were surveyed for the study. The results were published in 2018 in the extensive study "Work 2028: Trends, dilemmas and opportunities."

Those surveyed concurred that AI and man-machine interaction will be a natural part of our everyday professional and private life in 2028. They also believe that technological developments will be the basis for radical transparency in working life: Decisions will be democratized in the future, while leadership will rotate and be multi-directional. However, the participants interpret the effects of this development in a variety of different ways, the optimists expressing a belief in a better, more secure future that will provide more space for creativity and new, exciting fields of work. Against them, the skeptics fear that existing work roles, even quite complex ones, will begin disappearing, and that only very few new job profiles will be created to replace them.

We have summarized the results from the interviews into 16 trends – for the world of work as such, for organizations, and for managers. Our aim here is to provide fresh impetus, encourage a discourse, and create awareness of the upcoming changes. We urge anyone interested to get in touch directly with the study's team or strike up a dialog with us on social networks.

INSPIRE AND GIVE FOOD FOR THOUGHT: THE #NEUES ARBEITEN (NEW WAY OF WORKING) INITIATIVE

Culture of presence, closed office doors, and managers who want full control of the work their employees do: That was what the world of work used to be like – and still is at many companies. That will change radically in most sectors in the wake of digitalization. Of course, this also applies to the telecom industry. At Deutsche Telekom, we aim to actively shape these changes at our company. We laid the foundation for this in 2014 when we launched the Future Work concept, which is based on an integrated transformation of the workplace, organizational culture and understanding of leadership. Since then, we have introduced open office environments, desk sharing and modern IT tools at our Group headquarters in Bonn and other locations, such as Frankfurt, Darmstadt, Düsseldorf, Hamburg, and Berlin. In keeping with the motto "Changing from a presence-oriented to a results-oriented culture", we have implemented rules for working from home, which apply for almost 40,000 employees provided their role allows it. We support our employees in this transition to a new world of work and provide them with helpful information and tips on modern work models – for example, in the digital Future Work Guide.

Since 2018, we have continued Future Work under the heading #Neues Arbeiten (New Way of Working). This also emphasizes that we have expanded the focus of our measures: from modernization of the infrastructure to a new organizational and work culture shaped by innovativeness, trust, digital collaboration, and agility.

Three major events were held in 2018 as part of #Neues Arbeiten (New Way of Working) in Bonn, Hamburg and Düsseldorf. They gave our employees the chance to grapple with all issues relating to new ways of working, share experiences, and network better with each other. 3,500 of them took part in the events. Further events are planned for 2019.

Since 2018, we have published a #Neues Arbeiten (New Way of Working) newsletter in order to also reach our employees at smaller locations. It contains experience reports, tips, and suggestions, also in digital form. Short videos give an entertaining and inspiring introduction to topics such as a culture of innovation and agility or working in open office environments.

As a matter of principle, we refrain from mandatory measures as part of #Neues Arbeiten (New Way of Working). Instead, employees decide independently which content and issues are relevant to them. As an employer we help them learn more about these issues and put the various aspects of #Neues Arbeiten (New Way of Working) into practice.

CREATIVE AND DIGITAL LEARNING: MAGENTA MOOCS

We face the challenge of taking the Group's more than 217,000 employees in 50 countries on the journey to the new world of work with us. One of our tools is therefore digital learning formats, which enable us to reach a large number of participants and can be used anytime, anywhere. The MOOC (Massive Open Online Course) format is especially suited for that. We have so far staged three Magenta MOOCs since 2014. The motto in 2018 was "Tap into Design Thinking". Design Thinking can help us become more customer-oriented and hence more successful. Our objective is therefore to familiarize as many Deutsche Telekom employees as possible with this concept. More than 100 sets of learning content, such as videos, podcasts and presentations, offering information on design thinking were available in the MOOC. In a short video Chairman of the Board of Management Tim Höttinger urged our employees to take part. Around 4,500 employees from 32 countries followed that call. Half of them came from our national companies outside Germany.

TRYING OUT AGILE COLLABORATION: THE "AGILE BLUEPRINT" INITIATIVE

Agility is an effective concept when it comes to focusing more strongly on customers and their needs, becoming faster, and seizing new opportunities for the company. That is why it is not only applied in IT at Deutsche Telekom, but also in other Group units.

The "Agile Blueprint" project provides initial help for all units wishing to adopt agile working. Its key element is the Agile Compass. It describes a total of six dimensions the teams have to address in order to become more agile. The Compass formulates a potential target status for each of these dimensions and provides detailed step-by-step instructions to show how those objectives can be achieved. Interested units can also conduct an Agility Check to take stock of their current situation: Where do we stand and with which of the six dimensions should we start our journey toward greater agility? Various support offerings are available to everyone involved. They help them understand the concept, try things out, and solve challenges. These offers also include the 80/20 model: Since 2017, we have been using the 80/20 model to give our employees the opportunity to spend up to 20 percent of their working time on projects outside of their usual remit. This allows them to work with teams from other departments. In this way, we break up departmental silos and can make better use of the company's broad spectrum of talent.

All the components of the "Agile Blueprint" project are developed together with Group units. We thus ensure that they can be applied and integrated in practice. For instance, we have designed and implemented the format "Agile Workshop" together with T-Systems. In this whole-day format participants learn more about the advantages of agile working, try out working independently, and share their ideas on the subject with each other.

HR plays a special role in implementing agility, acting as a partner and enabler. We therefore offer HR employees additional, more in-depth training tailored to their specific needs. They also include consultation hours, Deep Dive sessions, and sharing with experts.

Agile working at T-Systems

We also promote agile collaboration at T-Systems. The use of agile methods in day-to-day work is a basic requirement for that. Yet the organization must also be flexible enough to support constant change and shape interaction expediently. Crucial to this are managers who think in an agile manner and motivate and enable their employees to adopt this mindset. As a result, they lay the foundation for moving away from an introspective way of working (silo mentality) and toward a customer-oriented approach (client centricity). The Agile Hub plays an important part in that. It comprises HR and Business colleagues with many years of experience in an agile environment. The Agile Hub's objective is to boost the transparency of agile initiatives and projects at the Group, enhance dialog within T-Systems and with the Group, and promote agile working by means of pinpointed expertise and advice.

In 2017, T-Systems became a partner of the diGAP (Good Agile Project Work in the Digitalized World) research project sponsored by the Federal Ministry of Education and Research. The three-year project is examining agile working in order to derive recommended actions for designing the working environment of agile teams and how they work together. T-Systems is implementing the "Development and practical test for scaling of good agile project work" project as part of this. Various workshops and interviews were held in 2018. The results will be incorporated in the research project in 2019.

SKILLS MANAGEMENT IN THE DIGITAL AGE: SKILLSUP!

There are 5,500 different job descriptions at Deutsche Telekom in Germany alone. Many of them have literally become outdated in the wake of digitalization: They no longer match today's tasks and required skills and will therefore also not meet our future requirements.

The skillsUP! project we launched in 2018 aims to cut the number of job profiles to less than 1,000 and adapt them so that they last the next three to five years. That will also ensure the basic profiles can be supplemented in the future to reflect the business units' latest requirements at little cost and effort. However, skillsUP! involves more than just modernizing job profiles: The new, up-to-date job descriptions are linked to the Group's skills management so as to ensure holistic, integrated HR planning. It is easier for managers and employees to identify possible gaps in the skills, initiate training measures, or advertise new jobs. Importantly, all phases of HR planning are linked together by means of special software, giving employees and managers simple access to the system at any time. Deutsche Telekom is the first large German company to have such a mechanism. skillsUP! is the Group-wide implementation of several pilot projects that have been conducted since 2016.

LEARNING DIGITAL LEADERSHIP: LEVELUP!

Managers today need different skills and have to be able to apply new methods than was the case just a few years ago. That is why we launched levelUP!, a ten-month training program for successful leadership in the digital world, for our executive staff in 2017. For the levelUP! program, we are cooperating with the internationally renowned business school Duke Corporate Education (Duke CE) in Durham, North Carolina (USA). The program not only helps to expand and improve leadership skills, but also conveys new perspectives and ways of thinking through dialog with leading innovators and management experts. levelUP! comprises modules that can be combined flexibly: Interactive learning formats are mainly available in digital form, although some are

also offered as classroom courses. Managers can select their personal learning content, making the learning process perfectly tailored to individual requirements. More than 1,400 managers from Deutsche Telekom took part in levelUP! in 2017 and 2018.

MYNET GO: NEW APP FOR EMPLOYEES AT OTE-COSMOTE

The application mynet.go is a mobile portal for all employee-related applications and will continue to undergo development with new features. The employees have access to information, news, and features which facilitate collaboration inside and outside the office. The application aims to assist in the creation of a better working day that is more flexible, allowing access to information, simple and instant completion of tasks using a mobile device, and from any location. The OTE Group has the vision of becoming an example of digital transformation in order to provide customers and partners with a holistic digital experience. Mynet.go represents a significant step in this direction.

DIALOG AND COLLABORATION

Around 217,000 employees in more than 50 countries worldwide help shape our business success. With their commitment, expertise and abilities, they help pave the way to a digital society that focuses on people. As a responsible employer, we very much value dialog, cooperation and fairness. We give our employees competitive, performance-based pay, flexible working time models, and the opportunity to realize their potential and to contribute their individual strengths and ideas within our Group.

GOALS	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Employee relationships characterized by fairness and responsibility 	<ul style="list-style-type: none"> > Fair remuneration and tools for performance assessment > Flexible working time models > Cooperation with employee representatives > Socially responsible staff restructuring > Employee surveys and corresponding measures 	<ul style="list-style-type: none"> > Reviewing implementation of our Employee Relations Policy > Assessing employee satisfaction > Reviewing compliance with current collective agreements and relevant Group and company policies

HOW WE SHAPE FAIR AND TRUSTWORTHY COLLABORATION

We pursue dialog-oriented employee relations throughout the Group and engage in trust-based, constructive collaboration with employee representatives and unions. The works councils, central works councils and Group Works Council represent the interests of our employees at our Group in Germany. Our partner at a European level is the European Works Council (EWC). We also have executive staff representation committees and disabled employee representatives at the unit, company and Group level. As the underlying laws and contracts vary from country to country, codetermination matters with trade unions and employee representatives are managed locally. Group management is involved in all major issues as a matter of principle. We have set Group-wide standards for managing employee relations. These were formalized in our Guiding Principles, our Group's Employee Relations Policy, and our Leadership Principles. You can find comprehensive information about conduct in relation to human rights at our Group in the Strategy chapter.

Fair pay and benefits

We offer our employees competitive, performance-based pay oriented to the relevant national market. Our remuneration policies are structured to guarantee equal pay for men and women and do not discriminate. Executive compensation at Deutsche Telekom is based on our Group-wide Global Compensation Guideline. We also offer our employees additional benefits such as our company pension scheme. As part of our Group-wide employee survey, we regularly ascertain how satisfied our employees are with their pay and also conduct other surveys on specific topics and in specific units. We have compiled a separate report in order to comply with the new legal requirements of the Act to

Promote Transparency of Pay Structures, which is published every five years. You can find the latest remuneration report as an annex to the 2017 management report.

Flexible working models

Having the chance to structure one's work according to one's own needs considerably improves work-life balance and thus helps prevent stress and the feeling of being overworked. That is why we actively promote flexible working models. Our offer ranges from flexitime and part-time to lifetime work accounts. Following conclusion of the general collective agreement with ver.di in 2017, we introduced mobile working as a new work model at our company. It enables telecommuting and mobile working for our employees, if their activity permits that.

Socially responsible staff restructuring

The transformation of our Group was a key issue in past years and will continue to be so in coming years. Against the backdrop of digitalization and the associated changes, we must secure our long-term viability and competitiveness. This process is connected to complex staff restructuring. We are creating new jobs in growth fields and are training qualified personnel to fill these positions. Other areas are the focus of restructuring activities involving workforce reduction. We make sure that all restructuring measures are implemented in a socially responsible way for our employees. In doing so, we support them in the best way possible on our way to the digitalized working world.

Employee satisfaction and participation

We highly encourage a feedback culture throughout the Group and promote open dialog and constructive communication. Our social network "You and Me" (YAM), the Group-wide network that has about 120,000 users, is an important tool for this. YAM provides comprehensive information and a platform for our employees to engage in cross-hierarchical dialog and raise topics that are important to them for discussion within the Group. Deutsche Telekom's Board of Management also uses YAM regularly to discuss matters directly with employees. Another key element of our feedback culture is our Group-wide employee survey. We supplement this survey with pulse surveys, which give us a snapshot of the mood twice a year. Our Group-wide ideas management activities are another key tool in encouraging employee contributions to the success of the company. We also offer them opportunities to help shape our corporate social commitment within the scope of corporate volunteering initiatives.

EMPLOYEE RELATIONS AT OUR NATIONAL COMPANIES

What progress have our national companies been making in implementing our Employee Relations Policy (ER Policy)? We determine such progress using special reviews. Two to three national companies are subject to such a review each year. They use the results of the review to further improve their relations with employees. The results also help us conduct a Group-wide assessment of employer/employee relations and any human rights risks involved in our business activities.

In 2018, we carried out reviews in Malaysia, Singapore and Hungary. We are publishing the detailed results on our website.

Hungary (Magyar Telekom): The ER Policy and its core elements have been successfully integrated throughout the company. Employees know the policy and what it means for their everyday work. The training and development opportunities for employees and managers should also be highlighted. The management feels it is important to strike the right balance between achieving the transformation targets and hiring new employees: The company needs to find new, innovative talents and integrate them quickly in a larger, multi-generational team, yet it must also improve its long-term performance. Magyar Telekom was chosen as one of the top 10 employers in Hungary in 2017, which is reflected in its good results for employee loyalty, team spirit and collaboration.

Singapore (T-Systems Singapore): The ER Policy has been in effect at T-Systems Singapore since the end of 2012 and has become an integral part of the company's everyday work. This is confirmed by the on-site review and discussions with the workforce. The ER Policy's successful implementation is demonstrated, for example, in the regular town hall meetings, after which all employees assemble, or in the spirit of open collaboration in teams. Despite the great competitive pressure, T-Systems Singapore is economically successful. The local management is therefore highly respected among the workforce. This is proven by the good survey results in the categories of employee loyalty, team spirit and collaboration.

Malaysia (T-Systems Malaysia): Extensive discussions with management and numerous employees of T-Systems Malaysia showed that all elements of the ER policy introduced in 2012 had been successfully implemented. Employees stated that they were very satisfied with their employer and cooperation with colleagues and management. However, they suggested that the components of the ER Policy should be made more widely known. That applies in particular to the general guidelines and grievance channels. In addition, the workforce would like to see the contents of the policy as the subject of a special town hall meeting.

SOCIALLY RESPONSIBLE STAFF RESTRUCTURING CONTINUED

The transformation of our Group was a key issue in past years and will continue to be so in coming years. It entails extensive staff restructuring, which we again accomplished in a socially responsible manner in 2018. As part of that, we continue to employ tools such as severance payments, dedicated retirement, and phased retirement. The principal developments are outlined below:

Vivento: service provider for staff restructuring

Our HR service provider Vivento continued to support us in socially responsible staff restructuring in 2018. It identifies new career perspectives outside and at the Group for our civil servants. In 2018, the focus was primarily on transfers of civil servants to the Federal Office for Migration and Refugees, the Federal Employment Agency, the Federal Armed Forces, and customs agencies. Employees were assisted in finding positions with federal, state and local administrative authorities. About 326 civil servants employed at Deutsche Telekom opted for a permanent transfer to federal, state or local authorities in 2018. Since Vivento was established 15 years ago, it has helped more than 51,374 employees (as at December 31, 2018) to gain a new career perspective.

Fundamental transformation of T-Systems

Deutsche Telekom's Systems Solutions business is undergoing an extensive process of transformation. The goal is to position T-Systems as an attractive, flexible partner for digitalization. The foundation for the future reorganization in Germany was laid in 2018. From January 2019, T-Systems will have a new setup geared toward portfolio units, such as SAP, Internet of Things, Security or Digital Solutions, which work increasingly in flexible organizational structures. Cost cuts are intended to help fund investment in new growth areas, such as the cloud, the Internet of Things and security, as well as ensure competitive prices. The reorganization will enable us to make our administration and sales structures much leaner. Capacity requirements will be reduced by a total of some 5,600 jobs in Germany by the end of 2020, while new jobs will be added in growth areas. Apart from the corporate structure, our location structure in Germany will also be streamlined. The current 230 office locations in more than 100 cities will be merged at 25 cities in the future. Shared functions, such as Communication, Finance and HR, will be pooled at the central locations Hamburg, Berlin, Bonn, Darmstadt, Frankfurt am Main, Leinfelden and Munich.

We aim to shape the restructuring in a socially responsible way using tools such as phased retirement, early retirement, and severance payments. The T-Systems service provider Job Service & Placement (JSP), established in 2014, will provide employees with advice and support in the change process under an extensive program. Employees without a job in the new organization will transfer to JSP, where new employment will be found for them within the Deutsche Telekom Group and elsewhere. Compulsory redundancies are to be avoided wherever possible. Our employees will be supported by various initiatives during the change process – for example, with Outward Mindset workshops, which will help them reflect positively on the transformation in a wider context. We trained more than 2,500 employees in this approach in 2018.

Realignment of Telekom Deutschland GmbH

Deutsche Telekom's business in Germany continues to change, with the goal of being even more competitive and service-oriented. The transformation project comprised three major changes:

- A new service organization was founded to provide services for consumer, business and carrier customers from one source.
- A new sales organization was created for business customers.
- A consumer sales organization was formed from T-Shop Gesellschaft.

In 2017, about 20,000 colleagues moved to the new units by way of transfer of operations, job offer process, transfer, assignment or temporary leave from civil-servant status. The reorganization and transfer of operations for employees from service and business customer sales were completed at the turn of 2017/2018.

Holistic staff restructuring and transfer management at Telekom Deutschland GmbH

As part of the digitalization of business fields, we still need to win over employees to the idea of a career change. To this end, holistic staff restructuring and transfer management was established in the Germany operating segment in 2017, with the aim of achieving a quick impact. This means that in cases where tasks will be eliminated or different skills are required for certain positions, we want to take preemptive steps and consult with the affected colleagues on the opportunities for a professional reorientation. We also integrate managers actively in the change process. Our consulting concept comprises the development of internal and external employment alternatives and working out a specific potential labor market for the employee in question. In addition, we provide assistance in the individual job application process and – where necessary – offer skills development measures.

FLEXIBLE WORKING MODELS FOR A WIDE RANGE OF NEEDS

We offer our employees a large number of optional work and collaboration models that are tailored to different needs. This also addresses growing requirements for greater flexibility as a result of the digital transformation.

Promoting part-time work

Working based on various part-time models is a concept that is established throughout the Group:

- Our employees can join a part-time model directly or switch from full-time to part-time work. That also applies to managerial positions.
- Since 2014, our employees have had the right to return to their original weekly working hours at any time. As a result, we offer our employees more flexibility than prescribed by the German government's new law on "bridging part-time employment."

In Germany, 12.9 percent of employees under collective agreements and 15.2 percent of civil servants took advantage of part-time models (as at December 31, 2018). In addition, a total of 29 executives throughout Germany were working part-time (as at December 31, 2018). You can find detailed information on our numerous part-time options here.

Mobile working

Mobile working is the normal state of affairs at Deutsche Telekom. In 2017, Deutsche Telekom and ver.di agreed on the first collective agreement on mobile working concluded by an employer association, which includes rules regarding telecommuting and mobile working, among others. Thanks to increased geographic flexibility, our employees have more freedom to plan their work. We also enable them to achieve a better work-life balance.

Lifetime work accounts

Since 2016 we have offered about 74,700 employees in Germany what are termed lifetime work accounts. The around 12,600 civil servants in Germany have had this option available to them since mid-2017, which allows them to finance a future leave of absence lasting more than one month. The account may be used for early retirement, a sabbatical or to support a period of part-time work. Our employees can finance their lifetime work account either from their gross salary or with time credits converted into monetary amounts. Until 2020 we will also assist employees who are below a certain income limit with an annual contribution. We have already set up 10,430 accounts for employees and 664 accounts for civil servants (as at December 31, 2018).

The 80/20 model

Since 2017, we have been using the 80/20 model to give our employees the opportunity to spend up to 20 percent of their working time on projects outside of their usual remit. This allows them to work with teams from other departments. In this way, we break up departmental silos and can make better use of the company's broad spectrum of talent. The model makes employees more visible and motivated, and enhances their network of contacts. Use of the model is voluntary and is tied to a specific Group project.

Phased retirement

We offer all Group employees over the age of 54 the option of phased retirement. Separate regulations apply to employees and to civil servants. There are two options for phased retirement: the block model and the part-time model. Unlike regular part-time regulations, we make a substantial top-up payment to the employees' part-time pay with our phased retirement offer. This means that reducing their weekly hours does not equate to a proportionately high reduction in net pay for employees. During the reporting year, a total of 1,429 phased retirement contracts were concluded with employees both covered and not covered by collective agreements. Among civil servants there were 410 such contracts.

Underlying regulations

These are based on the laws and regulations applicable in the individual countries. Working hours at Deutsche Telekom in Germany are governed by collective agreements and works agreements. Daily working hours are electronically recorded for employees who are covered by collective agreements. This guarantees compliance with legal and company regulations; for example, it makes sure that the weekly working hours for a specific flexitime balancing period are complied with. At a large corporation like Deutsche Telekom, regulations are diverse and cannot be fully specified for all the Group companies.

IMPLEMENTATION OF THE 2017 COLLECTIVE BARGAINING ROUND AND OTHER HARMONIZATIONS IN 2018

In the course of the 2018 collective bargaining round, the incomes of employees covered by collective agreements at Deutsche Telekom in German were increased.

- Starting in 2018, the salaries of roughly 60,000 employees covered by collective agreements at Deutsche Telekom AG and in the Germany operating segment were raised by a total of 5.2 percent for employees in the lower pay groups and 4.8 percent for employees in the higher pay groups. The first salary increase took effect on May 1, 2018. The second salary increase will be implemented on May 1, 2019. The duration of the new collective wage agreements is mostly 26 months and they are scheduled to end on March 31, 2020.
- Salaries at T-Systems for some 20,000 employees under collective agreements will be raised in two phases by a total of 5.5 percent for employees in the lower pay groups and 4.5 percent for employees in the higher pay groups. After the first increase on January 1, 2019, the second increase will take place on January 1, 2020. The collective wage agreement has a term of 33 months and will expire on December 31, 2020.
- The wages of apprentices and students in cooperative study programs will also be increased in two phases. After the first increase of 40 euros effective May 1, 2018, there will be another increase of 30 euros in May 2019. Subsistence allowance for apprentices not living with their parents was increased by 20 euros to 250 euros.

The standardization and harmonization of our German remuneration systems adopted in the 2016 collective bargaining round was further driven forward. The first successful collective bargaining took place in 2017; the results will be implemented on January 1, 2018, and January 1, 2019. Collective bargaining on additional harmonization topics was continued in 2018.

Apart from a sharp increase in salary, we also intend, where possible, to introduce the new "additional days off" part-time model at companies covered by a collective bargaining agreement in the Group in Germany. Under the new part-time model, employees have the option to reduce their contractual weekly working hours, but to continue to work full-time and take the hours they have earned as block leave over the course of the year.

Harmonization of remuneration systems

In the course of the 2016 collective bargaining round, we and the union identified that there was a need to harmonize the remuneration systems within the Group in Germany and subsequently conducted negotiations on that issue. Salaries will be harmonized at all companies in Germany covered by a collective bargaining agreement, with the exception of T-Systems. The following step-by-step adjustments were agreed:

Changes with effect from January 1, 2018:

- Conversion from an annual target salary to a fixed annual salary, in conjunction with performance-related bonuses, for consumer sales.
- Standardization of the times for increments in the salary range for each salary group.
- Gradual conversion of non-sales from an annual target salary to a fixed annual salary. The current compensation system is retained for 2018; however, the target achievement and hence payment of the variable component was set at 100 percent.

Changes with effect from January 1, 2019:

- Complete conversion of non-sales employees to a fixed annual salary, hence elimination of variable compensation for non-sales.
- The arrangements on variable remuneration will also be gradually harmonized at T-Systems as of 2019. Non-sales at T-Systems will likewise be converted to a fixed annual salary in 2021.

GREAT INTEREST IN EMPLOYEE SURVEY

Our employee survey, which is conducted every two years, is an important tool for obtaining feedback from our employees, discovering weaknesses, and implementing suitable measures to eliminate those weaknesses. The twice-yearly pulse survey additionally helps us obtain a current snapshot of the mood at the company and verify whether the introduced measures have been successful. This lets us make quick adjustments if necessary.

Some 75 percent of employees throughout the Group took part in the last employee survey in 2017. The Group index value for commitment – our gauge for employee satisfaction – was 4.1 on a scale of 1 to 5, with 5 being the highest. The pulse survey in November 2018 saw a 72 percent response rate among employees. 70 percent of participants expressed high satisfaction with their employer.

TRUST-BASED COOPERATION WITH EMPLOYEE REPRESENTATIVES

Co-determination rights play a key role with respect to digital transformation. We want to create the working world of the future alongside employee representatives and unions – with an eye toward the needs of our workforce and the success of our company. We negotiated and adopted over 150 agreements in 2018 through constructive dialog with our works councils. Two key transformation projects we conducted in 2018 in close coordination with the works councils were the organizational measures "Technology & Innovation 2018" and "T-Systems Transformation". In addition, 85 collective agreements were concluded with the union ver.di in 2018. Apart from the collective bargaining agreements, the focus in 2018 was on concluding arrangements on harmonizing the Group's remuneration systems as far as possible. Collective bargaining plays an important role and has a long tradition at our company, a fact made clear by the percentage of employees covered by collective agreements. As of December 31, 2017, some 71 percent of employees in Germany were covered by collective agreements.

Constructive dialog with T-Mobile USA

As the underlying laws and contracts vary from country to country, codetermination matters with trade unions and employee representatives are managed locally. Group management is involved in all major issues as a matter of principle. You can find information on the U.S. operating segment in the 2018 annual report.

GOOD PARTICIPATION IN GROUP-WIDE IDEAS GENERATION

Fewer employees took part in ideas generation in 2018. In Germany, every 20th employee submitted a new idea. 5,123 ideas were submitted, which is a lower participation, but on the other hand the quality of the individual ideas was higher. The economic benefit translated into a total of 78 million euros in cost savings and tapping of new business potential. So that participation in Group-wide ideas generation rises again in the future, we have put greater focus in the reporting year on the issue of cooperation with initiatives, such as the company's own innovation program UQBate or the Telekom think tank for customers.

An employee's idea also won an external accolade in 2018: Manfred Haidl picked up second place in the category "Administration" in the award presented by the Ideas Management Center. Manfred Haidl developed and programmed a software solution to map processes for handling incidents reported to the service desk, enable standardization and automate recurrent activities.

WE HONOR THE SERVICE OF OUR LONGTIME EMPLOYEES

In our anniversary celebrations, we honor the commitment of our employees celebrating their 25th, 40th and 50th service anniversaries at Deutsche Telekom in Germany. Thanks to their experience, they make an important contribution to our success. The excellent cooperation between our colleagues, both young and old, is also a key pillar of our business success.

For the first time, 2018/2019 saw a joint celebration for all Group units in Germany. Around 1,600 colleagues took part in it, representing a combined total of 53,875 years of work and experience at Bundespost and Deutsche Telekom. We expressed our very special appreciation for employees who were celebrating 50 years with us: They visited the Telekom Design Gallery at Group headquarters in Bonn and then attended a reception with the Board of Management members Dr. Thomas Kremer and Dr. Dirk Wössner.

OCCUPATIONAL HEALTH AND SAFETY

Measures that promote health within the company not only help individual employees and ensure long-term business success, but also have positive effects on society as a whole. We use corporate health management to take on social responsibility and proactively promote a culture of health. Digitalization also plays an important role here: It places new demands on health management and, at the same time, opens up many new opportunities that we are actively making use of.

GOALS	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Promoting employee health and performance 	<ul style="list-style-type: none"> > Occupational health and safety management system > Consulting offers > Preventive measures > Assessing risks, e.g., as part of the employee survey > Regular workplace inspections 	<ul style="list-style-type: none"> > External and internal audits > Accident rate > Health rate > Evaluating measures and offers > Employee satisfaction and health index from the employee survey and collective agreement on stress prevention

PROMOTING THE HEALTH OF OUR WORKFORCE

Clear responsibilities and high standards

The Board of Management has overall responsibility for occupational, health, safety and environmental protection. In this connection, the health rate is reported to the Board every quarter. We combine and #control our programs for “Safety and Health at Work” at Group level; health and safety managers are responsible for implementing these programs locally. Our Health & Safety Environment handbook describes +the details of our health and safety management system, including the parties involved, their duties, and the programs. The handbook serves to harmonize, simplify, and align our management systems with common targets across the Group.

Occupational health and safety is effectively incorporated into our +structures via certified management systems and appropriate policies and guidelines. Until xx 2018, the basis for this was the internationally recognized management standard OHSAS18001. Since 2018, we +have instead used ISO standard 45001. We were one of the first DAX companies to have our management systems certified according to ISO 45001. During the reporting year, 90 German and international locations were audited according to ISO 45001 and ISO 14001. Their certification was renewed in all cases.

We systematically assess the effectiveness of our measures. This includes reviewing the results of our employee survey, evaluating stress prevention measures under collective agreements, competitor analyses, and other indicators. Our Group-wide employee survey in particular helps us determine the mental stress in the workplace, the available resources, and the effects of stress. We support managers and teams with specific offerings based on these findings. We give high priority to the topics of awareness, prevention and personal responsibility.

Different performance indicators reflect the effectiveness of our commitment:

- In 2017, we set ourselves the goal of achieving a Group-wide health rate (not counting people with long-term illnesses) of 95.9 percent by 2020. At Deutsche Telekom in Germany, the health rate for 2018 (not counting people with long-term illnesses) was 95.3 percent (previous year: 95.4 percent). Group-wide, the health rate for 2018 (not counting people with long-term illnesses) was 93.6 percent (previous year: 93.7 percent).
- The accident rate in Germany for 2018 was 8.7 accidents (resulting in over three days of absence) per thousand employees, well below the industry average.
- The Group-wide health index – calculated in 30 countries as part of the last employee survey in 2017 – increased positively by 0.1 to 3.6 (on a scale of 1 to 5). The next survey is scheduled for 2019.

In 2018, Health & Safety Management was honored at several locations, including Greece, Mexico and the Czech Republic. Further information is available here.

ACTIVELY COMBATING LACK OF MOVEMENT AND ITS CONSEQUENCES

Lack of movement at work is a major risk factor in the development of musculoskeletal disorders and cardiovascular illnesses. As the workforce ages, the frequency of such illnesses will continue to grow if suitable preventive countermeasures are not taken in due time.

Recent scientific studies show that taking regular breaks can effectively prevent the negative effects associated with extreme lack of movement at work. To help employees with this we have implemented a number of different measures and, for example, employed mobile fitness coaches on site. They instruct our employees on simple exercises that can be performed right at the workplace.

We added a new exercise offer in 2016 with the Active Workplace project. Desk exercise bikes give our employees a simple opportunity to integrate exercise into their workday. Since their launch, some 15,000 employees have used the desk bikes. The project was scientifically followed by a study conducted by Berufsgenossenschaft Verkehr (the occupational accident insurer of the transportation industry), the Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA) and the German Sport University Cologne. The academics examined the participants’ levels of acceptance and well-being, their physiological activity parameters, energy conversion levels and body posture. Not only were participants having fun while exercising, their mental activity also increased. Another positive side effect was

that participants burned more calories when cycling than when just sitting. The positive effects measured in the course of the study led to the decision to introduce more desk exercise bikes in the future.

PSYCHOSOCIAL COUNSELING AS PART OF CHANGE MANAGEMENT

All employees face major challenges when there are changes in the workplace. That is why psychosocial counseling for transformation processes by the Employee and Executive Advisory Service plays an important role at Deutsche Telekom. Our goal is to provide support to employees and managers and prevent psychological crises.

To this end, we offer free and anonymous individual counseling and consultation hours. Employees can take advantage of several one-hour counseling sessions. Immediate phone counseling is also available through a special hotline ("TALK TIME"). We support managers and supervisors during change processes with appropriate tools. Talks and workshops on psychological health complete the offer. Targeted communication measures inform employees at affected locations of these offers.

In 2018, we supplemented the restructuring measures at T-Systems International GmbH in particular by offering psychosocial counseling. Locations that were especially impacted had specific consultation days ("Employee and Executive Advisory Services on site"), and workshops were offered at multiple locations to promote resilience, in other words, skills that help employees resist mental stress.

T-SYSTEMS: "CORPORATE HAPPINESS" BECOMES #YOUMATTER

T-Systems already started initiating changes in its corporate culture within the scope of the "Corporate Happiness" pilot project back in 2016. The aim of the project is to apply the scientific findings of "positive psychology" to identify values that will enable employees to better realize their potential. The project encourages them to independently work toward their own, as well as the company's, success. In mid-2018 the pilot project was turned into a new Group-wide initiative running under the name #youmatter. The aim of the new name is to emphasize that the initiative focuses on the employees – and encourage them to make an active contribution. The various #youmatter offerings have been available as a standard offering on the central HR platform HR Suite since 2017. Interested employees can sign up there for workshops relating to the topics of convictions, developing potential, energy management, and successful relationships. Teams are offered a team process aimed at facilitating and ensuring feasibility in everyday life. HR Suite webinars can also be booked and carried out by those interested in them at their own desk at a time of their own choosing.

STRENGTHENING THE ROLE OF MANAGERS

Managers play an important role at the company when it comes to health promotion. In order to support Deutsche Telekom managers in their exemplary function, we also offer web-based training in addition to individual coaching. Topics include occupational health and safety, employee mental health, and corporate integration management after long-term illness. Health promotion is also a component of our current management development programs. Our managers can choose from among a comprehensive portfolio of offers for supporting their managerial competence. In 2018, we again offered numerous expert talks and

hand-on workshops as part of the Employee and Executive Advisory Service in order to raise awareness among superiors of their responsibility on the subject of health.

DIGITALIZATION AND HEALTH – A JOINT PROJECT WITH HEALTH INSURER BARMER

Digitalization and the associated changes in the working world can cause physical and mental stress for employees. At the same time, however, digital innovations can also motivate employees to do more for their health, as confirmed by a study from the University of St. Gallen. In 2017, we therefore launched a model project "Digitalization and Health" together with health insurer BARMER. With scientific support from the University of St. Gallen and the University of Cologne, among others, we are working on solutions to improve the health, motivation and performance of employees and managers in the context of digitalization. Deutsche Telekom is thus the first company to systematically tackle this range of topics together with a health insurer, in this case, BARMER. Over a period of three years, we will develop and evaluate different innovative apps, solutions and measures that will undergo intensive field testing by Deutsche Telekom employees. In 2018, for example, the stress management and stress prevention app "Kelaa Mental Resilience", available free of charge in the App Store, was tested as part of an EU-funded study. At the end of 2018, we also conducted a pilot project to test the "M-Sense" app for headache prevention. The app can be used to analyze individual causes of headaches and draw up a specific treatment plan. A coaching platform from healthcare provider Arvato was also field tested for suitability together with the Preventiometer 2018. The Preventiometer is a device containing extensive biomedical data for the test person. The platform supports users as needed in choosing the right health measures. The results of the trial phases will be used to decide whether and how the respective offers will be implemented at Deutsche Telekom in the future.

HEALTH AND SPORTS AT T-SYSTEMS MEXICO

Health Month

As part of the "Total Health" Program at T-Systems Mexico, an in-company training program was launched to promote physical exercise, improve the health and lifestyle of employees, and enable them to participate in relaxing activities with their co-workers.

This year's "Health Month" was organized in October 2018 and included activities for all our employees. The company received government support through the Mexican Social Security Institute and employees were offered a check-up with eye test, blood-pressure measurements, testing for glucose levels, and height and weight checks. The program included five health talks with seven specialist physicians, two guest specialists in insurance, dental and eye care, and one relaxing meditation session. 760 participants took part in the Health Month. They were able to attend any of the health events held in Puebla.

Sports Tournaments T-Systems Mexico seeks to promote greater integration, better quality of life, and a good work-life balance. In 2018, the company organized various sports tournaments such as volleyball, basketball, soccer, and dominos from January to December. There was a big uptake and approximately 41% of our employees took part in various activities. This helped to improve our work ethic, enhanced teamwork, and contributed to a healthy lifestyle, and reduced stress.

TRAINING AND DEVELOPMENT

The working world is undergoing radical change. Work is becoming more digital, flexible, and versatile. Employees and companies alike must be willing to learn and to change. After all, existing professions will change and new job profiles in business areas such as cyber security, artificial intelligence or the Internet of Things will emerge. That is why we offer our employees a wide range of individual training and development options, which we are continuously enhancing to reflect needs. This way we can strengthen our company’s competitiveness and prepare ourselves for the digital future.

INTERNAL GOALS	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Promoting our employees' skills development and performance 	<ul style="list-style-type: none"> > Training offers > Training and development > Management development > Talent programs > Digital learning formats 	<ul style="list-style-type: none"> > Number of openings for apprentices > Participation in training and development opportunities > Percentage of digital learning formats used > Employee satisfaction

HOW WE SHAPE THE DIGITAL WORLD OF WORK

We can only master the dynamic challenges of our industry with excellently skilled and motivated employees. We therefore offer all employees diverse development opportunities – whether they are entry-level professionals, experts or managers. The cornerstones of our vocational training and development programs are our Employee Relations Policy, the Guiding Principles and our Leadership Principles.

Training and lifelong learning ensure employability

We help the experts of tomorrow gain qualifications thanks to our comprehensive training and continued education offers in both the technical and commercial fields. In the 2018/2019 training year, we employed 6,000 apprentices and students on cooperative degree programs – that makes us one of Germany’s biggest training providers. In 2018, we provided 2,200 training positions throughout the Group, of which 1,300 were apprenticeships, 700 openings for Bachelor’s students and 100 for Master’s students. Up to 100 training positions were available to young refugees.

We promote lifelong learning in all phases of employment and support our employees on their individual learning path. To be able to identify individual needs for development in a targeted manner and provide tailored offerings, we obtain an overview of our employees’ skills. We offer our employees a wide range of individual training and development options, such as work abroad or work/study programs. Under the Bologna@Telekom program, we give employees the chance to participate in a part-time university program – and gain qualifications ranging from Bachelor’s to Master’s degrees. A total of 1,500 employees have taken up this offer since it was launched 10 years ago.

Digital skills are the key to the future

Digital literacy – in other words, the ability to use digital offerings competently and actively shape digitalization – is of great importance at Deutsche Telekom. That does not just involve repeatedly familiarizing yourself with new technical developments, but also acquiring skills that will be particularly required in the future. That is why we continuously analyze which skills will be in demand at the company in the future and develop appropriate training measures. We take strategic key areas such as big data, AI/ML and security as our guide. Since 2014, for example, we have offered an annual part-time training program where employees can qualify as a Cyber Security Professional. 19 employees are already working as Cyber Security Professionals throughout the Group now that the first two years’ intake has completed the program.

Digital learning is becoming standard

We have been promoting digital learning at our Group for many years. In 2018 more than 41 percent of all course hours were completed in digital form – and that ratio is to increase to 60percent by 2020. We use online learning formats and our Massive Open Online Courses (MOOCs) as well as innovative formats such as simulations, concise learning modules for on the go, and learning games. We also rely increasingly on self-organized digital learning. For instance, experts rub minds and share ideas about future topics in Communities of Practice (CoPs).

Strengthening leadership skills in the digital age

We also adapt our management development programs to the challenges of the digital age. Since 2017, our extensive training catalog has included not only in-person courses, but in some cases also completely digital offerings. As a result, we not only strengthen leadership skills, but also the virtual leadership abilities, and offer many opportunities to network.

As part of our “Lead to win” performance and development process, our top-level managers receive feedback on their current performance profile and the chance to address their needs for development. We have consistent tools for performance assessment in Germany in the shape of “Compass” for employees covered by collective agreements and civil servants, and Performance & Potential Review for managers and employees not covered by collective agreements. Performance & Potential Review is also used at many national companies.

A MAGNET FOR GLOBAL DIGITAL TALENT

As a leading European ICT service provider, we need the best minds: creative thinkers and employees with a knack for technology that want to help us design the digital transformation. We look for top talent in all countries, which also contributes to the further internationalization of our Group. Our global Employer Value Proposition showcases what distinguishes us as an employer.

We offer applicants a worldwide platform for job searches and international standards in our selection process. We use diverse digital channels for recruiting, including our Global Online Challenge Platform, for example. It is aimed at students, graduates and IT professionals worldwide who enjoy mastering virtual business games. Since 2018 we have been testing the use of online games in application processes. They were used in the Assessment Center of our trainee program Start up!, for example. The games supply us with additional information on applicants' personality. We also opened the doors to the open workspace CMD+O in Munich and Cologne for a few weeks at the end of 2018. It offered IT experts, young professionals and students space to implement their own projects, forge valuable contacts, and broaden their horizons. They could take part in workshops and attend presentations. By employing these and other measures, we were able to acquire over 3,000 new employees, mainly in ICT, in Germany alone in 2018.

Diversity is an integral part of our corporate culture, which is why we are trying to attract greater numbers of women to our company. We encourage women in STEM subjects and professions with the Women's STEM Award, which we have been presenting since 2013 in collaboration with the "audimax" student magazine and the MINT-Zukunft-schaffen (Creating a STEM future) initiative. We also support Femtec, a career-building program for female STEM students with management potential, as well as Global Digital Women, an international network of movers and shakers in the digital industry. We also attended women&work, Europe's key career trade fair for women, to specifically target female candidates.

Awards

We also received several honors for our recruiting activities in 2018 and defended second place in the overall ranking of the market research institute Potentialpark. We even captured the top spot in the individual categories "Career Website" and "Social Media." We also won the trendence Employer Branding Award in the category "Best Employer Branding for Students" in 2018. In addition, we were named the most attractive employer for our trade fair presence at women&work.

START UP!: OUR TRAINEE PROGRAM FOR YOUNG INNOVATORS

Our Start up! trainee program above all targets technology and IT graduates who have an entrepreneurial spirit and are open to new challenges. Since we also increasingly want to reach talented candidates outside of Germany, the application process has been held in English since 2017. As a result, we have been able to increase the share of international participants: Nine percent of trainees were not native German speakers in 2018. In the reporting period, a total of 44 university graduates embarked on the trainee program, 59 percent of whom were women. We want to significantly increase the number of new trainees in the future.

During a period lasting around 18 months, trainees familiarize themselves with different areas of the company in Germany and abroad. They take on challenging project assignments in various business areas. Experienced managers assist the trainees. The program is supplemented by innovative training formats and events. Our Start up! trainees also pursue their own initiatives and support social projects within the context of our Social Days. In 2018, for example, the trainees organized a campaign for the "Weihnachtspäckchenkonvoi" (Christmas Parcel Convoy) initiative, in which they collected more than 200 gift parcels.

PROMOTING THE DIVERSITY OF OUR YOUNG TALENT

We stand for open-mindedness and are committed to diversity also among our young talent. To this end, we pay attention to the most varied of performance levels and needs:

- Depending on how long their families have been in Germany and where they come from, young people with migrant backgrounds often encounter particular problems on the job and vocational training market. We see encouraging them as an opportunity and are careful to guarantee a non-discriminatory selection process. As of December 31, 2018, 11.1 percent of our apprentices and students in cooperative degree programs had a nationality other than German, representing a total of 66 other countries.
- In 2009 we launched the "My chance to get going" entry-level training scheme in collaboration with the German Federal Employment Agency. The project prepares disadvantaged young people with very little chances on the vocational training market for an apprenticeship at Deutsche Telekom. Results so far have been good. A total of 467 out of 684 interns from 2009 through 2017 started a vocational training program with us; 113 were accepted into the first year of the program and 354 directly into the second year. Another 22 interns started the program in 2018.
- Since 2011 we have been collaborating with the German Federal Employment Agency to offer single parents the opportunity to complete a training program or cooperative degree program part-time. 23 young people began their part-time training with this program in 2018.
- To encourage diversity in the program, we also work to increase the number of women participating in technical cooperative study programs. While in 2010 the share of women was only 11 percent in Germany, it has meanwhile risen to 15.8 percent.
- Around 1.21 percent of our apprentices in Germany are young people with disabilities. This is above-average in view of the total number of disabled people in Germany.

