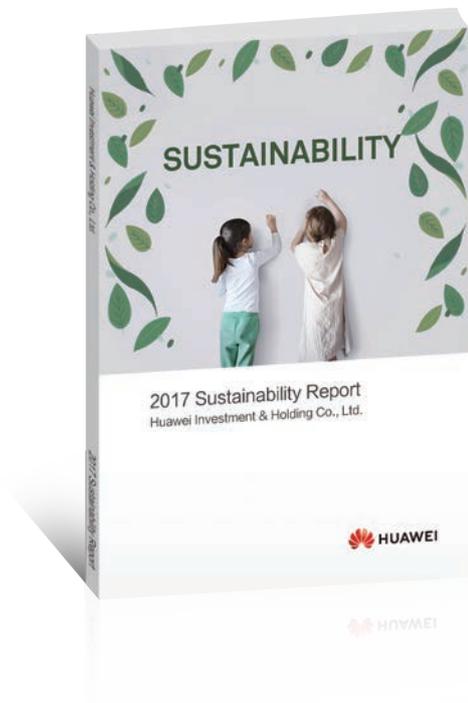


SUSTAINABILITY



2017 Sustainability Report
Huawei Investment & Holding Co., Ltd.



2017 Sustainability Report

Huawei Investment & Holding Co., Ltd.

Corporate Profile

Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. With integrated solutions across four key domains – telecom networks, information technology (IT), smart devices, and cloud services – we are committed to bringing digital to every person, home and organization for a fully connected, intelligent world.

Huawei's end-to-end portfolio of products, solutions and services are both competitive and secure. Through open collaboration with ecosystem partners, we create lasting value for our customers, working to empower people, enrich home life, and inspire innovation in organizations of all shapes and sizes.

At Huawei, innovation focuses on customer needs. We invest heavily in basic research, concentrating on technological breakthroughs that drive the world forward. We have more than 180,000 employees, and we operate in more than 170 countries and regions. Founded in 1987, Huawei is a private company fully owned by its employees. (For more information, refer to the Huawei 2017 Annual Report)

Report Profile

Every year since 2008, Huawei Investment & Holding Co., Ltd. ("Huawei", "the company", or "we") has voluntarily released sustainability reports and disclosed our sustainability performance so that the public can better understand the strategy, approach, and implementation of our sustainability efforts. Doing so helps us be more sustainable and facilitates communication, awareness, and interaction with our stakeholders and the public.

This report covers all entities that Huawei either has control of, or a significant influence over, in terms of financial and operational policies. The scope of the entities covered in this report is consistent with the scope of organizations discussed in the 2017 Huawei Annual Report. Unless otherwise specified, this report describes the economic, environmental, and social performance of Huawei and its subsidiaries worldwide during the January 1, 2017 to December 31, 2017 reporting period. All data contained herein is derived from Huawei's official documents and statistical reports.

The report is prepared in accordance with the Global Reporting Initiative (GRI) Standards (Core option). Huawei engaged Bureau Veritas, an external assurance provider, to verify the reliability, fairness, and transparency of this report and to issue an independent assurance statement (see Appendix IV).

As an independent record of sustainability, this report is published online and in print in both Chinese and English in July 2018. (The report for 2016 was published in June 2017.) The 2017 Sustainability Report can be viewed at www.huawei.com.

For any report-related questions or suggestions, please contact: Tel: +86 (0)755 2878 0808

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A Message from Our Chairman



We live in a rapidly changing world, and change is accelerating along with progress in digitalization. Everything in our lives is changing – from how we live and work, to how we learn and spend our time. And thanks to digital technology, we are able to do things more efficiently and more intelligently than ever before.

Last year, Huawei confirmed its new vision, which is to bring digital to every person, home and organization for a fully connected, intelligent world. We are confident that we can make the world a better place by fully connecting everything and everyone.

But the future is still full of challenges. The world's population is growing. The digital divide is wider than ever, and broadband service coverage remains surprisingly low in many areas. In the ICT industry, we wish to leverage our expertise to build a sustainable, fully connected, and intelligent world to address these challenges.

Digital and intelligent technologies are opening up exciting new possibilities and opportunities, and yet many people still don't have access to this new world. According to Huawei's recently released Global Industry Vision 2025 report, there are still five billion people around the world who don't have a smartphone. In addition, only 40% of homes have access to broadband, and coverage is less than 1% for gigabit broadband. Only 10% of

enterprises globally have access to broadband faster than 10 Mbps. This makes it hard for businesses to go digital and move to the cloud.