We offer refugees opportunities to embark on a career through our "Internship PLUS direct entry" program. It comprises a three- to six-month orientation phase followed by a two-year period of employment. "Internship PLUS direct entry" is aimed at refugees who face obstacles to integration, such as a lack of professional qualifications that are recognized (in Germany), and for whom an apprenticeship is not a suitable tool. We awarded a total of 38 places in "Internship PLUS direct entry" in 2018.

PROMOTING DIGITAL COMPETENCE IN TRAINING

Digital competence is a key skill. That is why we want to enable our young talent to competently use digital media in order to communicate online in a professional manner, research and properly process information for a specific target group and share their knowledge and experiences with others. It is also important for them to constantly critically assess their own media use and identify whether they are communicating properly for the specific target group and know which online information is reliable.

Digital support in learning: flexible and tailored

To make learning more location- and time-independent, we equip our apprentices and students with modern laptops, smartphones and access to our Group's media. We are continuously expanding our digital learning formats when communicating career- and study-specific expertise. Additionally, our apprentices and students in cooperative degree programs use the TelTec learning platform, with which they can independently plan, document and assess their learning processes. Since 2018, our apprentices have used the ePortfolio on this platform. It provides them with an overview of the requirements during their period of training and study. This tool helps them plan, document and reflect on their learning modules even better. Their trainers and coaches also gain an overview of the progress they have made in their studies and development and can give them tailored recommendations.

TRAINING PROGRAM FOR CYBER SECURITY PROFESSIONALS ENTERS ITS FIFTH ROUND

Data security experts are still in short supply on the German labor market, which is why we launched our part-time training program for cyber security professionals (certified by the Chamber of Commerce and Industry) in 2014. Deutsche Telekom apprentices and students in cooperative study programs can apply for the two-and-a-half-year course after completion of their vocational training or course of study. If they are accepted, the program is integrated into their regular tasks and supplemented by topic-based and general modules in a variety of formats (classroom courses, e-learning, blended learning). Those who complete the development program receive a certificate for IT security professionals from the German Chamber of Commerce and Industry. Given the great demand, including from other companies and public agencies, we have decided to open up our further training to employees from other organizations. The fifth year's intake embarked on the program in 2018 and comprises ten employees from Deutsche Telekom and five participants from other companies.

The verdict now that the first two years have completed the program is a positive one. Of the 20 graduates from the 2014 and 2015 intake, 19 were kept on at Deutsche Telekom. They can obtain credits in their Bachelor's and Master's program for the skills they have acquired as part of the further training.

Existing IT occupations in Germany that require training are currently being revised and updated. The profile of the Cyber Security Professional is being used as a proposition by the expert commission.

ENCOURAGING AND RETAINING TALENT

Dedicated, technology-minded and service-oriented employees are pivotal to the success of our business. The aim of our global talent management is to identify such employees at the company, support and involve them, give them opportunities for further development and ultimately retain them.

Global Talent Pool: Group-wide process simplifies staffing

Employees planning their next career step or who want to amass experience in projects can join the Global Talent Pool and present themselves there in talent profiles. HR experts and all executive staff can access the profiles posted there. With more than 1,200 employee profiles, more than a third more employees than the year before introduced them-

selves on the platform during the reporting year. As in the previous year, the share of female colleagues was 25 percent, while the number of international employees on the platform remained constant at 56 percent. The platform is a useful tool for increasing talent visibility and simplifying staffing processes throughout the Group. The Global Talent Pool starts every summer and extends over around 12 months. It also helps us encourage employees to gain experience at different business units or national companies and in a range of functions, furthering diversity at the Group.

Talent conferences offer opportunities to engage in dialog

In September 2018, around 350 employees from 19 countries attended the annual talent summit. For the first time, this year's summit was linked to an event for 300 managers. The focus was on the topic of networking. The event offered participants the opportunity to network with around 13 business units and initiatives at Deutsche Telekom.

SUCCESSION MANAGEMENT ENSURES THE COMPANY IS READY FOR THE FUTURE

Top-level management plays a key role in business success. If managers at that level leave the company, their position must be filled in a timely manner, with a qualified candidate. In 2017, we introduced a global systematic succession management process, which obligates around 1,800 managers in executive positions to be involved in succession planning. The process helps these managers to decide who could serve as their direct successor and who has the mid-term potential to take on their role. When nominating potential candidates, our executives must make sure that they are aware of exactly which skills are necessary for their positions now and in the future. The process is supported by a digital platform.

This year the timing of the process was aligned with the start of the "Global Talent Pool" in order to allow for the identification and promotion of talents with an executive potential. Within 6 weeks Talent Management identified and presented 70 talents to be proposed for succession and concrete executive vacancies. In 2018 4,400 potential candidates (DT internal and external) were evaluated in special succession meetings (25 percent of which were female professionals). As a result of the process, 82 percent of positions have at least one interim and one immediate successor, which is 10 percent more than in 2017. Since 2018 executives have been informed directly for which positions they were nominated and what their further need for development looks like. Thanks to the new nomination guidelines and the feedback process, a number of diverse and highly qualified potential successors are available when the need arises and keep the company in motion. The accompanying process to fill open executive positions ensures that the succession plans are actually implemented. This, in turn, increases commitment and employee retention.

MANAGER PERFORMANCE REVIEWS CONTINUE TO BE REVISED

Our "Lead to win" performance and development process is a Group-wide, systematic process for the assessment and development of our managers. Our performance review includes an annual feedback process in which employees from all hierarchy levels have had the chance since 2018 to rate the leadership behavior of top-level managers. The objective is to assess the manager's potential and derive concrete development plans. Since 2017, we have been focusing on the manag-

er's individual development and strengthening the feedback culture. The process is modular in design so that preferences and situational circumstances can be taken into account.

"Lead to win" is based on our binding leadership principles "Collaborate," "Innovate" and "Empower to perform" as well as our Guiding Principles.

Starting in 2019, we will likewise use the "Lead to win" process for our employees who are not covered by collective agreements. The process has also been rolled out at a number of national companies for all employee groups. The goal is to establish a globally consistent process. Our existing "Compass" process for employees who are covered by collective agreements and civil servants in Germany will remain entrenched at the Group. For the first time in 2019, however, the process can also be completed digitally, which makes a huge contribution to sustainability.

LEADERSHIP IN THE DIGITAL AGE

The levelUP! program launched in 2017 prepares executives at Deutsche Telekom to handle key future topics in just 10 months. More than 1,400 managers from Deutsche Telekom took part in levelUP! in 2017 and 2018. More information on levelUP! is available [here](#).

Besides levelUP!, there is an extensive training and development portfolio that supports Deutsche Telekom's managers in their tasks. It includes various coaching offerings, development programs for junior managers, as well as "transition programs" that give managers support when they take over a task involving greater responsibility. One example of this is leadFIRST, a completely digital, virtual management transition program aimed at managers who have recently taken on a management role. Its aim is to create a solid management foundation in line with our leadership principles. During the program, participants reflect on their own leadership ideas. The global, digital program not only helps to develop leadership skills, but also promotes virtual leadership skills and offers numerous opportunities for networking. 170 managers from 21 countries took part in leadFIRST in 2018.

We also offer a large number of challenging training courses for future managers in management development programs. They are available in English and German. The programs prepare participants for their first or a more challenging management position. With these steps, we also aim to promote a shared vision of leadership within Deutsche Telekom AG.

YOUTH IN T-SYSTEMS SOUTH AFRICA

The ICT Academy was established by T-Systems South Africa (TSSA) in 2003 to address the ICT skills shortage and to make a positive difference in the lives of young individuals without any opportunities to take their studies further. The ICT Academy is going from strength-to-strength and it is constantly upgrading to keep abreast of changes in the ICT industry. The curriculum is designed to enable learners to get a qualification and international certification in their first year of study. The courses include ICDL, CompTIA A+ and N+, Cisco, Microsoft Server administration and development, SAP and very soon, ICT security.

Since it was launched in 2003, more than 2000 graduates have obtained their qualifications at the ICT Academy with pass and employment rates of +/- 85%. In a predominantly male business environment, more young women are now being empowered by this opportunity to gain a qualification in ICT. Based on this success, the ICT Academy is in the process of establishing a Security Academy that forms part of the bigger aim of commercialization. This will kick-start a self-funding model that will enable the ICT Academy to expand and take in more students and facilitate more study opportunities for young people.

The Hazyview Digital Learning Centre in rural Hazyview was established in 2012 by the Good Work Foundation (GWF) and T-Systems South Africa. After having identified the challenges of learning in rural communities, the Open Learning Academy offers a continuous program that supports rural learners from Grade 4 onwards. The Bridging Academy creates an access bridge between school and work or further education and training, and prepares rural school leavers for life in modern business environments. Bridging Academy graduates are recruited into the advanced Career Training Academies and programs that respond to the needs of the community where the campus is located. Examples include tourism and travel, conservation and wildlife monitoring, ICT infrastructure, ICT classroom integration, and media studies.

A story of ROI and business impact that can proudly be told by TSSA is how the relationship between the Hazyview Digital Learning Centre (HDLC) and TSSA has grown from enterprise support and funding, to being IT partners in the HDLC Service Desk. In 2016, the HDLC, in partnership with TSSA, established a Service Desk on the Hazyview campus as an extension of the HDLC ICT Academy. The Academy provides advanced IT infrastructure training accredited by CompTIA. The subsequent qualification gives young people the opportunity to qualify and function as entry-level IT support engineers. This pool of skilled human capital is then utilized by T-Systems in the provision of services by the IT Service Desk in order to create jobs and retain intellectual property and skills in the rural district of Hazyview. The success of this venture has led to the idea of an internship that will flow from the HDLC academy. Kate Groch is the architect and she will roll out the internship when the design work has been completed.

The Internship Program is the next building block in this life-cycle of job creation. T Systems established an internal Internship Program in 2006 to assist graduates with work experience. The Internship Program is a 1-year structured program comprising 95 % practical training complemented by mentoring, life skills, and technical training. Interns are sourced from local institutions while the ICT Academy also provides many talented interns. TSSA employs more than 70 % of the interns internally while many more are employed in the local ICT Industry. Since 2016, TSSA introduced graduate interns as an extension of the Internship Program. This one-year contract gives 30 interns the opportunity to gain more work experience.

Our interns are deployed in the various business units such as HR, Finance, Service Desk, Marketing, Delivery, and the Office of the MD. They are allocated a mentor who then provides training to enable them to work as part of the team. These interns are fully operational in the roles allocated to them. They answer calls from customers on the Service Desk, carry out financial reporting, budgeting, and forecasting,

perform interviews, HR administration, repair computer equipment and solve technical issues, manage customer events, and so much more. They have integrated so well into the organization that TSSA decided to introduce the graduate internship in order to provide employment to the interns for another year and also because of the value that they add to the business.

The In the Zone Leadership Development Program is a signature leadership development program specifically developed for TSSA in conjunction with GIBS. The aim of the program is to develop employees' leadership competencies and organizational capabilities so as to achieve our vision. We shape the future of a connected business world and society by creating value added for our customers, employees, and communities through innovative ICT solutions in South Africa. The program not only focusses on growth for the company, but also on personal growth for each employee attending. At least 50% of the employees taking part are women. The program is aligned with the T-Systems International (TSI) leadership agenda.

EMPLOYEE DEVELOPMENT AND SATISFACTION AT MAKEDONSKI TELEKOM

During 2018, Makedonski Telekom ran a number of training and development programs for employees that focused on activities for expanding Growth Mindset. At the beginning of 2018, the company collected information about development needs and implemented a vendor selection procedure. This involved collecting information about training providers to cover different topics and organizing training sessions and team-building activities in MKT. We then launched team-building activities, since this is a very productive way to foster collaboration and understanding among employees from the same units or different ones. We organized training sessions for our PMP professionals, PMP certification, and SDI certification, etc.

Development of Front Line Employees

Every three months, Makedonski Telekom organized training courses to develop communication skills for new employees in direct contact with customers. The training sessions are based on SDI methodology, and they provide them with outstanding and practical methodology for improving the communication skills they need and their approach to dealing with customers.

The company also started the process of implementing training sessions in order to develop advanced sales skills in all the employees working in our shops. Before training started, the needs and challenges of our employees were analyzed. MKT also defined potential solutions for improving management and professionalism across all the operations in teams and in interactions with our customers.

MKT is organizing Level Up Training for about 70 employees in the B2B and B2C segment as part of the learning program: sales process and sales skills, field sales coaching, conflict resolution, and conflict management.

Digitization and Agile Work

Makedonski Telekom is seeing a need for learning and developing different ways of working, and diverse approaches and skills. Starting from September, the company has therefore been carrying out training for design thinking and agile methodology. Up to now, 85 employees from

different units have taken part in this training. Moreover, training sessions were organized for employees on digital marketing, digital PR, and Adobe Photoshop.

Talent Management Program

This year the management of Makedonski Telekom identified 23 employees as valuable assets for our company. These employees were promoted as part of the Global Talent Pool and they took part in the Talent Summit 2018 held in Bonn.

Leadership Development

At the end of the year, Makedonski Telekom embarked on the process of implementation for F2F training sessions in leadership, responsibility, and teamwork for team leaders at the call center.

The company worked on implementation of a program for developing leadership skills for managers in a complex business environment. We also implemented global leadership programs such as the Level Up program and the Open Leadership Portfolio program. Managers who have recently taken up their first MG4, MG5 leadership position in Makedonski Telekom took part in the LeadFirst program. Nine of them started the program to gain a clear understanding of their new role and to build a robust leadership foundation.

Promotion of Digital Learning

At the end of the year, we started to operate the HR Suite platform. This is a platform for digital learning. It is available for all employees in the organization and everybody has 24/7 access to digital-learning offerings tailored to the individual. This is a flexible scheme designed to acquire any necessary skills. The HR Suite digital platform provides content on PC skills (Office, Microsoft, SAP, etc.), IT (software, network, OS, database development, etc.) and business administration (soft-skills, management, project management, sales, human resources, strategy, etc.). Employees also have an opportunity to learn languages through Learnlight, a digital platform for learning English and German.

Let's Grow Initiative

Employees from Makedonski Telekom were part of the biggest initiative for Growth Mindset organized in DT Europe. This initiative started in London where our CEO was part of the Learning Journey program. 123 employees from different units in MKT took part in the Growth Lab program. The participants worked together in international teams to create pilot projects in nine different areas. Three employees were members of the winning teams that presented their projects to the DT EU Management in Bonn. The topics they worked on were Digitization, FMCC, and Design EU 5G Story. Eight of our leaders are part of the Growth Leaders program. Three of our employees are part of the Influencers program. While the program is running, we work together, learn how to communicate better, talk about our mistakes, learn how to give and receive feedback so as to create a beneficial working atmosphere. At the beginning of 2019, MKT is going to start the local transfer of Growth Mindset activities and launch a project to create a more modern organizational culture within the company.

We recognize Best Performance

This year Makedonski Telekom marked a milestone in recognizing best performance. The company created a special Program aiming at saluting best performers and their successful results. A culture of recogni-

tion is the #1 reason for optimum engagement of employees in the company. High performers exhibit greater loyalty and deliver more. MKT therefore focused on promoting our culture of recognition to a higher level. The company created a program under the motto "I TRY HARDER" and established a group of employees who excelled in their performance and delivered excellent results. The selection process was complex and painstaking. This Club has 60 employees. Their promotion prospects benefit from participation in the Club, along with advanced development and public recognition. We also established a list of rewards selected specifically for Club members to choose from. Each year we are planning to select our best performers. This will allow them to enjoy the benefits of participation in the "I try harder" Club for one year. Our best people worked on key strategic topics for the Company and they generated some fantastic, creative ideas across a wide range of topics. These ideas will be communicated to the executive management.

Attraction and Retention of Talent

Makedonski Telekom offers opportunities for fresh graduates from colleges who are looking for their first job, and for students in their final years of education. At the same time, the company offers many opportunities for technical and non-technical career development. This year, MKT provided training for approximately 50 trainees in successful cooperation with a number of universities around the country. Some of the trainees achieved outstanding results and became part of the team. Since digitalization is our priority, MKT created the Digitalization Hub. The most talented students develop optimum digital solutions for our business needs in this hub. Their creative minds combine with in-depth technical and IT knowledge to develop successful digital solutions that are competitive in the marketplace, improve our performance, and meet our requirements in full.

We communicate openly with our Employees

Open communication and discussion are a priority for Makedonski Telekom. This year, the company held an open event to share various HR initiatives. All employees had an opportunity to come along and discuss the new Wellness Program, e-learning platforms, and Let's Grow initiatives. For the first time, they were able to apply for and win a voucher that entitles them to training. Feedback from employees indicated that the event was a big success and this motivated us to organize similar activities as an open forum for discussing HR issues.

HRVATSKI TELEKOM AS AN ATTRACTIVE EMPLOYER

Think Bigger Campaign for Better Positioning of HT as an Employer

As a leader for digitalization in Croatia, Hrvatski Telekom wants to attract the best employees and talents. An important part of attracting employees with the greatest potential is the positioning of HT as an open and modern company with a strong corporate culture and a shift away from the perception of the company as a rigid corporation. This aim has encouraged us to introduce a new way of advertising vacant positions as part of Deutsche Telekom's "Think Bigger!" employer branding campaign. We want to provide potential new employees with first-hand work experience in HT through the inspirational stories of existing employees. Such a method of advertising is innovative on the Croatian market. It is attractive for young employees and has gained an excellent reputation in the marketplace.

HT Academy expanded with Online Courses

Along with finding new talents, Hrvatski Telekom is continually raising the level of knowledge in the organization. Employee improvement is our priority, and apart from classical training sessions, HT has introduced digital learning through a platform offering more than 7,000 online courses. Participants at our HT Academy receive targeted, relevant knowledge that they need in order to develop competencies. They also find out about the latest trends in industry development necessary for HT's business today and in the near future.

Global Online Challenge Platform as a Channel for attracting Creative Staff

In 2018, Hrvatski Telekom launched its first international online innovation challenge on a digital platform (challenge.telekom.com). This serves to connect businesses with a community of five million innovators, including students, various developer teams, and startup communities. HT is the first company in Croatia to use this global platform.

The theme of the challenge is "Let's Challenge – NB-IoT Saves Croatian Trees". We asked for a concept based on the IoT system of sensors that could measure temperature, relative humidity, and carbon monoxide and carbon dioxide levels in the air so as to detect possible fires.

Using an innovative online challenge platform is part of the Employer Branding Strategy of Hrvatski Telekom. It is also an excellent channel for finding potential new employees.

HT Summer Practice for Students

Hrvatski Telekom recognized through its work with the student community that students often lack the opportunity to apply the theoretical knowledge acquired at university in practical situations. That's why the "HT Summer Practice" project was designed and launched. Practice sessions are intended for students from different universities throughout the country in Zagreb, Vinkovci, Split and Rijeka, mostly majoring in STEM subjects and the humanities. Students were guided by mentors and included in teams. One of the events they attended was the Design Thinking workshop on improving the customer experience. As a joint team task, they made a promotional video about work at Hrvatski Telekom. After the practice program had finished, HT employed five students.

"HT Summer Practice" is an integral part of Employer Branding and HR Marketing Activities. As a result of participating in the project, students become company ambassadors and the company gets a new database of talented students and potential employees.

DIVERSITY AND EQUAL OPPORTUNITY

Social trends such as globalization, demographic developments or different understandings of roles cannot be allowed to lead to the exclusion of individual groups from the labor market. Equal opportunity is not only essential to a stable society, but to our company as well. Respecting human individuality and harnessing individuals' distinctive traits for joint success is just as important for our Group as developing a shared identity.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Encouraging international diversity and intercultural experiences > Filling 30 percent of management positions with women 	<ul style="list-style-type: none"> > Commitment to increasing the number of women in managerial positions > Work-life balance offers > Multiplier and mentor programs for experts and managers > Action plan to promote inclusion > Entry-level training scheme for disadvantaged young people > Job rotation and international talent and leadership programs 	<ul style="list-style-type: none"> > Percentage of women at the company > Percentage of women in managerial positions > Percentage of employees working part-time or on parental leave > Percentage of employees with disabilities > Percentage of disadvantaged young people starting an apprenticeship

SUPPORTING DIVERSITY

At our company, women and men, young and old as well as people with different abilities and cultural backgrounds from some 150 countries work together very successfully. This diversity helps us remain competitive around the world with good ideas and outstanding products and consolidate our position as an attractive employer.

For us, diversity means that we offer our employees numerous opportunities to develop professionally and grow personally, regardless of their gender, age, sexual preference, health situation, ethnic background, religion, or culture. Our Group-wide Diversity Policy, the five Guiding Principles, the Group's Employee Relations Policy as well as our "Code of Human Rights & Social Principles" form the foundation of our commitment to diversity. We are also a founding member of the corporate initiative "Diversity Charter" and aim to promote and use diversity both within and outside of the company.

In 2018, we also signed the "European Diversity Pledge". The pledge is part of the "Embrace Difference" initiative set up by the European Roundtable of Industrialists. More than 50 companies are among the signatories. They pledge to create an environment in which all employees can achieve their full potential.

As early as during the hiring process we emphasize diversity and consider options other than just traditional educational and life paths. Good examples of this are our entry-level training scheme for young people who are disadvantaged in terms of their social and educational background and our part-time apprenticeships/degree programs for single parents.

To enable all employees to get the most out of their skills, we support a work-life balance with an extensive work-life portfolio. This includes day-care offers and assistance with caring for family members; these offers exceed legal requirements. Examples include different options for reducing working hours, the lifetime work account, and a guaranteed return to full-time work that exceeds legal requirements. At the end of 2018, 12.9 percent of employees covered by collective agreements and 15.2 percent of Deutsche Telekom civil servants throughout Germany were working part-time. The number of disabled employees working for us in Germany puts us well over the statutory quota of 5 percent.

Equal opportunity is a particularly important issue for us - one for which we have been fighting for more than two decades. Our goal is to increase the number of women in expert and managerial positions; we want to fill 30 percent of leadership positions in middle and upper management worldwide with women. To that end, we have initiated several measures. In December 2018, the percentage of women in middle and upper management was 25.4 percent (previous year: 25.4 percent); the share of women in our Group's Supervisory Board was 40 percent (previous year: 45 percent).

Our commitment to the integration of refugees into the labor market also promotes diversity within our company. We offer entry opportunities for refugees through an internship or apprenticeship and the "Internship PLUS direct entry" program.

We offer multiplier and mentor programs to establish managers as role models and ambassadors who encourage diversity. Many of our employees have become actively involved in addressing various aspects of diversity, for example as members of internal initiatives such as MagentaPride, a network of lesbian, gay, bisexual, and transsexual employees, or of the numerous women's networks that have been established within the Group thanks to their commitment. Since 2015, we have also used videos and digital workshops to raise awareness among our employees about how unconscious bias can influence their thoughts and actions.

We regularly assess the effectiveness of our measures for encouraging diversity and report the findings to the Group Board of Management.

SIXTH GERMAN DIVERSITY DAY: MANAGERS DISCUSS DIVERSITY AT WORK

The Diversity Charter is an independent economic initiative that is supported by around 3,000 companies and institutions in Germany. The Charter's goal is to create a work environment free of prejudice. All employees deserve respect and appreciation - regardless of gender, nationality, ethnic origin, religion or belief, disability, age, sexual orientation and identity. Deutsche Telekom is a founding member of the initiative. As in past years, we participated in the sixth nationwide German

Diversity Day in 2018. In addition to a conference in which some 100 managers from partner companies in the Rhine-Ruhr network participated, the Deutsche Telekom headquarters in Bonn hosted an action week on the topic of diversity. Among other activities, the event included a "Diversity parkour" that gave employees the opportunity to experience the wide-ranging dimensions of diversity. It was carried out by the German institute for diversity management, Institut für Diversity Management. The event also featured brief, informative talks in our common kitchen areas on subjects such as (anti-) discrimination and diversity in the workplace, gender and artificial intelligence.

ACTION PLAN FOR INCLUSION YIELDS INITIAL SUCCESS

In 2018, Deutsche Telekom once again employed more than seven percent persons with disabilities or persons of equivalent status – a higher than average share compared to other private or public employers. We have been working on our action plan "Experience diversity – Inclusion@DT" since 2016. It helps us comply with the UN Convention on the Rights of Persons with Disabilities. In this connection, we implemented additional measures in 2018: For example, the Group's representative body for disabled persons created the image film "Sharing perspectives". We also modified the workstations of our blind employees to fit their needs and to ensure their ability to work in the event of IT changes.

"CAREER AND CHILDREN" LAUNCHED FOR THE THIRD TIME

After two very successful runs, our "Career and children" mentoring program began a new session in April 2017. For a period of 22 months, this program provides for potential junior staff in expert and managerial functions from various business units of the Group in Germany to be mentored by an experienced manager before, during and after their parental leave. Working in tandem, they gain new technical and methodical skills and benefit from shared experiences with others in the program network. In the third session of "Career and children", 31 tandem teams were formed. The program was supplemented by web-based tutorials on focus topics. In addition, supplementary coaching services such as parental coaching and professional support coaching are now being provided for the first time, as required. More than 90 percent of participating junior employees and two-thirds of the managers are female.

TRAINING PROGRAM PREPARES FOR SUPERVISORY BOARD POSITIONS

In 2014 we became the first DAX company to develop a training program to prepare employees for supervisory board positions. The program was developed in collaboration with the European School of Management and Technology (ESMT). We are particularly interested in encouraging women to take a seat on the supervisory board. In addition to information on the traditional activities of supervisory board members, the training also gives insight into practical experiences presented by supervisory board members, case studies from the Group and a simulated supervisory board meeting. In total, we have so far trained xx potential supervisory board members, almost half of whom come from national companies outside of Germany. XX graduates of the program have now been appointed to a Deutsche Telekom supervisory board.

An additional workshop for former program participants took place in Berlin in November 2018. The workshop offered training on topics such as "What's new in corporate governance" and leadership networks.

COMMITMENT TO INCREASING THE NUMBER OF WOMEN IN MANAGERIAL POSITIONS

Our goal is to have women occupy at least 30 percent of positions in middle and upper management. To this end, we have initiated numerous measures: expansion of our work-life balance offer by means of parental leave models, flexible working hours, and childcare programs, a mentoring program for supervisory board candidates, targeted recruiting of female talent, for example through the Talents@Telekom talent platform, and many other support and networking options. For instance, the first Telekom hackathon for women in the field of artificial intelligence was held in November. Around 50 programmers, data scientists and graphic designers from throughout Europe came to Berlin for two days to refine their prototypes. The event was initiated by a group of women from the Women@Telekom network.

Our diverse range of measures has allowed us to continuously increase the share of women in management positions – from 19 percent in 2010 to 40 percent on December 31, 2018. With 25.4 percent on the Group's Supervisory Board, we have surpassed both our own goal as well as the statutory gender quota introduced in Germany on January 1, 2016. Our quota for women, which we want to achieve by the end of 2020, also applies to the two levels beneath Board of Management level, the management of the national companies, and the internal supervisory boards in Germany. With these efforts, we are significantly surpassing the statutory regulations in effect in Germany since 2015.

SPONSORSHIP OF "EVERY WOMAN IN TECHNOLOGY" AWARDS IN GREAT BRITAIN

T-Systems Limited partnered with Everywoman in 2013 and is now an active member of the network. Everywoman is a membership organization that has championed the advancement of women in business since its foundation in 1999. It works alongside companies looking to develop and retain a pipeline of female leaders who want to advance themselves and others.

In 2017, T-Systems rebranded its own Everywoman community – which is now known as Diversi-T. It has a broader focus on ensuring that the company is a truly inclusive environment where all diversity is supported and championed. The aim of the network is to help staff connect and stay inspired by providing the opportunity to network internally and externally. There are also opportunities to attend in-company webinars, bi-monthly meetings, and an annual event to hear and learn from each other, and from other tech companies leading in diversity.

As part of our commitment to Diversi-T, the Board and all people managers received training in unconscious bias and how this can affect recruitment, personal development, and other core processes. The most positive outcome of this training was to allow the conversation on diversity and bias to become more open.

While the Everywoman Program has evolved into Diversi-T, T-Systems Limited is still very committed to helping to close the gender gap in the ICT industry and attend the "Everywoman in Technology" awards each year taking some of our customers with us to help build our brand and maintain a broad client relationship. The awards play a vital part in highlighting role models whose stories and achievements demonstrate to those young women and girls that they too can achieve great success

if they opt to forge a career in IT. With this in mind, T-Systems sponsors the “rising star” award for women in tech under the age of 26. Jake Attfield, HR Director at T-Systems Ltd. is on the judging panel for the awards and Alison Dodd, the new Managing Director will present the “rising star” award on the night.

T-Systems views the Diversi-T Program as an important part of its strategy and will continue to support it in 2019.

SENTIENT COMPANY PROJECT AT SLOVAK TELEKOM

A key project in the field of corporate social responsibility and inclusion at Slovak Telekom over the past two years has been the launch of the Sentient Company project. Employees who come into direct contact with disadvantaged customer groups developed hard and soft skills. Training exerted an impact on 700 customer service representatives. The project focused on 3 areas:

1. Training for colleagues from customer service leading staff toward perceiving the needs of customers from disadvantaged and vulnerable groups, and the barriers they face.
2. Building an inclusive corporate culture – a campaign for all employees to combat prejudice, stereotypes, leading staff to perceive the needs and barriers faced by colleagues and people from disadvantaged groups.
3. Partnership with the Eduma non-profit organization – institutional support and collaboration in the context of emotional awareness. The ambition of the project is to move forward with the continuous process of education and to integrate the system into the adaptive process of new employees, as well as in development training for senior staff and all front-line staff.

DIVERSITY & INCLUSION AT MAGYAR TELEKOM

At the beginning of 2018, the Corporate Sustainability efforts of Magyar Telekom have expanded to embrace and reorganize our efforts toward enhancing Diversity Culture and Inclusion within the group of companies. Magyar Telekom took a momentous step in January and launched an anonymous employee survey of perceptions about the state of D&I culture within the company. Nearly 1300 colleagues give their candid opinions on topics ranging from gender equality to perceptions of discrimination for vulnerable social groups (such as Roma, people living with disabilities, members of LGBTQI, single mothers, and 50+ employees a non-management level, etc.). The results of this survey helped us to identify key areas for our Diversity & Inclusion plan with clear and quantifiable objectives up to 2020 ranging from corporate policy to equality-driven revision of specific internal processes along the employee experience cycle, including focus areas like recruitment and talent management.

In November 2017, Magyar Telekom adapted the renewed Code of Human Rights and Social Principles of the Deutsche Telekom Group. On the basis of these reforms, the company was the first within the DT Group to launch e-learning on human rights at an all-employee level informing our employees, close partners, and student workers about our responsibilities in relation to human rights, the responsible ways to take action, and the whistleblower channels available to take a stand against suspected human-rights violations. The obligatory e-learning course was taken by more than 10 000 people and it is now part of the mandatory portfolio of courses at Magyar Telekom.

SUPPLIERS

We are systematically working to create a sustainable ICT supply chain. Our efforts are based on trusting, long-lasting relationships with our suppliers as well as tried-and-true tools, methods and measures.

Interesting topics

Deutsche Telekom honored for climate protection along the supply chain

2018 audit results at a glance

200 participants in the Sustainability in Supply Chains Forum

Supplier development programs extended to industry level

Workshops conducted with our suppliers for sustainable smartphone designs

E-training courses for suppliers on sustainability requirements

SUSTAINABLE PROCUREMENT STRATEGY

There are still places in the world where human rights are not a respected. We may be exposed to country- and supplier-specific risks through our global procurement activities; these include, for instance, the use of child labor or poor local labor and safety conditions. Compliance with human rights and protection of the environment are very important to our Group. This applies to both internal and external company dealings and thus likewise to our business partners and suppliers. To also ensure compliance with human rights outside of our Group, we expressly require our about *20,000 active suppliers in more than 80 countries to assume this responsibility as well.

*In the past, the number of our suppliers referred to our approx. 30,000 total business relationships. We now have more precise reporting capabilities that allow us to specify the number of suppliers with whom we had an active business relationship in 2018.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Implementing a sustainable procurement strategy 	<ul style="list-style-type: none"> > Standards and guidelines > Group-wide implementation by the Sustainable Procurement Working Group > Employee training courses > Stakeholder engagement > Established escalation procedure for serious cases > Monitoring supplier sustainability performance 	<ul style="list-style-type: none"> > Sustainable Procurement ESG KPI > CR-Qualified Top 200 Suppliers ESG KPI > CDP Supply Chain ESG KPI > Sustainability rankings

MANAGING SUSTAINABILITY IN PROCUREMENT PROCESSES

We have been working to improve sustainability throughout our supply chain for many years. We have laid the foundation for this with our sustainable procurement strategy: We adhere to principles for socially and environmentally friendly procurement throughout the Group and manage our processes with the help of internal and external performance indicators and management tools.

Our sustainability criteria therefore apply to the entire procurement process, i.e. from the initial request to contract signing.



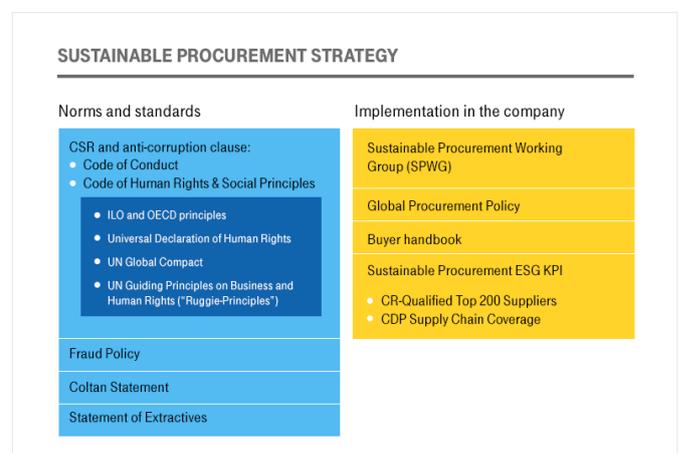
Fundamental norms and standards

Our Supplier Code of Conduct is part of the General Terms and Conditions for Purchasing and must therefore be accepted by our suppliers. Ethical, social and ecological principles as well as fundamental human rights are codified in this Code of Conduct. Sustainability concerns are given a weighting of 10 percent in selecting suppliers in bidding processes. The Supplier Code of Conduct is based on our overarching Group policies "Code of Conduct" and "Code of Human Rights & Social Principles". The values and principles stated therein largely coincide with those of telecommunications provider Orange – our partner in the BuyIn procurement joint venture. In connection with their joint venture, Orange and Deutsche Telekom harmonized their Supplier Codes of Conduct in 2017 to ensure that they both now place exactly the same requirements on suppliers.

The following guidelines are also binding for our suppliers:

- Group Policy on Avoiding Corruption
- Statement on Extractives
- List of banned substances

With our Supplier Code of Conduct we have made a commitment to complying with the fundamental principles and standards set forth by the International Labour Organization, the Organisation for Economic Co-operation and Development, the Universal Declaration of Human Rights and the UN Global Compact. For our strategic suppliers who exhibit a higher CR risk, we have on-site audits conducted regularly by external auditors to check compliance with the Supplier Code of Conduct.



Entrenchment in the company

We have been working to improve sustainability throughout our supply chain for many years. We derive our sustainability strategy in procurement from our CR strategy; it is anchored in the purchasing processes used throughout our Group. The heads of the CR and Procurement units are jointly responsible for implementing sustainable procurement practices. They report respectively to the Chief Human Resources Officer and Chief Financial Officer. An escalation process calls for decisions to be made at Board of Management level in serious cases. The Sustainable Procurement Working Group supports the international Procurement departments in implementing the sustainability requirements. Our sustainability principles for procurement are set forth in the Global Procurement Policy; associated Procurement Practices provide specific purchasing instructions for Germany and are considered recommendations for our national companies. We train our employees throughout the Group using an e-learning tool. In addition, a buyer handbook has been available since 2016 to provide an overview of which CR criteria must be considered at which point of the procurement process.

Harmonization of the Supplier Codes of Conduct of Deutsche Telekom and Orange in 2017 also created sustainable procurement requirements for the procurement joint venture BuyIn. The high ethical, social, environmental and human rights standards and requirements for suppliers are thus not only part of both companies' Supplier Codes of Conduct, they also apply to BuyIn.

KPI to promote sustainability

We measure and manage our sustainability performance in our procurement activities with the Sustainable Procurement ESG KPI. This KPI presents the procurement volume for suppliers who have accepted our Supplier Code of Conduct* (SCoC) and whose compliance with social and environmental criteria has been verified through dedicated self-assessments such as EcoVadis, or social audits. It is calculated in relation to our total procurement volume. We already achieved our goal of covering 80 percent by 2020 in 2016. We want to maintain this target value until 2020. We met this target in 2018: The share of risk-assessed procurement was 80 percent.

In addition, we have established two other ESG KPIs for managing our procurement activities. On the one hand, we want to increase the order volume that is covered by the CDP Supply Chain program (CDP Supply Chain Coverage ESG KPI). On the other hand, we want to increase the share of CR-classified suppliers among our Top 200 suppliers (CR-Qualified TOP 200 Suppliers ESG KPI). Qualification tools include self-assessments, audits, sustainability workshops and supplier development programs. We assess risky product groups and suppliers with the help of appropriate management tools.

Scores in sustainability rankings

Every year leading rating agencies measure the sustainability performance of large enterprises. Deutsche Telekom scored 85 out of 100 points in the supply chain management category of the 2018 RobecoSAM Corporate Sustainability Assessment. We were thus able to substantially improve our good performance of the previous year (72 points) and are one of the leading companies in the ICT sector.

*As of mid-2018, we no longer use our supplier sustainability questionnaire in the pre-qualification process. Instead, we now demand a commitment from all our suppliers to our Supplier Code of Conduct (SCoC).

MANY PLAYERS, ONE GOAL: FORUM ON SUSTAINABILITY IN SUPPLY CHAINS

At the end of January 2018 the Joint Audit Cooperation (JAC) once again organized the Corporate Social Responsibility Forum. At the event in Guangzhou, China, some 200 representatives from ICT companies, equipment makers, consulting firms, audit firms, international NGOs and science discussed how, after a fundamental review of the supply chain, a long-term improvement in sustainability performance can be achieved. The discussions also included how transparency with regard to production conditions can be improved in the downstream production stages. One main finding from the forum was that a closer, ongoing relationship between the players involved is the key to an improved sustainability performance in the downstream supply chain.

During a panel discussion, representatives from Nokia, ZTE, Huawei, Vodafone, Deutsche Telekom and audit firm SGS announced an alliance to establish the JAC Academy. The aim of this Academy will be to strengthen skills at the suppliers' factories in order to implement and measure JAC requirements in a structured framework. JAC is an alliance of currently 16 telecommunications providers; Deutsche Telekom is a founding member.



SUSTAINABILITY IN PROCUREMENT ONLINE TRAINING

In 2018 we revised and updated the Sustainability in Procurement e-learning tool. A short video summarizes the most important information and measures in Procurement with regard to sustainability. In addition, our suppliers can also inform themselves at any time about sustainability and compliance requirements as part of a training course.

And it's not only our own employees whom we train on the topic of sustainability. We also help our business partners and suppliers to develop further with a supplier development program.

SUPPLIER MANAGEMENT

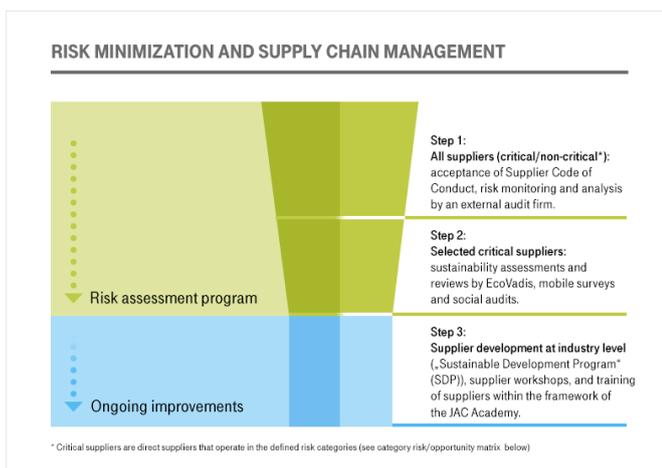
We maintain business relationships with some 20,000 active suppliers in over 80 countries. Our relationships with suppliers are based on trust and dialog combined with performance monitoring and providing concrete support for the implementation of sustainability standards. We have a variety of tools, methods, and measures in place to help us improve the sustainability of our supply chain. Our basic aim is to recognize the cause of any problems and to work closely together with our suppliers to resolve them.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Ensure sustainability in the supply chain 	<ul style="list-style-type: none"> > Weighting sustainability aspects at 10 percent for bids > Supplier Code of Conduct (SCoC) > Supplier risk analysis > Supplier surveys and self-assessments > Supplier monitoring and development > Escalation process for violations 	<ul style="list-style-type: none"> > Online surveys > Results of the social audits > Sustainable Procurement ESG KPI > CR-Qualified Top 200 Suppliers ESG KPI > CDP Supply Chain Coverage ESG KPI

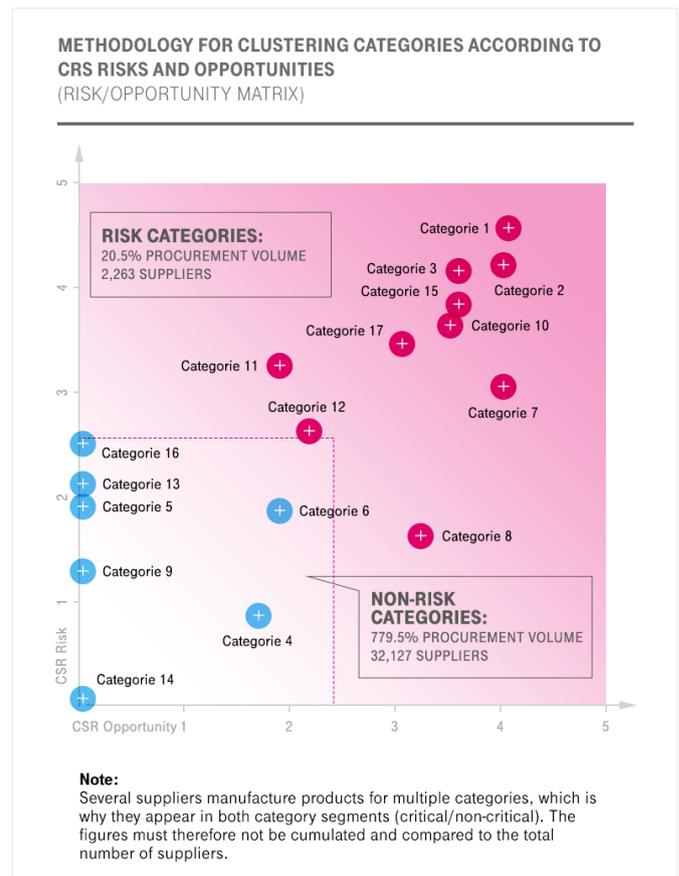
IMPROVING SUSTAINABILITY IN THE SUPPLY CHAIN

Depending on the risk rating and development status of the supplier relationship, we use different tools to make our supply chain more sustainable. When selecting a new supplier, the topic of sustainability is included in our decision-making process with a weighting of tenpercent. This creates strong incentives for suppliers to make their business more sustainable and to offer more sustainable products and services.

As a rule, we use a three-step approach to minimize risks and encourage our suppliers to improve their practices. The funnel chart illustrates the process:



Leading up to the supplier evaluation, we classify our categories as critical or non-critical based on risk and opportunity. We have formed 14 Corporate Social Responsibility (CSR) risk criteria and four CSR opportunity criteria on the basis of expert interviews. The criteria incorporate a wide range of sustainability aspects and risks, including risks for forced or child labor, or environmental pollution, as well as opportunities such as potential to reduce energy consumption.



In the **first step**, all suppliers (critical and non-critical categories) are asked to accept our Supplier Code of Conduct. It places strict ethical, social, ecological, and human rights requirements on our suppliers. In addition, a risk assessment by an external audit firm is carried out as part of the supplier onboarding process. A comprehensive external investigation is performed to determine if one of our supplier companies presents increased risks with regard to certain sustainability criteria.

In the **second step**, dedicated sustainability assessments and reviews are conducted – for instance, by EcoVadis, through social audits and mobile surveys – for selected suppliers that are active in critical categories. The decision on which tool to use is made on an individual basis and depends, among other things, on the sustainability performance and risk classification of the suppliers.

In 2018 we conducted 117 on-site audits – 29 of these were on our direct and 88 were on our indirect suppliers. We let the supplier know the approximate time of the audit in advance (“semi-announced audit”). This is necessary to make sure that relevant contacts in key functions are present for the audit. In addition, we also had 18 mobile surveys conducted in 2018. These give employees from our suppliers the opportunity to provide anonymous information on the social and ecological standards at their companies. Mobile surveys are primarily used to gain an initial impression of the local working conditions in order to then initiate further measures as needed, such as dedicated on-site reviews (social audits).

In doing so, we focus not only on Deutsche Telekom’s direct suppliers but also on downstream suppliers as much as possible. We also boost the effectiveness of our audits by collaborating with 16 other companies in the Joint Audit Cooperation (JAC). Due to the growing number of JAC members, the intersection of audited suppliers is also increasing, with multiple audits for individual suppliers being prevented.

We employ the “quality over quantity” principle when auditing suppliers. We therefore focus on especially high-risk suppliers. We aim to audit these suppliers at least every two to three years. As in previous years, we concentrated our auditing activities on suppliers in Asia, in particular in China and neighboring countries such as India, Malaysia, South Korea, and Thailand, as well as in Brazil, Mexico, and Eastern Europe. Audited suppliers included manufacturers in the areas of IT hardware, software and services as well as networks and devices.

We do not require our suppliers to obtain external environmental or social certificates. If no certificates are available for the “Environment” and “Social Accountability” fields, such as ISO14001 and SA8000, we nevertheless expect comparable management systems to be used. Our auditing experience shows, however, that the majority of our relevant manufacturing suppliers have an external certificate or comparable management systems. Verification of important social and ecological aspects as well as fundamental human rights during our audits is in line with internationally recognized guidelines and standards: these include the ILO Labour Standards, the UN Guiding Principles on Business and Human Rights, and the OECD Guidelines for Multinational Enterprises.

Supplier sustainability reviews 2018 (excl. T-Mobile US)

	Number of reviews	Number of findings	Number of completed findings	Number of critical findings
Social audits	117 (88 indirect suppliers)	768	594	242
Mobile surveys*	18 (indirect suppliers)	-	-	-
EcoVadis (2014-2018)	485 (direct suppliers)	-	-	-
CDP img supply chain**	158 (direct suppliers)	-	-	-
Supplier pre-qualification***	1,888 (direct suppliers)	-	-	-
Total	2,666	-	-	-

* Mobile surveys with selected suppliers as a supplementary, innovative review method

** The CDP Supply Chain Program is used for direct suppliers with high emission intensity.

*** Supplier pre-qualification: questionnaire for suppliers with a procurement volume of > 100,000 euros/year. The questionnaire also includes specific questions on sustainability and corporate responsibility. In 2018 we replaced the existing sustainability questionnaire used in the supplier pre-qualification process with the Supplier Code of Conduct, which is binding for all of our suppliers.

In the **third step** we use our development program for suppliers in close cooperation with selected suppliers to optimize their sustainability performance. This program takes a long-term and sustained approach to improvement.

In addition, we regularly conduct workshops on relevant sustainability topics with selected suppliers. These include:

- Emissions management
- Avoiding hazardous substances and using alternative materials in products
- Extending the life span
- Reducing electrical scrap and launching collection programs
- Designing for greater sustainability and innovation

In 2018, for instance, we conducted three workshops with key smartphone suppliers. We sounded out possibilities for working together on sustainable designs for smartphones. We will continue to pursue this path in 2019 and press ahead with this topic together with our partners. In addition, we are refining our technical specifications with regard to greater product sustainability in order to send appropriate signals to the ICT industry. We are not simply making demands but rather becoming actively involved in the discussion within our supply chain in order to encourage more sustainable equipment design. In 2018, for instance, we started a dialogue with the chemical industry with the aim of initiating the development of more sustainable materials for devices such as routers and media receivers.

Within the framework of the JAC Academy, we trained five of our key suppliers in 2018. This included not only designing and implementing internal audits in accordance with our JAC standards and rules, but also developing a deeper understanding of relevant sustainability topics for manufacturing companies (e.g., content of health and safety standards).

In 2018 we also established a comprehensive system of risk monitoring for suppliers in Procurement. This involves an expanded risk analysis for the existing supplier base, with the suppliers initially being classified (segmented) based on the following criteria:

- Procurement volume
- Critical components
- Dependence on suppliers

Appropriate risk monitoring is carried out depending on the segmentation result:

- Basic monitoring: Financial, CSR and compliance scoring is performed (by an external audit firm) for all suppliers within the scope of an ongoing review process.
- Active risk monitoring: The highest-risk suppliers are additionally monitored for all other risks occurring on a global scale (e.g., natural disasters, political risks) by means of a proactive risk monitoring system.

In cases of blatant disregard of the requirements set forth in our Supplier Code of Conduct, we initiate an escalation process to effect fast resolution in accordance with our sustainability standards. If employees have concerns along our supplier chain regarding compliance with laws, internal guidelines, and standards of conduct, they can report these anonymously using our whistleblower portal. The portal is publicly accessible for all of our stakeholders – alongside employees of our suppliers it can also be used, for example, by customers or business partners.

DEMAND AND PROMOTE: INDUSTRY-WIDE DEVELOPMENT PROGRAM FOR SUPPLIERS

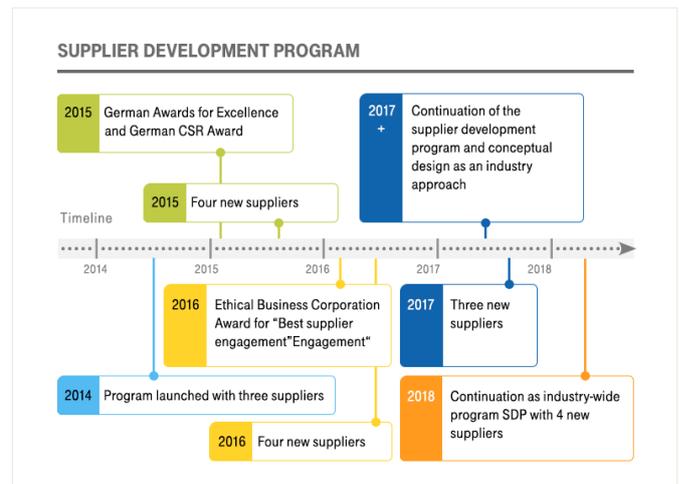
We collaborate as partners with our suppliers to make sure they are able to meet our high sustainability criteria. Within our multi-award-winning development program for strategically important suppliers, we have worked with the participants over the past few years to develop solutions for issues such as environmental protection, regulations for working hours, or health protection. In 2018, we placed our supplier program under the umbrella of the Global e-Sustainability Initiative (GeSI) ICT industry association as an industry approach. It is being continued there as the “Sustainable Development Program” (SDP). In this way, we hope to help make the global supply chains for ICT products more sustainable, even beyond our own value chain. In the second half of 2018, we launched the SDP as a pilot project with four suppliers. From 2019, other ICT companies, their suppliers and sub-suppliers will then join the program. One new key feature of the SDP industry approach is an online tool that makes it easier to collect and evaluate sustainability-related data. The tool also makes it easy to measure the success of all SDP activities effectively using various KPIs. As a result, contributions toward individual sustainable development goals (SDGs),

for example, can be made visible. Once the SDP participants have successfully completed the development program, they can use it independently and, in turn, help their own suppliers to improve when it comes to sustainability issues. Our aim is to extend the impact of the program to downstream levels of the supply chain.

We expect to see these companies obtain similar results to those achieved by the participants of our previous supplier program. Among these suppliers we achieved not only social and ecological improvements but also measurable economic benefits: Better working conditions reduce the days of absence for employees, have a positive impact on their motivation and boost productivity. All of this also improves product quality, which in turn reduces the number of complaints regarding our products. The ecological improvements include the conservation of resources, for example, for energy and water consumption.



The diagram shows the areas in which we audit the suppliers participating in our program. Using the results, we work with them to develop a plan for remedying any issues. Suppliers receive support from Deutsche Telekom experts as well as professional external consultants in applying these measures. All activities and results are documented so that we can gauge the effectiveness of the measures employed. These are corrected, if needed.



AWARD FOR CLIMATE PROTECTION ALONG THE SUPPLY CHAIN

Working on behalf of investors, the non-governmental organization CDP regularly assesses the climate protection activities of large (listed) companies worldwide and compiles an index of leading companies called the A List. In 2018, Deutsche Telekom featured in this list for the third time in a row. As part of the CDP's Supplier Program, companies ask their key suppliers about their emissions and their climate strategy. We use this program in order to survey our suppliers. We invited 250 suppliers in 2018 (compared to 195 in the previous year) to participate in the CDP Supply Chain Program. These suppliers cover 78.11 percent of our procurement volume. A total of 157 suppliers took part in the program (compared to 109 in the previous year). They cover 71.35 percent of the procurement volume (2017: 66.4 percent). That means we have achieved our goal, of covering 70 percent of procurement volume with suppliers who take part in the CDP Supply Chain Program by 2020, two years earlier than planned. At the same time, we have disclosed our own commitment to climate protection to eight suppliers through this program.

Through our commitment to climate transparency in supply chains, we were awarded a place in the Supplier Engagement Leader Board in 2018. Last year, we only achieved a B rating for supplier engagement.

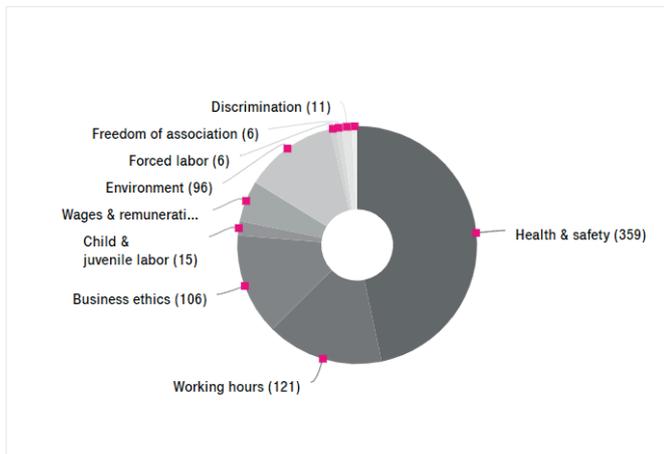
We also intend to continue helping our suppliers to reduce their emissions. In 2019, workshops with suppliers are planned at which their Scope 3 emissions will be determined and potential derived to reduce them.

2018 AUDIT RESULTS

In the audit program, which was established and is controlled at the Group level, a total of 117 audits were carried out in 2018. As in previous years, we concentrated our auditing activities on suppliers in Asia, in particular in China and neighboring countries such as India, Malaysia, South Korea, and Thailand, as well as in Brazil, Mexico, and Eastern Europe.

Audited suppliers included manufacturers in the areas of IT hardware, software, and services, as well as networks and devices. During the audits, we identified one case of bribery and consequently ended the business relationship with the supplier with immediate effect. Beyond this, no other cases of corruption or bribery nor any critical violations of compliance policies or the right to intellectual property were found.

THE 2018 AUDIT RESULTS AT A GLANCE



Legend: Area (Number of violations)

DETAILED RESULTS

Our audit activities do not include all suppliers with whom we have an active business relationship (around *20,000), but instead focus on strategically important and/or particularly high-risk supplier groups. We focus on roughly 250 suppliers that are regularly audited every two to three years. The majority of these audits are conducted within the scope of the Joint Audit Cooperation (JAC).

- Labor standards
- Social standards
- Living standards
- Environmental requirements

The JAC Guidelines require suppliers to grant their employees the freedom of association and the right to collective bargaining, as well as a healthy and safe working environment. The following minimum require-

ments are applicable regarding working hours: a maximum of 48 working hours per week, a maximum of twelve hours of overtime each week and one day off after six consecutive days of work. We also demand a fair wage that enables employees a decent standard of living. Compliance with all these requirements is reviewed regularly during our on-site audits. This also includes inspection of the features and quality of the working, sleeping, and cafeteria areas.

We do not require our suppliers to obtain external environmental or social certificates. If no certificates are available for the “Environment” and “Social Accountability” fields, such as ISO14001 and SA8000, we nevertheless expect comparable management systems to be used. Our auditing experience shows, however, that the majority of our relevant manufacturing suppliers have an external certificate or comparable management systems. Verification of important social and ecological aspects as well as fundamental human rights during our audits is in line with internationally recognized guidelines and standards: these include the ILO Labour Standards, the UN Guiding Principles on Business and Human Rights, and the OECD Guidelines for Multinational Enterprises.

Of the 117 suppliers we audited in 2018 (13 of which were in accordance with the validated audit processes of the Responsible Business Alliance), around 24 percent (29 audits) were direct suppliers and 76 percent (88 audits) were tier 2, 3 and 4 suppliers – that is, indirect suppliers.

The audits carried out in 2018, revealed a total of 768 violations of Deutsche Telekom’s supplier requirements. In the process, a total of 594 violations were corrected in 2018, including several open improvement measures from previous years. Among the violations were 49 unacceptable incidents and 193 critical findings; 191 violations were rectified. Here are some examples of unacceptable and critical violations as well as the measures taken to improve these situations. Critical findings were discovered at 49 suppliers in the area of occupational health and safety field, at seven suppliers in the area of environmental protection, at three suppliers with regard to labor practices, at 50 suppliers with regard to working hours, and at nine suppliers with regard to wages and performance-related remuneration. There were no critical findings in the business ethics area. As in past years, most of the violations were related to occupational health and safety (47 percent, compared to 46 percent in 2017), followed by working hours with 16 percent (17 percent in 2017). The business ethics area took the third spot, with 14 percent (13 percent in 2017).

*In the past, the number of our suppliers referred to our approx. 30,000 total business relationships. We now have more precise reporting capabilities that allow us to specify the number of suppliers with whom we had an active business relationship in 2018.

EXAMPLES OF PROBLEMATIC FINDINGS

Area	Findings at suppliers	Initiated improvements	Status (end of 2018)
Child/juvenile labor	<p>According to management and employee interviews as well as document reviews, five young workers were employed at the punching shop, the Maopian (raw materials) shop and the injection shop, where they were exposed to hazardous factors such as noise, dust, etc. This was in violation of the Chinese labor law (1994), Article 64.</p>	<p>According to legal requirements, the factory took action to stop exposing juvenile worker to hazardous work factors. The affected workers were moved to a quieter assembly line.</p>	Closed
Environmental protection	<p>Based on observations made on site, the factory did not provide containment/collection containers for two empty lubricating oil chemicals in the chemical storage facility, two empty cleaning chemicals in the cleaning shop and six empty guide rail oil chemicals on the outdoor site. This was in violation of the following articles of the environmental protection standard for the storage of hazardous waste (GB18597-2001):</p> <p>Article 6.2.2: The storage facility for hazardous waste must provide a leak indicator, a gas venting system, and a gas purification system.</p> <p>Article 6.3.9: The storage facility for hazardous waste must be wind-proof, rain-proof and protected from sunlight.</p>	<p>The factory is to install a containment/collection container for empty chemicals from the area mentioned above.</p>	Closed
	<p>Finding: According to documents reviewed, last year the factory did not transfer hazardous waste (PCB boards and cleaning waste) to qualified sites for processing.</p> <p>Comment: The factory stored hazardous waste on factory premises and did not transfer it.</p> <p>It was therefore in violation of the law of the People's Republic of China to avoid and reduce environmental pollution resulting from solid waste (amended in 2016), Article 55: Facilities that produce hazardous waste must dispose of the hazardous waste in accordance with applicable government regulations and may not store or dispose of them without permission.</p>	<p>The hazardous waste was transferred at the end of 2018.</p>	Closed

Occupational health and safety	There are not enough emergency exit signs on the main routes of the sewage treatment plant to ensure proper evacuation in an emergency. This makes it difficult to find the emergency exit.	<ol style="list-style-type: none"> 1. The entire sewage treatment plant will be inspected and new signs will be installed in areas without adequate emergency exit signage. 2. All other areas of the company will also be checked for emergency exit signs and new signs installed if necessary. 	Closed
	<p>Fire alarms and alarm systems are tested by a fire safety company once a month.</p> <p>Finding: One of the fire alarms in the hazardous waste room did not work. This means there is a lack of fire protection.</p>	<ol style="list-style-type: none"> 1. A fire safety company checked the fire alarm system in this area and completed maintenance. 2. All other areas of the company will also be checked and any improvement measures taken immediately. 	Closed
	During the plant tour, it was found that in the storage area for flammable chemicals and in the printing area where work involves chemicals, there was no emergency shower/eye irrigation station.	Every department must identify and provide the appropriate safety equipment.	Closed
	<p>Finding: The factory began operations in October 2017, even though a firefighting certificate had not yet been issued for building no. 4 (25194 square meters, completed in June 2017).</p> <p>Comment: The factory has completed its fire protection concept for building no. 4. Acceptance for firefighting systems was underway but the acceptance procedures were very complex. This was in violation of the following article of the fire protection law of the People's Republic of China (2008):</p> <p>Article 11: For the construction of large facilities intended for use by large numbers of people or special construction projects as stipulated by the national safety authority of the State Council, the employer is required to present the fire protection documents to the fire protection department of the national safety authority for review. The law specifies that the fire protection department of the national safety authority is responsible for the result of the review.</p> <p>Article 13: When construction work is completed on a project that requires fire protection planning according to national fire protection standards, fire protection acceptance testing or submission of the relevant documents is to be carried out as follows:</p> <ol style="list-style-type: none"> 1. For a construction project pursuant to Article 11 of the law, the employer must apply to the fire protection division of the authority for public safety for fire protection acceptance testing; <p>or</p> <ol style="list-style-type: none"> 2. For any other construction project, the employer must report successful acceptance to the fire protection division of the authority for public safety for archival purposes, and the fire protection division of the authority will conduct spot checks. A construction project that is by law subject to a fire protection inventory, but does not undergo or successfully pass the inventory may not begin operation. Construction projects that fail a random inspection may no longer be used. 	We have meanwhile received the certificate for the fire protection concept covering all buildings.w	Ongoing
	<p>Finding 1: A metal warehouse with approx. 600 square meters area had just one safety exit at the time of the audit. This is in violation of the Code of Design on Buildings Fire Protection and Prevention (GB50016-2006), Article 3.8.2: Every storage site must have at least two exits. One exit is sufficient for storage sites with an area of less than 300 square meters.</p> <p>There must be at least two exits leading to a hallway, a stairway or outside from every zone of the warehouse. One door is sufficient for building sections with an area of less than 100 square meters.</p> <p>The door leading to the hallway or stairway should be a class B fire protection door.</p> <p>Finding 2: 20% of the emergency exits in building no. 4 had a net width of 0.75 meters. This does not meet legal requirements.</p> <p>Comment: The factory began implementing corrective measures prior to the final meeting. This was in violation of the Code of Design on Buildings Fire Protection and Prevention (GB50016-2014), Article 3.7.5: The net width of the evacuation stairs should be at least 1.10 m, the net width of the evacuation route at least 1.40 m and the net width of the door at least .90 m.</p> <p>The width of the evacuation stairs should correspond to the number of workers on all levels. The net width of the lower stairway therefore corresponds to the number of workers on all floors. The net width of the exterior door on the first floor also corresponds to the number of workers on all floors. The net width of the door must be at least 1.20 m.</p>	<ol style="list-style-type: none"> 1. There are two safety exits for the metal warehouse. 2. Modifications were made to the door width and the contract with the supplier was signed. 3. The modified doors were installed. 	Ongoing
	The evacuation plan in the dormitories did not correspond to the actual layout. This was in violation of the Code of Design of Dormitory Buildings (JGJ36-2005), Article 4.1.4: Dormitories must have an emergency evacuation plan and clearly visible evacuation signs posted.	<ol style="list-style-type: none"> 1. The evacuation plan was updated and posted in the dormitories. 2. The annual internal audits will take account of this item in the future. 	Ongoing

Wages and performance-related remuneration	<p>According to Article 44 of the Labor Law of the People's Republic of China, under the following circumstances, the employer shall pay workers higher compensation than for regular working time:</p> <ol style="list-style-type: none"> 1. at least 150% of the regular wage if an extended working time has been agreed upon; 2. at least 200% of the regular wage if overtime is worked on days off and no other days off can be taken; and 3. at least 300% of the regular wage if overtime is worked on legal holidays. <p>Finding: Inadequate overtime wages paid to employees. In connection with the document review, the auditor determined that one of 20 randomly chosen employees worked on October 4, 2017 (public holiday, Mid-Autumn Festival). However, only 200% of the regular wage was paid. Deadline: December 8, 2017.</p>	No overtime is planned for public holidays. Should overtime be worked on public holidays, however, employees should be paid 300% of the regular wage.	Closed
	<p>Social security. Compliance with this item could not be verified because the auditor did not have access to the payroll accounting of the third-party provider.</p>	This item was corrected for the follow-up audit on July 12, 2018; access was granted. There were no apparent violations.	Closed
	<p>Based on the document review and the management interview, it was determined that the factory paid only 100% of the regular hourly wage for overtime on regular working days and public holidays.</p> <p>Example a) In April 2018, all 25 employees reviewed were paid only 100% of the regular hourly wage for overtime (100% of employees);</p> <p>Example b) On April 5, 2018, (Qingming Festival, Tomb-Sweeping Day), 3 out of 25 workers (12% of employees) were paid only 100% of the regular hourly wage for overtime. This was in violation of the Chinese labor law, Article 44.</p>	The company pays all employees 1.5 times the wage for overtime on working days, 2 times the wage for overtime on weekends and 3 times the wage for overtime on public holidays, based on the actual date worked.	Ongoing
Working hours	<p>Finding: The factory used imprecise manual attendance logs to record employee attendance. Weekly working time and daily/monthly overtime could not be verified. This was in violation of the Chinese labor law, Article 41: The employer can extend the working time due to production or corporate requirements after consulting with the union and the employees. As a rule, the extended working time may not be longer than one hour per day. If an extension is necessary for special reasons, the working time may be extended up to three hours per day as long as the health of the employee is ensured.</p> <p>However, extended working time may not amount to more than 36 hours per month.</p> <p>Finding: The factory used manual attendance logs to record worker attendance information. It could not be determined in the manual attendance logs whether the workers had one, two or three shifts and whether they worked 7, 7.5, 8, 9.5 or 12 hours per day. No shift information or working hours per day were recorded for workers. Due to imprecise manual attendance recording, the weekly working times and daily/monthly overtime could not be verified.</p>	An electronic attendance system will be introduced to record employee attendance information.	Ongoing
	<p>Compliance with work breaks, public holidays and vacations could not be verified because the auditor did not have access to the payroll accounting of the third-party provider.</p>	This item was corrected for the follow-up audit; access was granted. There were no apparent violations.	Closed
	<p>Employee overtime amounted to more than the legal provisions and the weekly working time more than the SA8000 standards.</p> <p>Finding based on the present attendance log: Approximately 30% of the employees surveyed worked more than three overtime hours a day. The highest number of overtime hours was four hours/day. Around 90% of the employees surveyed worked more than 36 overtime hours a month. The highest number of overtime hours was 142 hours in January. The weekly working time for all employees surveyed exceeded 52 hours per week in all months. The highest weekly working time was 76.5 hours in January 2018.</p>	A production plan based on customer demand will be prepared one month in advance to ensure that employees do not work more than 60 hours per week.	Closed

RESOURCE SCARCITY AND RAW MATERIALS SOURCING

Production of electronic devices like smartphones is harmful to the environment and requires large amounts of water and energy. Because the production facilities of suppliers and manufacturers are often located in regions where water is scarce or the population does not have sufficient access to electricity, the availability of resources plays a more significant role there than it does in countries like Germany.

Moreover, valuable raw materials like metals are used in producing smartphones and other ICT products. Some metals, including tantalum, gold, tin and tungsten, are extracted from ores, some of which are extracted in the eastern part of the Democratic Republic of Congo under conditions that are inhumane and/or associated with civil war. The parties involved in conflict in the region use the profit for purposes such as financing civil wars. However, Deutsche Telekom does not manufacture any ICT products itself. We purchase these products from international manufacturers and sell them at our stores, offer them in the context of service provision, or use them in our network infrastructure. We require our suppliers to refrain from using any of these conflict resources. We also support industry initiatives like the Responsible Minerals Initiative, which work toward a more sustainable supply chain.

Handling critical raw materials

We collaborate with suppliers and industry initiatives to effect responsible raw materials sourcing. Although we do not purchase any raw materials ourselves, we do require our manufacturing suppliers not to use any conflict minerals or other such resources in their products. Our requirements are expressly and comprehensively set out in our “Coltan Statement” and “Statement on Extractives.” These are an integral part of our contracts with manufacturing suppliers. The goal is for both our direct suppliers as well as their sub-suppliers to decrease social and societal risks that could be associated with the mining of resources. We verify implementation of our guidelines regarding conflict resources during our supplier controls as well. As a GeSI member we also actively support the ICT industry activities on the topic of Responsible Minerals Initiative (RMI). We strongly encourage our direct and indirect suppliers to utilize the RMI tools for ensuring responsible resource procurement.

Tantalum is a conflict resource. Recycled tantalum, on the other hand, is considered conflict-free, Telekom Deutschland is conducting a research project on reclaiming precious metals such as gold and tantalum from outdated network infrastructure components.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Sustainable use of resources and responsible raw material procurement 	<ul style="list-style-type: none"> > Support of the Responsible Minerals Initiative (RMI) > Conflict-free resources integrated into our manufacturer product requirements > Coltan Statement > Statement on Extractives > Research project on recycling tantalum 	<ul style="list-style-type: none"> > Annual reporting

TOGETHER AGAINST CONFLICT RESOURCES

Deutsche Telekom has supported the Responsible Minerals Initiative (RMI) since it was founded in 2008 under the name Conflict-Free Sourcing Initiative (CFSI). RMI is the largest business initiative for responsible raw materials sourcing. Its objective is to identify conflict resources and prevent their extraction and sale.

RMI is based on a working group that was founded in 2008 by the Global e-Sustainability Initiative and the Responsible Business Alliance industry associations (Extractives Working Group) to address sustainable raw materials extraction. Since then, the number of metal processing companies and smelters participating in RMI has continued to grow. A total of 258 of these companies have been audited in compliance with the standard audit protocol (as of December 2018).

SUPPORTING RESPONSIBLE RESOURCE EXTRACTION

We require our suppliers to protect the environment and use resources responsibly. We have set forth these requirements in the document “Code of Human Rights & Social Principles”; they are also described in detail in our Supplier Code of Conduct. We require our suppliers to provide information on their activities as part of a self-assessment and conduct supplier audits to emphasize the importance of these requirements (Link to audit results). In the scope of the audits, we check whether our suppliers use an environmental management system and how they manage their energy and water consumption, as well as other factors. We also explicitly ask them about their waste management system.

CLIMATE & ENVIRONMENT

We are dedicated to protecting the climate and environment. To this end, we record and reduce CO₂ emissions along our entire value chain. We are increasing our energy efficiency, using more and more renewable energy, conserving resources and decreasing environmental impact.

Interesting topics

How we want to achieve our ambitious climate goal

The impact of ICT on climate change: curse or blessing?

On GDP's A List for the third time in a row

Helping our customers to reduce their CO₂ emissions

Our new climate goal from 2020

Stop Wasting – Start Caring! Together for more resource efficiency

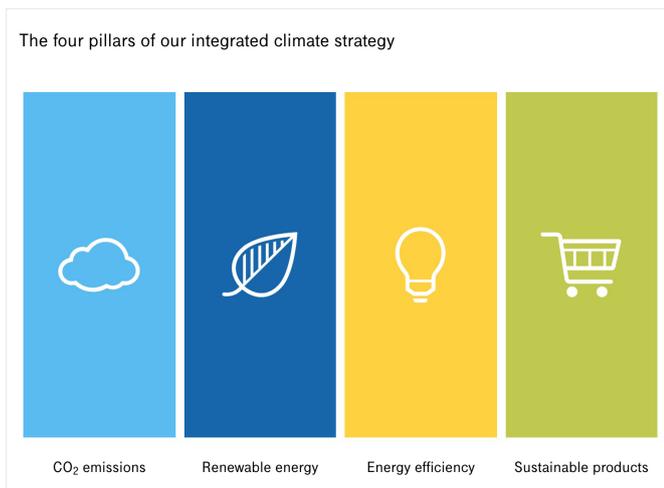
CLIMATE STRATEGY

One of our goals is to reduce the negative environmental impact of our business activities. One important milestone is our climate target. By the year 2020, we are planning to reduce the absolute amount of CO₂ emissions we produce by 20percent compared to the base year 2008 (excluding T-Mobile US). That is why we are investing in energy-efficient network technologies, for example, and increasing our proportion of renewable energy. In 2018, we developed a new climate goal for the period beyond 2020. This new goal was only adopted in 2019 and will lead to a further significant reduction in our emissions in the period to 2030.

Many of our products and solutions also help our customers reduce their CO₂ emissions and thus make a significant contribution to climate protection. The GeSI SMARTer2030 study shows that information and communications technology may be part of the solution in the fight against climate change.

OUR INTEGRATED CLIMATE STRATEGY

We designed our integrated climate strategy in line with our Group strategy. This is how we ensure our climate protection measures are closely connected with our core business. We have defined objectives and/or key performance indicators for each of the four aspects of our climate strategy (CO₂ emissions, renewable energy, energy efficiency, and sustainable products).



CO₂ emissions

We record all direct and indirect emissions using the globally recognized Greenhouse Gas (GHG) Protocol. The goal is to reduce our emissions by 20percent by the year 2020 compared to the base year 2008 (excluding T-Mobile US). As we implement our measures to reduce CO₂ emissions, we are focusing on areas with especially high energy consumption, such as our networks and data centers. This has already

allowed us to moderately reduce our emissions over the past few years (excluding T-Mobile US), despite rapidly growing data volumes and the necessary network build-out. At the same time, we are expanding our proportion of renewable energy. However, the majority of our overall emissions are accounted for by indirect emissions (Scope 3 emissions). That is why we are including our suppliers in our climate protection measures and also helping our customers reduce their CO₂ emissions with relevant products and services.

Renewable energy

We are researching and evaluating various options to increase our proportion of green energy. Possibilities include purchasing energy certificates from renewable sources and using cogeneration (“CHP”) plants to generate our own renewable energy. Some national companies are setting a great example: T-Mobile Austria and OTE in Greece obtained 100percent of their electricity from renewable sources in 2018. When purchasing electricity, we take a variety of sustainability factors into consideration on a Group-wide level. These include, for instance, the average emission factor of the electricity mix (i.e., the amount of emissions for every kilowatt hour of electricity used) and the proportion of renewable energy. These parameters help us make our energy mix more transparent and increase the share of energy obtained from renewable sources at our company.

Energy efficiency

Because the operation of our network infrastructure calls for a considerable amount of energy, we are investing in modernization and energy-efficient technology. For instance, we are migrating our network infrastructure to IP technology, which is not only more powerful, but also consumes less electricity than existing technologies. In addition, we are working to process data traffic from no more than a few, particularly efficient data centers. Higher energy efficiency also always brings a reduction in CO₂ emissions. In order to measure our progress, we use two key performance indicators (KPIs). They show the relationship between our energy consumption or carbon footprint and transported data volume.

Sustainable products and enablement

Many of our products and services provide sustainability advantages. They can help reduce energy consumption and CO₂ emissions, improve healthcare, and make logistics more efficient. Using the “Sustainable Revenue Share” KPI, we record the proportion of our overall sales accounted for by sustainable products. “Sustainable products” are products that provide sustainability advantages and that do not entail any significant sustainability risks. We also use our “Enablement Factor” ESG KPI to correlate our emissions with the potential savings for our customers. This helps us evaluate our overall performance in relation to climate protection.

Collaborating for climate protection

Effective climate protection calls for joint efforts on the part of business, politics, science, and society. That is why we are involved in numerous German initiatives, such as the 2° Foundation and the Federal Ministry for the Environment's climate protection initiative for business, as well as a number of international associations. One of these is the Global e-Sustainability Initiative (GeSI). As an industry association, GeSI's vision is to help make society greener and more climate-friendly with the help of ICT solutions.

CLIMATE PROTECTION FROM 2020 ONWARD – NEW CLIMATE GOAL AND REVISED CLIMATE PROTECTION STRATEGY

In 2018, we revised our integrated climate strategy, devising a new Group-wide climate goal for the period beyond 2020, our current target year. The main difference between the new climate goal and the previous one is that the former takes into account emissions produced by T-Mobile US and arising from the upstream and downstream elements of the value-added chain (Scope 3 emissions). We calculated this goal based on the methodology recommended by the Science Based Targets initiative.

In light of growing data traffic and the network build-out, we expect energy consumption to continue to rise over the coming years. To fulfill the requirements laid down by the Science Based Targets initiative, however, we are taking measures to boost efficiency and using electricity generated by renewable power sources. We have decided to switch to using 100 percent renewable energy for our entire power consumption by 2021. As things currently stand, we already derive 52 percent from renewable sources. We have set ourselves the additional goal of cutting our emissions by 90 percent (compared with 2017) in the period to 2030.

Our goal for emissions arising from the upstream and downstream elements of the value-added chain is to reduce the emissions generated per customer in the most important categories (purchased goods and services, capital goods, and product lifecycle) by 25 percent per customer. Among other things, we also plan to run workshops with our key suppliers in a bid to derive measures and agreements for reducing CO₂ emissions.

In addition, we are examining how we can boost the potential of Deutsche Telekom's products and solutions ("enablement") to protect the climate even further – for instance by developing new sustainable products.

CLIMATE PROTECTION AT T-MOBILE US

In the United States, T-Mobile US has set itself particularly ambitious climate protection goals and is looking to cut its CO₂ emissions by 95 percent between 2016 and 2025. This will primarily be achieved by using Power Purchase Agreements (PPAs) to increase the share of renewable energy to 100 percent by 2021. In this connection, T-Mobile US signed up to the RE100 initiative in 2018. This initiative brings together companies who are endeavoring to obtain 100 percent of their energy requirements from renewable sources. T-Mobile US has also set itself the goal of cutting emissions in the upstream and downstream value chain (Scope 3 emissions). In the United States, the majority of Scope 3 emissions are generated in the upstream value chain. The aim is to reduce total Scope 3 emissions per customer by 15 percent compared with 2016.

ADDRESSING CLIMATE RISKS

In the context of our integrated climate strategy, we address the environmental impact of our business and determine potential opportunities and risks that exist for us as well as for our stakeholders.

For example, extreme weather conditions as a consequence of climate change can have a negative impact on our business processes and lead to incidents or even network outages. A very real example of this was storm Friederike, which led to an outage of more than 600 cross-connect cabinets and over 200 mobile base stations in early 2018. Such failures can massively impact the management of rescue operations, if not render them entirely impossible. In order to be able to react appropriately in these cases, our internal "Group Policy on Continuity and Situation Management" defines responsibilities, processes, and measures. It also outlines how to handle emergency and crisis situations like floods. In addition, possible consequences of climate change are also taken into account when planning our future business activities. For instance, our network infrastructure is set up to be protected from storm conditions, changes in temperature, and high winds.

Climate change also carries financial risks, whether from the introduction of a levy on CO₂ emissions or an increase in energy costs. Our contribution to the mitigation of these risks is that we measure our own energy efficiency and develop measures for improvement. We also work on the reduction of our own and our customers' and suppliers' CO₂ emissions. Extreme weather events are another possible cause of infrastructure failures, and this could necessitate additional investment in a more robust infrastructure.

We report to the Board of Management quarterly on current climate risks within the context of our Group Risk Report. You will find more information on risk management in the "Risk and Opportunity Management" section of our annual report.

We also help our customers reduce their carbon footprint by providing them with innovative solutions (mitigation). Possible examples include innovative projects in the area of sustainable urban development and mobility, and real-time solutions for agriculture. These do not only help reduce emissions, but also optimize the use of fertilizer, seed, and machinery. Increasing yields can help us achieve the second sustainable development goal (SDG) of "zero hunger". What's more, telecommunications can be used to reduce the amount of food lost. For instance, the innovative product Roambee is a major help here. On top of that, we also help our customers deal with the adverse effects of climate change (adaptation). In the event of an imminent catastrophe, our infrastructure can be used, for example, to send alerts via early warning apps.

REPORTING ON CLIMATE-RELATED RISKS BASED ON THE TCFD'S RECOMMENDATIONS

The United Nations Climate Change Conference hosted in Paris in 2015 saw the launch of the Task Force on Climate-related Financial Disclosures (TCFD), which sets out to develop voluntary, consistent climate-related financial risk disclosures. In 2017, the TCFD published specific recommendations for putting these disclosures into practice, which companies can use as a guideline to inform investors, lenders, insurers, and other interest groups about the risks climate change presents for their business model. Deutsche Telekom welcomes the aims behind the TCFD, and we are currently investigating how we can put its specifications into practice as part of our existing and future climate protection measures.

In a workshop in December 2018, we established potential means for aligning our reporting on climate-related financial risks with the recommendations issued by the TCFD. A project concept is being drawn up for further development. Besides risks, climate change also opens up opportunities for ICT companies, and thus for Deutsche Telekom's business model, because our products and services are helping our customers reduce their carbon footprint and the emissions they produce. We record these positive effects in our Enablement Factor KPI.

The participants at our first internal TCFD workshop included representatives from the Strategy, External Reporting/Accounting, Investor Relations, Controlling, Risk Management, and Corporate Responsibility departments. We made a conscious effort in this case to involve the most important departments in the process at an early stage, thereby laying the foundations that will enable us later to promptly implement the commonly defined measures in all steering-related areas within the company.

To identify and subsequently integrate the appropriate measures into the existing approaches adopted by Controlling and Risk Management, we will also enter into intensive discussions with all relevant internal stakeholders. In this way, we will ensure that all TCFD-related activities are in line with our business processes and our new climate strategy.

RECOGNITION OF LEADERSHIP ROLE IN CLIMATE PROTECTION



In the CDP ranking again

In 2018, we made it onto the CDP Climate A List for the third time in a row. The CDP ranking recognizes companies that don't just exhibit transparency when it comes to climate change, but are also aware of how climate change affects their business,

actively manage the opportunities and risks associated with climate change, and are pioneers and role models in their approach to climate protection. Under the CDP, we have reported Group-wide not only Scope 1 and Scope 2 emissions but also Scope 3 emissions from our business operations in Germany and almost all our international companies since 2014.

CO₂ EMISSIONS

Demand for faster data services with full-coverage availability is growing rapidly. That is why we continue to drive forward the build-out of our infrastructure and increase data transmission rates. Despite ever-increasing data volumes and continuous network expansion, our efforts to improve energy efficiency – e.g., when converting our network infrastructure – allow us to largely compensate for the associated emissions or keep them at a steady level. As a result of these increasing data volumes, network capacity utilization is increasing, too, resulting in improved energy efficiency. The main way we are able to reduce emissions is through the use of low-carbon electricity and guarantees of origin. Other focal points include improving energy efficiency with regard to how we operate our buildings, business trips, and our fleet of company and service vehicles in Germany, which boasts roughly 23,500 vehicles and is one of the largest in Europe.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Decrease Group-wide CO₂ emissions by 20 percent by 2020 compared to 2008 (without T-Mobile US, based on metric tons of CO₂) 	<ul style="list-style-type: none"> > Increase the proportion of renewable energy > Modernize and upgrade network infrastructure > Consolidate data centers > Optimize energy use in buildings > Reduce fuel consumption by streamlining and optimizing our fleet > Reduce business trips and use audio and video conferences 	<ul style="list-style-type: none"> > Emissions in metric tons of CO₂ > Scope 1 emissions > Scope 2 emissions (market-based and location-based) > Scope 3 emissions > Specific emissions > Carbon Intensity ESG KPI > Energy Intensity ESG KPI

PROTECTING THE CLIMATE

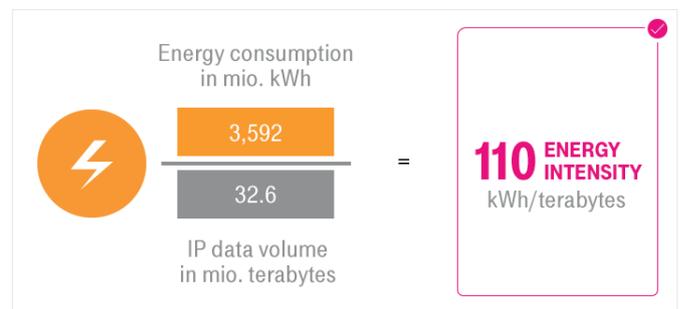
“We assume responsibility for a low-carbon society” is one of the key action areas of our CR strategy. We intend to keep this promise with the help of our Group-wide climate protection target, which was adopted in 2013: to reduce our CO₂ emissions by 20 percent by 2020 compared with 2008. We use the market-based method of the Greenhouse Gas (GHG) Protocol to calculate emissions for our climate goal. We have specified a variety of measures and developed measurement tools to help us reach our goal. Progress is in line with the forecast for 2018.

We have also devised a new science-based climate target for the period beyond 2020.

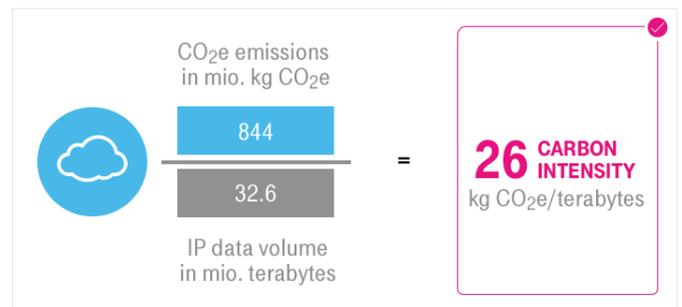
Measuring our progress

We ensure transparency for our stakeholders regarding the progress in implementing our climate strategy by using a number of key performance indicators (KPIs) to measure our contribution to climate protection. The Carbon Intensity and Energy Intensity KPIs are used to analyze the relationship between our carbon emissions/energy use and the transported data volume. Using data volume as a reference parameter

makes it possible to create a direct link to the performance of our networks. The Enablement Factor, PUE, and Renewable Energy KPIs also improve the management and transparency of climate protection issues.



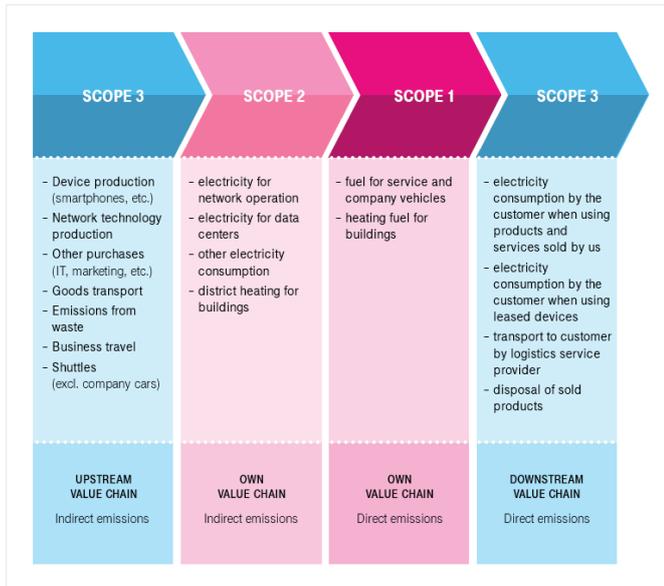
✔ Data audited by PwC. Data based in part on estimates, assumptions, and projections. This KPI is down 22percent from the 2017 figure of 142 kWh/terabyte.



✔ Data audited by PwC. Data based in part on estimates, assumptions, and projections. In 2017, this KPI was 56kg of CO₂/terabyte and is now down by 54 percent.