Huawei is working hard to bridge the digital divide and is driving the digital transformation of industries and society. We are a leader in ICT, and our products and solutions are widely deployed across more than 170 countries and regions, connecting over one-third of the world's population. A better, more intelligent world awaits us on the other side of these efforts.

Future sustainable development will be inseparable from digital and intelligent technologies. Huawei is dedicated to acting as a bridge, helping to bridge the digital and intelligent worlds. We are the "fertile soil" in which everything and everyone can connect and thrive. By gaining access to the digital world, people can learn new things, seize opportunities, and maximize personal potential to a degree never before imagined. Broadband networks and intelligent devices allow families to enjoy better health, entertainment, and living standards. By going digital, industries can also make their operations smarter and more sustainable.

Looking ahead, our focus is clear. We will continue our work in ICT infrastructure and smart devices. We will connect the unconnected, and make the intelligent world a reality. We will continue to invest in innovation and applications that drive sustainability and create more value for our customers. We see a future where every person, home and organization enjoys the benefits of innovation and connection. As we encourage more inclusive and sustainable global economic growth, we sincerely hope to contribute more to our world and the future.

A handwritten signature in black ink, appearing to be 'Howard Liang', written in a cursive style.

Dr. Howard Liang

Chairman of the Board
Huawei Technologies Co., Ltd.



A Message from the Chairman of the Corporate Sustainable Development Committee

The fourth industrial revolution has begun, driven by the deep integration of the physical and digital worlds. Intelligent connections are being forged between people, between things, and between people and things. They are weaving a better connected, intelligent world, which will bring entire new varieties of business, and new levels of efficiency and sustainability. New ICT technologies are creating new solutions for sustainability. Digital technologies like 5G, big data, Internet of Things, and cloud computing are enabling the world to grow in a way that is more sustainable and broad-based.

Over the past year, to advance our corporate sustainable development (CSD) strategy, we have shifted the center of gravity of CSD down into the organization. We established CSD sub-committees in various departments for a much more comprehensive CSD organization. Departments will now share responsibility for CSD and will work together to achieve our CSD goals. We also continued to build up the effectiveness of our CSD systems, driven by our overarching strategy. We are leveraging Huawei's strengths in ICT to drive sustainability, and to bring the benefits of new ICT to more people.

Helping build a green and sustainable world

ICT technologies are being deployed in every industry. They are transforming the global economy into a digital economy. The ICT industry is playing a critical role in addressing challenges as diverse as climate changes, education, healthcare, pollution, and resource scarcity. Remote video services, for example, can bridge the geographical distance between people. Now we can talk without the carbon emissions caused by long-distance transport. Smart city and smart transportation will make cities more sustainable and reduce environmental pressures. According to Huawei's Global Industry Vision, by 2025 the global savings in energy and emissions made possible by the ICT industry will be 11 times greater than in 2015. This more than offsets the energy consumption and emissions of the industry itself by a massive margin. ICT will become a key enabler of global

sustainable development.

Huawei delivers ICT infrastructure and smart devices. We provide a smart, digital, highly automated environment where products and solutions that help address sustainability issues can flourish. So far, Huawei's innovative ICT technologies have helped 102 telecom carriers become more efficient and consume less energy. Together, we are building green, low-carbon networks. Huawei's Smart City solutions have been deployed in more than 120 cities across over 40 countries and regions, making cities more efficient, greener, and sustainable. We have forged comprehensive partnerships with most of the top 100 photovoltaics companies. We aim to build an open, smart ecosystem for photovoltaics, expand the use of clean energy, and help build a greener world.

Bringing the benefits of new ICT to everyone

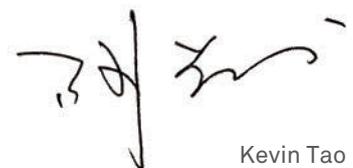
For many, digital technology means more choices and more convenience. But for underprivileged groups, new connections and new technology mean more services and more opportunities. ICT can represent a chance for a better life. In 2017, Huawei's innovative WTTx solution helped resolve the last-mile access issue in both densely populated cities and sparsely populated rural areas. We brought fast broadband services to more than one million households. We also deployed RuralStar 2.0, our innovative solution for rural networks, for 12 carriers in eight countries and regions including Thailand, Ghana, and Mexico. This solution helps cut access costs and increase network coverage in rural areas. Expanded network coverage means that more people, especially those in under-developed countries and regions, can access the online world. This brings huge changes in their lives.