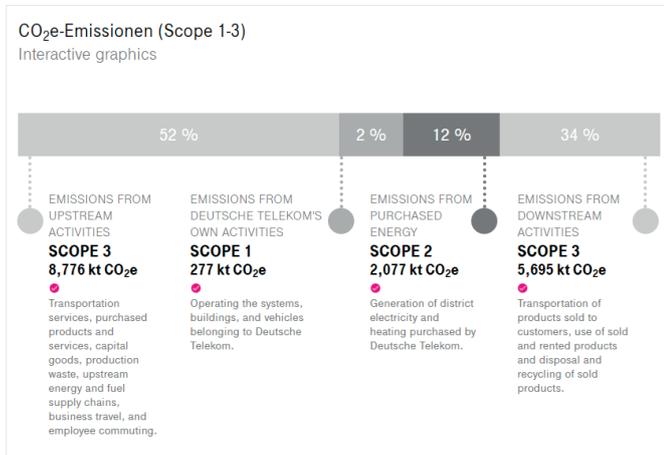
Direct and indirect emissions

Across the Group, we measure our emissions along the value chain on the basis of the internationally recognized GHG Protocol. This standard distinguishes between three CO₂ emissions categories (Scope 1, 2, and 3). Scope 1 and Scope 2 emissions are what we use as the basis for the calculation of our Carbon Intensity ESG KPI. We break down all carbon emissions in detail in the Indicators section.

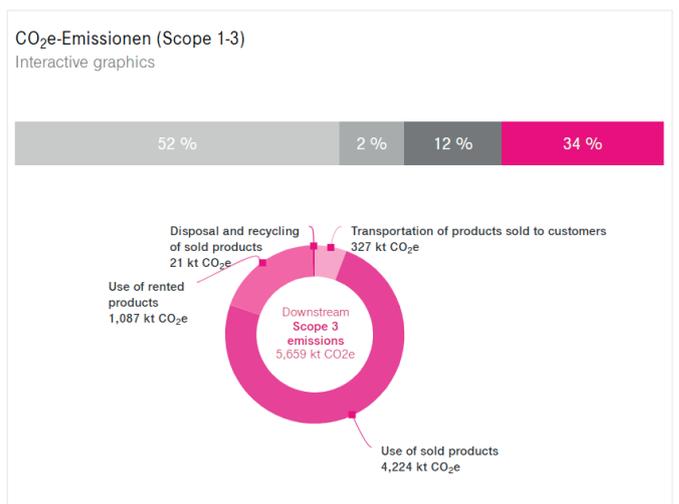
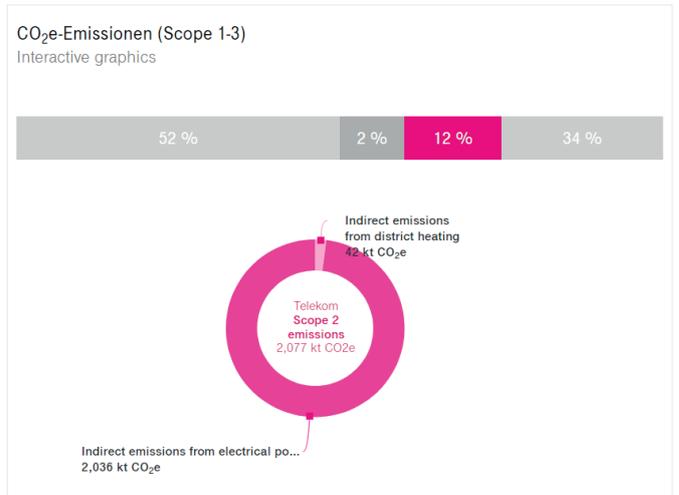
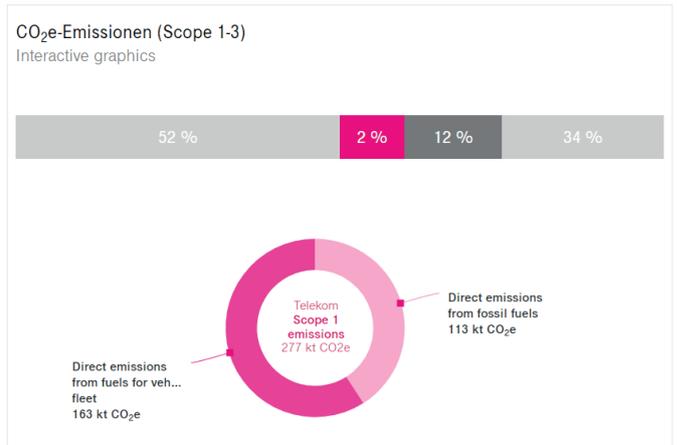
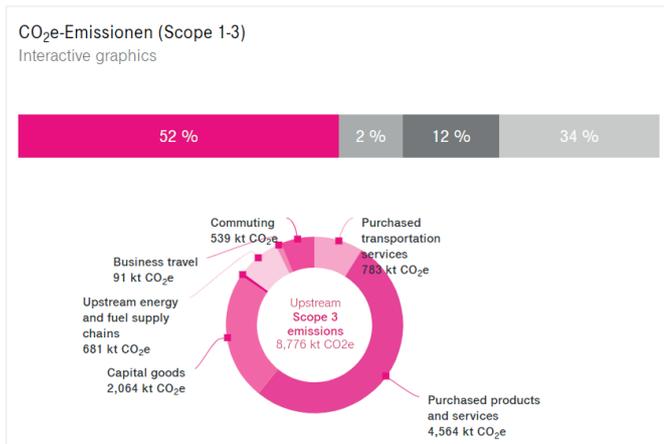


SCOPE 3 EMISSIONS - A BUILDING BLOCK FOR A NEW CLIMATE TARGET

Indirect emissions along our value chain, or Scope 3 emissions, make up the majority of our total emissions. For climate protection to be credible, these emissions must be recorded so that targeted measures can be implemented at company and product level to reduce our carbon footprint.



✓ Data assured by PwC. For detailed assurance comments see „DT Group in Germany“ and „T-Mobile USA“. Values for 2016 have been adjusted retrospectively.



We have been disclosing the Scope 3 emissions generated throughout the Group since 2016. In 2018, these emissions amounted to around 14.4 million metric tons of CO₂e, which is roughly equivalent to the level recorded for the previous year. At around 5.7 million metric tons of CO₂e, emissions in Germany were also at the same level as the previous year. The majority of emissions can be attributed to procurement (in particular of devices and network technology) and the use of our products and services (for sold or rented) fixed-line and cell phones, routers, and media receivers, and for products such as laptops or television sets that our customers use so they can make the most of our services. Of equal importance are the emissions resulting from the manufacture and transportation of technology for establishing our networks.

In 2018, we modified the method for calculating Scope 3 emissions. To ensure comparisons can be made with the previous year's values, we have recalculated the data for 2017 using this method.

Overview of Scope 3 emissions (t CO₂e)

National company	2016 ¹⁾	2017 ²⁾	2018	Annual comparison (2017/2018)
Germany (incl. T-Systems)	4,860,747	5,664,571	5,698,724	
Hungary	565,804	436,463	470,090	
Croatia	318,982	256,846	207,131	
Slovakia	263,246	215,655	190,230	
Greece	1,239,494	963,630	1,156,680	
Romania	498,445	403,794	312,653	
Austria	116,802	124,952	172,127	
Czech Republic	185,775	183,248	113,912	
Netherlands	190,656	184,267	204,051	
Poland	362,078	463,699	448,032	
Albania	only recorded since 2017	3,416	7,366	
Macedonia	only recorded since 2017	93,757	95,048	
Montenegro	only recorded since 2017	30,112	34,900	
United States	4,217,941	5,118,509	5,156,652	
T-Systems (without Germany)	only recorded since 2017	207,039	166,709	
Total	12,819,969	14,349,959	14,435,047	

1) Corrections for 2016 led to some changes being made compared to the previous year's report.

2) The 2017 rise resulted from the national companies in Albania, Macedonia, and Montenegro, and T-Systems units being recorded for the first time, which contributed to the 27-percent increase of the Group value compared to 2016.

Due to the large proportion of emissions in our supply chain, we have a responsibility to reward our suppliers for eco-friendly activities and thus also to reduce our Scope 3 emissions. Since as early as 2016, we have been disclosing our activities to bring on board suppliers under the auspices of the supplier engagement rating of the CDP (formerly the Carbon Disclosure Project). This rating assesses how well companies have been able to integrate the topic of climate protection into their supply chain. In 2018, we once again improved on the previous year and achieved an "A", as we did in 2016. This has secured our place on the Supplier Engagement Leader Board. An important step in achieving this was calculating the supplier-specific emission intensities based on supplier responses to the CDP Supply Chain Program. This involves calculating the ratio between a supplier's overall emissions (Scope 1 and 2 and Scope 3 from the upstream supply chain) in grams and the supplier's overall sales. As we know the procurement volume attributable to a given supplier, we can also calculate our proportion of the supplier's emissions based on emissions intensity. Our calculations do, however, depend on our suppliers providing complete and correct information.

Employee commuting

In the reporting year, we carried out a Group-wide survey on commuting and more than 71,000 employees took part. In the year under review, we recorded a reduction in emissions arising from commuter traffic, with levels dropping from 762,000 in 2017 to 538,000 metric tons of CO₂e. A more detailed analysis and a comparison with other companies will help us in 2019 to understand how we can reduce these emissions in the future while taking into account the mobility needs of our workforce.

ENABLEMENT FACTOR: CUSTOMERS SAVING ON CO₂ EMISSIONS

Our products and services not only connect people, they also help them reduce their CO₂ emissions. In addition to our own carbon footprint, we also calculate the positive CO₂ effects facilitated for our customers through using our products and solutions. The ratio between these two figures – the "enablement factor" – allows us to assess our overall performance when it comes to climate protection. We began calculating the enablement factor in a pilot project launched in 2014. In 2018, we investigated the potential savings of 15 different products. Park and Joy is one of two further services that will be included in this calculation in the future. The other is Comfort Charge.

One example of savings made possible by our products is cloud computing, which enables our customers to reduce their CO₂ emissions by using our cloud services and outsourcing their existing infrastructure to our efficient data centers. Better servers, more energy-efficient data centers, and higher infrastructure capacity utilization can cut energy consumption and the associated emissions by up to 80 percent.

Another example from the period under review is the new Park and Joy app – a quick and easy way for our customers to find parking spaces. Sensors installed in the ground use NB-IoT technology to indicate the location of free parking spaces to users via the app. This cuts emissions by reducing the time it takes to find a parking space. The emissions prevented will also be factored into the calculation of the enablement factor in the future. This service is already available to our customers in some 30 German towns and cities, and the app comes free of charge.

In 2018, the positive CO₂ effects facilitated for our customers in Germany were 85 percent higher than our own CO₂ emissions (an enablement factor of 1.85 : 1). Our products and solutions generated positive CO₂ effects for our customers amounting to 12.1 million metric tons in the year under review. The emissions saved in this way were lower than in the previous year (2017: 12.8 million metric tons of CO₂e), but so were the company's own emissions (Scopes 1 to 3). The possibility of using video conferences had the biggest impact of all our emission-reducing products, preventing some 3 million metric tons of CO₂e.

We always take a conservative approach in our case studies and the methodology we use. This applies to both the emissions reduction realized by our customers and our own emissions generated throughout the value chain. When calculating our carbon footprint, for example, we include both emissions from our own energy consumption (Scope 1 and 2) and the Scope 3 emissions generated by our suppliers and customers. Even the power consumed by the TVs of our Triple Play customers are factored in.

OVER 9,000 METRIC TONS OF CO₂ COMPENSATED

Preventing greenhouse gas emissions is one of our top priorities. CO₂ emissions that we are unable to prevent or reduce can be compensated by investing in certified climate protection projects in addition to devoting greater efforts to using renewable energy.

In the 2018 reporting year, Telekom Deutschland compensated for greenhouse gas emissions amounting to almost 9,169 metric tons of CO₂. These included emissions associated with our events (participants' travel to and from the event, room usage, etc.) and certain products and services (e.g., conference calls or web conferences). Our Event Policy specifies the ways in which we compensate for emissions generated by events.

OUR STRATEGY FOR CLIMATE-FRIENDLY MOBILITY

We pursue a three-pillar strategy to ensure a climate-friendly fleet management strategy:

- **Rightsize:** selecting appropriately sized, energy-efficient, low-emissions cars. In addition, the Green Car Policy creates incentives for drivers of company cars to increasingly select smaller, more efficient cars.
- **Economize:** encouraging a fuel-efficient, low-emissions driving style with driver training courses.

Substitute: testing, piloting, and using alternative mobility concepts. We plan to keep average CO₂ emissions levels of all of the new cars we purchase (company and service vehicles) below 95 g CO₂/km by the end of 2020 in Germany. With this in mind, we are looking to increase

the number of vehicles with alternative drive concepts. For a while now, we have been using a certain number of vehicles powered by natural gas and electricity. We currently favor natural gas, especially for service vehicles. In addition, we are promoting the use of electric drive systems for service applications in specific pilot projects and usage scenarios. Efficient diesel vehicles will also continue to be used in the years ahead for economic reasons. Vehicles with gasoline engines generate higher CO₂ emissions and higher costs than their diesel equivalents, so they only offer a viable alternative in low-mileage applications.

Natural gas as an alternative: new fuel card for natural gas filling stations

Our fleet management team checks whether natural gas filling stations are available at a particular location before offering vehicles powered by this fuel. In the year under review, a new compressed natural gas (CNG) fuel card was added to the portfolio with a view to using as many of Germany's 860 or so natural gas filling stations as possible. The CNG fleet grew to 60 vehicles in 2018. Around 140 further such vehicles currently on order will soon join these. The focus is on service vehicles due to the models available at present on the market. Given the efficiency and environmental benefits of CNG, we will continue promoting the use of natural gas vehicles. We believe they offer significant further potential as an interim solution on the way to electric mobility.

Electric vehicles: pilot projects, vehicle tests, and expanding the charging infrastructure

To make the most of the benefits of electric mobility in the medium term, we have been supplying electric vehicles for pilot projects and specific usage scenarios since 2014. In addition, electric vehicles were tested with a number of service units throughout Germany in 2018 to ascertain their suitability for various applications. This revealed that it is possible to use electric vehicles for activities that can be planned, as long as the necessary charging infrastructure is in place and journeys are within a radius of 100 km. On the basis of these findings, we will be joining a number of other prestigious companies from mid-2019 onward and participating in the "Renewably mobile" support project. In this connection, we have undertaken to purchase a total of 110 electric vehicles as well as charging points. These vehicles will be introduced throughout Germany – mostly service vehicles, but also electric rental cars and an e-shuttle.

The newly founded company Comfort Charge has been helping further expand the charging infrastructure for electric vehicles since the beginning of 2018 by upgrading the existing telecommunications infrastructure in Germany to create a nationwide e-charging network. For further information, please refer to the section on customers.

Extensive choice of mobility options

One of the ways we encourage our commuting employees to actively protect the climate is by enabling them to buy discount season tickets for local and regional public transportation. Regrettably, demand has been falling for around three years now and fewer of these tickets are being issued. We also rely on other modern forms of mobility including our shuttle service, which we have been offering for ten years, loaner bikes for getting around in the city, and rental cars. Midway through 2018, the first three Deutsche Telekom locations were equipped with a charging infrastructure for employees' electric vehicles. Darmstadt, Frankfurt, Düsseldorf, Berlin, and Hamburg will follow early in 2019.

On the go and green: e-bikes, shuttles, and rental bikes

Since 2015, we have offered our employees in Germany the chance to purchase a bicycle or e-bike through deferred compensation schemes as a green and healthy alternative. With the support of Telekom Mobility Solutions, employees can lease a bicycle through their employer for three years. The monthly payments are subtracted from the employee's gross salary. The new offer has met with a tremendous response right from the off. By the end of 2018, over 5,100 colleagues were already making use of this option – an increase of 100percent compared to the previous year. Since 2018, employees have also had the option of obtaining a second bicycle through deferred compensation schemes.

We provide shuttle services between different locations, e.g., to the Cologne/Bonn airport or the Siegburg ICE train station to reduce the carbon footprint of business trips. Roughly 125,000 passengers used this service in 2018. Employees can use an app or visit the intranet to conveniently book a shuttle.

A total of 240 rental bicycles, including some e-bikes, are also available at more than 30 Deutsche Telekom locations in Germany for employees to get to their business appointments within the city. In addition, we have supplied a further 50 bicycles in five cities as a mobility solution for temporary student workers in the service team.

CLIMATE PROTECTION AT MAGYAR TELEKOM

Magyar Telekom stays totally Carbon Neutral

The Magyar Telekom Group stayed completely carbon neutral in 2018, repeating its success from the previous three years. This achievement has put the company ahead of the largest telecommunication companies around the world. This success is based on the purchase of 100 % renewable energy for the Hungarian member companies, enhancing energy efficiency, implementing carbon offset, and saving energy. In 2018, the company purchased CO₂ certificates that offset 30,000 metric tons of CO₂.

In 2018 Magyar Telekom committed to set a Science Based Target.



Community Solar Project for Employees

In 2018, a new employee solar project was started. Employees at Magyar Telekom were able to rent solar panels which were then installed on our training facilities. They received benefits such as a new HBO GO subscription for a year or an electric car for a weekend as a reward for their efforts and their contribution to our climate protection activities.



Stop Wasting – Start Caring!

In order to reduce the harmful effects of waste on the environment:

- Magyar Telekom makes sure that unused equipment gets reused within the company, or by selling it to employees or external partners, or by renting, leasing, or transferring them without compensation (donation).
- Magyar Telekom is collecting waste selectively at more sites.
- Magyar Telekom improves the equipment's effectiveness by upgrading existing contracts, regularly updating collection points, and through communication.

The principal aim of the company is to carry out its operations with the minimum impact on the environment. Magyar Telekom pays special attention to upgrading, repair and reuse of the equipment in its network. The reuse rate of CPE devices is 48 %.

Magyar Telekom complies with statutory regulations in force and informs customers about the various waste-disposal options for used equipment and batteries on the company websites. The volume of such waste showed a decreasing trend even though we provide customers with an opportunity to exchange returned waste and receive a discount on the price of new devices.

All of the products Magyar Telekom sells are certified with energy efficiency certificates in conformity with the requirements of the European Union. They are also in compliance with the environmental standards defined by Hungarian law. Manufacturer's statements with detailed information about life cycle, reuse, recycling of the product, used materials, and repairability features are available in all our stores. All of our procured network equipment should meet our high standards of energy efficiency.

FOSTERING THE USE OF ELECTRIC CARS IN THE NETHERLANDS

In May 2014, T-Systems Netherlands introduced electric cars for lease drivers in order to help reduce the CO₂ emissions discharged from the company's cars. Charging stations have been installed in parking areas to facilitate charging during office hours. A charging station will also be available at the new office location in Utrecht.

All-electric and hybrid cars help to reduce CO₂ emissions as shown in the table below. The reduction in CO₂ emissions is good for the environment and the lower tax rates provide a further major advantage for drivers. These two benefits promote the popularity of these types of car in the Netherlands. This appeal is illustrated by the 24.5% share of cars designed to reduce CO₂ in the company's fleet at the end of 2018. In 2019, tax rates for hybrid cars are increasing and this will exert a negative impact on the share.

Car type	CO ₂ emissions	%
All-electric	0 g CO ₂	2,4
Hybrid	36-88 g CO ₂	14,2
CNG (Compressed Natural Gas)	88 g CO ₂	3,8
Total		20,4

RENEWABLE ENERGY

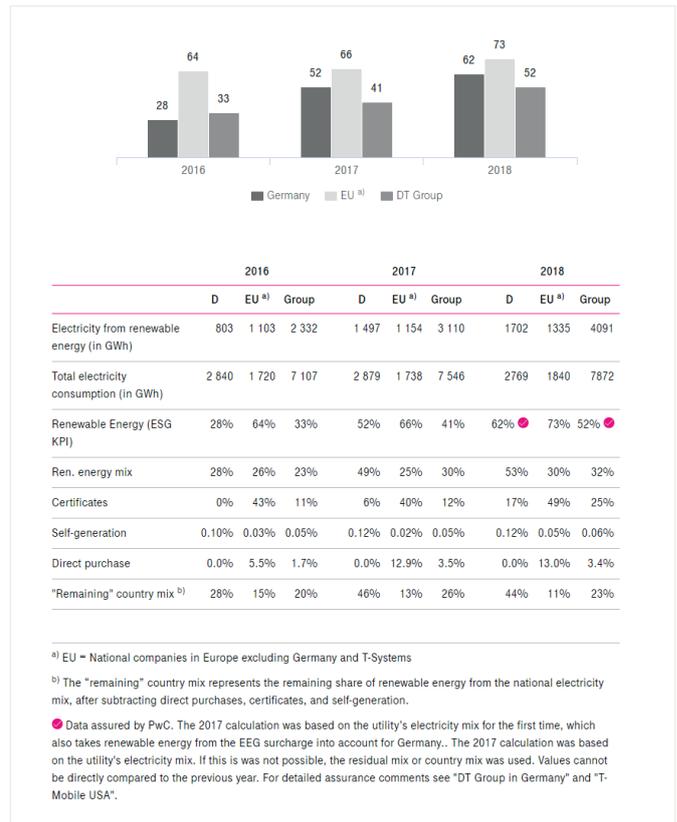
Renewable energy is an important component in preventing the emission of greenhouse gases. We are reducing our carbon footprint by optimizing the energy mix used to generate electricity. The issue of renewable energy is one of the cornerstones of our four-pillar strategy for climate protection. Our national companies in Albania, Greece (OTE), the Netherlands (T-Mobile), and Hungary are already pioneers in this field, with 100percent of their electricity coming from renewable sources since 2017.

OUR APPROACH FOR MORE RENEWABLE ENERGY

To narrow the focus of our integrated climate strategy, we are currently devising suitable goals and strategies in the field of renewable energy. One thing is clear – we want to increase the share of renewable energy across the Group and thus reduce our carbon emissions. To do that, we are sourcing more green electricity directly, acquiring corresponding guarantees of origin, or concluding power purchase agreements (PPAs), as is the case in the United States. Whenever possible and practicable, we are already investing in our own power plants – for instance in the construction of cogeneration plants and the installation of photovoltaic systems.

We have been recording the “Renewable Energy” ESG KPI since 2016. The KPI is calculated based on the share of renewable energy in total electricity consumption. In 2018, the figure was at 52percent across the Group (41percent in 2017). This means we have already exceeded the target of a 50percent share by 2020, which is just an internal target at present.

Moreover, we have developed Group-wide parameters, which we can use to evaluate electricity purchases in the national companies with regard to sustainability. They include, for instance, the average emission factor of the electricity mix (i.e. the amount of emissions for every kilowatt hour of electricity used) and the proportion of renewable energy. These parameters help us make our current energy mix transparent and increase the future share of energy obtained from renewable sources.



PRODUCING CLEANER ENERGY WITH PHOTOVOLTAICS

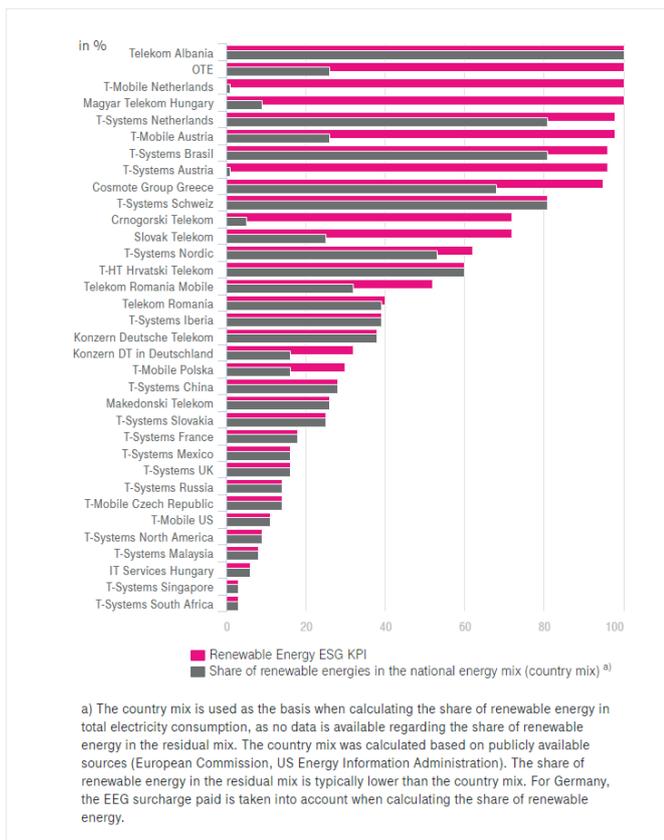
At our technology sites in Germany, we are increasingly relying on solar energy. By the end of 2018, we were already operating more than 300 of our own solar photovoltaic plants overall. In total, the plants have a capacity of just under 4,000kWp (kilowatt peak). Moreover, the existing plants yielded over fivepercent more in 2018 than in the previous year. In this way, we are reducing our ecological footprint by more than 1,700 metric tons of CO₂ every year. The construction of another large plant at our site in Winterfeldstrasse in Berlin has run into delays due to structural requirements and will likely only be completed in the third quarter of 2019.

Over the coming years, our goal is to equip further sites with photovoltaic plants. In 2018, we drew up a concept specifying how we can render more roof space usable for photovoltaic systems. Our internal energy service provider, Power & Air Solutions, is responsible for installing the systems.

MORE GREEN ENERGY AT EUROPEANOUR NATIONAL COMPANIES

In our European national companies, we want to increase the share of renewable energy in our overall energy consumption to an annual level of at least 10percent above that of the respective national energy mix. In the reporting period, we were able to further increase the share of renewable energy in the European national companies. On average, the share of renewable energy was registered at about 20percentage points above the respective country mix*. To achieve this, the national companies can also consider acquiring certificates (guarantees of origin) and concluding power purchase agreements (PPAs) for electricity obtained from renewable energy. Our national company in the United States made a particularly large contribution to this increase, but the proportion of renewable energy used in Germany went up, too.

Our national companies in Albania, Greece (OTE), the Netherlands, and Hungary are already pioneers in this field and cover 100percent of their electricity needs with renewable energies. T-Mobile US is planning on procuring its electricity entirely from renewables by 2021 – predominantly from wind power. We are making the share of renewable energy transparent on a national company level:



* In the calculation of the share of renewable energy in electricity procurement, the provider mix, the residual mix, or the country mix is used as available, according to the IEA factor (in this order). The share of renewable energy in the residual mix is typically lower than the share in the country mix. For Germany, the EEG surcharge paid is taken into account when calculating the share of renewable energy.

ENERGY EFFICIENCY

Our network infrastructure forms the basis of our products and services. At the same time, the operation of our networks accounts for the largest share of our energy consumption and thus also of our Scope 2 emissions. This will continue to be the case in the future because further expanding our networks with higher bandwidths and transmission speeds will result in higher energy consumption. That's why achieving greater energy efficiency in network operation is a key component of our climate protection target. When it comes to our networks, we engage in activities such as replacing outdated technology with new, more energy-efficient technology, e.g., the migration of our fixed-line network to IP technology. In addition, we are currently consolidating data traffic into just a few highly efficient data centers. Information about how our network expansion and the resulting services help our customers reduce their emissions can be found in the "Customers and products" section.

OPERATING ENERGY-EFFICIENT NETWORKS

We operate our own fixed-line and mobile networks in Europe and the United States. The majority of our energy requirements come from operating this network infrastructure. In the interest of our customers, we continue to increase the capacity and performance of our networks so that we can handle growing amounts of data and improve the speed and quality of data transmission. However, this also means higher energy requirements. We pursue three different approaches to reduce our energy needs:

- We update our network infrastructure, e.g., by migrating to IP technology and removing equipment we no longer need.
- We optimize energy generation and supply with the help of technical innovation.
- We use energy-efficient technology not just for our networks, but also for lighting and to monitor, and – most importantly – to cool our systems.

Our internal energy service provider, Power & Air Solutions, which buys energy and then makes it available for use by our Group companies in Germany, plays a key role in these activities. Power & Air Solutions' energy management practices have been ISO50001 certified since 2013.

Measuring and controlling energy consumption

In order to measure our progress across the Group, we introduced two key performance indicators (KPIs). They show our energy consumption (Energy Intensity ESG KPI) and our carbon footprint (Carbon Intensity ESG KPI) in relation to the volume of data transmitted. Using data

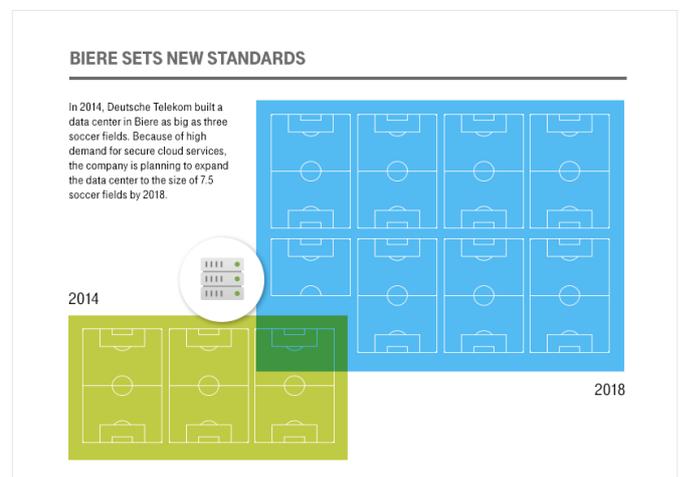
volume as a reference parameter makes it possible to create a direct link to the performance and use of our networks. In the next few years, we are expecting a positive trend in both KPIs.

The PUE (Power Usage Effectiveness) factor is measured annually and is another important performance indicator for managing our climate protection measures. Our state-of-the-art data centers, e.g., in Munich or Biere, are set up for a PUE value of 1.36 and are therefore much more efficient than the average for German data centers, which lies at about 1.8. We are planning to reduce the PUE factor of our fixed-line network in Germany to 1.4 by the year 2020. For this value, we also forecast an additional reduction in the coming years. This will allow us in part to compensate for increasing energy requirements due to growing volumes of data and new features.

MORE CAPACITY FOR OUR ENERGY-EFFICIENT DATA CENTER

Our data center in Biere (near the city of Magdeburg) was put into operation in 2014 and is one of the world's most efficient data centers. And because demand for cloud services "made in Germany" is on the rise worldwide, we have expanded the center by 150 percent during the past two years. The extension was successfully brought into operation in May 2018.

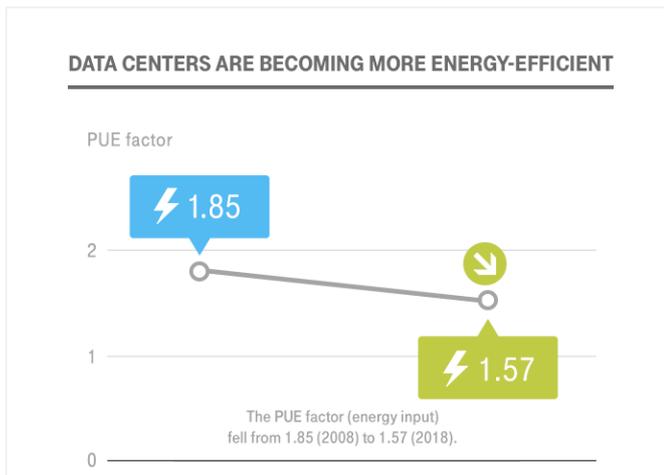
As we had previously done for the first phase of construction, we requested LEED (Leadership in Energy and Environmental Design) certification in Gold for the extension. In 2018, this certification was also presented for the second construction phase – an honor that only very few of the world's data centers receive.



MEASURABLE SUCCESS: REDUCED CO₂ GENERATION AT DATA CENTERS

We keep our goal of reducing our carbon footprint in mind when planning and operating our data centers. To achieve this goal, we take a two-step approach. It starts with optimizing energy consumption at each data center site and then continues with improving processes throughout the global data center landscape.

The key indicator for energy efficiency at our data centers is the PUE factor. Since 2008, we have succeeded in reducing the average PUE factor at the T-Systems data centers in Germany from 1.85 to 1.57. Compared to the previous year, the figure in 2018 remained virtually constant (2017: 1.54). The reason for this is the ongoing consolidation of the data centers, where applications from less energy-efficient sites are migrated to new, highly efficient data centers. This increases the PUE value of the decommissioned data centers in the short term. Overall, this process led to a constant PUE value across all data centers in the reporting year – and saw the value shrink further in the medium term.



The “DC11@2018” program for improving processes throughout our global data center landscape ran from 2013 to 2018. This project combines physical data center consolidation (i.e., reducing data center space and sites) with logical consolidation (i.e., virtualizing data center infrastructure). The objective of the “DC11@2018” program was to globally consolidate data center capacity at FMO (future mode of operation) data centers using the latest IT technology. The consolidation project was completed by the end of 2018 as planned. Within the scope of the physical consolidation, we decommissioned three old data centers in Germany. At the same time, we optimized the air conditioning at the existing data centers in Biere and Munich and other international data centers, including Barcelona in Spain.

The aim was to achieve an average PUE factor of 1.4 across the Group in all FMO data centers by the end of the project. At the end of 2018, we reached a PUE value of 1.57, meaning that we did not attain our target. This is in part due to the gradual shutdown of old data centers – which become less efficient during decommissioning as less capacity is used – and the negative impact this has on the PUE value. Achieving our target calls for further homogenization of our IT landscape combined with optimum capacity utilization of data center infrastructure, IT hardware,

and the software running on the systems. Other factors that have a positive impact on PUE development in a data center are selective cooling and increasing the temperature as far as possible – while simultaneously observing set thresholds. For the year 2020, the latest program plans indicate accumulated reductions in CO₂ by up to 51 percent compared to 2012. The PUE value for the network infrastructure is predicted to drop to below 1.4 by 2020.

Our target PUE factor for our highly efficient data center in Biere is 1.3. To achieve this target, it will be necessary to adhere to a prescribed temperature range, achieve a capacity utilization of at least 80 percent, and create an IT landscape that is as homogeneous as possible. We were not yet able to achieve the PUE target value in 2018 because the level of capacity utilization is not yet as high as originally planned. In addition, it was necessary to cool the data center on multiple occasions during the hot summer. As outlined above, the data centers were consolidated as part of “DC11@2018”, with the data center in Biere successfully expanded by May 2018 to make up for lost capacity.

TESTING ENERGY-SAVING AIR CONDITIONING IN DATA CENTERS

Given the great deal of heat generated by operating high-performance servers in data centers, air conditioning plays a key role in preventing outages caused by overheating. In 2016 in Nuremberg, we began trialing innovative control technology for our servers’ cooling system, which uses several sensors to record room temperature directly at the servers. Power consumption dropped by 15 percent, as this technique allows the air conditioning equipment to be controlled more efficiently. In 2017, we continued the pilot project and succeeded in reducing our energy consumption further. Owing to the relatively high operating costs, the system is not currently being extended to other data centers, but it will continue to operate at the Nuremberg site and we shall continue to monitor its development.

During this reporting year, we also analyzed and evaluated other innovative cooling technologies for our sites. Our findings revealed that we can make further energy savings of up to 50 percent by taking targeted air conditioning measures. The next step is to test the identified measures and subsequently transfer them to regular operations.

ENERGY EFFICIENCY IN BUILDINGS

Our facility energy management activities focus on the two areas of heating energy and electricity consumption. We have defined sub-targets for electricity consumption to help us attain our climate target in Germany. Twice a year, we measure our progress.

Two approaches help us achieve our sub-targets. We are reducing our office space as part of HR downsizing measures and are optimizing space usage by introducing new office concepts. We also identify needs for reduction in energy consumption by using specific indicators such as “kilowatt hours per square meter”, “energy consumption at mid-night”, or “peak loads” to compare similar facilities. This identifies buildings with above-average consumption.

The energy management system of Power & Air Solutions, the provider purchasing energy for the German Group companies, is certified according to the international ISO50001 standard.

Heating and hot water

In 2018, we used approximately 478GWh of heating energy throughout Germany, primarily by using gas and heating oil as well as district heating. The need has decreased continuously in the past years. We regularly assess the need for repairs at our properties and conduct profitability analyses to further reduce consumption. Keeping the available budget in mind, we focus on the most necessary and particularly cost-efficient measures, including:

- Optimizing heating plants
- Renovating heating systems based on the Energy Saving Ordinance
- Using condensing boiler technology to modernize heating installations and pumps
- Recovering waste heat from data centers
- Using cogeneration plants

In order to reduce our network nodes' use of heating energy, we have lowered the starting temperature of the heating system. In the future, we are also looking to factor in the weather forecast when adjusting our systems. A pilot project for this has already been commissioned. In addition, we are planning a pilot project to utilize HTC technology in our heating installations, improving efficiency by using ceramic materials in the combustion chamber.

Electricity

Our employee workstations, lighting, and building technology, including pumps, ventilation, cooling, and elevators, are responsible for the largest part of electricity consumption in our buildings. Our measures for making savings focus on the following areas:

- Using LED lighting and motion sensors
- Using modern pumps and fans
- Switching off building technology when it is not in use

ENERGY AND CLIMATE CHANGE PROJECTS IN GREECE

Energy Management System

The strategic aim of the OTE Group is the rational and sustainable use of energy. It has therefore prioritized improvements in the energy performance of major company installations (office facilities, call centers, data centers, and telecommunication networks). This is a response to global efforts toward climate-change mitigation.

To this end, an Energy Management System was developed and certified according to the ISO 50001 standard in 2016. Initially, the system was implemented in a limited number of critical installations. Gradually it was expanded and in 2018 it was implemented in nine building complexes (including technology and office buildings, data centers, call centers, and the head office of the OTE Group) and 12 mobile base stations. Results are encouraging since energy savings exceed 4 % for the buildings and 15% for mobile base stations.

Large-scale energy audits were also performed during 2018, while further enrichment of the portfolio with a significant number of installations certified with ISO 50001 is included in the OTE Group's plans.

Climate Change Observatory

The OTE Group supports the Research Project "PANhellenic GEophysical observatory of Antikythera (PANGAEA)", a flagship initiative of the National Observatory of Athens. PANGEA's objectives relate to climate change and its impact on severe weather and natural disasters in Greece and the Eastern Mediterranean. The island of Antikythera in southwest Greece will be the National Hub for continuous monitoring of Essential Climate Variables (ECVs). The OTE Group has provided telecommunication equipment and services, as well as its facilities on Antikythera island to house scientific instruments and research infrastructure.

"Ctrl Shift Save the Climate – ICTs as Allies in Climate Protection"

COSMOTE along with the MEDITERRANEAN SOS Network (MedSOS) implemented a pioneering educational program entitled "Ctrl Shift Save the Climate – Information and Communication Technologies as Allies in Climate Protection".

The program's objective is to educate and train young people in Primary and Secondary Education and educators on the ways in which Information and Communication Technologies (ICTs) could contribute to energy saving, climate change mitigation, and adaptation.

During the academic year from 2017 to 2018, more than 1,500 students participated in the program.



Ctrl Shift Save the climate!
 Οι Τεχνολογίες Πληροφορίας και Επικοινωνίας γίνονται σύμμαχοί μας για την προστασία του κλίματος
 Στο Πρόγραμμα συμμετείχαν 1.504 μαθητές από τα σχολεία του Ν. Αττικής, το σχολικό έτος 2017-2018

ENERGY STRATEGY AT T-MOBILE USA

At T-Mobile USA we believe that through our commitment to 100 % renewable energy we can change Wireless for Good. Our strategy combines clean energy, network resiliency and bold inspiration to create both a thriving business and a sustainable world.

The company's key energy metrics, energy and carbon intensity both saw strong improvements in 2018:

- The energy intensity KPI decreased from 422 to 355 MWh per terabyte.
- The carbon intensity KPI decreased from 170 to 106 metric tons of CO₂e per terabyte.

These improvements largely resulted from a 34% increase in data traffic while only experiencing a 13% increase in energy usage. Efficiencies in our equipment allowed for greater traffic loads without requiring an equal increase in energy consumption.

Renewable Energy Commitment: In 2017, T-Mobile USA announced an industry leading commitment to achieve 100% renewable energy usage by 2021. The company views tackling climate change and leading on renewable energy as a tremendous opportunity for T-Mobile to challenge the status quo and seize both financial opportunity and the mantle of industry leadership.

Since the last update, T-Mobile USA has grown its renewable energy portfolio and added over 160 MW through the Solomon Forks Wind Project in Kansas, which will be operational as of July 2019. With this project we will produce an estimated 625 GWh of electricity annually. This doubles the capacity we put online through our pioneering Red Dirt wind project in Oklahoma.

The combined production of the Red Dirt Wind Power and the Solomon Forks Wind Project is a total contracted capacity of 320 MW. These 12 and 15-year clean energy contracts will reduce T-Mobile's operating CO₂ emissions across our US retail stores, call centers, and network operations.

T-Mobile USA has also taken an important step to ensure the corporate headquarters in Bellevue, Washington is powered by renewable energy, by joining Puget Sound Energy's "Green Direct" program which provides renewable energy directly through the local utility.

Energy Efficiency Projects: The energy team at T-Mobile USA researches and designs innovative ways to boost efficiency and cut energy across the entire business. Here are some ways we are optimizing the operation of our network:

- At our data centers we made a number of efficiency improvements including:
 - Addition of cold aisle containment to IT equipment rows, and reprogramming of systems to utilize more 'Free Energy'
 - Upgraded mechanical and electrical systems designed to utilize more efficient equipment and architecture.
 - Addition of hot aisle containment to IT equipment rows with directional and blanking floor tiles for better air management.
- Installed ENERGY STAR certified LED Lighting was at approximately 1,500 new corporate and dealer stores. We also completed additional lighting retrofits across the T-Mobile commercial real estate portfolio. The upgrades were completed in T-Mobile Call Centers, Switch Sites, Regional Business Offices, and its corporate headquarters.
- T-Mobile USA completed numerous pilots and small projects across the company installing new, more energy efficient equipment at our switch stations, cell sites, retail stores and call centers.
- The company has implemented more efficient technologies to reduce the demands of heating and cooling its cellular equipment.

ENVIRONMENTALLY FRIENDLY DATA CENTERS IN AUSTRIA

Operating data centers requires a great deal of energy and T-Systems Austria is dedicated to running its data centers in a maximally environmentally friendly approach. Mitigation makes the data centers in Gmünd, Linz, and Vienna entirely carbon neutral. Mitigation means that resources are used to absorb the same amount of CO₂ as emitted by production of the energy necessary to run them. T-Systems Austria is also actively engaged in initiatives to reduce energy consumption. A "cold/heat technique" is used in server cabinets to regulate the temperature as efficiently as possible with resultant savings in energy. In 2017, the company achieved a total energy reduction of 389,522 kWh. This yields a year-on-year reduction of 63 percent. In 2019, we will carry out necessary upgrades at our data center to get Tier 3 certification according to the EN50600 standard. The fire-extinguishing system at T-Systems Austria has also been designed on environmental principles. The data center at the T-Center in Vienna has 168 fire extinguishers filled with a mixture of nitrogen, argon, and carbon dioxide for emergencies. The extinguishing agent is harmless to humans, leaves no residue, and is 100 percent environmentally neutral.

ENERGY SAVINGS AT T-SYSTEMS MEXICO

Several measures are being implemented to help save energy in the offices of T-Systems Mexico. These include replacement of fluorescent lamps with LED lamps, installation of motion sensors, and monitoring of the air-conditioning system in all offices. As a result, a 9.2 % saving in watts was achieved in 2018 compared with 2017. Moreover, the company was able to implement efficiency measures for energy consumption such as photovoltaic cells. This allowed savings of 15 % of the entire consumption at the facilities.



PROGRESS AT OFFICE BUILDINGS AND DATA CENTERS AT T-SYSTEMS NETHERLANDS

Since 2016, the office building of T-Systems Netherlands in Vianen has been supplied entirely with green energy (100 %). In 2019, the company will move from its office building in Vianen to Utrecht. This building has a class A label. The offices in Heerlen and The Hague cannot be supplied with green energy due to the fact that there are other tenants in the building and to the strategy of the owner of the building. In 2017 and 2018, T-Systems Netherlands focused on improved efficiency for the floor space of its office buildings. A significant decrease in floor space will be achieved as result:

- at the end of 2018, a decrease of 50 % in The Hague and
- at the end of 2019 a decrease of 40 % in Vianen (move to Utrecht)
- at the end of 2019 a decrease of 65 % in Heerlen
- at the end of 2020 a decrease of an additional 35 % in Heerlen (moving out).