Huawei uses cloud technology to support education in local communities where we operate, giving more people equal access to education resources. Our Intelligent Operations Center solution acts like a brain or nerve center in a smart city, making cities safer and more sustainable. Our Mobile Money solution supports financial inclusion by making financial services more accessible, especially in areas where banking services are unavailable. Our innovative ICT technologies allow more people to enjoy the efficiency and affordability made possible by the Internet and digital technology, creating new opportunities to build a sustainable world.

Embracing a sustainable future

The year 2018 marks the 30th anniversary of Huawei's establishment. As the Chinese philosopher Confucius said, at thirty, we stand. We actively benchmark our operations against best industry practices to keep ourselves up-to-date. We now intend to set more aggressive goals and pursue innovation in sustainability practices, as this can help improve the sustainability of the whole industry. We are well aware that we need to work together with industry organizations, customers, suppliers, and partners. The road to sustainability must be one of openness and growth for the whole ecosystem. Only in this way can a business create commercial value and share success with other industry players.

To achieve anything of value requires enormous effort and focus. We will face numerous difficulties and challenges on the road to sustainability. But we will also be presented with many opportunities. We believe that as long as we move in the right direction and patiently apply ourselves to making breakthroughs, we will contribute more to the healthy and sustainable development of the economy, the environment, and society. And we can play a bigger role in creating a sustainable future.



Kevin Tao

Board Member and Chairman
of the CSD Committee

Overview of Huawei's Sustainability Initiatives in 2017

④ Bridging the Digital Divide



- ④ Huawei's WTTx solution helps resolve last-mile access issues and cut connectivity costs by 75%
- ④ The Huawei RuralStar 2.0 solution was deployed by 12 carriers in eight countries and regions
- ④ Deployed Smart City solutions in more than 120 cities across over 40 countries and regions
- ④ Ran the Seeds for the Future program in 108 countries and regions

④ Supporting Network Stability and Security and Protecting Privacy



- ④ Supported the stability of over 1,500 customer networks
- ④ Guaranteed network stability during over 200 key events and natural disasters worldwide
- ④ Submitted 186 security standard proposals to 3GPP SA3
- ④ Delivered privacy awareness training to all employees



▶ Promoting Environmental Protection



- ◎ Energy efficiency of major products increased by 20% on average, making our products among the most energy-efficient in the industry
- ◎ Received the highest level UL110 green certification for five of our mobile phones
- ◎ Suppliers reduced carbon emissions by 63,000 tons via pilot energy conservation projects
- ◎ Introduced 932 million kWh of clean energy, equivalent to a carbon emission reduction of 450,000 tons

▶ Building a Healthy Ecosystem



- ◎ Invested more than CNY12.64 billion in employee benefits
- ◎ EHS audits on more than 4,100 sites worldwide
- ◎ Convened the 8th Huawei Global Supplier Sustainability Conference, attended by nearly 210 supplier executives
- ◎ Launched approximately 200 community support programs in more than 100 countries and regions





01

Sustainability Management

Sustainability Management
Business Ethics and Integrity
Stakeholder Engagement



Overview

Sustainability Maturity Assessment

In 2017, Huawei's sustainability maturity assessment covered all major business departments. These assessment results have been verified by a third party and show that improvements have been made since 2016.

Operational Compliance

In 2017, Huawei made an ongoing effort to improve its regional compliance oversight system. Huawei has established basic management systems for overseas subsidiaries to lay a more solid foundation for compliance management by subsidiaries as legal entities.

Protecting Intellectual Property Rights

As of December 31, 2017, Huawei has been granted a total of 74,307 patents. Huawei has filed a total of 64,091 patent applications in China and 48,758 patent applications outside of China.

Ongoing Improvement to the Anti-Corruption and Anti-Bribery System

All Huawei employees are required to understand and sign Huawei's Business Conduct Guidelines (BCGs). In 2017, 99.5% of our employees signed the BCGs and we also shared our anti-bribery requirements with our partners, requiring them to sign the *Agreement on Honesty and Integrity*.

Stakeholder Engagement Activities

In 2017, Huawei held several stakeholder engagement activities to understand their opinions, needs, and expectations so that we can respond rapidly and effectively. For example, Huawei and CSR Europe held the third Sustainability & Innovation Conference. We were an official partner for the 11th CSR Asia Summit. Huawei and BT invested GBP25 million to set up an R&D group at the University of Cambridge.