The main focus for the company's data centers in 2018 was the significant decrease in energy consumption. In 2018, 21% less energy was consumed in comparison to 2017. This enabled T-Systems Netherlands to build on its achievements in previous years: in 2017 28 % less energy was consumed in comparison to 2016, and in 2016 13 % less energy was consumed in comparison to 2015. This was achieved through asset refresh (lifecycle management), decommissioning, and data-center consolidation.

SUSTAINABLE PRODUCTS

Our products and services contribute to more sustainability. Besides constantly becoming smarter, households and offices are increasingly networking with one another. Using solutions such as Magenta Smart-Home, consumers can control their heating, lighting, and electrical devices in the Internet of Things (IoT) to ensure they only use energy when someone is home. This lowers energy consumption and preserves resources. Our cloud solutions are another excellent example of how our products can help customers considerably reduce CO₂ emissions. Small and medium-sized enterprises (SMEs) that take advantage of cloud solutions can reduce CO₂ emissions by up to 21 metric tons each year on average. This is because, instead of being operated on the customer's premises, applications are shifted to efficient data centers, enabling customers to minimize their infrastructure. Furthermore, Deutsche Telekom pursues and supports projects that help make cities "smarter".

Sustainable products such as those mentioned above are a key element of our integrated climate strategy. Our goal is to improve how we record and increase the CO₂ reduction potential offered by our products.

Learn more about our sustainable ICT solutions in the Customers and Products section.

CIRCULAR ECONOMY AND RESOURCE EFFICIENCY

Using resources responsibly is increasingly a priority for society as a whole, and thus also for our customers. We make every effort to be careful in our use of resources, which is why we support the circular economy approach based on three key elements – avoid, reduce, and reuse. The “Sustainable products and services” section provides details of how we are already applying the circular economy concept.

One key aspect in this context is the responsible use of raw materials, which should be returned to the production process at the end of the product life cycle as far as possible. We can ensure almost all leased devices are reused. This increases the devices’ useful life, which has a positive impact on our life cycle assessment. It goes without saying that we also collect old devices so as to enable raw materials to be recycled professionally and reintroduced into the cycle of recyclable resources. We are intending to further increase the collection of old devices in the coming years.

There are a lot of areas where digitalization can also help conserve valuable resources and protect the environment. One example is “dematerialization”. Companies that store their data in the cloud no longer need a hard drive. Doing away with your hard drive conserves natural resources, reduces electricity consumption, and generates less waste. One of the ways we support this development is by expanding our cloud services.

The “sharing instead of owning” approach also contributes significantly to resource conservation. Many “sharing economy” services, such as car sharing, are only possible thanks to a network infrastructure expanded to accommodate full coverage. By expanding our networks, we are laying the foundations for new, innovative sharing services. At the same time, we have set ourselves the goal of using our expertise to support sharing concepts and driving them forward with corresponding products and services.

OBJECTIVES	MEASURES	MEASURING SUCCESS
<ul style="list-style-type: none"> > Improve resource efficiency 	<ul style="list-style-type: none"> > Health, safety, and environmental management system > International waste management framework > Sharing economy > Product virtualization and dematerialization 	<ul style="list-style-type: none"> > Waste volumes > Used Cell-Phone/Mobile Device Collection ESG KPI > Use of space

SAVING RESOURCES AND PROTECTING THE ENVIRONMENT

With our health, safety, and environmental management system (HSE) we have made a commitment to continually improving our performance in these areas. The system is based on international standards ISO45001 on occupational health and safety and ISO14001 on environmental management.

As a service provider, we use considerably fewer resources than manufacturing companies. The resource utilization for the manufacturing and use of our products occurs in up- and downstream stages of the value chain – with our suppliers and customers. Within our value chain, we are committed to the responsible handling of resources. This means we encourage the responsible use of raw materials by our suppliers and the re-utilization of materials by our customers. For example, we support cell phone collection initiatives in various countries to facilitate the recovery of valuable resources. To this end, we have introduced the Take Back Mobile Devices ESG KPI, which compares the number of cell phones (excluding T-Mobile US) brought to market to the number of used devices collected.

We regularly collect Group-wide data on the amount of waste we produce. Our International Waste Management Framework guarantees standardized guidelines for all of our national companies. They are required to use this framework as a basis for identifying their own measurable targets and then monitor target achievement. This approach, coupled with the absence of quantitative specifications, gives us flexibility when addressing the specific requirements of each country and company.

The new Group-wide initiative “Stop Wasting – Start Caring!” brings both ongoing and new resource conservation projects together under one roof, and reinforces the movement for more sustainability throughout the entire Group.

Resource efficiency is also a priority at the workplace. We use recycled paper and energy-efficient multifunctional printers and encourage procurement of green office materials. In order to reduce the amount of paper used throughout the Group, we ask our employees to have their salary statements sent to their “De-Mail” account instead of having a printout sent by post. Around 20 percent of employees have already canceled delivery by post. We hope to continuously increase this percentage over the coming years.

A NEW GROUP-WIDE INITIATIVE: STOP WASTING – START CARING!

The “Stop Wasting – Start Caring!” initiative launched by CEO Timotheus Höttges provides a new platform for the Group’s long-standing commitment to greater resource efficiency. The aim is to either avoid using resources such as plastic, paper, and packaging, or replace them with environmentally friendly alternatives. If that is not possible, these materials should be used as efficiently as possible and then recycled. In doing so, we are helping support the circular economy. The starting shot for the initiative was fired in September 2018, and we now have close to 100 Group employees in Germany acting as “Green Pioneers” as well as a large number of other supporters.

“Stop Wasting – Start Caring!” has already seen multiple specialist working groups form that focus on relevant subject areas such as “sustainable device design”, “sustainable packaging”, “logistics”, “catering”, and “green points of sale”.

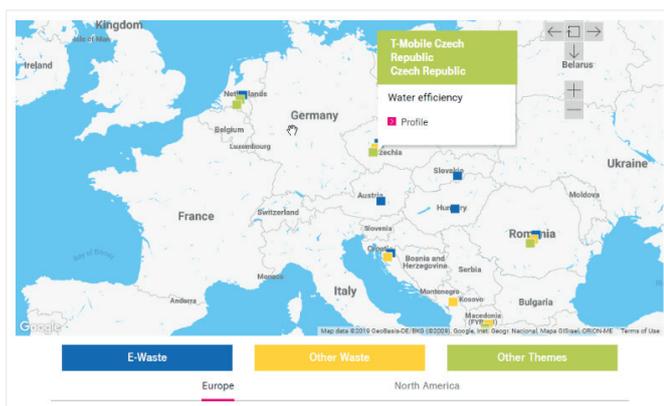
Besides these working groups, the “Stop Wasting – Start Caring!” campaign also involves the in-house “Green Pioneers” ambassador program. Within this framework, environmentally minded employees discuss and present existing and new, innovative ways to boost resource efficiency, including on the “you and me” (YAM) in-house social platform. These “Green Pioneers” share their experiences, organize activities, come together with colleagues from other disciplines to work on projects, or join pre-existing specialist working groups. The aim behind this in-house ambassador program is to promote a fundamental change in perspective with regard to responsible management and conduct in all Group areas.

Examples of initial activities

Together with our canteen operator Sodexo, the “Catering” specialist group has already secured its first success by banning straws and plastic spoons in our canteens throughout Germany. Instead, employees now use metal spoons to stir their hot drinks. In addition, special dispensers have been installed to reduce the number of napkins used. We will provide kitchenettes with water dispensers at our largest German sites by June 2019, before progressing to other locations. Since the end of 2018, we have also been trialing reusable cups from RECUP at two sites’ canteens in a bid to do away with disposable cups. In terms of “logistics”, we are making a dedicated effort to reduce, among other things, the plastic used in protective packaging, the number of returns, and paper consumption by deploying print-on-demand solutions and using more digital documents, for instance. Product and packaging design experts are endeavoring to use more recycled plastic in products such as routers and telephones. Our Speedport Pro router, which we manufacture using recycled plastic, is just one example of how we are already making good progress in this respect. Another example is how we now dispatch our media receivers in protective packaging that contains less plastic. You can find out more about this in the Customers and Products section

.We are keen to gradually launch more projects, and increase the outreach of existing ones, as part of “Stop Wasting – Start Caring!” in the future. The initiative has also been presented to the national companies so it can be established outside of Germany with the relevant regional focus.

The “Stop Wasting – Start Caring!” initiative in our national companies



WASTE REDUCTION AND RECYCLING

Our waste management is organized according to uniform principles across the Group. The implementation lies in the responsibility of the national companies. On a Group level, we have not set a goal for the reduction of hazardous and non-hazardous waste. Instead, our national companies are developing their own waste strategies or updating their current strategies on the basis of our International Waste Management Framework, which we adopted in 2013. They are also setting their own targets, with the reduction of hazardous waste such as lead batteries having top priority.

Logistics – less packaging waste

We’ve all been there – after ordering a small item, it comes delivered in a disproportionately large box filled with extra material to protect it from damage during transportation. Deutsche Telekom has come up with a solution for precisely this problem with its partner Packsize, which has developed a machine that makes it possible to produce the exact box size required for the outgoing item “just in time” – and without major wastage. To ensure reliability and prevent outages, two machines, which are supplied with fanfold corrugated and can produce a delivery box in around ten seconds, constantly run at the same time. The fanfold corrugated in question is available in various widths and qualities. The machines have been in operation since the end of 2017. Depending on the type of delivery, we use up to 50percent less cardboard packaging and up to 95percent less filling material as a result.

Requirements for Group-wide copper cable recycling

Copper cables were a main component of telephone lines for decades. These are being partially replaced over the course of our fiber-optic rollout. In 2016, we therefore introduced a Group-wide, mandatory policy requiring copper cable recycling. This policy provides a guideline to our national companies when it comes to the recycling and disposal of used cables.

Trialing methods for recovering tantalum from electronic scrap

In light of the switch to IP technology and the dismantling of analog infrastructures, we will disassemble tons of old electronics over the coming years. We intend to recover precious metals such as gold and tantalum from the scrap. However, there are not yet suitable recycling methods for all metals. The tantalum used to manufacture condensers is extracted from coltan, which is considered a conflict resource. For this reason we have been conducting a project together with the bifaUmweltinstitut environment institute since 2013. The goal is to develop the perfect method for disassembling and recycling tantalum condensers. Different manual and automated methods for disassembling tantalum condensers were tested. Based on the results, we opted for an automated method in 2016, with circuit boards disassembled using thermal treatment. In order to implement the method in regular operations, a sufficiently high amount of electrical waste would be required. So far, the potential amounts have been insufficient to render this method economical. We will review this aspect again in due course.

INITIATIVES FOR RESOURCE EFFICIENCY AT THE WORKPLACE

We try to use as many green office supplies as possible in order to improve resource efficiency at the workplace. A total of 19 percent of products are classified as sustainable in our office products catalog in Germany. In 2018, the percentage of sustainable products ordered was 22 percent. Examples include paper distinguished with the “Blue Angel” eco-label or “Nordic Swan” certification. Some of our office

products have also been honored with the EU Flower eco-label, the Fair-trade seal, and the FSC (Forest Stewardship Council) and the PEFC (Program for the Endorsement of Forest Certification Schemes) eco-labels. On January 1, 2018, we moved to purchasing exclusively environmentally friendly office paper from a paper wholesaler.

During this reporting year, we also added further sustainably made products to our range of giveaway items. As we did last year, we repeatedly sold leftover giveaway items and corporate clothing to our employees at our Bonn site and in the online shop, meaning that we did not have to discard unused stock. These activities were very well received this year as well. Furthermore, our “you and me” social network offers employees a platform to swap office materials they no longer need instead of ordering fresh supplies.

We have also already set about modernizing the media technology used within our company to meet the requirements laid down in the Minamata Convention, which will take effect under the United Nations Environment Programme in 2020. After this point, the highly toxic heavy metal mercury is to disappear from all light sources. As Germany is one of 128 nations that have already undertaken to abstain from using mercury, we are currently replacing devices that still contain this heavy metal with new mercury-free versions and sending the old devices to be professionally recycled or disposed of. Where possible, we are opting for projectors with state-of-the-art lasers or laser-LED hybrids that work without any conventional lamps.

As in previous years, we extended our “IT remarketing” project into 2018, which involves reconditioning our used IT hardware for further use. We continue to maintain our partnership with “AfB gemeinnützige GmbH”, which offers job opportunities to people with disabilities. Within the scope of this partnership, we will give some of our used IT hardware (e.g., laptops) to the organization in the future for reconditioning and reselling. This will not only help us save resources but also create jobs for people with disabilities as well as extend the life cycle of our used hardware.

CLIMATE PROTECTION AT OTE-COSMOTE

The OTE Group is integrating the principles of a circular economy in its operations across the value chain. Waste management is a core element of this process and specific, diverse programs have been developed to enable effectiveness and to increase awareness.

The OTE Group has been implementing an internal recycling program for packaging materials and paper. The program is based on the principle of “sorting-at-source” with centralized waste collection and management. The adoption of the recycling program empowers us to contribute to achieving national recycling targets for packaging materials in a quantifiable and well-documented manner, as well as to enhance environmental awareness among our employees.

In 2018, 206 recycling stations and more than 3,100 paper recycling bins were deployed in 17 of our buildings nationwide, covering about 9000 employees.

The amounts recycled in 2018 were as follows:

- Paper: 72.64 metric tons
- Plastic: 5.6 metric tons
- Aluminum 832 kg

An internal communication campaign was run during the summer with the message: “The planet can take no more”. The aim of this campaign was to improve employees’ awareness of the effect of plastic bottles and to inform them about the need to take immediate action by starting to recycle them.



The OTE Group was the first company in Greece to implement refurbishment processes for end devices (ADSL, VDSL, VoIP modems, and TV decoders), and so far it remains the only company there to adopt this approach. As a result, this is facilitating the expansion of lifetime and overall utilization of the equipment supplied to customers of COSMOTE and the GERMANOS retail network. Proper end-of-life management of end devices is also being implemented. In 2018, more than 190,000 end devices were collected, over 170,000 of which have already been refurbished. More than 9,500 items were forwarded for recycling.

Moreover, the COSMOTE & GERMANOS retail network has set up a take-back scheme for phones, accessories, tablets, home batteries, and ink cartridges in order to facilitate the recycling of products sold at the end of their useful lifetime. In 2018, more than 40 tons of batteries, ink cartridges, phone devices, and tablets were collected in the COSMOTE & GERMANOS retail network.



Πρόγραμμα «Ανακατασκευής & Επαναχρησιμοποίησης Τερματικού Εξοπλισμού»



STIMULATING CIRCULARITY IN THE TELECOM SECTOR OF THE NETHERLANDS

After the “plastic soup”, as the large amounts of plastic floating in our Oceans are often called, e-waste is the fastest growing waste stream in the world. This is also at risk of becoming a serious problem. T-Mobile Netherlands puts substantial efforts into dealing with this problem through the Recycle Movement. This initiative is an innovative recycling program that addresses e-waste in an innovative way and stimulates circularity in the telecom sector. The Recycle Deal is part of the Recycle Movement in which T-Mobile offers customers the latest mobile phone and enables them make an active contribution to reducing e-waste. Customers will be given the option to sell a device back to T-Mobile after a contract has expired and it will then be recycled or offered for reuse.

Over seven billion smartphones have been produced worldwide over the past decade. After customers purchase a new phone, old appliances all too frequently end up at the bottom of the kitchen drawer or are discarded with general waste. As a telecom provider, we now need to live up to our responsibility and actively contribute to a more sustainable use of the valuable raw materials, such as gold, silver and copper, which are contained in old mobile phones. That responsibility does not stop until the end of the lifespan of an appliance when raw materials can be reused.

The company’s approach enables it to work together with its employees, customers, and partners in the Recycle Movement. This is a big step towards circularity in the telecom sector and in our ambition to transform mobile phones into waste-free tools. Hopefully, others in the sector will also participate.

The new program involves T-Mobile working closely with Closing the Loop, winner of the Circular Award, with its unique One-for-One concept. Two thirds of all devices that are reused will end up in countries where there is no responsible recycling infrastructure. Likewise, many smartphones end up in these countries for a third and sometimes fourth life. At the end of their useful lifespan, they are put on the rubbish dump. In order to ensure that devices from these countries are also safely recycled, T-Mobile is working closely together with Closing the Loop in the new recycling program. This organization has developed a unique One-for-One concept, where a ‘waste telephone’ from the e-waste rubbish dump is saved for every phone that gets a second life. Together with local partners in Africa and Asia, they ensure that the metals extracted for the production of one new mobile phone are compensated by collecting and recycling one ‘waste telephone’. T-Mobile strives to ensure that a ‘waste device’ is recycled for every device that is sold back to T-Mobile.

SALE AND REUSE OF ELECTRICAL AND ELECTRONIC EQUIPMENT AT T-SYSTEMS IBERIA

T-Systems Iberia has been contributing to the idea behind the Stop Wasting – Start Caring! initiative since 2012. Since 2012, T-Systems has been handing over redundant electrical and electronic equipment to Kapema. This company is committed to refurbishing and reselling this type of equipment. Employees at T-Systems are given top priority for the resale of any equipment. This scheme has greatly reduced the amount of electrical and electronic waste generated. During 2018, 359 laptops and 45 desktops were sold. This has exerted a significant impact through reducing emissions from devices by 2,110 kg.

OTHER ENVIRONMENTAL TOPICS

We assume responsibility for creating a low-carbon society – at our company, at our customers and suppliers, and through our social commitment. We focus on those areas where we can make the most impact.

Other environmental topics are addressed as well, such as protecting biodiversity and responsible water consumption. Our infrastructure can also be a part of the solution, which is shown, for example, by our “Bee and Me” project to help beekeepers protect their bees.

WATER CONSUMPTION

We need water to live, and it continues to grow scarcer. The World Health Organization estimates that more than one billion people worldwide do not have access to clean drinking water. As a service provider, our water consumption is comparatively small compared to agriculture and the manufacturing industry. We almost exclusively use water within the scope of our office activities. Water consumption also plays but a minor role along our supply chain. For that reason, water is not a main focal area in our CR management activities. Nevertheless, we use our Water Consumption KPI to record our annual water consumption, which we have been able to consistently reduce since 2012.

PROTECTING BIODIVERSITY

Species extinction is occurring at an alarming rate worldwide, and the consequences are difficult to predict. One major cause of extinction is the fact that more and more space is being taken up by industry, agriculture, and transportation. Compared to other sectors, however, Deutsche Telekom’s core business only occupies a small amount of space.

Deutsche Telekom’s business operations primarily impact the biodiversity at our suppliers’ premises at the start of the value-added chain. This impact is clearly diminished at later stages.

Nevertheless, we are concerned about protecting biodiversity wherever we can. To this end, we develop and support ICT solutions that can help maintain biodiversity. In doing so, we influence the maintenance and enhancement of biodiverse habitats in the direct surroundings of various sites. That is why we collaborate with competent partners on nature conservation efforts near us.

Fighting bee mortality with narrowband technology

Deutsche Telekom supports solutions that help maintain biodiversity. One example of this is a solution by start-up company BeeAnd.me from Montenegro. This young company uses narrowband technology NB-IoT (Narrowband Internet of Things) for optimizing apiculture. Using this technology, data relevant to the beehive – such as temperature, humidity, air pressure, weight, and bee activity – can be recorded and sent to the beekeeper via an app. This allows the beekeeper to take immediate action if the beehive is in danger.

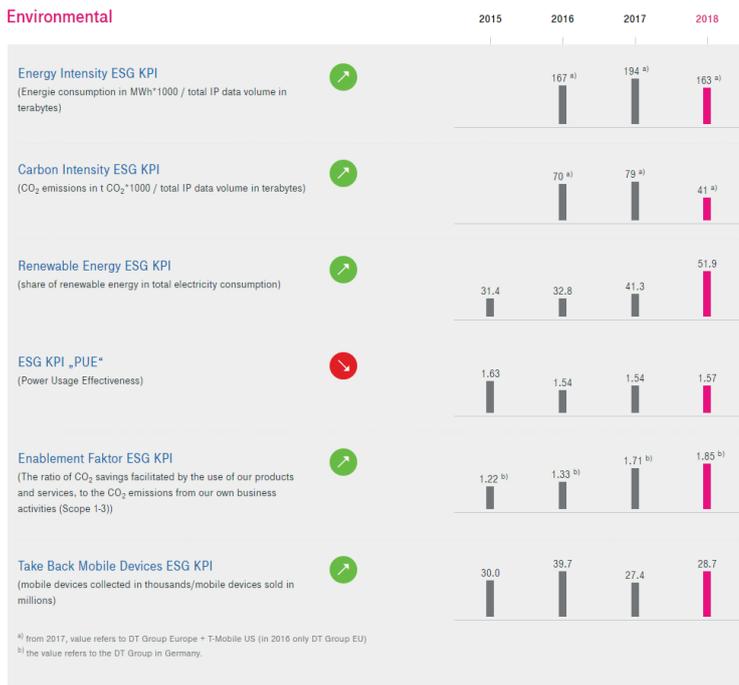
In total, four such beehives monitored by NB-IoT have been set up around the Bonn headquarters and at the T-Systems Innovation Center in Munich. Other beehives managed by the same beekeeper in the Bonn area have also been equipped with sensors and linked to the T-Systems cloud to enable the values of the beehives to be compared across the different locations. Such networking also cuts out unnecessary trips to conduct inspections, demonstrating how the “digital” beehives make an important contribution to ensuring the species’ survival.

Renaturation of biodiverse habitats

Since 2003 we have been carrying out comprehensive collection campaigns for used cell phones. The cell phones are then reused or, if they are no longer functional, properly recycled in an environmentally responsible manner. We use the profits from these collection campaigns to support charitable organizations, especially in the fields of resource protection, environmental protection, nature conservation, and education. In 2018, by collaborating via our online Handysammelcenter cell phone collection portal, we supported nature conservation and species protection projects run by Frankfurt Zoological Society, Pro Wildlife e.V., Bavaria’s State Association for Bird Protection, and the Hellabrunn Zoo.

FACTS & FIGURES

● Positive development ● Insignificant change ● Negative development



SOCIALLY RESPONSIBLE INVESTMENT

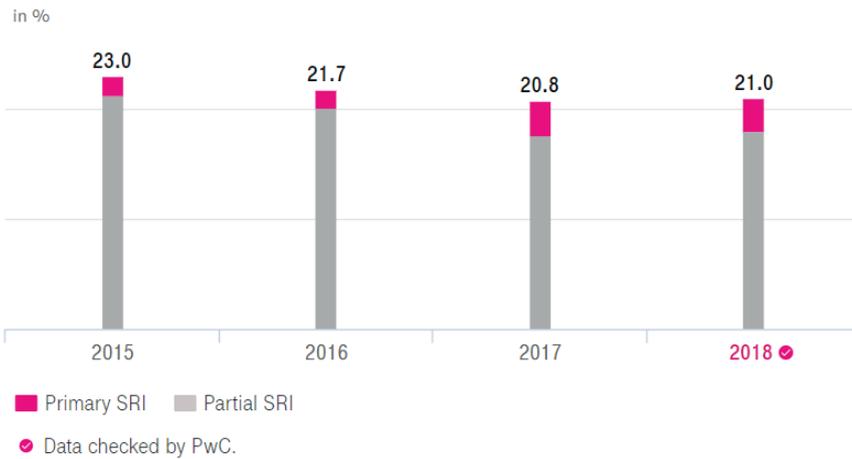
SOCIALLY RESPONSIBLE INVESTMENT (SRI) ESG KPI

The Socially Responsible Investment (SRI) ESG KPI indicates the proportion of shares in Deutsche Telekom AG held by investors who take, among other criteria, environmental, social, and governance criteria into account for their investment strategy. As the basis of calculation is updated annually, year-on-year comparisons may be of limited value. (Source: Ipreo, based on Deutsche Telekom's shareholder structure as of Sept. 30, 2017)

Our commitment for more sustainability pays off for investors as well: As of September 30, 2018, 18 percent of all T-Shares were held by SRI (socially responsible investment) investors, and 3 percent were held by investors who manage their funds primarily in accordance with SRI aspects.

Reporting against standards

The KPI is relevant for criteria 1 (Strategic Analysis, Strategy and Goals) and 7 (Rules and Processes) of the German Sustainability Code



LISTING OF THE T-SHARE

Sustainability ratings play a key role in SRI investment decisions. In line with our corporate responsibility strategy, we concentrate on specific rating agencies that we select on the basis of reputation, relevance and independence. In 2018, the T-Share was again listed on leading sustainability indexes, including RobecoSAM's prominent DJSI World and DJSI Europe. Once more, our share was listed on the FTSE4Good and UN Global Compact 100 indexes. Rating agency "oekom" singled us out as the world's best telecommunications company in terms of ecological and social performance in 2016.

Reporting against standards

The KPI is relevant for criterion 1 (Strategic Analysis, Strategy and Goals) of the German Sustainability Code.

Rating agency	Indexes/ratings/ranking	Successfully listed in index						
		2012	2013	2014	2015	2016	2017	2018 
RobecoSAM	DJSI World	✓	✗	✗	✓	✓	✓	✓
	DJSI Europe	✓	✗	✗	✓	✓	✓	✓
CDP	STOXX Global Climate Change Leaders	✗	✓	✓	✓	✓	✓	✓
EcoVadis	Gold Class					✓	✓	✓
oekom research AG	„Prime“ (Sector Leader)	✓	✓	✓	✓	✓	✓	✓
Sustainalytics	STOXX Global ESG Leaders	✓	✓	✓	✓	✓	✓	✓
	iSTOXX 50 SD KPI	n.a.	✓	✓	✓	✓	✓	✓
	UN Global Compact	n.a.	✓	✓	✓	✓	✓	✓
FTSE Financial Times Stock Exchange	FTSE4Good	✓	✓	✓	✓	✓	✓	✓

✓ Successfully listed ✗ Not listed

 Data checked by PwC.

SUPPLIERS

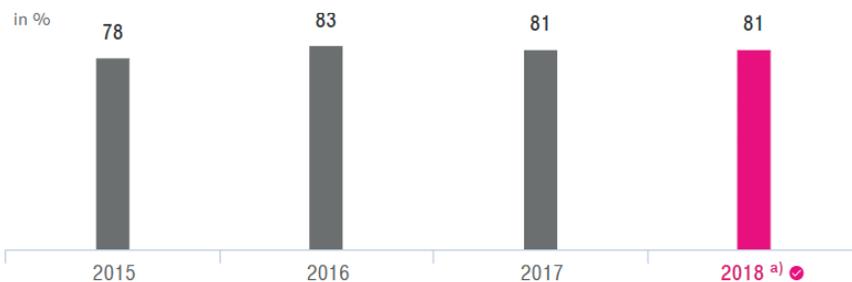
SUSTAINABLE PROCUREMENT ESG KPI

The Sustainable Procurement ESG KPI remained on a stable level against the prior-year figure. The share of the procurement volume that has been risk-assessed momentarily amounts to 81 percent. Over the next two years, we expect our Sustainable Procurement ESG KPI to remain stable at a high level. Our aim is to keep a coverage of at least 80 % until 2020.

We measure the degree to which our procurement volume is covered by sustainable activities with the Sustainable Procurement ESG KPI. It measures the share of procurement volume we obtain from suppliers where one or several Group companies of the corporate group have been assessed for compliance with our social and environmental standards by way of self-assessments and/or audits. This also applies for audits carried out on subcontractors. In the coming years we expect our Sustainable Procurement ESG KPI to stay at a constant level.

Reporting against standards

The Sustainable Procurement ESG KPI together with information about our strategic approach fully covers the GRI 412-1 (Human Rights Assessment) and GRI 414-1 (Supplier Social Assessment) GRI indicators. By providing this information, we cover the V28-04 EFFAS indicators (Supply Chain). It is also relevant for criteria 1 (Opportunities and Risks), 3 (Sustainability Goals), 4 (Value Added Chain), 6 (Rules and Processes), 7 (Performance Indicators) and 17 (Human Rights) of the German Sustainability Code. It is also used for reporting in accordance with the Global Compact Principles 1 (Supporting and respecting human rights), 2 (No complicity in human rights abuses) and 5 (Effective Abolition of Child Labor).



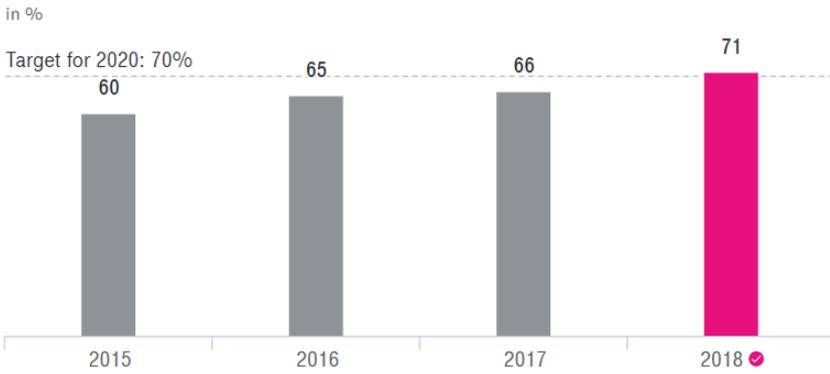
■ Procurement volume covered by supplier self-assessments and/or audits as a percentage of total sourcing volume

● Data audited by PwC. Based on procurement volumes at Group Procurement.

a) Excl. T-Mobile US

CDP SUPPLY CHAIN COVERAGE ESG KPI

The ESG KPI „CDP Supply Chain Coverage“ was reported externally for the first time in 2017. It indicates the degree to which our procurement volume from carbon intensive suppliers is covered by the CDP Supply Chain Program. The share of the procurement volume that has been covered by the CDP Supply Chain Program in 2017 amounts to more than 71 percent. Thus, our target to cover 70 percent of our carbon intensive suppliers by 2020 is already exceeded.



■ Procurement volume covered by the CDP Supply Chain Program through carbon intensive suppliers

✔ Data assured by PwC.

CR-QUALIFIED TOP 200 SUPPLIERS ESG KPI

The ESG KPI „CR-Qualified Top 200 Suppliers“ is an internal management indicator which complements the ESG KPI “Sustainable Procurement”. While the ESG KPI “Sustainable Procurement” measures the share of procurement volume reviewed according to sustainability criteria, the KPI “CR-Qualified Top 200 Suppliers” reflects the share of suppliers from the Top 200 Suppliers pool.

These are reviewed based on sustainability criteria according to Self-Assessments, Audits, Supplier Sustainability Workshops and Supplier Development Programs. The share of CR-qualified suppliers taken from the Top 200 pool amounts to 86 percent in 2018. Thus, our target to reach 75 percent by 2020 is already exceeded.



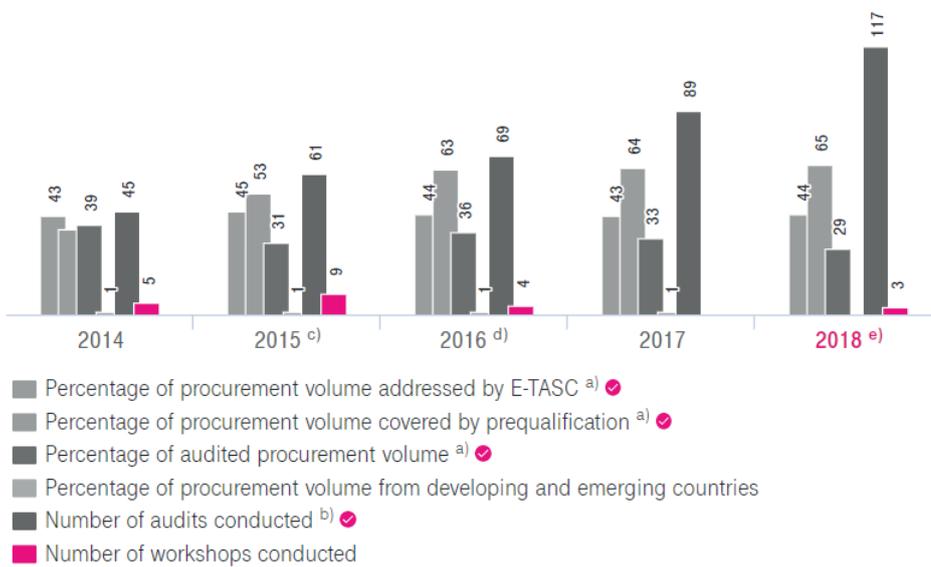
■ CR-Qualified TOP 200 Suppliers; *CR Qualified: Self-Assessments (Pre-Qualification, * E-TASC), Audits, Supplier Sustainability Workshops, Supplier Development Program. The ESG KPI „CR-Qualified Top 200 Suppliers“ considers the share of suppliers that are CR-Qualified TOP 200 suppliers.

SUPPLIER RELATIONSHIPS

The percentage of audited procurement volume decreased slightly from 33% in the previous year to 29% in 2018. At the same time, the percentage of procurement volume covered by E-TASC increased slightly to 44 percent. A supplier prequalification process via the Supplier Management Portal (SMP) took place for 65% of the procurement volume in 2018, compared with 64% in the previous year. Prequalification is mandatory for all suppliers for which we anticipate an order volume of more than 100,000 euros. In 2018, all suppliers whose qualifications had expired or were still pending or not yet completed were asked to complete the qualification once again. This allowed us to increase the number of qualified suppliers.

Reporting against standards

The Sustainable Procurement ESG KPI together with information about our strategic approach fully covers the GRI 414-1 (Supplier Social Assessment) GRI indicators. We also comply with criterion 17 (Human Rights) of the German Sustainability Code. The KPI is also relevant for the EFFAS indicator (V28-04) and for criteria 1 (Opportunities and Risks), 3 (Sustainability Goals), 4 (Value Added Chain) and 6 (Rules and Processes) of the German Sustainability Code. It is also used for reporting in accordance with the Global Compact Principles 1 (Supporting and respecting human rights), 2 (No complicity in human rights abuses) and 5 (Effective Abolition of Child Labor).



✔ Data 2018 checked by PwC. Based on procurement volumes at Group Procurement.

a) Data audited by PwC. Includes social audits carried out both internally and externally. Based on procurement volumes at Group Procurement
 b) Data audited by PwC. Includes social audits carried out internally and externally. (both within Deutsche Telekom and via the Joint Audit Cooperation (JAC)). Audits also include follow-up audits.
 c) Retroactive correction of the 2015 data in the year 2016
 d) Basic data drawn from a projection of procurement volume as of Oct. 2016.
 e) Excl. T-Mobile US

SUSTAINABLE PRODUCTS

SUSTAINABLE REVENUE QUOTA

ICT technologies play a key role in sustainable development. Potential benefits include the ability to reduce greenhouse gas emissions, make sparing use of resources and improve healthcare coverage. We commenced the analysis of our portfolio on the basis of sustainability aspects in 2014. The result for 2018 showed that already 42 percent of our revenue was generated with products and services that offer sustainability benefits.

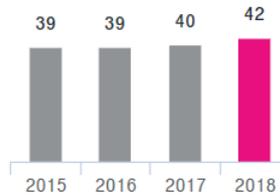
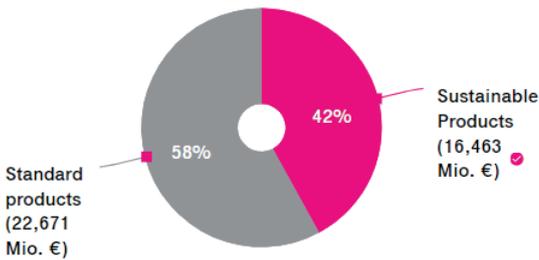
Reporting against standards

Specifying the Sustainable Revenue Share ESG KPI is relevant for the EFFAS KPI V04-13 (Revenues from new products innovation). It is also relevant for criteria 3 (Objectives) and 10 (Innovation and Product Management) of the German Sustainability Code. It is also used for reporting on Global Compact Principle 9 (Encourage the development and diffusion of environmentally friendly technologies).

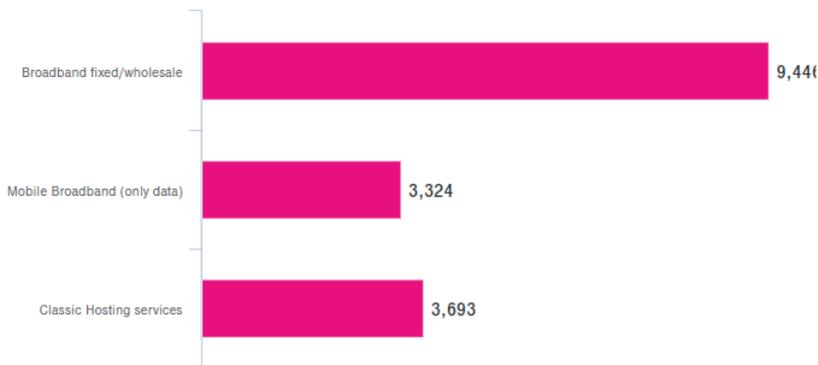
42 % of DT's product portfolio generate sustainability benefits.

Share of revenue with products and services that offer sustainability benefits DT (DTAG excl. US, 2018)

in %



Extract: Revenue with sustainability benefits per products * (in mio. €)



* 22 products and solutions have been evaluated in total

● Data checked by PwC.

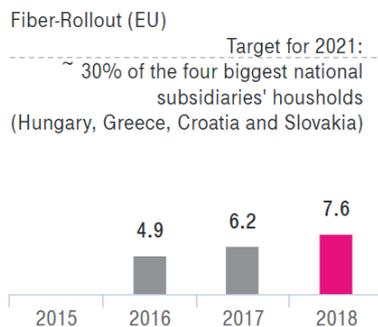
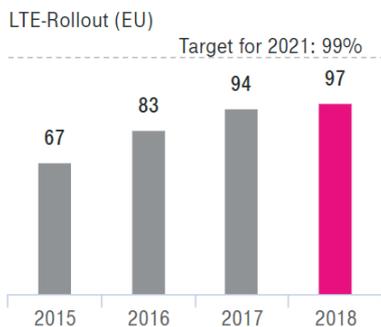
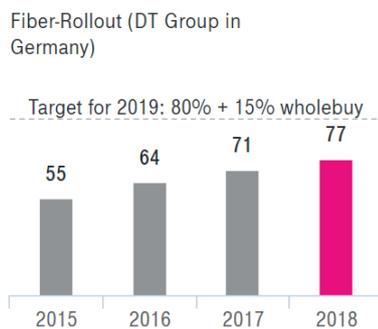
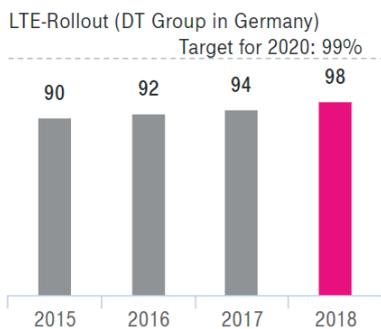
NETWORK DEVELOPMENT & INNOVATION

NETWORK BUILDOUT

We again made significant investments in the broadband and fiber-optic buildout, our IP transformation, and our mobile infrastructure as part of our integrated network strategy.

We are building an IP-based network with high transmission bandwidths so that, in the future, we can offer our customers competitive high-speed lines, e.g., by migrating our VDSL network to vectoring technology. In addition, we are investing heavily to offer greater coverage and even higher speeds in rural areas as well. We are also using innovative products for this purpose – like our hybrid router, which combines the transmission bandwidths of fixed-network and mobile communications, thus enabling much higher transmission speeds.

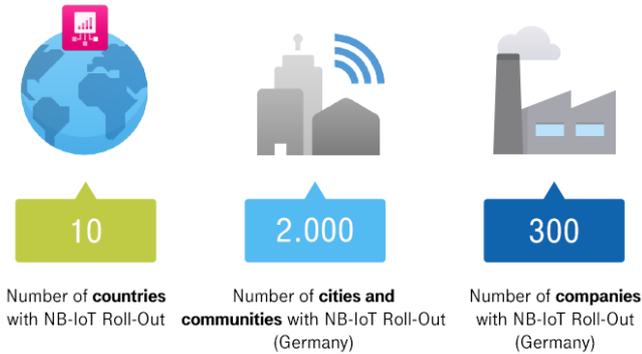
Part of our network strategy is to also systematically build out our mobile networks with 4G/LTE technology to increase transmission rates in all our national companies. Thanks to investments in our 4G/LTE network, our customers enjoy better network coverage with fast mobile broadband. In 2018, we already supplied about 98% of the population of Germany with LTE (97 % in Europe). This puts us right on schedule to reach our goal of 99 percent network coverage by 2020.



SMART INNOVATIONS: NB-IOT AND USE CASES "E-HEALTH"

In this section, we will introduce some "Smart Innovation" solutions. The associated business models are based on the most advanced technology and provide an immediate value-add for our customers. At the same time, these solutions are also making an ecological and/or social contribution to society.

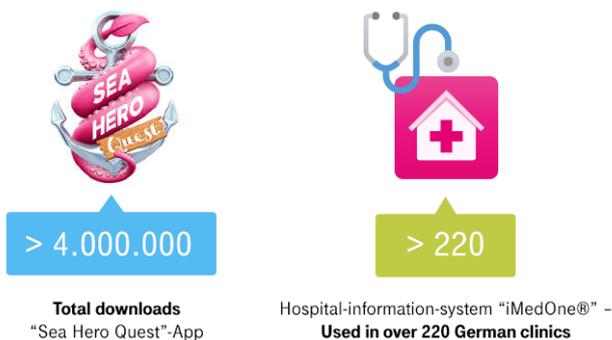
SMART INNOVATIONS: NB-IOT



In the area of e-health, we are highlighting, for the reporting year, two innovative applications that provide added social value, in particular, for our customers and for society: the game Sea Hero Quest gives scientists important insights into the spatial navigation ability of individuals of all ages, within minutes – and thus 150 times faster than with conventional research methods. Gamers thus make a direct contribution to dementia research while having fun. The other e-health solution, iMedOne®, (oder Link in Kapitel wo dazu was steht) is a hospital information system. It creates optimal conditions for connected work and supports hospital processes in multiple ways.

This means that physicians and nursing staff, for instance, are able to access required data and functions at all times and everywhere. This makes a significant contribution to cost-efficiency and quality improvement. An efficient and fully integrated hospital information system that can be used on mobile devices thus improves the quality of care.

SMART INNOVATIONS: USE CASES E-HEALTH



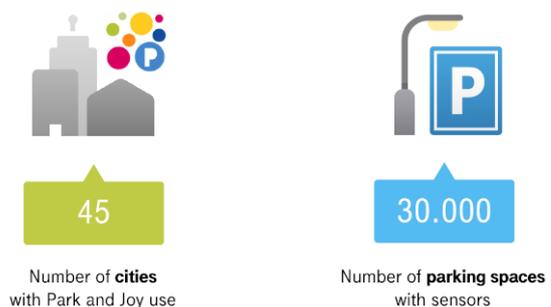
We are, for example, utilizing future-oriented and widely available technologies to make cities viable for the future and to develop solutions for social challenges. For this, we are relying on innovative NarrowBand IoT (NB-IoT) technology, with which we are paving the way for the Internet of Things. NB-IoT devices have a large operating range and long battery service lives. Consequently, this technology provides the basis for many innovative uses that are both cost- and energy efficient. Particularly useful areas of application for NB-IoT are, for instance, smart parking, smart cities, smart meters, as well as transport and logistics solutions.

In early 2019, NB-IoT was already available in more than 2.000 cities and municipalities in Germany, for instance in the metropolitan areas of Berlin/Potsdam, Cologne/Bonn, the Ruhr district, Mannheim/Heidelberg, and Stuttgart. Progressive rollout in the coming months will see many more cities in ten additional countries being equipped with the new infrastructure. In addition to the USA and Germany, the Netherlands, Greece, Poland, Hungary, Austria, Slovakia, as well as the Czech Republic and Croatia will be included in this rollout. Additionally, we have rolled out NB-IoT in eight other European markets as well as the USA: The countrywide rollout in the Netherlands, Austria, Slovakia and the USA is completed. In Poland, the Czech Republic, Hungary, Croatia and Greece many cities are equipped with the new NB-IoT infrastructure.

The goals of preventing traffic jams and reducing CO₂ emissions pose major challenges to cities and communities. Digital applications can help cut pollution and save drivers time by improving the flow of traffic. One example of this is the Park and Joy app, which we launched in Hamburg in 2017. The app pinpoints and navigates drivers to free parking spaces. It also enables users to pay for their parking directly and extend the parking time as required on the move.

In 2018, the app already covered some 30,000 parking spaces in 40 different towns and cities. Numerous other towns and cities are to be added in 2019.

SMART INNOVATIONS: PARK AND JOY



NUMBER OF FIXED NETWORK CUSTOMERS

Number of fixed network customers
(in mio.)



a) excl. DT Group in Germany

DATA SECURITY AND PROTECTION

IT SECURITY & DATA PROTECTION

A random sample of 50,000 Telekom employees are surveyed on the topics of data protection and IT security each year. The findings of the survey are used, for example, to determine the Security Awareness Index (SAI) and the Data Protection Award indicator. The indicators help us to review the effectiveness of our measures in the areas of IT security and data protection.

The Data Protection Award indicator measures the level of data protection within the units on a scale of 0 to 12. It is calculated based on what the employees said they thought, did and knew about data protection.

The Security Awareness Index measures our employees' perception of IT security at Deutsche Telekom. The assessment is based on Deutsche Telekom employee answers on management awareness of the topic, the security culture, the influence of security requirements on their own work, and their personal responsibility for and attitudes towards IT security. The index includes a scale from 0 to 100 – the higher the value, the higher IT security is rated at Deutsche Telekom.

Reporting against standards

The information on the indicator "IT Security & Data Protection" is relevant for GRI indicator GRI 418-1 (Substantiated complaints concerning breaches of customer privacy and losses of customer data). It is also used in our reporting on Global Compact Principle 1 (Protection of international human rights).



a) excl. T-Mobile US

● Data verified by PwC.

FINANCIAL PERFORMANCE INDICATORS

NET VALUE ADDED

The main reason for the fall in net value added from 42.8 billion euros to 33.5 billion euros is the higher disbursement for investments in the previous year, especially in connection with the spectrum auction of FCC licenses in the United States, which was completed in April 2017. Investments for the network build-out in the United States and the fiber-optic expansion in Germany remained at the same high level year-on-year. Payments to capital investors fell, in particular due to the lower financing cash flow year-on-year, to the increased early and scheduled redemption of bonds and repayment of loans in 2017, and to lower interest payments. Payments to employees increased slightly in 2018 due to restructuring costs associated with early retirement for civil servants and a rise in salaries resulting from collective agreements. This was offset by lower headcounts in Germany.

In contrast to the statement of income, the net value added only takes account of real payment flows. That means that deferred tax expenses and the accrual of provisions do not impact the net value added of the reporting period. Although these costs are deducted from net profit in the statement of income, they are not linked to any current payments to stakeholder groups, as is the case with net value added. Outpayments in this respect are scheduled for the future and will only be accounted for in net value added in future years.

Reporting against standards

With this KPI, we fully cover the GRI 201-1 (Direct economic value generated and distributed) GRI indicator.



NET REVENUE, EBITDA AND NET PROFIT

A detailed clarification of our financial KPIs is available at www.telekom.com/investorrelations.

in bn. €		2015	2016	2017	2018
Net revenue		69.2	73.1	74.9	75.7
EBITDA (adjusted for special factors) ^{a, b)}		19.9	21.4	22.2	23.3
EBITDA margin (adjusted for special factors) ^{c)}	in %	28.8	29.3	29.7	30.8
Net profit (loss)		3.3	2.7	3.5	2.2

^{a)} Deutsche Telekom defines EBITDA as profit/loss from operations before depreciation, amortization and impairment losses.

^{b)} EBITDA, EBITDA adjusted for special factors, net debt, and free cash flow are non-GAAP figures not governed by the International Financial Reporting Standards (IFRS). These measures should be considered in addition to, but not as a substitute for, the information prepared in accordance with IFRS. Alternative performance measures are not subject to IFRS or any other generally accepted accounting principles. Other companies may define these terms in different ways. For further information relevant to alternative performance measures, please refer to the Annual Report section [Management of the Group](#), page 31 et seq., or to [Deutsche Telekom's Investor Relations website](#).

^{c)} Calculated on the basis of millions for the purpose of greater precision. Changes to percentages expressed as percentage points.

REVENUE DEVELOPMENT

In 2018 Deutsche Telekom generated Group revenue of 75.5 billion euros, reflecting a growth of more than 700 million euros. The international share of Group revenue rose by 0.6 percentage points to 67 percent. Likewise, revenue per employee increased steadily in 2018 to 350,000 euros, translating into a growth rate of about 1 percent.

in bn. €	2016 ^{b)}	2017 ^{b)}	2018	Change on 2017 (in bn/pp)
Net revenue Germany ^{a)}	33.7	32.8	32.2	-0.6
Net revenue international ^{a)}	66.3	67.2	67.8	0.6
Net revenue Group (total)	73.1	74.9	75.7	0.8
International revenue as a percentage of Group revenue	90.7%	89.7%	89.6%	0 pp

^{a)} Since revenue allocation to determine ratios is from an HR perspective, it reflects the location of employees (FTE); see annual report section ["Workforce statistics"](#)

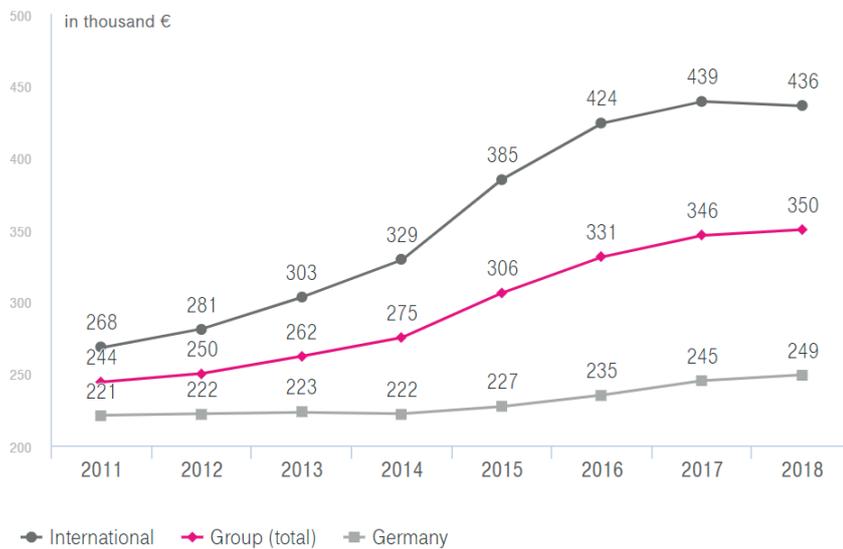
In the annual report revenue is allocated to the country where it is generated.

^{b)} The value was corrected compared to the information published in the previous year's report.

FINANCIAL PERSONNEL INDICATORS

REVENUE PER EMPLOYEE

In the year 2018, revenues per employee increased to EUR 350,000 groupwide – this represents a gain of 1.2 percent. In Germany, the revenues per employee has increased slightly by 1.6 percent. Outside Germany, revenues per employee decreased from around EUR 439,000 to around EUR 436,000.



PERSONNEL COSTS AND PERSONNEL COST RATIO

By personnel costs we mean basic personnel costs (salaries) and incidental personnel expenses. The indicator is adjusted for special factors in conjunction with personnel restructuring measures (individual downsizing instruments). The personnel cost ratio represents personnel costs as a proportion of revenue. The development of this rate serves as a benchmark for company business. In the Group as a whole, the personnel cost ratio in 2018 showed a slight increase year-on-year, because personnel costs had increased more sharply than our Group revenue. This is due in large part to our collective agreement with the ver.di trade union for Deutsche Telekom employees in Germany

The disadvantage of the personnel cost ratio is that it ignores external personnel costs. Therefore the total workforce costs ratio is more meaningful for the management of personnel costs at Deutsche Telekom.

in bn. €	2011	2012	2013	2014	2015	2016	2017	2018
Personnel costs in the Group	14.8	14.7	15.1	14.7	15.8	16.5	15.5	16.4
of which: Germany	9.2	9.2	9.4	9.1	9.4	9.8	8.5	9.2
Special factors	1.2	1.2	1.4	0.9	1.2	1.5	0.6	1.2
Personnel costs in the Group adjusted for special factors	13.6	13.5	13.7	13.8	14.6	14.8	14.9	15.2
Net revenue ^{a)}	58.7	58.2	60.1	62.7	69.2	73.1	74.9	75.7
of which: Germany	27.2	26.7	26.3	25.7	25.7	25.3	25.2	25.0
Adjusted personnel cost ratio Group (total, in %)	23.1	23.2	22.7	22.0	21.2	20.3	19.9	20.1
Adjusted personnel cost ratio Germany (in %)	30.6	31.1	32.3	32.9	33.0	32.9	32.1	33.0

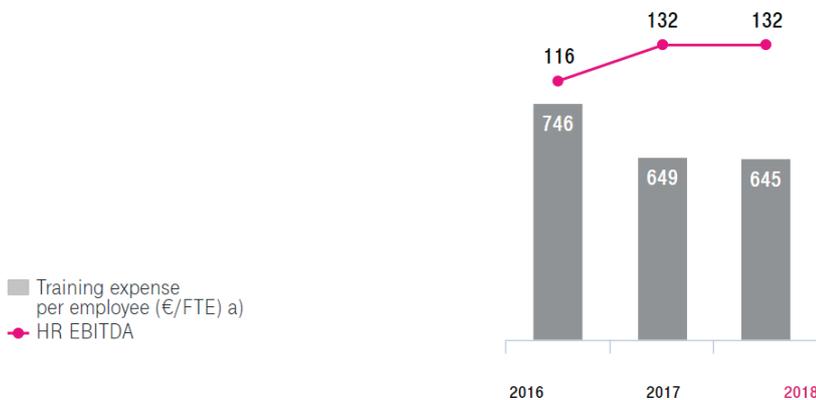
^{a)} As revenue allocation is separated into Germany/international from an HR perspective, this reflects employee location, unlike the financial report, which allocates revenue to the country where it was generated.

HR EBITDA (RATIO)

The so-called „HR EBITDA“ of Deutsche Telekom Group (without T-Mobile US) puts into ratio the calculated earnings per employee with the investments in training per employee.

Reporting against standards

This data is relevant for the GRI 404-1 (Average hours of training per year per employee) and GRI 404-2 (Programs for upgrading employee skills and transition assistance programs) GRI indicators as well as the S02-02 (Training expenses per employee) EFFAS indicator. This data also covers criterion 16 (Steps taken to promote the general employability of all employees) of the German Sustainability Code.



	2016	2017	2018
EBITDA (m€ adjusted) a), b)	12859	12914	13245
EBITDA per employee (€ / FTE) a), b)	86440	85915	85013
Training budget (m€) a)	132	112	110
Training expense per employee (€ / FTE) a)	746	649	645
HR EBITDA a), b)	116	132	132

$$\text{HR EBITDA} = \text{EBITDA per employee (€ / FTE)} / \text{Training expense per employee (€ / FTE)}$$

a) DT Group without T-Mobile US

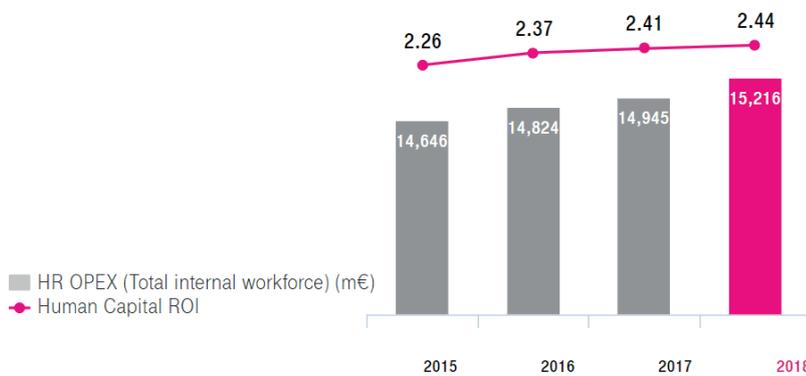
b) Due to a more precise calculation method, the values of 2016 and 2017 have been corrected retrospectively.

HUMAN CAPITAL ROI

The so-called "Human Capital Return on Invest (ROI)" illustrates the company's return on investment in human capital by building a ratio between revenue, OPEX and the costs of our internal workforce (IWC).

Reporting against standards

This data is relevant for the GRI 404-1 (Average hours of training per year per employee) and GRI 404-2 (Programs for upgrading employee skills and transition assistance programs) GRI indicators as well as the S02-02 (Training expenses per employee) EFFAS indicator. This data also covers criterion 16 (Steps taken to promote the general employability of all employees) of the German Sustainability Code.



	2015	2016	2017	2018
Total Revenue (m€)	69 228	73 095	74 947	75 656
Total OPEX (m€ adjusted)	50 723	52 718	53 854	53 782
Internal Workforce Costs (IWC) (m€ adjusted)	14 646	14 824	14 945	15 216
Human Capital ROI	2.26	2.37	2.41	2.44

Human Capital ROI = (Total Revenue - Total OPEX) / HR OPEX (Total internal workforce)

TOTAL WORKFORCE COSTS

In bn. €	2013	2014	2015	2016	2017	2018
TWC ^{a)}	15.3	15.4	16.5	16.8	16.9	17.1
of which: Germany	9.3	9.2	9.2	9.1	8.9	9.0
IWC ^{b)} (PC ^{c)} adjusted)	8.5	8.5	8.5	8.3	8.1	8.1
EWC ^{d)} Leased and temporary workers	0.1	0.05	0.05	0.03	0.04	0.05
EWC ^{d)} Freelancers and consultants	0.8	0.7	0.7	0.7	0.8	0.8
of which: international	6	6.1	7.2	7.8	7.9	8.0
IWC ^{b)} (PC ^{c)} adjusted)	5.2	5.3	6.1	6.5	6.8	7.1
EWC ^{d)} Leased and temporary workers	0.2	0.3	0.4	0.5	0.2	0.2
EWC ^{d)} Freelancers and consultants	0.6	0.6	0.7	0.8	0.8	0.8

^{a)} Total workforce cost: external workforce cost + personnel cost adjusted for special factors

^{b)} Internal workforce cost

^{c)} Personnel cost

^{d)} External workforce cost: cost of leased and temporary workers + cost of freelancers and consultants

TOTAL WORKFORCE QUOTA

Total workforce management allows HR to be managed in a holistic manner, enabling qualitative and quantitative personnel planning over the long term. The total workforce ratio describes the relationship between all personnel expenditure and revenue. This means: if the ratio has fallen in comparison with the previous year, either revenue has remained constant while total workforce costs have gone down, or revenue has increased with stable Total Workforce Cost.

Having fallen in the Group as a whole in the period from 2014 to 2017, the ratio increased slightly to 22.6 percent in 2018. On an international level, it decreased – from 16.6 percent in 2015 to 15.9 percent at present – but it increased slightly in Germany due to the rise in personnel costs. The adjusted ratio for the Group as a whole was down 0.1 percentage points year-on-year.

in bn. €	PA ^{a)} adjusted 2017	EWC ^{b)} 2017	TWC ^{c)} 2017	Revenue ^{d)} 2017	TWQ ^{e)} adjusted 2014	TWQ ^{e)} adjusted 2015	TWQ ^{e)} adjusted 2016	TWQ ^{e)} adjusted 2017
Germany	8.1	0.9	9.0	25.0	35.9%	35.9%	35.4%	36.1%
International	7.1	1.0	8.0	50.7	16.6%	16.2%	15.9%	15.9%
Group (total)	15.2	1.8	17.1	75.7	23.8%	23.0%	22.5%	22.6%

^{a)} Personnel cost

^{b)} External workforce cost: cost of leased and temporary staff + cost of freelancers and consultants

^{c)} Total workforce cost: external workforce cost + personnel cost adjusted for special factors

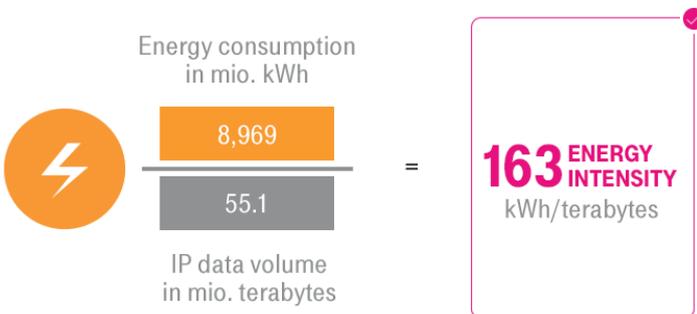
^{d)} As revenue allocation is separated into Germany/international from an HR perspective, this reflects employee location, unlike the financial report, which allocates revenue to the country where it was generated.

^{e)} Total workforce quote = TWC/revenue

ENERGY

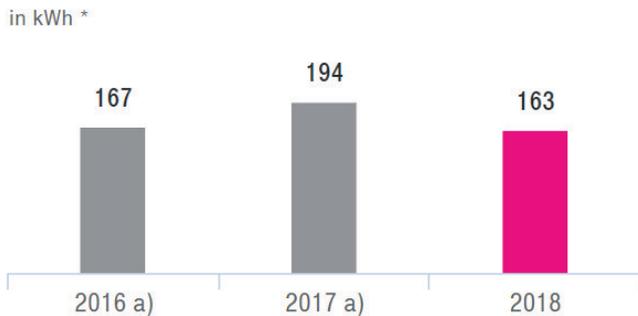
ENERGY INTENSITY ESG KPI DEUTSCHE TELEKOM GROUP

Since 2016, we have reported on the Energy Intensity ESG KPI. In contrast to the existing Energy Consumption ESG KPI, the new ESG KPI shows energy consumption in proportion to the transmitted data volumes. Using data volume as a reference parameter makes it possible to create a direct link to the performance of our networks.



✔ Data assured by PwC. For detailed assurance comments see „DT Group in Germany“

The ESG KPI figure also takes into account total energy consumption for all energy sources – fuel, gas, district heating and electricity. The data volume is composed of the transmitted IP data volumes (including Voice over IP, Internet, IP-TV).



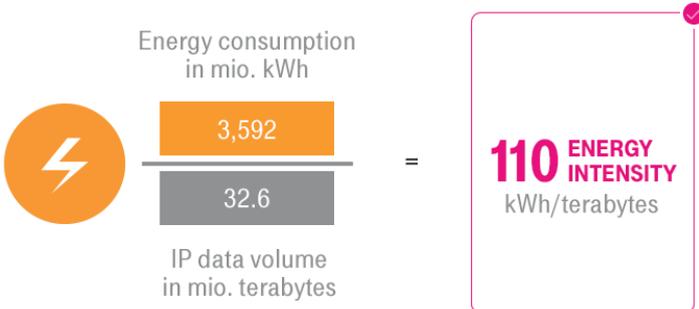
a) From 2017, value refers to DT Group Europe + T-Mobile US (in 2016 only DT Group EU).

Reporting against standards

The Energy Intensity ESG KPI is relevant for the GRI indicator GRI 302-3 (Energy Intensity). This information is relevant for EFFAS KPI E01-01 (Energy consumption, total). It is furthermore relevant for criterion 12 (Resource management) of the German Sustainability Codex. It is also used for reporting on the Global Compact Principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

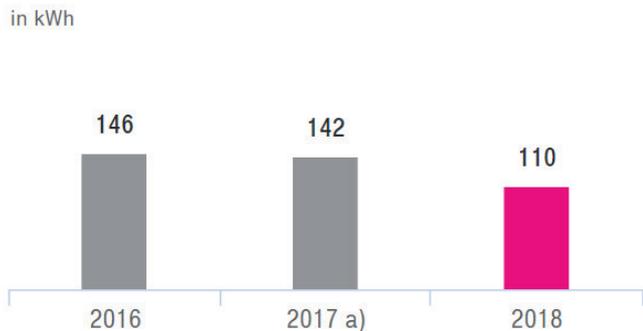
ENERGY INTENSITY ESG KPI DT GROUP IN GERMANY

Since 2016, we have reported on the Energy Intensity ESG img KPI. In contrast to the existing Energy Consumption ESG KPI, the new ESG KPI places the energy consumption into a ratio with the managed data volumes. Using data volume as a reference parameter makes it possible to create a direct link to the performance of our networks.



✔ Data assured by PwC. For detailed assurance comments see „DT Group in Germany“

The ESG KPI figure also takes into account total energy consumption for all energy sources – fuel, gas, district heating and electricity. The data volume is composed of the transported IP img data volumes (including IP telephone, internet, IP-TV).



a) The calculation method of the IP data volume was adjusted in 2017.

Reporting against standards

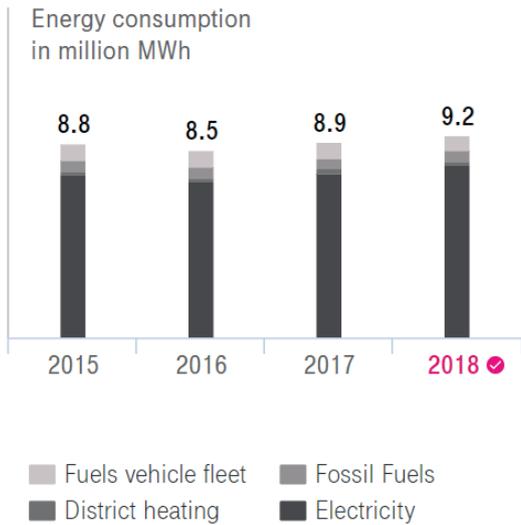
The Energy Intensity ESG KPI img is relevant for the GRI indicator GRI 302-3 (Energy Intensity). This information is relevant for EFFAS KPI E01-01 (Energy consumption, total). It is furthermore relevant for criterion 12 (Resource management) of the German Sustainability Codex. It is also used for reporting on the Global Compact Principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

TOTAL ENERGY CONSUMPTION

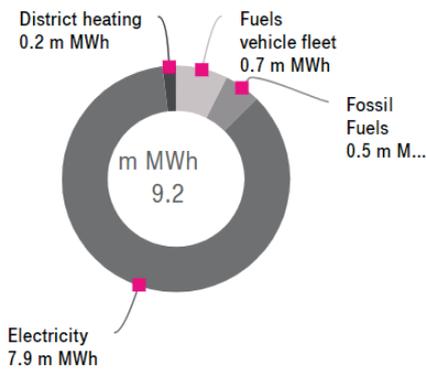
Total energy consumption indecreased by 3 percent year over year as a result of the rapidly growing data traffic and the corresponding continuous network expansion. In order to achieve our climate goal, we are focusing on areas with especially high energy consumption, such as our networks and data centers. For instance, we are migrating our network infrastructure to IP img technology, which is not only more powerful, but also consumes less electricity than existing technologies.

Reporting against standards

By reporting our energy consumption from primary energy sources, we partially cover the GRI 302-1 (Energy consumption within the organization) GRI indicator and the E01-01 (Energy consumption, total) EFFAS indicator. By reporting fleet energy consumption, we also partially cover the GRI 307-1 (Environmental impact of transportation) GRI indicator. This data is also relevant for criterion 11 of the German Sustainability Code (Usage of natural resources). It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).



Energy consumption 2018 ✓



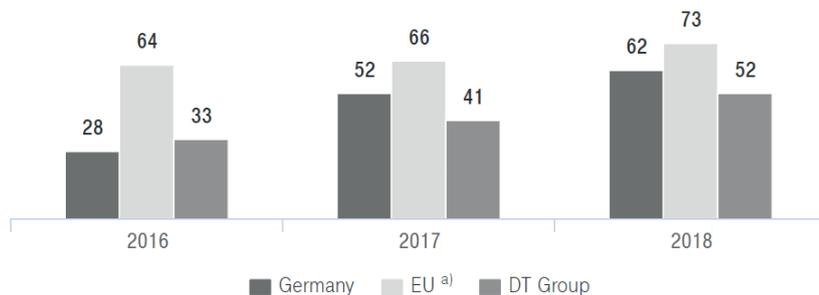
✓ Data verified by PwC. For detailed audit comments see „DT Group in Germany“ and „T-Mobile US“.

RENEWABLE ENERGY ESG KPI

The Renewables ESG KPI is calculated based on the share of renewable energy in the total electricity consumption. We are committed to increasing our reliance on renewable energy throughout the Group. The new climate protection target includes obtaining 100 percent of energy requirements from renewable sources. To this end, all national companies can purchase renewable energy directly as well as through certificates (guarantees of origin for electricity from renewable sources) if needed.

In 2018, Deutsche Telekom obtained 52 percent of its electricity from renewable sources.

Share of renewable energy in the total electricity consumption (in %)



The average share of electricity from renewable sources in the country mix across all countries where Deutsche Telekom is active was 32 percent. This was based on the supplier-specific electricity mix, the residual mix or the average country mix according to the U.S. Energy Information Administration, depending on the statistics available. The residual mix uses country-related residual factors (based on the RE-DISS project of the European Commission, which assessed the national share of renewables following subtraction of declared quantities of electricity). The share of renewable energy in the residual mix is typically lower than the share in the country mix. For Germany, the EEG surcharge paid is taken into account when calculating the share of renewable energy.

The share of electricity obtained from renewable sources based on the country mix amounted to 23 percent ("remaining" country mix).^{b)}

	2016			2017			2018		
	D	EU ^{a)}	Group	D	EU ^{a)}	Group	D	EU ^{a)}	Group
Electricity from renewable energy (in GWh)	803	1 103	2 332	1 497	1 154	3 110	1 702	1 335	4 091
Total electricity consumption (in GWh)	2 840	1 720	7 107	2 879	1 738	7 546	2 769	1 840	7 872
Renewable Energy (ESG KPI)	28%	64%	33%	52%	66%	41%	62% ✓	73%	52% ✓
Ren. energy mix	28%	26%	23%	49%	25%	30%	53%	30%	32%
Certificates	0%	43%	11%	6%	40%	12%	17%	49%	25%
Self-generation	0.10%	0.03%	0.05%	0.12%	0.02%	0.05%	0.12%	0.05%	0.06%
Direct purchase	0.0%	5.5%	1.7%	0.0%	12.9%	3.5%	0.0%	13.0%	3.4%
"Remaining" country mix ^{b)}	28%	15%	20%	46%	13%	26%	44%	11%	23%

^{a)} EU = National companies in Europe excluding Germany and T-Systems

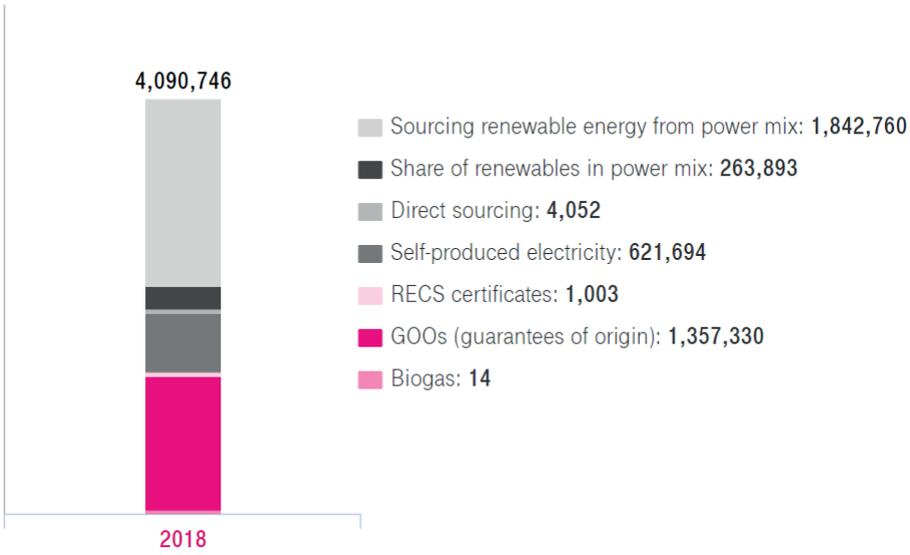
^{b)} The "remaining" country mix represents the remaining share of renewable energy from the national electricity mix, after subtracting direct purchases, certificates, and self-generation.

✓ Data assured by PwC. The 2017 calculation was based on the utility's electricity mix for the first time, which also takes renewable energy from the EEG surcharge into account for Germany. The 2017 calculation was based on the utility's electricity mix. If this was not possible, the residual mix or country mix was used. Values cannot be directly compared to the previous year. For detailed assurance comments see "DT Group in Germany" and "T-Mobile USA".

RENEWABLE ENERGY

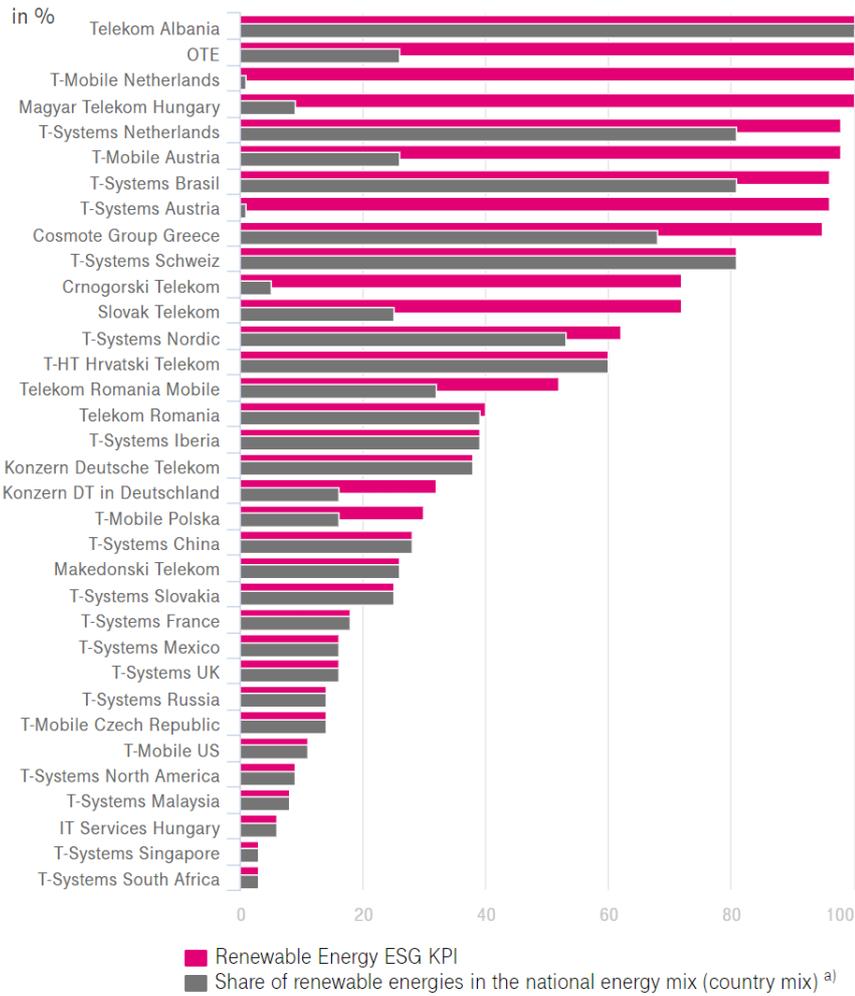
We are committed to increasing our reliance on renewable energy throughout the Group. To this end all European national companies can also purchase renewable energy certificates if needed.

in MWh



RENEWABLE ENERGY IN THE NATIONAL COMPANIES

Since 2016, we have reported on the Renewable Energy ESG img KPI. It is calculated based on the share of renewable energy in total electricity consumption, and is compared here to the share of renewable energy in the national energy mix (country mix) for all national companies.



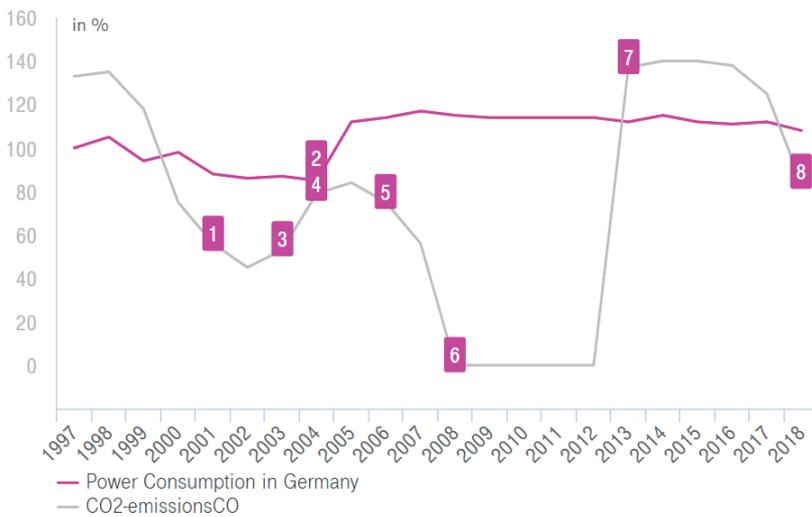
a) The country mix is used as the basis when calculating the share of renewable energy in total electricity consumption, as no data is available regarding the share of renewable energy in the residual mix. The country mix was calculated based on publicly available sources (European Commission, US Energy Information Administration). The share of renewable energy in the residual mix is typically lower than the country mix. For Germany, the EEG surcharge paid is taken into account when calculating the share of renewable energy.

DECOUPLING POWER CONSUMPTION AND CO₂ EMISSIONS

Deutsche Telekom was able to reduce the emissions generated by its electricity consumption to zero from 2008 to 2012 by purchasing RECS certificates (Renewable Energy Certificate System). However, we feel that these certificates have not had as positive an impact on the environment as we had hoped. Demand for certificates was generally limited. As a result, RECS certificates do not make a noticeable contribution to encouraging the expansion of renewable energy sources. That is why we feel it makes more sense both in terms of ecological and economic aspects to invest in reducing our energy consumption and increasing our energy efficiency than to purchase RECS certificates.

Reporting against standards

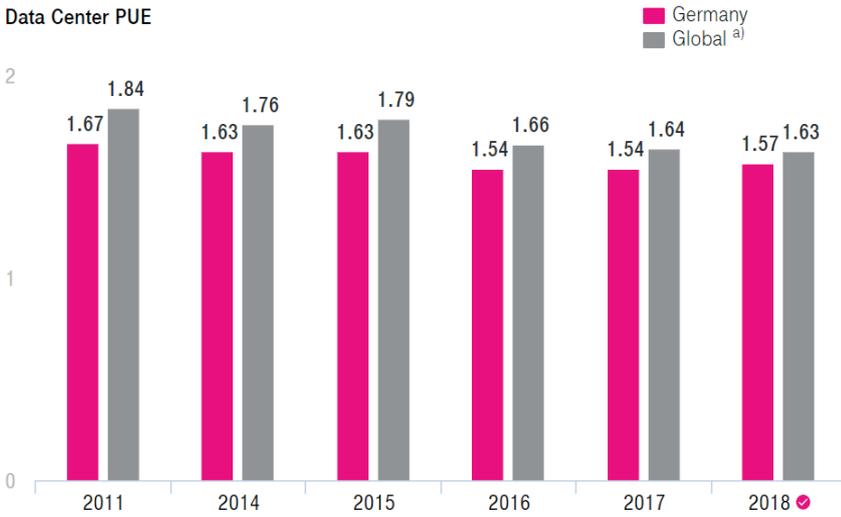
By providing this information, we fully cover the E16-05 (Alternative energy consumption) EFFAS indicator. This data is also relevant for criteria 3 (Strategic analysis, strategy and goals), 11 and 12 (Usage of natural resources) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).



- 1 Increased procurement of power from cogeneration (CHP) plants
- 2 Rise in energy consumption for technical reasons
- 3 Power utilities no longer provide data on share of energy obtained from cogeneration
- 4 Power utilities no longer provide data for their power mix > calculation based on power mix for Germany
- 5 Purchase of power from renewable energy sources
- 6 All electricity requirements covered directly or indirectly by renewable resources
- 7 No purchase of RECS-certificates.
- 8 Increased purchase of renewable energy.

PUE ESG KPI

The efficiency of our data centers is monitored with the so-called PUE (Power Usage Effectiveness). It serves as an indicator for improvements in energy efficiency of our data center infrastructure. It is calculated as the ratio between the total electrical energy consumed by the data center and the electrical energy consumption of the IT. Between 2011 and 2018, we were able to reduce the average global PUE value of our T-Systems data centers from 1.85 to 1.63. For Germany, a decline from 1.67 to 1.57 was achieved between 2008 and 2018.



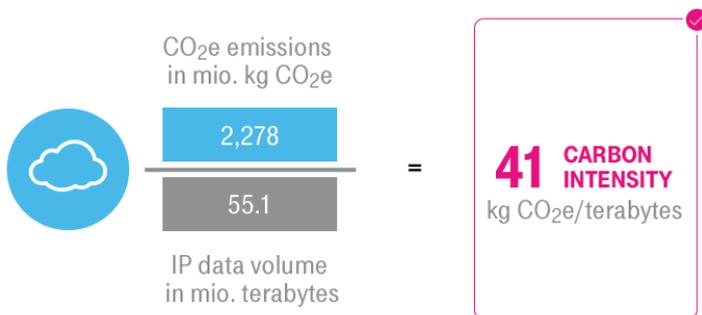
a) International + DT Group in Germany

● Data assured by PwC.

CO₂ EMISSIONS

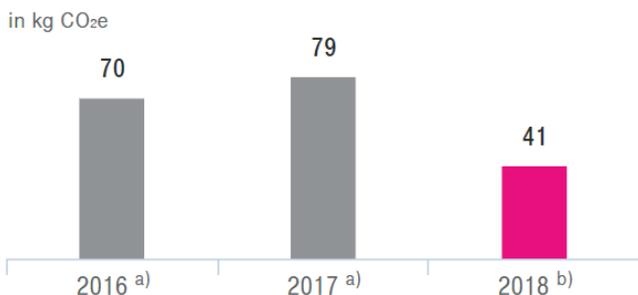
CARBON INTENSITY ESG KPI DEUTSCHE TELEKOM GROUP

The Carbon Intensity ESG KPI was a new addition to the reporting this year. In contrast to the existing CO₂ Emissions ESG KPI, the new ESG KPI shows the CO₂ emissions in proportion to the transmitted data volumes. Using data volume as a reference parameter makes it possible to create a direct link to the performance of our networks.



✔ Data assured by PwC. For detailed assurance comments see „DT Group in Germany“.

The ESG KPI figure also takes into account total CO₂ emissions for all energy sources – fuel, gas, district heating and electricity. The data volume is composed of the transmitted IP data volumes (including Voice over IP, Internet, IP-TV).



a) From 2017, value refers to DT Group Europe + T-Mobile US (in 2016 only DT Group EU).

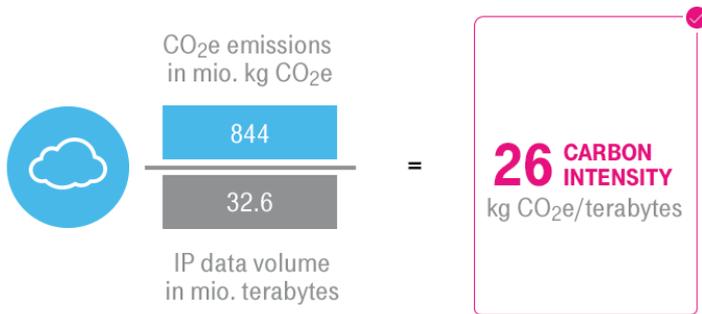
b) The market-based method is the leading method starting this reporting year. This method is used to calculate emissions with a specific emissions factor (provider factor) per DT company. This factor depends on a company actual energy procurement (electricity mix); procuring renewable energy (direct purchase, certificates) reduces emissions.

Reporting against standards

The Carbon Intensity ESG KPI is relevant for the GRI indicator GRI 305-4 (Greenhouse Gas Emissions Intensity). This information is relevant for EFFAS KPI E02-01 (Greenhouse gas emissions Scope 1-3). It is further relevant for criterion 13 (Climate-relevant emissions and objectives) of the German Sustainability Codex. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

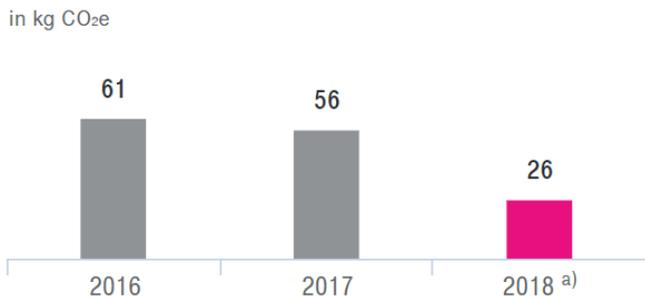
CARBON INTENSITY ESG KPI DT GROUP IN GERMANY

The Carbon Intensity ESG KPI was a new addition to the reporting this year. In contrast to the existing CO₂ Emissions ESG KPI, the new ESG KPI shows the CO₂ emissions in proportion to the transmitted data volumes. Using data volume as a reference parameter makes it possible to create a direct link to the performance of our networks.



✔ Data assured by PwC. Data is partly based on estimates, assumptions and extrapolations. The calculation method was adjusted in 2017. Values cannot be directly compared to the previous year.

The ESG KPI figure also takes into account total CO₂ emissions for all energy sources – fuel, gas, district heating and electricity. The data volume is composed of the transmitted IP data volumes (including Voice over IP, Internet, IP-TV).



a) The market-based method is the leading method starting this reporting year. This method is used to calculate emissions with a specific emissions factor (provider factor) per DT company. This factor depends on a company actual energy procurement (electricity mix); procuring renewable energy (direct purchase, certificates) reduces emissions.

Reporting against standards

The Carbon Intensity ESG KPI is relevant for the GRI indicator GRI 305-4 (Greenhouse Gas Emissions Intensity). This information is relevant for EFFAS KPI E02-01 (Greenhouse gas emissions Scope 1-3). It is further more relevant for criterion 13 (Climate-relevant emissions and objectives) of the German Sustainability Codex. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

TOTAL CO₂E-EMISSIONS (SCOPE 1 - 3)

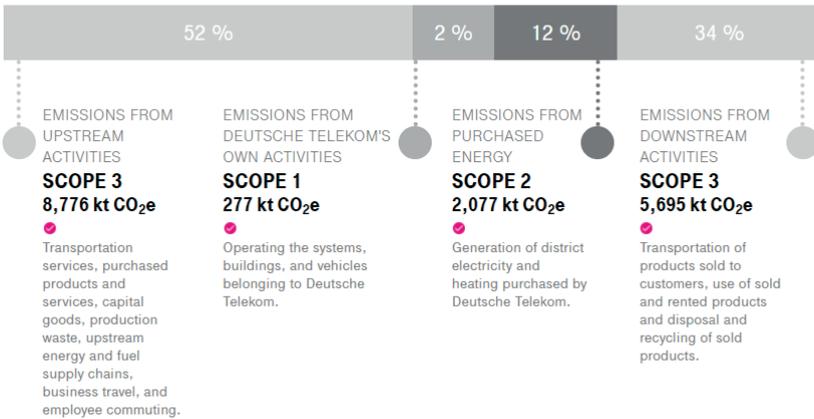
Since the CR report 2016 we provide the first general overview of all CO₂ emissions by Deutsche Telekom (Scope 1-3). To ease comparisons with the shown Scope 3 emissions presented in CO₂ equivalents, the Scope 1 and Scope 2 emissions were converted into metric kilotons of CO₂ equivalents. Emissions are presented along Deutsche Telekom's supply chain. This allows for an overview of where most of the emissions are produced.

Reporting against standards

By measuring progress based on our CO₂ Emissions ESG KPI, we report our CO₂ emissions in accordance with the Greenhouse Gas Protocol together with our self-defined CO₂ reduction goal, thereby complying with criterion 13 of the German Sustainability Code (Greenhouse gas emissions). By reporting this data, we fully cover the GRI 305-1 (Direct GHG emissions), GRI 305-2 (Energy indirect GHG emissions) and GRI 305-3 (Other indirect GHG emissions) GRI indicators and partially cover the E02-01 (Scope 1-3 greenhouse gas emissions) EFFAS indicator. This data is also relevant for criteria 7 (Rules and processes), 11 and 12 (Usage of natural resources) and 13 (Greenhouse gas emissions) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

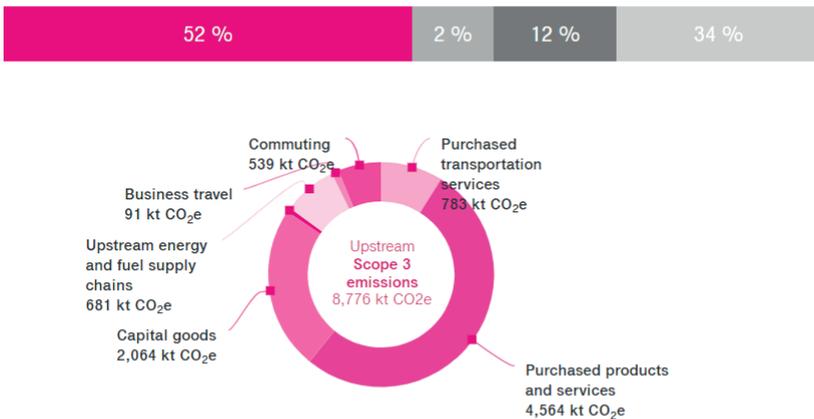
CO₂e-Emissionen (Scope 1-3)

Interactive graphics



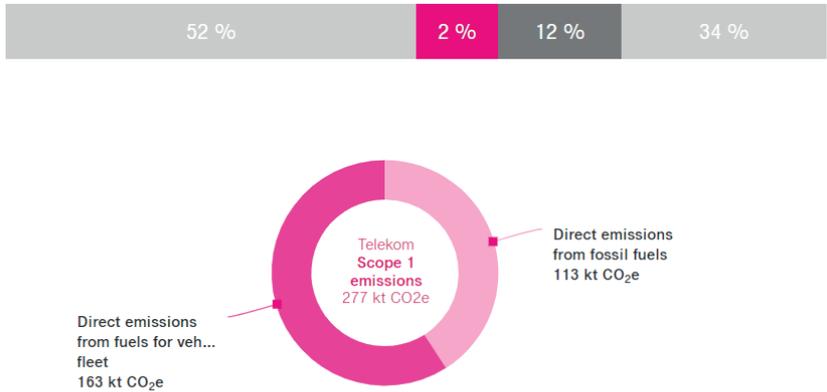
CO₂e-Emissionen (Scope 1-3)

Interactive graphics



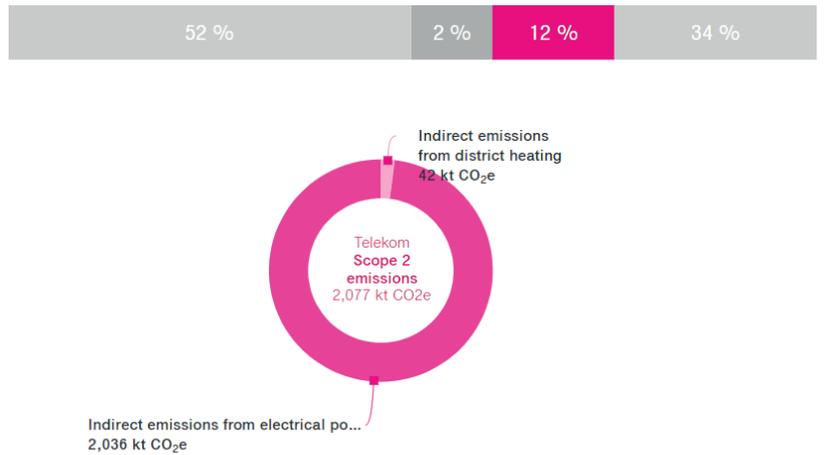
CO₂e-Emissionen (Scope 1-3)

Interactive graphics



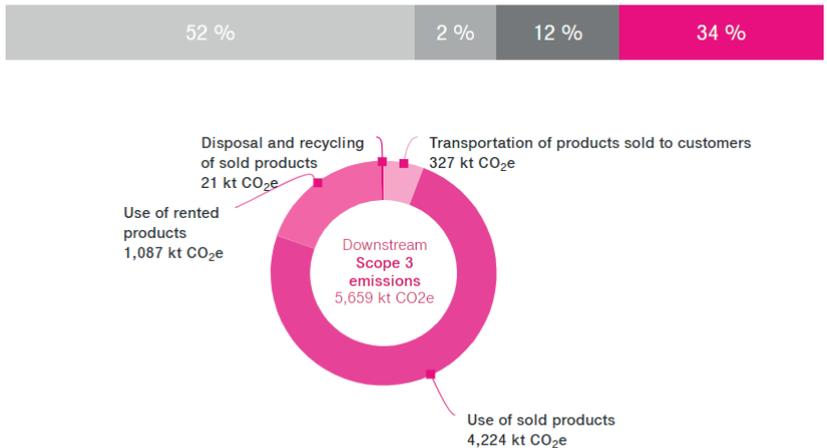
CO₂e-Emissionen (Scope 1-3)

Interactive graphics



CO₂e-Emissionen (Scope 1-3)

Interactive graphics



TOTAL CO₂E-EMISSIONS (SCOPE 1 & 2 EMISSIONS)

Our CO₂ emissions are largely driven by our electricity consumption. That's why the table below contains very detailed information about the Group numbers for the Scope 2 emissions resulting from our electricity consumption. We differentiate between the market-based and location-based methods, thereby adhering to the GHG Protocol Scope 2 Guidance. For the first time, the market- and location-based emissions for 2017 and 2018 are indicated in CO₂ equivalents. The leading reporting method is the market-based approach. This method is used to calculate emissions with a specific emissions factor (provider factor) per DT company. This factor depends on a company's actual energy procurement (electricity mix); procuring renewable energy (direct purchase, certificates) reduces emissions.^{a)}

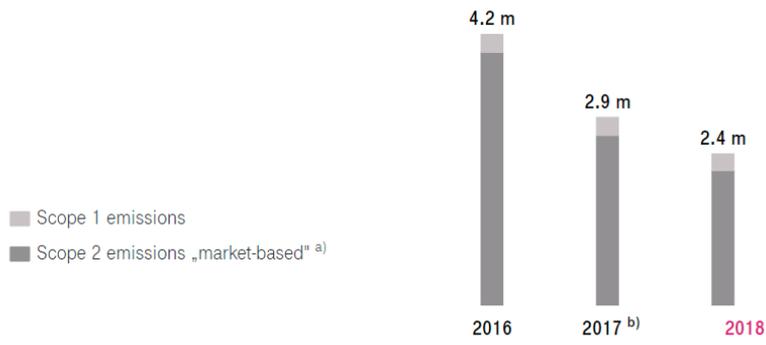
In contrast to the market-based method, with the location-based method the emissions factors for the respective country are used (the country mix factor of the International Energy Agency (IEA)). A company's actual energy procurement (electricity mix) is hence not taken into account, i.e., not even the procurement of renewable energy over and above the country mix.

Change compared to the previous year: The Scope 2 emissions calculated according to the market-based method are about 20 percent lower than in the previous year. The main reason for this is the direct purchase of renewable energy at T-Mobile US and the increased purchase of renewable energy certificates (RECS img, GoO, PPA) at our national companies in Germany and Greece.

Reporting against standards

By reporting our direct and indirect CO₂ emissions (Scope 1 & 2) in accordance with the Greenhouse Gas Protocol, we fully cover the GRI 305-1 (Direct GHG emissions) and GRI 305-2 (Energy indirect GHG emissions) and partially cover the E02-01 (Total Scope 1-3 greenhouse gas emissions) EFFAS indicator. This data is also relevant for criteria 11 and 12 (Usage of natural resources) and 13 (GHG emissions) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

CO₂e emissions (Scope 1 & 2) in t



Scope 1 and Scope 2 „market-based“^{a)}

Total in Bil	4.2	2.9	2.4 ✓
CO ₂ e emissions (Scope 1) in t (2016 in t CO ₂)	290 541	284 510	276 727 ✓
CO ₂ e emissions (Scope 2) in t (2016 in t CO ₂)	3 878 321	2 611 055	2 077 415 ✓
CO ₂ e emission reduction through renewable energy certificates (RECS, GOO, PPA) in metric tons (2016 in t CO ₂)	413 236	423 504	573 764

Scope 2 („location based“)

CO ₂ e emissions (Scope 2, "location-based") in t (2016 in t CO ₂)	3 406 188	3 454 776	3 476 569 ✓
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a) If no provider factors are available for the market-based method, the country-related residual factor is used (based on the RE-DISS project of the European Commission, which assessed the national share of renewables). If there is no residual factor available either, the IEA factor is used (same as with the location-based method). As a rule, the value of the emission factor in the residual mix is higher than the IEA's country mix factor. Renewable energy certificates are included in all cases.

b) The values for 2017 were recalculated based on more precise emission factors. In 2017 and 2018, the eGRID emission factor was used instead of the International Energy Agency's average factor as a basis for determining the emissions from electricity consumption. The U.S. Environmental Protection Agency indicates this factor on the basis of various network regions in the United States.

✓ Data verified by PwC. Values for 2016 have been adjusted retrospectively. For detailed audit comments see "DT Group in Germany" and "T-Mobile USA".

✓ Data assured by PwC. For detailed assurance comments see "DT Group in Germany" and "T-Mobile USA".

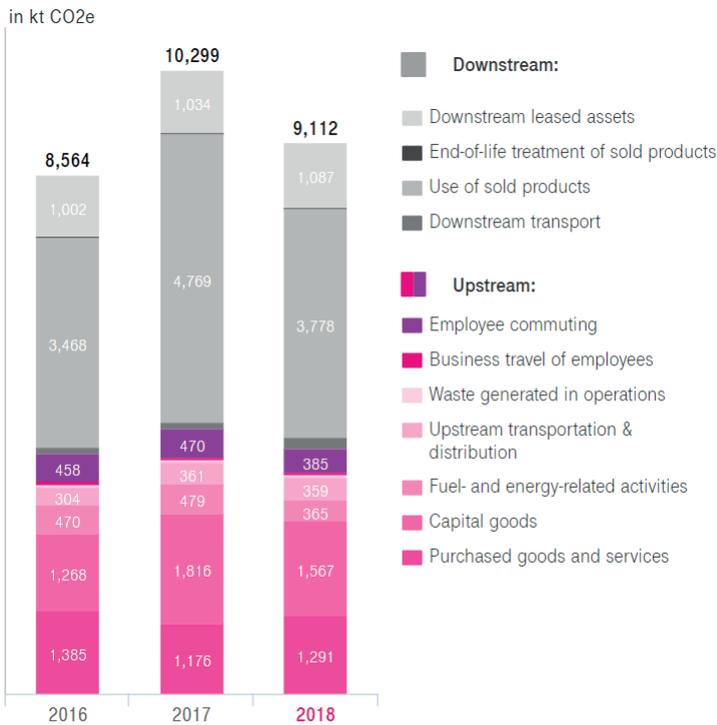
✓ Data assured by PwC. The 2017 calculation was based on the utility's electricity mix. If this is was not possible, the residual mix or country mix was used. Values cannot be directly compared to the previous year. For detailed assurance comments see "DT Group in Germany" and "T-Mobile USA".

TOTAL CO₂E-EMISSIONS (SCOPE 3) DEUTSCHE TELEKOM IN EUROPE*

The majority of our total emissions can be classified as Scope 3 emissions. This includes emissions generated by business trips, commuting, our supply chain and the use of products and services. We have been recording Scope 3 emissions at DT Group in Germany since 2013. We are reporting our Scope 3 emissions for the EU here for the first time. The basic data used to calculate Scope 3 emissions is covered in the benchmarking tool. You will find more information on recording Scope 3 emissions along the value chain here.

Reporting against standards

By reporting this data, we fully cover the GRI 305-3 (Other indirect GHG emissions) and the E02-01 (Total Scope 1-3 greenhouse gas emissions) EFFAS indicator. This data is also relevant for criteria 11 and 12 (Usage of natural resources) and 13 (GHG emissions) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).



* DT Group in Germany plus European fixed /mobile network operators

ENABLEMENT FACTOR

ENABLEMENT FACTOR FOR DT GROUP IN GERMANY

We also calculate the positive CO₂ effects facilitated for our customers through the use of our products. We combine this figure with our own CO₂ emissions, then use this enablement factor to measure our overall performance in relation to climate protection. According to this figure, the positive CO₂ effects facilitated for our customers in Germany were 85 percent higher in 2018 than our own CO₂ emissions (enablement factor of 1.85 to 1).

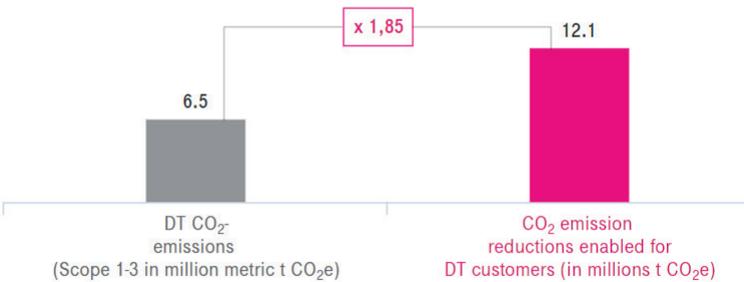
The positive CO₂ effects facilitated for our customers through the use of our products and solutions rose from 11.9 to 12.1 million tons in 2018.

Reporting against standards

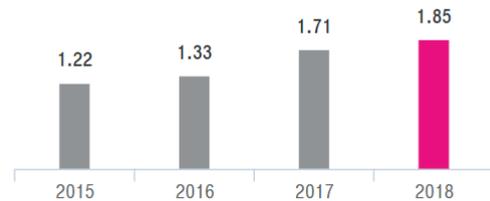
Information on the enablement factor is relevant for GRI Indicator GRI 305-5 (Reduction of Greenhouse Gas Emissions). The information is relevant for the EFFAS KPI S13-01 (Intermodality). It is furthermore relevant for criterion 13 (Climate-relevant emissions and objectives) of the German Sustainability Codex. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

ESG KPI enablement factor: positive CO₂ effects facilitated for our customers.

Enablement factor (DT Group in Germany, 2018; in million metric t CO₂e)

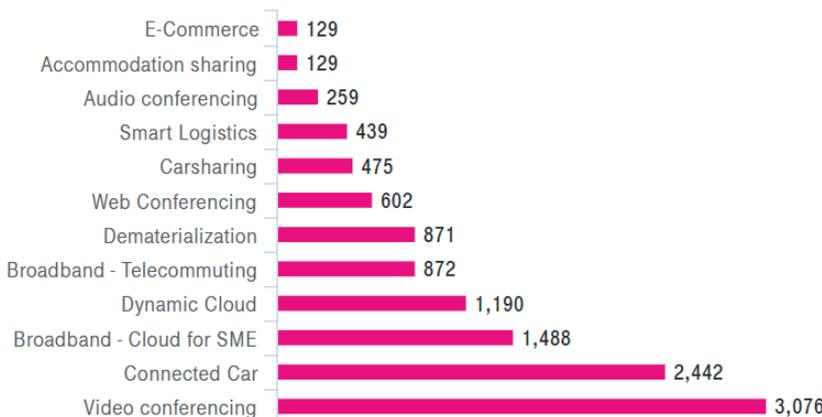


Enablement Factor from 2015 to 2018



● Data checked by PwC.

Extract: positive CO₂ effects facilitated for our customers (in metric kt CO₂e.)



Other (<100kt): Smart Metering, Ride Sharing, Broadband - eLearning, E-Mobility

ENABLEMENT FACTOR FOR DEUTSCHE TELEKOM GROUP IN EUROPE

We also calculate the positive CO₂ effects facilitated for our customers through the use of our products. We combine this figure with our own CO₂ emissions, then use this enablement factor to measure our overall performance in relation to climate protection. According to this figure, the positive CO₂ effects facilitated Europe-wide for our customers were 21 percent higher in 2018 than our own CO₂ emissions (enablement factor of 1.21 to 1).

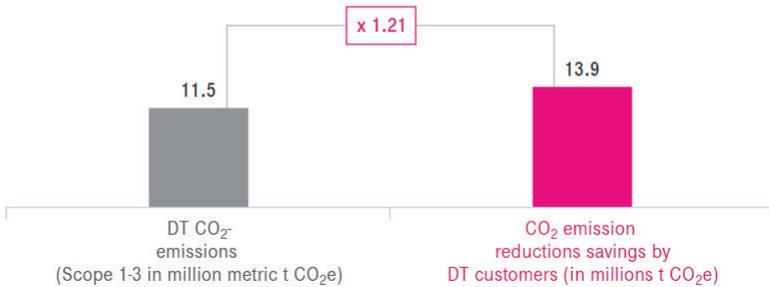
The positive CO₂ effects facilitated for our customers through the use of our products and solutions were about 14 million tons in 2018.

Reporting against standards

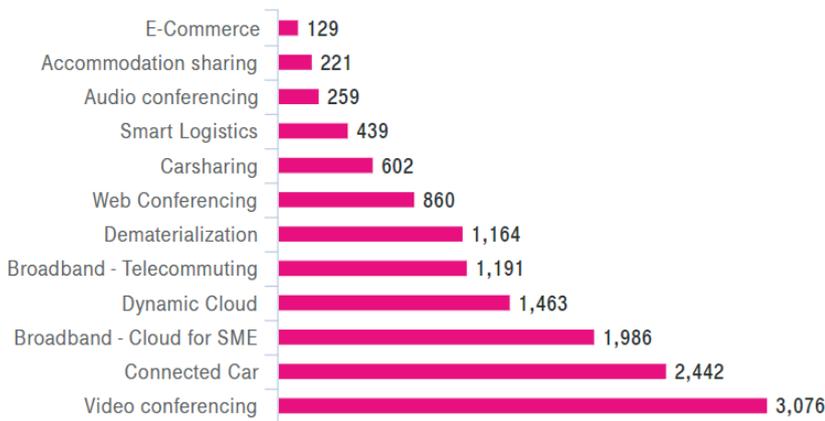
Information on the enablement factor is relevant for GRI Indicator GRI 305-5 (Reduction of Greenhouse Gas Emissions). The information is relevant for the EFFAS KPI S13-01 (Intermodality). It is furthermore relevant for criterion 13 (Climate-relevant emissions and objectives) of the German Sustainability Codex. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

ESG KPI enablement factor: positive CO₂ effects facilitated for our customers.

Enablement factor
 (DTAG excl. USA, 2018)



Extract: positive CO₂ effects facilitated for our customers (in metric kt CO₂e.)



Other (<100kt): Smart Metering, Ride Sharing, Broadband - eLearning, E-Mobility

MOBILITY

NUMBER OF VEHICLES

The total number of vehicles at our company decreased year over year by around 1 percent. For detailed comments on the figures for each individual company, please refer to the interactive benchmarking tool. You can read more about our Green Car Policy, alternative engines and our goals for climate-friendly mobility here.

We were able to significantly increase the total number of vehicles with alternative drives in our fleet by around 3 percent from the previous year. We continue to focus on alternative and fuel-efficient engines - which of course must also be financially viable - when purchasing new company cars and service vehicles. You will find more information on Deutsche Telekom's climate friendly fleet management policies here.

Reporting against standards

Logistics and transport are carried out by service providers at Deutsche Telekom. The environmental impacts of transportation are influenced by the contractual arrangements with service providers. This data is also relevant for criterion 11 (Usage of natural resources) of the German Sustainability Code.

	2015	2016	2017	2018
Total number	42 186	41 663	40 768	40 176
Number of vehicles with diesel engines	35 369	34 941	34 640	34 430
Number of vehicles with gas engines	6 551	6 396	5 792	5 401
Number of alternative fuel vehicles	266	326	336	345
Number of company cars	12 504	12 161	11 836	11 471
Number of service vehicles	29 682	29 502	28 932	28 705

FUEL CONSUMPTION

Overall fuel consumption decreased by around 2 percent, both company cars as well as service vehicles.

Reporting against standards

Logistics and transport are carried out by service providers at Deutsche Telekom. The environmental impacts of transportation are influenced by the contractual arrangements with service providers. This data is also relevant for criterion 11 (Usage of natural resources) of the German Sustainability Code.

in liter	2015	2016	2017	2018 
Fuel consumption (total)	71 926 080	67 813 891	65 641 719	63 830 580
Fuel consumption by diesel-powered vehicles	54 646 907	51 097 161	49 482 133	47 739 113
Fuel consumption by gasoline-powered vehicles	16 705 590	16 575 266	16 074 082	15 981 500
Fuel consumption by vehicles with alternative drives	196 583	141 464	85 505	109 967
Fuel consumption by company cars	25 935 470	23 816 501	22 141 361	20 999 018
Fuel consumption by service vehicles	45 990 610	43 997 390	43 500 359	42 831 562

 Data audited by PwC. For detailed assurance comments see "DT Group in Germany" and "T-Mobile USA". Data is partly based on estimates, assumptions and projections. Values for 2016 have been adjusted retrospectively.

JOB TICKET

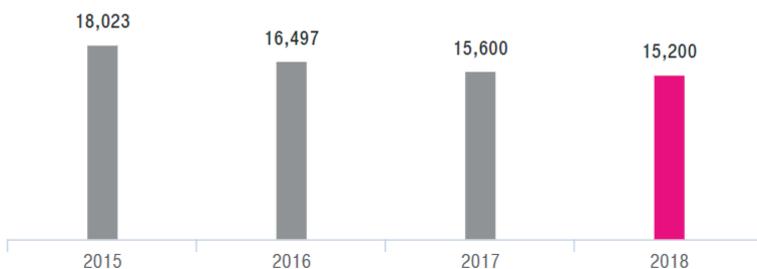
In 2018, 15,200 employees of the Deutsche Telekom Group in Germany used a discount season ticket provided by their employer to commute by public transport. This reduction is due to relocation of sites.

We offer regional discount season tickets (monthly or annually) to our employees at many of our German Deutsche Telekom sites, especially in high-density population areas. The offer encourages our employees to use climate-friendly public transportation and helps them keep their commuting costs down.

Reporting against standards

By reporting on the use of discount season tickets, we partially cover the V04-13 (Percentage of services to reduce impact on climate) EFFAS indicator. This data is also relevant for criteria 2 (Implementation of the sustainability strategy) and 10 (Innovation and product management) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

Number



RECYCLING

"TAKE BACK MOBILE DEVICES" ESG KPI ^{a)}

We are reporting the Take Back Mobile Devices ESG KPI based on the reference value "number of devices in circulation." This makes it possible to more precisely illustrate the ratio of the number of cell phones brought to market to the number of used devices collected. When customers use the devices for longer periods of time, the environment benefits from this decision and, as a result, this has a positive impact on the KPI. More than 368 thousand mobile devices were collected throughout the Group (not including TMUS, AMC, Maktel, Crnogorski, DTSE units) in 2018, an increase of 27 percent compared to the previous year.

In 2017, about 4 million mobile devices were collected at TMUS alone. The KPI would be 115.9 for TMUS and 96.6 for Deutsche Telekom incl. TMUS.

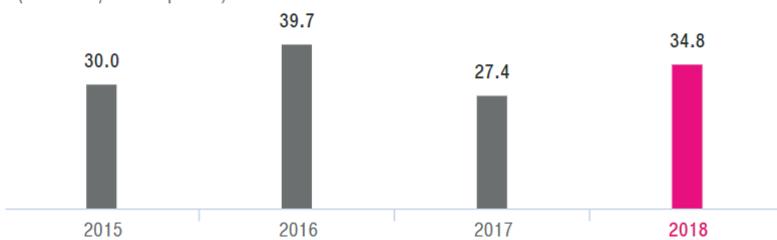
The aim of the scheme to take back old cell phones is to give them a second life and, if that isn't possible, to properly recycle them to recover the valuable raw materials inside them. Thanks to this, over 3 million used cell phones have been reused or recycled in Germany since 2003, thus conserving resources. In this way, we have helped to improve the eco-balance of mobile devices.

The Take Back Mobile Devices ESG KPI measures the ratio of collected devices (in thousands) to the number of devices in circulation (in millions). The collected devices are recorded in kilograms or in units. When using kilograms, we apply a Group-wide conversion factor of 7.25 units per kilogram unless another conversion factor is typically used in that country. Mobile devices in circulation include smartphones, simple phones, tablets and cordless phones. Units are reported by Procurement for reasons of data quality.

Reporting against standards

By reporting the Take Back Mobile Devices ESG KPI as an indicator of progress achieved in the resource-efficient and environmentally friendly use of products, we partially cover the E14-01 (Recycling ratio) EFFAS indicator. This data is also relevant for criteria 7 (Rules and processes), 10 (Innovation and product management), 11 and 12 (Usage of natural resources) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

Mobile devices collected vs. mobile devices sold ^{a)}
 (thousand/million pieces)



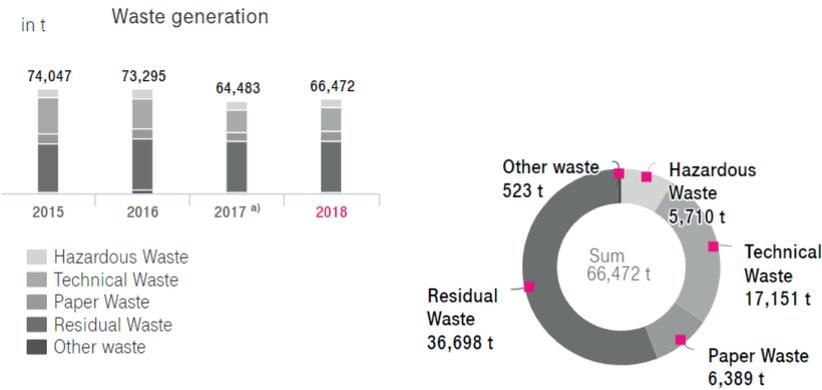
a) The Group value includes companies that have submitted the data necessary to calculate the KPI (currently e.g. without T-Mobile US, Crnogorski Telekom, Maktel, Telekom Albania and the DTSE units). T-Systems is not relevant.

WASTE GENERATION

The amount of waste produced throughout the Group increased slightly by 3 % in comparison with 2018. The rise can primarily be attributed to the increase of technical waste. The amount of technical waste fluctuates from year to year as the result of projects that are conducted at irregular intervals. For detailed comments on the figures for each individual company, please refer to the interactive benchmarking tool.

Reporting against standards

By reporting the amount of waste we generate, we partially cover the GRI 306-2 (Waste by type and disposal method) GRI indicator and the E04-01 (Total waste in tonnes) EFFAS indicator. This data is also relevant for criterion 11 (Usage of natural resources) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).



^{a)} Retroactive correction of the 2017 data in the year 2018.

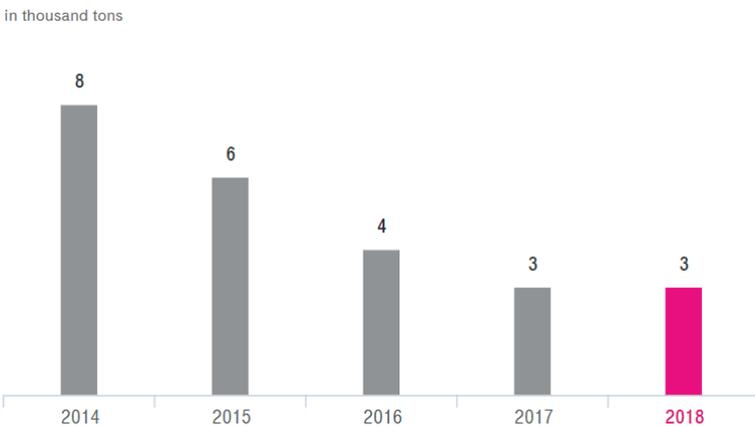
COPPER CABLE RECOVERED SINCE 2010

In 2018, deutsche Telekom removed around 3,000 metric tons of copper cable from duct systems in Germany alone. The cable is processed in accordance with environmental standards at certified waste disposal facilities and up to 90 percent of the material was recycled.

Reporting against standards

By reporting the amount of waste we generate, we partially cover the GRI 306-2 (Waste by type and disposal method) GRI indicator and the E04-01 (Total waste in tonnes) EFFAS indicator. This data is also relevant for criterion 11 (Usage of natural resources) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

Copper cable recovered since 2010



FURTHER RECYCLING KPI'S

Print-on-Demand

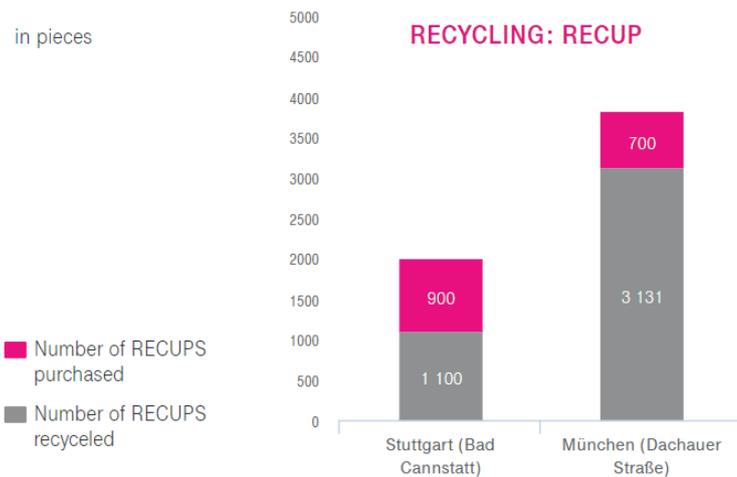
The advantage of the print-on-demand approach is obvious. Brief job-related instructions are printed on a daily basis and do not need to be produced in advance, transported, or stored. Changes to document templates are in use with the customer the very next day, which results in a far shorter response time and means out-of-date materials no longer need to be destroyed as was sometimes previously the case. The new concept has significantly reduced material usage, which is in keeping with the Deutsche Telekom goal of ensuring sustainable management that conserves resources. Brief instructions for the Magenta-Zuhause rate plans marked the first step. In this initial project phase, paper consumption is already being reduced by 37.6 metric tons per year. The next step will be to investigate whether print on demand can also be used for other equipment documentation with particular specifications (several sheets, brochure included, enclosure of SIM card, etc.).

Reduction of paper waste in 2018: 37.6 TONS

RECUP returnable cup

In 2018, Deutsche Telekom and Sodexo – the company running our canteens in Germany – joined forces to introduce the sustainable alternative of RECUP returnable cups. A reusable RECUP can replace around 500 disposable cups and can then simply be recycled. In return for a deposit of 1 euro, our employees get their coffee in a reusable RECUP. This can be returned to any participating partner, where the deposit is returned and the RECUP rinsed and reused.

Since the initiative started at the Deutsche Telekom sites of Stuttgart-Bad Cannstatt and Munich, Dachauer Strasse in November 2018, over 4,000 RECUPS have been used.



OTHER ENVIRONMENTAL DATA

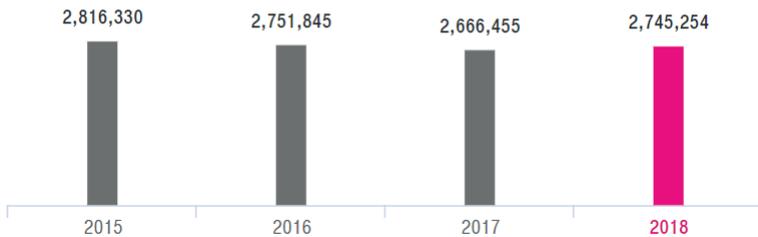
WATER CONSUMPTION

Water consumption throughout the Group increased slightly by 3 percent. The slight increase is mainly due to developments at T-Mobile US. The value for 2016 was corrected compared to the information published in the previous year's report. For detailed comments on the figures for each individual company, please refer to the interactive benchmarking tool.

Reporting against standards

By reporting our water consumption we fully cover the E28-01 (Total water consumption) EFFAS indicator. This data is also relevant for criterion 11 (Usage of natural resources) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).

in m³

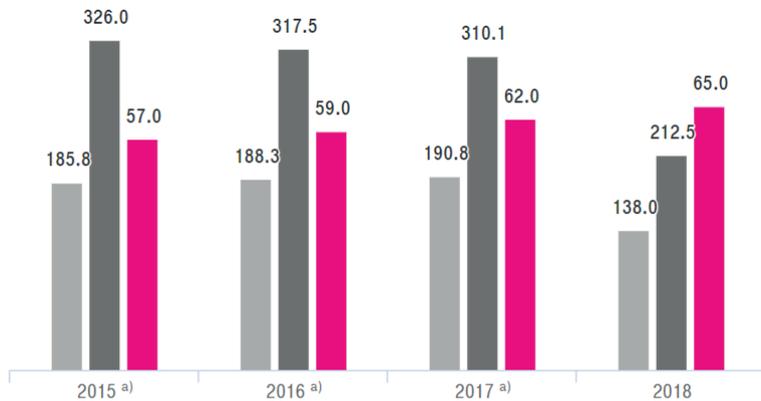


ONLINE CUSTOMER BILLS

More than 138 million online bills were sent out in 2018. This is the equivalent of 65 percent of all bills and credit notes for fixed-line and mobile customers in Germany. The data was collected using a more precise calculation method in 2017.

Reporting against standards

By reporting data on the number of online customer bills, we partially cover the V04-13 (Percentage of services or products for increasing eco-efficiency of own products) EFFAS indicator. This data is also relevant for criteria 2 (Implementation of the sustainability strategy) and 10 (Innovation and product management) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).



- Total number of new online customer bills (in millions)
- Total number of new customer invoices (in millions)
- Share of electronic bills (in %)

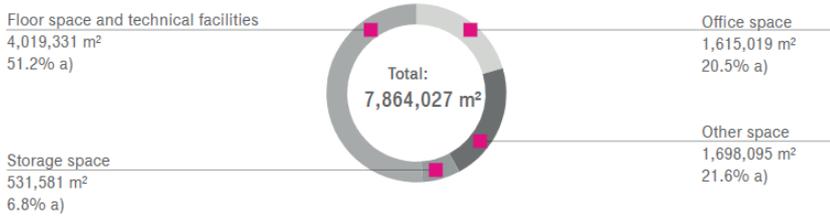
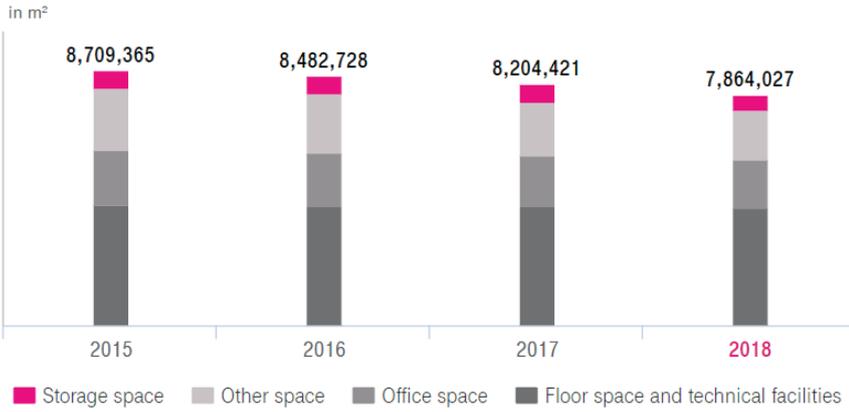
a) Data was corrected for previous years based on new calculation method.

LAND USE

The property used by Deutsche Telekom in Germany covers most of our demands for technology, office and storage space as well as providing space for other needs. Total take-up decreased year-on-year with a total of 7,864 square meters of space being used.

Reporting against standards

This data is relevant for criterion 11 (Usage of natural resources). It is also used for reporting on the Global Compact principles 7 (Precautionary approach) and 8 (Promoting environmental responsibility).



a) Individual figures have been rounded.

SOCIAL INVOLVEMENT

COMMUNITY INVESTMENT ESG KPI

We report a set of three KPIs for calculating the impact of our social commitment. They comprise the Community Investment ESG KPI, the Beneficiaries ESG KPI and the Media Literacy ESG KPI. Our activities are based on the methods employed by the London Benchmarking Group (LBG), which incorporate the aspects, "input," "output" and "impact".

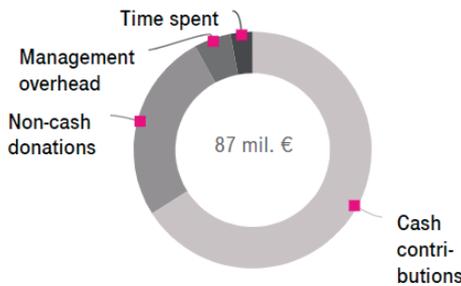
The Community Investment ESG KPI illustrates activities in which Deutsche Telekom was involved in the community either financially, through its employees, or through donating materials.

The investment volume for our entire network infrastructure in 2018 was € 12.2 billion (with more than € 5 billion of this in Germany), and we are already providing LTE to 97 percent of the population in our national companies. What's more, we operate the largest fiber-optic network in

Germany, with more than 500,000 kilometers of cables, and are driving the expansion of a large-scale NB-IoT infrastructure for the cities of the future. Thanks to the Internet rollout, our investments are making an important contribution to facilitating access to fast Internet for large sections of the public. This, in turn, is the foundation for the positive development of our business KPIs, e.g. the Media Literacy ESG KPI. Furthermore, our products and services are contributing to climate protection and resource efficiency. Our products range from ICT solutions such as video conferencing and Industry 4.0 to sustainable connected farming and Smart City concepts.

Additionally, the Community Investment ESG KPI makes an important contribution to the Sustainable Development Goals. In 2018, more than 20 million euros of the community investments have contributed to the SDG 4 (quality education).

ESG KPI "Community Investment" (Input Split) 87 mil. €



• Data audited by PwC. For detailed assurance comments see "DT Group in Germany" and "T-Mobile USA".
 Data is partly based on estimates, assumptions and projections.
 Data is partly based on previous year's data.
 Compared to the previous years there has been an increase in the monetary valuation of voluntary working hours.

Community Investment from 2015 to 2018 in mil. €



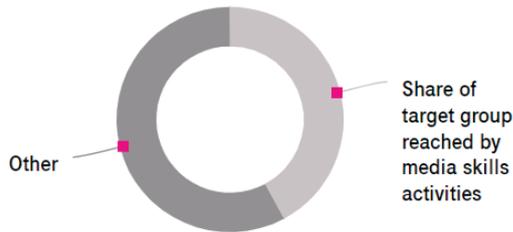
BENEFICIARIES AND MEDIA LITERACY ESG KPIS

The report comprises a set of three KPIs for calculating the impact of our social commitment. In addition to the Community Investment ESG KPI, we report the Beneficiaries and the Media Literacy ESG KPI here. Our activities are based on the methods employed by the London Benchmarking Group (LBG), which incorporate the aspects, "input," "output" and "impact".

The Beneficiaries ESG KPI reflects the number of people who got involved in community activities and the number of people in the target group that participate in or benefited from such activities (e.g. media literacy trainings, DSL connection in schools and crisis helpline).

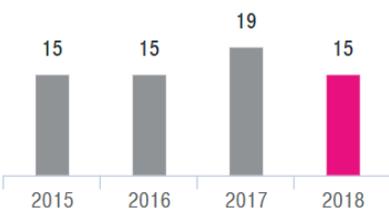
The Media Literacy ESG KPI reflects the share of people we have reached through programs addressing this topic. This KPI establishes a direct correlation between these activities and our core business. The ESG KPI reached 42 percent by the end of 2018 and our aim is to achieve a share of 45 percent by 2020.

ESG KPI "Beneficiaries" 14.7 mil. persons ✓
ESG KPI "Media literacy" 42.12% ✓



✓ Data audited by PwC. For detailed assurance comments see "DT Group in Germany" and "T-Mobile USA".
Data is partly based on estimates, assumptions and projections.
Data is partly based on previous year's data.

Beneficiaries from 2015 to 2018 in mil. people



Media Literacy from 2015 to 2018 in %



ENGAGEMENT@TELEKOM

Employees at the national companies show their commitment to society in many different ways. This commitment (corporate volunteering) frequently focuses on helping people who are not yet able to help themselves - children and young people in need. Corporate volunteering is very popular at almost all of our national companies. Core data is collected within the context of international implementation of engagement@telekom.

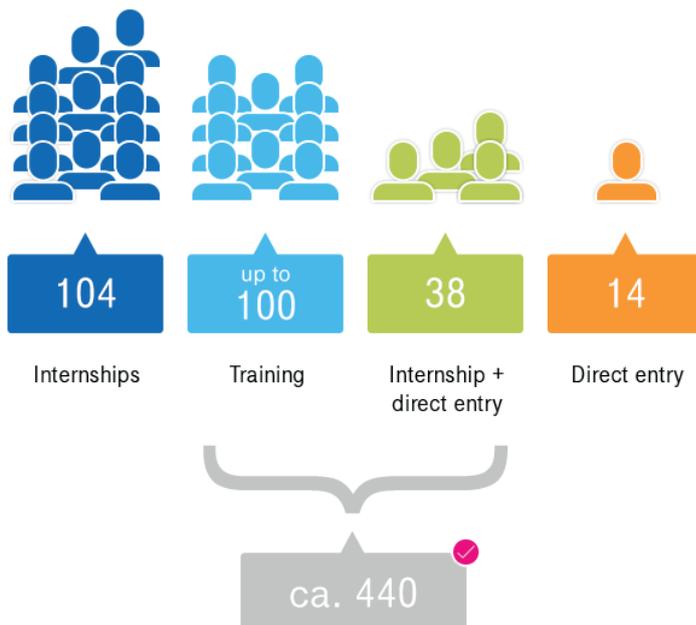
Number	2015	2016	2017	2018
Number of volunteering projects	274	285	379	655
Number of volunteers (employees)	31 355	30 259	28 477	35 836
Working hours	49 970	51 114	58 660	68 403

REFUGEE AID IN NUMBERS

In view of the massive challenges involved in aid work for refugees, our Board of Management set up its own task force in August 2015. It pools our various aid programs in Germany to ensure that support can be provided faster and with less red tape. In 2018, more than 100 intern positions and about the same number of apprentice positions have been filled with refugees.

TELEKOM STARTS 2018

(INCL. ABOUT 190 FROM PROGRAMS STARTING IN 2016/2017)



✔ Data assured by PwC.

EMPLOYEE SATISFACTION

EMPLOYEE IDENTIFICATION WITH CR COMMITMENT ESG KPI

We use the Employee Identification with CR Commitment ESG KPI to determine the degree to which our staff identify with, or how satisfied they are, with our CR commitment. This is based on the Group employee survey (excluding T-MobileUS), which we conduct every two to three years. The next survey will be conducted in May 2019.

The 2017 survey indicated - as in previous years - a considerable increase in employee identification and satisfaction with regard to our CR activities.

Reporting against standards

This data is relevant for criteria 7 (Control) and 14 (Employment Rights) of the German Sustainability Code. It is also used in our reporting on Global Compact img Principles 3 (Freedom of association) and 6 (Elimination of discrimination).



SATISFACTION AND COMMITMENT INDEX

The Employee Satisfaction KPI has improved steadily in recent years. This is largely due to sets of measures which guarantee improvements right down to individual teams. We base this on the employee survey carried out every two years and monitor how effective these measures are through the half-yearly pulse survey. This allows us to continuously analyze and optimize our processes. It gives us the opportunity to continually improve employee satisfaction.

Satisfaction rate	2015	2016	2017	2018
Germany	87%	88%	86%	81%
International	85%	86%	84%	82%
Group (total)	87%	87%	85%	82%

Engagement-Index (Commitment-Index), scale of 1 to 5 ^{b)}	2015	2016 ^{a)}	2017	2018 ^{a)}
All employees	4.1	4.1	4.1	4.1 ✓
All managers	4.5	4.5	4.5	4.5
Employees excl. managers	4.0	4.0	4.0	4.0

The calculated values are taken from the pulse and employee survey results current at the time. The most recent pulse survey was carried out in November 2018, the last employee survey also in 2017. The next survey will be conducted in May 2019.

^{a)} from prior year's MAB

^{b)} Divergences from previous reports are due to the fact that the commitment index referred all employees up to the year 2014.

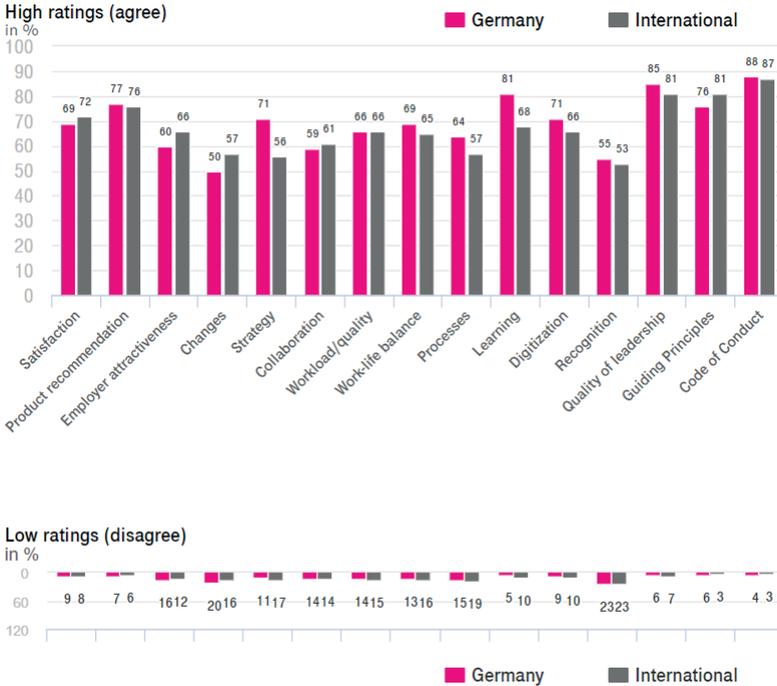
✓ Data assured by PwC.

PULS-CHECK

Deutsche Telekom wants to pursue an open dialog and productive exchange with its employees. New working models and state-of-the-art communication options as well as regular employee surveys help us accomplish this. The main feedback tools which the Group uses to assess employee satisfaction include the employee survey, which is carried out every two years, and the semi-annual pulse survey, containing the 15 questions from the employee survey shown below.

Reporting against standards

This data is relevant for criteria 7 (Rules and processes) and 14 (Employee rights and diversity) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 3 (Freedom of association) and 6 (Elimination of discrimination).



High ratings = Very good, good/agree fully, agree.

Low ratings = Poor, very poor/do not agree, do not agree at all.

“Neither agree nor disagree” ratings are not included.

Explanations of questions asked:

Satisfaction = How do you feel in the company?

Product recommendation = I recommend the products/services of our company to potential customers outside of my work environment.

Employer attractiveness = I would recommend our company as a great place to work.

Changes = I can understand the changes in our company.

Strategy = I can clearly explain to others the strategy of Deutsche Telekom.

Collaboration = In my experience, we all work together as partners at Deutsche Telekom in the interests of the Group’s success.

Workload/quality = In my team, the workload and quality requirements are consistent with one another.

Work-life balance = The current working hours allow a good balance between private (family/leisure act.) and job-related interests.

HR development = Our company offers sufficient training opportunities to support my professional development.

Processes = Processes and procedures allow me to effectively meet my (internal and/ or external) customers’ needs.

Recognition = Considering all my efforts and achievements, I feel that I have received the appropriate amount of recognition at work.

Guiding Principles = I feel that the Guiding Principles are reflected in my day-to-day work.

Learning = Our company supports innovative learning formats and offerings.

Digitalization = I feel that digital platforms/tools support dialog, networking, knowledge sharing, and collaboration at our company.

Recognition = Considering all of my efforts and achievements, I feel that I have received the appropriate amount of recognition at work.

Quality of leadership = My supervisor acts with integrity and walks the talk.

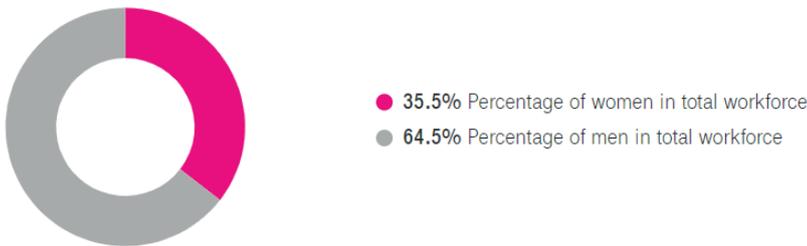
Guiding Principles = I feel that the Guiding Principles are reflected in my day-to-day work.

Code of Conduct = Our Code of Conduct is the basis for mv behavior in mv dav-to-dav work.

DIVERSITY

WOMEN IN TOTAL WORKFORCE

In recent years, we have succeeded in maintaining the proportion of women in the total workforce at over a third and expect a slight upward trend in the future.

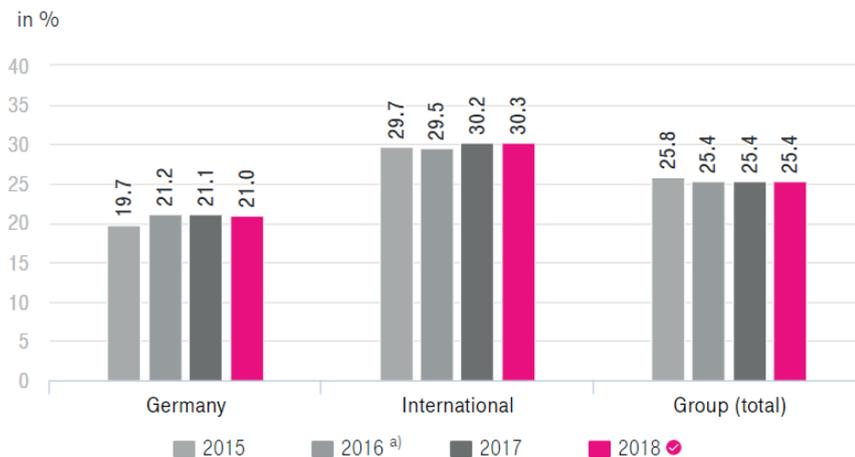


WOMEN IN MIDDLE AND UPPER MANAGEMENT

In 2018, as well, we continued pursuing the goal of achieving 30 % women in management positions. We continue to support this goal through the "Fair Share" initiative. In Germany, the percentage of women in mid- and upper-level management has decreased slightly to 21.0 %. Group-wide, the value has not changed with a steady 25.4 %.

Reporting against standards

By reporting the percentage of women in middle and upper management, we fully cover the GRI 405-1 (Diversity of governance bodies and employees) GRI indicator and the S10-02 (Percentage of women in managerial positions) EFFAS indicator and partially cover the S10-01 (Percentage of women in total workforce) EFFAS indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code. It is also used for reporting on the Global Compact principle 6 (Elimination of discrimination).



✔ Data checked by PwC.

a) In 2016, the classification was made according to job clusters and not to management groups as in the years before. Therefore the comparability of the data is limited.

WOMEN ON THE MANAGEMENT BOARD

In 2018, as well, we continued pursuing the goal of achieving 30 % women in management positions. We continue to support this goal through the "Fair Share" initiative. Deutsche Telekom is one of the few DAX Groups where women have been part of the Board of Management for several years now. In addition, more and more women are working in international management teams below the Board of Management level.

Reporting against standards

By reporting the percentage of women on the management board, we fully cover the GRI 405-1 (Diversity of governance bodies and employees) GRI indicator and the S10-02 (Percentage of women in managerial positions) EFFAS indicator and partially cover the S10-01 (Percentage of women in total workforce) EFFAS indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code. It is also used for reporting on the Global Compact principle 6 (Elimination of discrimination).



WOMEN ON THE SUPERVISORY BOARD AT DT NATIONAL COMPANIES

In the supervisory boards of our fully-consolidated European subsidiaries, the percentage of women totals 26 percent (in Germany: 40 percent).

Women in Supervisory Board, international
(in %)



a) Proportion of internal active female employees in top and middle management was not reported in 2016.

● Data assured by PwC. Data cannot be directly compared to the previous year, due to a new calculation method.

EMPLOYEES WITH DISABILITIES

Deutsche Telekom has already exceeded the prescribed minimum rate of 5 percent of disabled employees for a good many years, so that it heads the list of DAX 30 companies on this count. In 2018 Deutsche Telekom again raised this figure by 0.1 percentage points.

Reporting against standards

By reporting this data, we partially cover the GRI 405-1 (Diversity of governance bodies and employees) GRI indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code. It is also used for reporting on the Global Compact principle 6 (Elimination of discrimination).

in %	2011	2012	2013	2014	2015	2016 ^{a)}	2017 ^{b)}	2018 ^{c)}
Group (total) in Germany	6,3	6,4	6,4	7,0	7,2	7,5	7,5	7,6

^{a)} excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Cronon AG, Strato AG, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, operational services GmbH & Co. KG

^{b)} excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, operational services GmbH & Co. KG, HÄVG GmbH

^{c)} excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, operational services GmbH & Co. KG, HÄVG

COMPLIANCE AND HUMAN RIGHTS

HUMAN RIGHTS AND SOCIAL PERFORMANCE REPORT

Deutsche Telekom has made an express commitment to the UN Guiding Principles on Business and Human Rights published by the United Nations Human Rights Council in 2011 and has anchored these principles in its Social Charter.

Social Performance Report

To review possible impacts on human rights, we have operated a central Contact Point for Human Rights since 2013, and we prepare a Social Performance Report each year. In the report, all 120 fully consolidated companies of Deutsche Telekom state whether they comply with the principles of the Social Charter. The report again shows no violations of our Social Charter for January to December 2018.

Whistleblower Portal

Whistleblower portal 'Tell me!': Nine tip-offs relating to human rights issues in 2018.

Assessments & Review

- A Human Rights Impact Assessment in 2018 (designed to assess the actual and potential consequences of corporate activities on human rights and the ability of the organization to prevent, mitigate, or compensate these consequences): T-Systems Malaysia und T-Systems Singapore
- An 'Employee Relations Policy' review in 2018: Magyar Telekom

✔ Data assured by PwC.

The Human Rights & Employee Relations Policy Cockpit is also used to measure impacts on human rights. To this end, the national companies collect data related to five human rights indicators and evaluate them according to a traffic light system.

Reporting against standards

Statements by the participants in the Social Performance Report are relevant for GRI Indicator G4-HR9 (Operations that have been subject to human rights reviews). Some of the information is relevant for the EFFAS indicator S07-02 (Percentage of total facilities certificated according to SA 8000 standard). It is furthermore relevant for criterion 17 (Human rights) of the German Sustainability Code. It is also used in our reporting on Global Compact Principles 1 and 2 (Protection of international human rights).

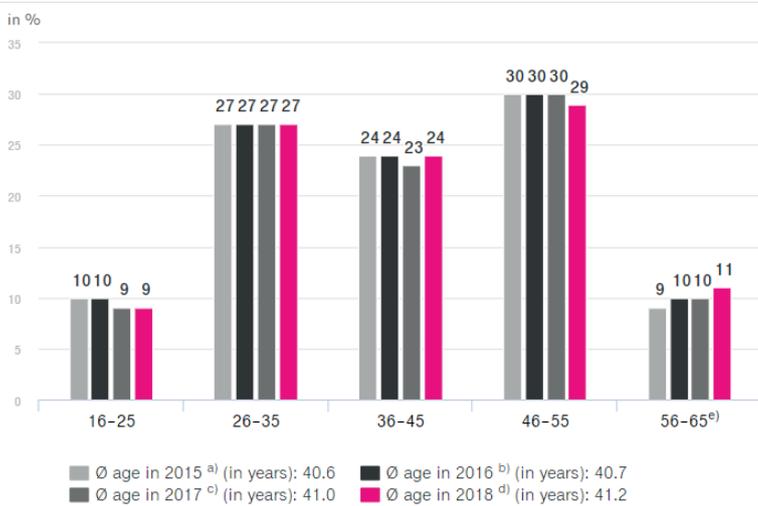
DEMOGRAPHY AND COMPANY PENSION SCHEME

AGE STRUCTURE AT THE DEUTSCHE TELEKOM GROUP

The average age in the Group is 41.2 years. The average age in Germany is rising but is balanced out by the average age at international level (37.1 years).

Reporting against standards

By reporting on this data, we partially cover the GRI 405-1 (Diversity of governance bodies and employees) GRI indicator and fully cover the S03-01 (Age structure/distribution) EFFAS indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code. It is also used for reporting on the Global Compact principle 6 (Elimination of discrimination).



a) does not include data for: emetriq GmbH, DT Capital Partners Management GmbH, Satellic NV, DT North America, DT International Finance B.V., C&B International Limited, OTE Plc, GTS Central European Holdings B.V., GTS Telecom S.R.L., C&B Services India Private Limited and ICSS-Companies.

b) does not include data for: Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Cronon AG, Strato AG, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, operational services GmbH & Co. KG, T-Systems North America, T-Systems Canada, Deutsche Telekom North America, DT International Finance B.V., OTE Plc, Deutsche Telekom (UK) Limited, Detecon- and ICSS-Companies.

d) excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, HÄVG GmbH, operational services GmbH & Co. KG, DT International Finance B.V., OTE Plc, Deutsche Telekom (UK) Limited, Detecon- and ICSS-Companies

e) excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, HÄVG GmbH, operational services GmbH & Co. KG, Toll4Europe, DT International Finance B.V., T-Systems Polska, DT North America, T-Systems Canada, T-Systems North America, IWS SK CES, Detecon- and ICSS-Companies

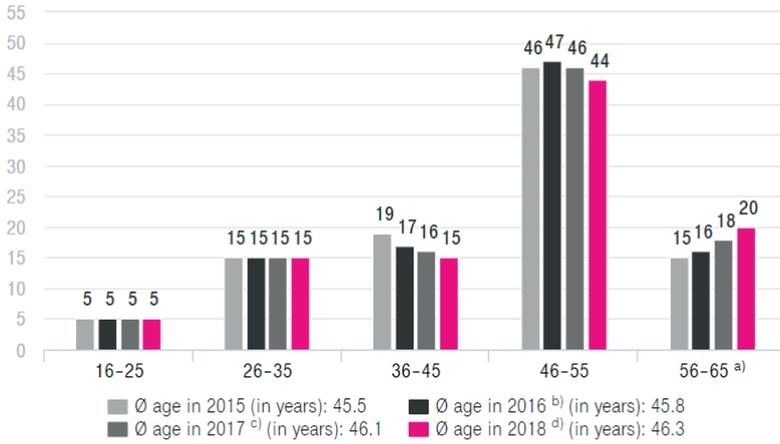
e) incl. > 65 years

AGE STRUCTURE DT GROUP IN GERMANY

As a result of demographic change and low fluctuation, the proportion of employees over 55 years of age increased from 11 to 20 percent. One advantage of this is that many experienced employees with a wealth of know-how work for Deutsche Telekom.

Reporting against standards

By reporting on this data, we partially cover the GRI 405-1 (Diversity of governance bodies and employees) GRI indicator and fully cover the S03-01 (Age structure/distribution) EFFAS indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code. It is also used for reporting on the Global Compact principle 6 (Elimination of discrimination).



a) incl. > 65 years
 b) excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Cronon AG, Strato AG, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, operational services GmbH & Co. KG
 c) excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, HÄVG GmbH, operational services GmbH & Co. KG, DT International Finance B.V., OTE Plc, Deutsche Telekom (UK) Limited, Detecon- and ICSS-Companies
 d) excl. Deutsche Telekom Capital Partners Management GmbH, Detecon International GmbH, Deutsche Telekom Clinical Solutions GmbH, Orbit GmbH, operational services GmbH & Co. KG, HÄVG GmbH, Toll4Europe, DT Deutsche Telekom International Finance B.V.

COMPANY PENSION SCHEMES

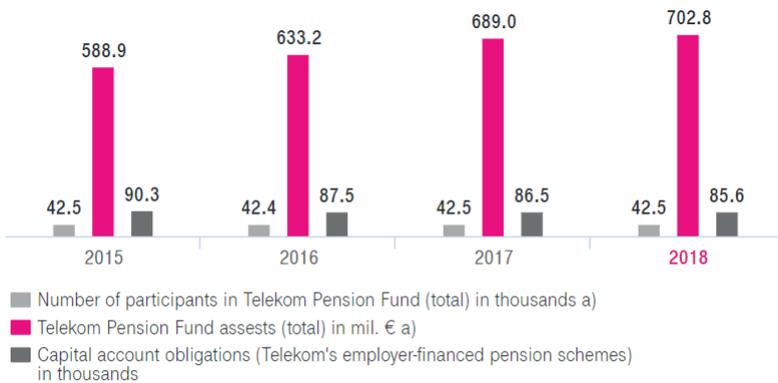
The increase in fund assets can be attributed to the payments of the increasing number of plan participants (as was the case in previous years). Because the majority of participants in the 2001 pension plan are still active, i.e., still paying into their retirement plans, this increase will remain steady over the next few years.

Investments in the capital market made by Deutsche Telekom for company pension schemes and similar obligations in Germany are based on our sustainability principles. These principles were integrated into our socially responsible investment strategy for Deutsche Telekom pension providers, which we introduced in 2013, in the form of exclusion criteria. They prohibit investments in companies that produce NBC weapons, anti-personnel mines or cluster bombs or that trade in these or have repeatedly violated the UN Global Compact principles. Deutsche Telekom pension funds are also prohibited from purchasing government securities from governments that are subject to sanctions in accordance with public international law. Our pension providers agreed to our socially responsible investment strategy in 2013. This strategy was reviewed in 2017 and now incorporates Best-in-Class strategies and engagement approaches.

We are convinced that putting this strategy into practice will help improve our financial risk indicators. This strategy will also promote perception of Telekom as a socially responsible company. It will help us avoid high-risk, controversial investments and, instead, invest in long-term, stable values that are in line with our principles of sustainability.

Reporting against standards

By reporting this data we fully cover the GRI 201-3 (Defined benefit plan obligations and other retirement plans) GRI indicator.



a) The volume comprises the assets of the Telekom-Pensionsfonds in the 2001 pension plan.

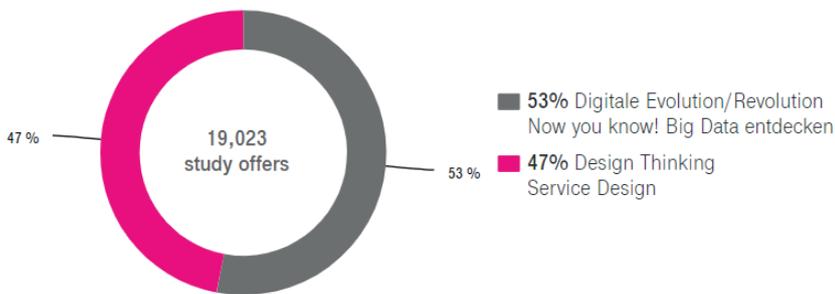
TRAINING AND DEVELOPMENT

SKILLS DEVELOPMENT AT TELEKOM TRAINING IN GERMANY

Deutsche Telekom offers its employees a range of advanced training measures, which enable them to develop and brush up their skills.

Reporting against standards

By reporting this data we fully cover the GRI 404-1 (Average hours of training per year per employee) and GRI 404-2 (Programs for upgrading employee skills and transition assistance programs) GRI indicators as well as the S02-02 (Average expenses on training per FTE p.a.) EFFAS indicator. This data also covers criterion 16 (Steps taken to promote the general employability of all employees) of the German Sustainability Code.



Ø qualification days: 3.9; digital: 1.6
number of qualification days: 658,587.0; digital: 266,793.0

INTERNATIONAL DEVELOPMENT AND MANAGEMENT PROGRAMS

The object of our international development and leadership programs is for high potentials and high achievers to gain a foothold in the Group, to keep them loyal to the company and to position them in suitable jobs. These programs focus on development of the upcoming leader generation and on support in coping with the challenges they face now and in the future. At the same time, the programs aim to enhance their sense of belonging, increase knowledge exchange and promote personal responsibility.

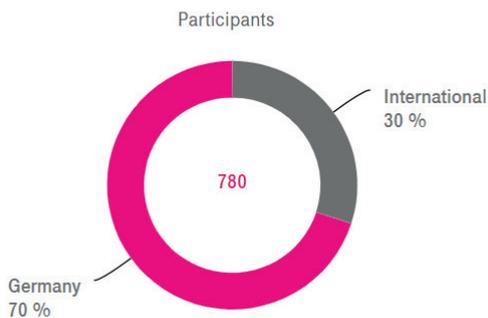
The number of participants in Global Talent Pool and the replacement for the Talent Space program increased in 2018.

		2015	2016	2017	2018
Participants Trainee-Programm Start up! ^{a)}	total	31	18	32	44
Participants Trainee-Programm Start up! ^{a)}	of which women	45%	28%	50%	59%
Participants Global Talent Pool ^{b)}	total	300	253	858	976
Participants Global Talent Pool ^{b)}	of which women	32%	35%	25%	26%

^{a)} The program lasts 15-18 months. The numbers listed are annual new hires.
^{b)} Group-wide program for top talents. The program lasts 12 months (starts every summer). Replaces the former "Global Talent Pool" program. New audience scope hinders the comparability with previous years data.

2018 saw the continuation of successful formats, ongoing improvements based on participant feedback, and the redesign of individual offerings. One example is the levelUP! executive program introduced in 2017. Overall, more than 1,400 executives took part in this program in 2017 and 2018. There has been a trend toward participants from Germany, who make up the bulk of executives within the Group. The program focuses on emphasizing the innovation culture and technology-based leadership.

**levelUP!
 LEADERSHIP FOR TOMORROW**

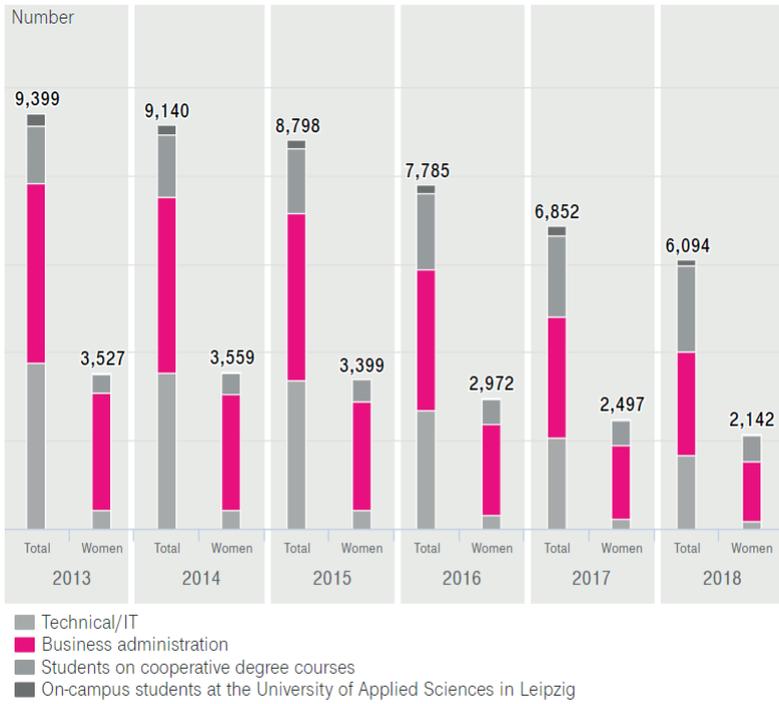


**APPRENTICES AND TRAINING PROGRAMS
DEUTSCHE TELEKOM GROUP IN GERMANY**

In 2018, we recruited more than 6,000 junior employees for training or a cooperative degree program. More than 35% of them were women. The decrease on the previous year's figures is in line with the general employment trend at Deutsche Telekom.

Reporting against standards

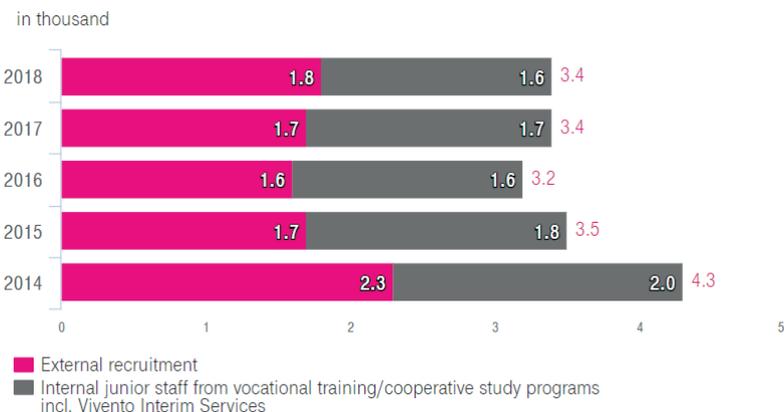
By reporting this data we partially cover the GRI 404-1 (Average hours of training per year per employee) GRI performance indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code.



Examples for commercial training programs: office communications administrators, retail sales or dialog marketing assistants, industrial business administrators
Examples for cooperative study programs: Bachelor in Business Administration, Communications and Information Technology, Business Information Systems.

**EMPLOYEE RECRUITMENT DEUTSCHE TELEKOM GROUP
IN GERMANY**

In 2018, Deutsche Telekom hired almost 1,800 new employees from the external labor market in Germany. In addition, we gave around 1,600 internal junior staff permanent jobs on completion of their vocational training or cooperative study courses. A total of 10,460 employees were recruited outside Germany.



HEALTH AND SAFETY

HEALTH RATE

Nationally, the health rate for the Deutsche Telekom Group in 2018 showed a slight decrease of 0.1 percentage points year-on-year, and stood at an average of 93.6 percent (including the long-term sick). The main reason for this decrease is the surge in the incidence of flu compared with prior years at the beginning of the year. Adjusted to allow for the months of January to April, the health rate for the rest of the year was up 0.1 percentage points on the same period of the previous year.

In 2018, our company health management offerings focused increasingly on psychosocial stress factors. Specific preventive health programs have also been implemented at the individual companies. Across all segments, management training courses on the topic of “healthy leadership” were either introduced or continued.

Reporting against standards

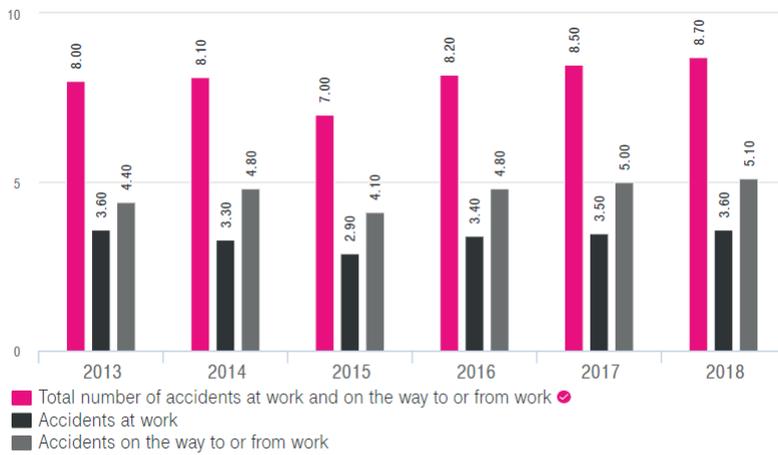
In combination with data on work-related accidents, the health rate data partially covers the GRI 403-2 (Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities) GRI performance indicator. This data is also relevant for criterion 15 (Diversity and health) of the German Sustainability Code.

	2011	2012	2013	2014	2015	2016	2017	2018
Group (national)	94,1	94,2	93,9	94,4	94,0	93,8	93,7	93,6 

 Data assured by PwC.

OCCUPATIONAL ACCIDENTS

The number of all accidents at work and on the way to or from work increased slightly in comparison to 2017. The accident rate in Germany was 8.7 accidents (resulting in over three days of absence) per thousand employees, well below the industry average.



☑ Data 2018 assured by PwC. Data is partly provided by external service providers.

HEADCOUNT AND PART-TIME WORK

WORKFORCE DEVELOPMENT WORLDWIDE

As per the end of 2018, the Group's headcount had fallen by 0.8 percent year-on-year. Development within the individual segments showed a varied pattern. For example, the headcount in our Germany operating segment was down 3.4 percent, as the combined result of efficiency enhancement measures, fewer hirings in the operating units, and the take-up of socially responsible staff restructuring schemes. As at December 31, 2018, the total headcount in our United States operating segment was up 2.1 percent year-on-year, primarily due to additional hirings in customer service, in the backoffice, and in the networks unit, although this was partially offset by a decrease in customer acquisitions. In our Europe operating segment, the year-end headcount was up 1.5 percent, due in large part to the transfer of personnel from UPC Austria by our Austrian NatCo, and the expansion of services in Croatia.

The year-end headcount in our Systems Solutions operating segment was down 1.2 percent net against 2017, primarily as a result of restructuring measures, while the Group Headquarters & Group Services segment reported a 3.9 percent decrease. The headcount reduction associated with ongoing staff restructuring measures at Vivento was partially offset by an increase in the Technology and Innovation unit.

Reporting against standards

In Verbindung mit den weiteren Angaben zu den Mitarbeiterzahlen deckt die Angabe zur weltweiten Entwicklung der Mitarbeiterzahlen den GRI-Indikator GRI 401-1 (Neueinstellung und Fluktuation) vollständig ab. Weiterhin wird die EFFAS-Kennzahl S01-01 (ausscheidende Mitarbeiter) teilweise abgedeckt.

Number	2011	2012	2013	2014	2015 ^{a)}	2016 ^{a,b)}	2017 ^{a,b)}	2018
Germany	69 574	67 497	66 725	68 754	67 927	66 410	64 798	62 621
USA	32 868	30 288	37 071	39 683	44 229	44 820	45 888	46 871
Europe	58 794	57 937	53 265	53 499	48 920	46 808	47 421	48 133
Systems Solutions	52 170	52 106	49 540	46 244	37 850	37 472	37 924	37 467
Group Headquarters and Group Services	21 726	21 858	21 995	19 631	23 548	20 258	19 351	18 606
Group Development					2 768	2 572	1 967	1 976
Group (total)	235 132	229 686	228 596	227 811	225 243	218 341	217 349	215 675

^{a)} Since January 1st 2017 we report the Board division technology and innovation via the segment Group Development and the segments Group Headquarters & Group Services. Year on year data has been adjusted accordingly.

^{b)} The value was corrected compared to the information published in the previous year's report.

DEUTSCHE TELEKOM WORKFORCE 1999-2018

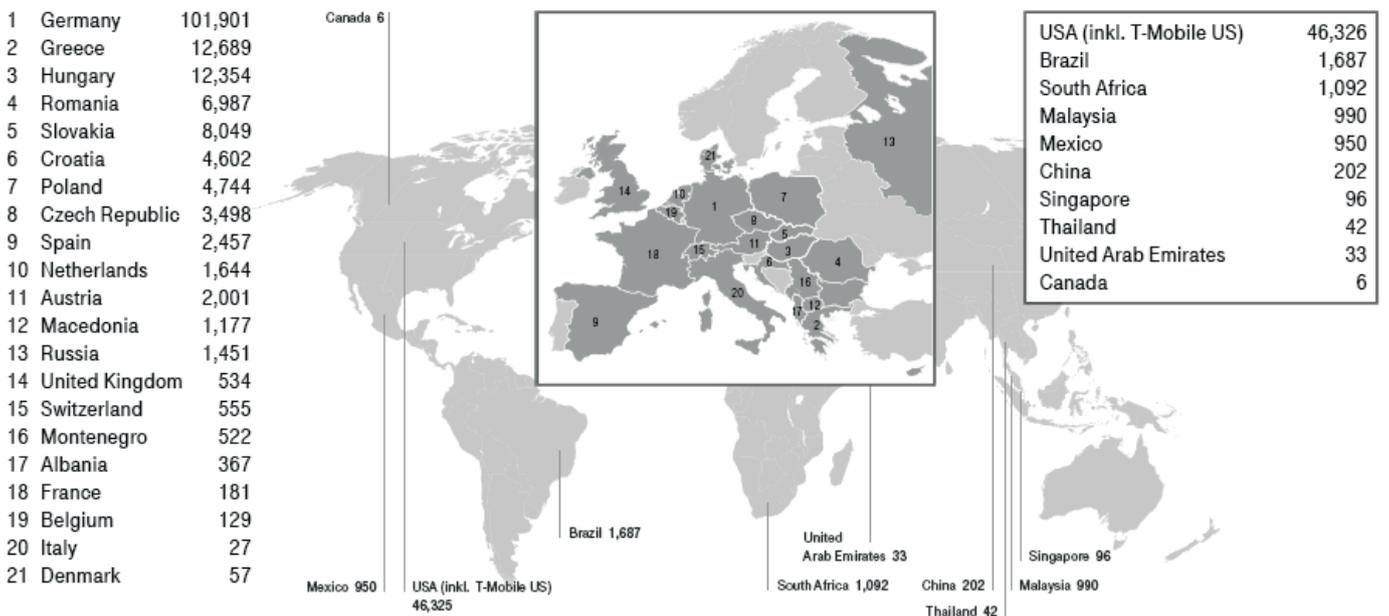
Our strategy to become the leading telecommunications provider in Europe is reflected in the trend in our international employee headcount. The number of employees working at sites outside Germany has risen notably since the turn of the millennium – albeit with fluctuations in some places. Whereas 88.2 percent of company employees were working in Germany in 1999, the rate has leveled at around 50 percent since 2015. The figure for 2018 was 45.5 percent.

Reporting against standards

This data is relevant for criterion 15 (Diversity and health) of the German Sustainability Code.



NUMBER OF EMPLOYEES BY COUNTRY



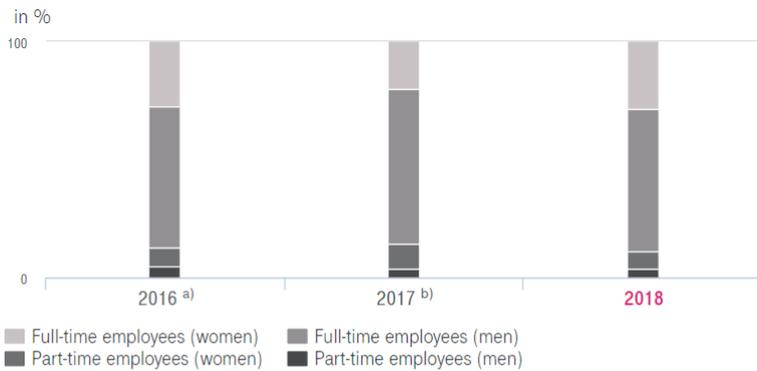
PART-TIME EMPLOYEES DEUTSCHE TELEKOM GROUP

We believe it is important to offer our staff flexible working conditions that fit their needs at every stage of their lives. This includes the opportunity to work part-time, but also the guaranteed option of returning to work when the employee no longer wants to work part-time. We also offer this to young parents so that they can balance starting their career through training or a part-time cooperative study course with the demands of family life as a single parent. In 2018, 28 young people took the opportunity to do this. Part-time training is available in all of our training programs, and means apprentices spend 25 hours per week

either in the company, in school, or in the training center. The highlight: like all apprentices, part-time apprentices can cut their training to two and a half years and therefore apply for a job earlier than would have otherwise been possible. A success model all round, since Deutsche Telekom also benefits from the young people's commitment.

Reporting against standards

By reporting this data, we partially cover the GRI 102-8 (Information on employees and other workers) GRI indicator.



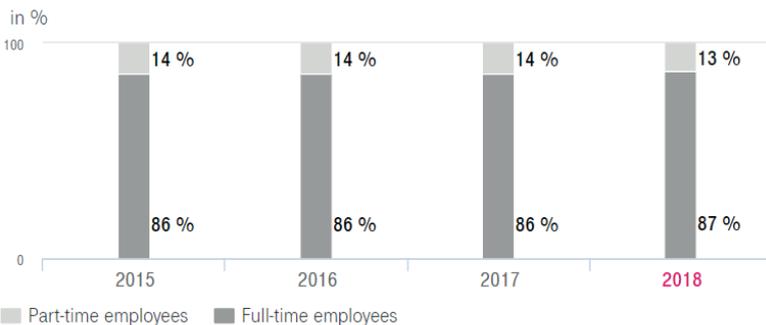
a): No data included for Deutsche Telekom North America, Deutsche Telekom International Finance B.V., C&B International, DeTeFleet, ICSS- and GTS-Companies.
 b): No data included for emetriq GmbH, DT Capital Partners Management GmbH, Deutsche Telekom International Finance B.V., OTE Plc., GTS Central European Holdings B.V., GTS Telecom S.R.L., Satellic NV, C&B International Limited, C&B Services India Private Limited and ICSS-Companies

PART-TIME EMPLOYEES DEUTSCHE TELEKOM GROUP IN GERMANY

The percentage of part-time employees came to around 13 percent in 2018, a slight decrease compared to last year.

Reporting against standards

By reporting this data, we partially cover the GRI 102-8 (Information on employees and other workers) GRI indicator. This data is also relevant for criteria 14 (Employee rights) and 15 (Diversity and health) of the German Sustainability Code. It is also used for reporting on the Global Compact principles 3 (Freedom of association and the right to collective bargaining) and 6 (Elimination of discrimination).



FLUCTUATION AND WORKFORCE MANAGEMENT

FLUCTUATION RATE

The fluctuation rate in Germany increased again slightly, after experiencing continuous reduction until 2015. In 2018 it was 1.94 % in Germany, and 9.78 % at the international level. The rate has also increased slightly at Group level due to the increase in Germany, and was 5.12 % in 2018.

Reporting against standards

In combination with additional data on the number of employees, the data on the fluctuation rate fully covers the GRI 401-1 (New employee hires and employee turnover) GRI indicator.

in %	2015	2016	2017	2018
Germany	1.28	1.37	1.70	1.94
International ^{a)}	9.25	8.14	9.22	9.78
Group (total) ^{a)}	4.39	4.01	4.68	5.12

^{a)} excluding USA

PROPORTION OF CIVIL SERVANTS IN GROUP WORKFORCE

The proportion of civil servants employed in the company fell once again in 2018. The reason for this is that Deutsche Telekom has not recruited any new civil servant staff since the company was privatized. In addition to civil servants leaving the company when they reach retirement age, others also took advantage of early retirement or moved to other agencies. This led to a continuous drop in the number of civil servants in our workforce.

Reporting against standards

In combination with additional headcount data, the data on the percentage of civil servants in the workforce fully covers the GRI 401-1 (New employee hires and employee turnover) GRI indicator.

	2011	2012	2013	2014	2015	2016	2017	2018
Active civil servants	23 516	21 958	20 523	19 881	18 483	15 999	15 482	13 507
Civil servants on temporary leave from civil servant status ^{a)}	1 537	1 430	1 412	1 340	1 220	889	731	657
Civil servants at affiliated companies	15 774	14 836	14 179	13 260	12 292	10 827	10 486	9 785
Civil servants (total)	40 828	38 224	36 114	34 482	31 995	27 716	26 699	23 950
Number of non-civil servants in Germany	80 736	80 616	80 529	80 267	78 360	76 946	75 202	74 143
Total number of employees in Germany	121 564	118 840	116 643	114 749	110 354	104 662	101 901	98 092
Percentage of civil servants in Germany (in %)	33.6	32.2	30.96	30.05	28.99	26.48	26.20	24.42

^{a)} Civil servants whose status as such is currently suspended. They have temporarily switched to an employee relationship not covered by collective agreements.

VIVENTO WORKFORCE

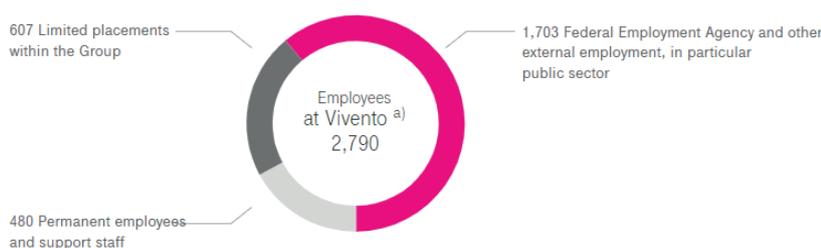
Personnel service provider Telekom Placement Services continued to support the Group in its workforce restructuring efforts in the year 2018. In 2018, some 326 Deutsche Telekom civil servants opted to transfer permanently to federal, state, or local government, many of them to the Federal Office for Migration and Refugees, the Federal Employment Agency, the armed forces, or the Customs Office. Vivento also helped employees to find individual positions in federal, state, and local government.

Some 800 employees at Vivento Customer Services were also transferred to Telekom Service, while a further 400 or so transferred to various segments in the core business.

Reporting against standards

In combination with additional headcount data, the data on the trend in employee numbers at Vivento fully covers the GRI 401-1 (New employee hires and employee turnover) GRI indicator.

Number



Number of employees who have been transferred to the public sector via vivento: **326**
Staff transfers to Vivento since its foundation: **54,165**
Staff who have left Vivento since its foundation: **51,374**

^{a)} All figures calculated on the basis of precise details. Since figures are rounded, totals may differ.

TOOLS FOR SOCIALLY RESPONSIBLE STAFF RESTRUCTURING DEUTSCHE TELEKOM GROUP IN GERMANY

We continued our efforts to engage in socially acceptable staff restructuring in 2018. We use internationally proven tools giving employees the option to voluntarily leave the company as part of this process.

Reporting against standards

This data is relevant for criteria 6 (Rules and Processes) and 14 (Employment Rights) of the German Sustainability Code.

Personnel cuts (FTEs).	2012 ^{a)}	2013	2014	2015	2016	2017	2018
Early retirement (civil servants)	2 266	1 618	927	1 219	3 849	27	1 711
Early retirement (non-civil servants)	3	27	27	29	47	61	63
Severance payments	955	1 316	826	1 448	726	1 081	972
Partial retirement (start of passive phase)	1 417	711	332	1 345	1 393	1 687	1 890
Other socially responsible tools	120	241	471	11	<6	15	-
Transfers to public authorities (final) ^{b)}				711	418	417	326

^{a)} Worldwide data collection since 2012

^{b)} Permanent transfers; civil servants are not entitled to return to the Deutsche Telekom Group - established as a cluster in 2015.

IDEAS MANAGEMENT

GENIAL@TELEKOM. IDEAS MANAGEMENT

Employees have the chance to submit their own ideas and, in doing so, to actively shape their workplaces. Costs reductions of nearly €80 million in 2018 played a key role in keeping Deutsche Telekom competitive. In addition, workforce commitment enables the Group to position itself as a more innovative and more competitive enterprise. An incentive for idea generators: Deutsche Telekom awards attractive bonuses for successful suggestions.

Reporting against standards

Employee involvement is encouraged via the genial@telekom ideas management platform. This data is relevant for criterion 14 (Employee rights) of the German Sustainability Code.

	2012	2013	2014	2015	2016	2017	2018
Ideas submitted	13 043	12 146	13 231	13 728	10 125	6 902	5 123
Savings in millions of €	104	83	107	147	169	99	78

PORTFOLIO OF INTELLECTUAL PROPERTY RIGHTS

By the end of 2018, we owned around 7,800 intellectual property rights (IPRs). We take a targeted approach to managing these IPRs in consideration of cost-benefit aspects. We regularly take stock of our IPRs and eliminate those that are no longer relevant.

Patents are gaining more and more significance in the telecommunications industry. Market players and their areas of activity are changing, with a knock-on effect on our IPR (intellectual property rights) agenda. On the one hand, our Group's scope for action must be maintained. On the other hand and alongside our own research and development activities, we want to pave the way to open innovation through collaboration projects and partnerships. National and international IPRs are vital for these types of activity. We are strongly dedicated to generating our own property rights. Industrial property rights include inventions, patent applications, patents, utility models and design patents.

Thanks to our intense efforts to develop and structure our IPR portfolio, the rights we hold are highly valuable and firmly in line with our Group's strategic objectives. We have put in place a professional patent law management process to keep our IPR assets safe. Additionally, we are represented on various standardization bodies in our industry. We manage our IPRs on the basis of cost/benefit aspects, filing only selected applications and de-registering patents systematically.

Reporting against standards

This data partially covers the V04-05 (Number of patents registered within last 12 months) and V04-06 (Percentage of patents registered within last 12 months in relation to total number of patents) EFFAS indicators.



DIGITAL COLLABORATION

DIGITALLY CONNECTED, WORLDWIDE

	2014	2015	2016	2017	2018
WEBEX (conference minutes (global) in mio.)	416.61	533.86	672.52	763.73	835.10
Jabber (Jabber Accounts)		15 110	27 254	37 062	42 102
You-and-Me (created user profiles)	90 734	104 297	120 325	121 876	125 670

IMPRINT

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Further information on Deutsche Telekom's corporate responsibility activities can be found at:

<http://www.telekom.com/corporate-responsibility>
and
<http://report.telekom.com/annual-report-2018/>

Concept/research/design/programming:

Deutsche Telekom AG
Stakeholder Reporting GmbH, Hamburg
yoocon GmbH, Berlin
1000°DIGITAL GmbH, Leipzig

Photos:

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Pictureworld, Deutsche Telekom

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