Sustainability Initiatives

Huawei is a member of organizations such as the United Nations Global Compact (UNGC), the United Nations Broadband Commission, the Global e-Sustainability Organization (GeSI), the Responsible Business Alliance (RBA), and the CSR Europe.

1.1 Sustainability Management

Huawei remains customer-centric in our sustainability management. We continue to increase our operating efficiency and competitiveness in a responsible and innovative way. We work with partners from various sectors to face challenges and seize opportunities in sustainability, and to drive ongoing improvements in society, the economy, and the environment.

While growing our business, we are also actively fulfilling our corporate responsibilities and contributing to the local communities where we operate. We pay special attention to operational sustainability and allow our customers to more effectively use our sustainable products, solutions, and services. We are committed to contributing to a

sustainable society.

Huawei considers sustainability a priority in its corporate strategy. We have determined the areas that a leading ICT company should focus on from three aspects: economic responsibility, environmental responsibility, and social responsibility. It is our goal to leverage our own influence to drive sustainability across our entire value chain.

Sustainability Strategy



Bridging the Digital Divide

- ◆ Provide people across all geographic areas with easy access to voice communications services
- ◆ Ensure ubiquitous broadband for all and promote future-oriented ICT technologies to address global challenges
- ◆ Establish training centers and launch joint teaching initiatives to develop local talent, transfer knowledge, and increase people's engagement in the digital society
- ◆ Provide customized ICT applications and solutions that meet individual, corporate, and regional needs to improve economic performance, quality of life, productivity, and competitiveness



Supporting Network Stability and Security and Protecting Privacy

- ◆ Prioritize network stability and security over commercial interests, especially at critical times (e.g., earthquakes, tsunamis, and other natural disasters and emergencies)
- ◆ Enhance the robustness and security of products through continuous innovation and full consideration of business continuity and network resilience; support independent testing, verification, and certification of products to provide internationally recognized security assurance to customers; work and communicate proactively with stakeholders in an open and transparent manner; and comply with applicable security standards, laws and regulations
- ◆ Emphasize the protection of privacy; work with partners on privacy protection; adopt recognized methodologies and practices; and integrate privacy protection into our day-to-day business activities



Promoting Environmental Protection

- ◆ Incorporate green concepts into product planning, design, R&D, manufacturing, delivery, and operation and maintenance (O&M); use resources more efficiently through ongoing technological innovation and provide leading energy-conserving and environmentally friendly products and solutions to customers
- ◆ Increase resource utilization in offices, production facilities, logistics centers, and labs to reduce waste and greenhouse gas (GHG) emissions and build Huawei into a role model for environmentally friendly operations
- ◆ Continuously ensure the environmental compliance of Huawei's products and our partners' operations; promote energy conservation and emissions reduction across our supply chain and make Huawei more competitive in the industry ecosystem
- ◆ Continuously promote green and integrated ICT solutions to support energy conservation and emissions reduction in various industries; and proactively drive an energy-saving, environmentally friendly, and low-carbon society



Building a Healthy Industry Ecosystem

- ◆ Provide employees with varied career paths based on their particular skill sets to help them realize their individual value
- ◆ Make significant contributions in all communities and countries in which we operate
- ◆ Abide by strict ethical business practices; oppose corruption, dumping, and monopoly; operate with integrity and in compliance with applicable laws and regulations
- ◆ Focus on sustainability risk management in our own operational activities and services, gradually become the leader in sustainable development in the industry and around the world
- ◆ Work closely with suppliers to develop standards and benchmarks; shift our focus on supplier risk management to efficiency management, leading sustainable development in the industry ecosystem

Sustainability Management System

Huawei's CSD Committee is comprised of more than 20 members representing our value chain, including research and development (R&D), manufacturing, procurement, human resources (HR), and project delivery. The CSD Committee is chaired by Kevin Tao, board member and President of the Quality,

Business Process & IT Management Department. The committee is responsible for formulating and implementing the company's sustainability strategy, making decisions on critical issues, and supporting internal collaboration. It also sets forward-looking goals that Huawei uses to guide future actions.

In 2017, Huawei established 14 CSD sub-committees from a business dimension to move the center of gravity of CSD lower down in the organization. We aim to further solidify our CSD organization and capabilities and ensure that CSD goals are met in all business domains.



Growing Maturity in Huawei's Sustainability Management System

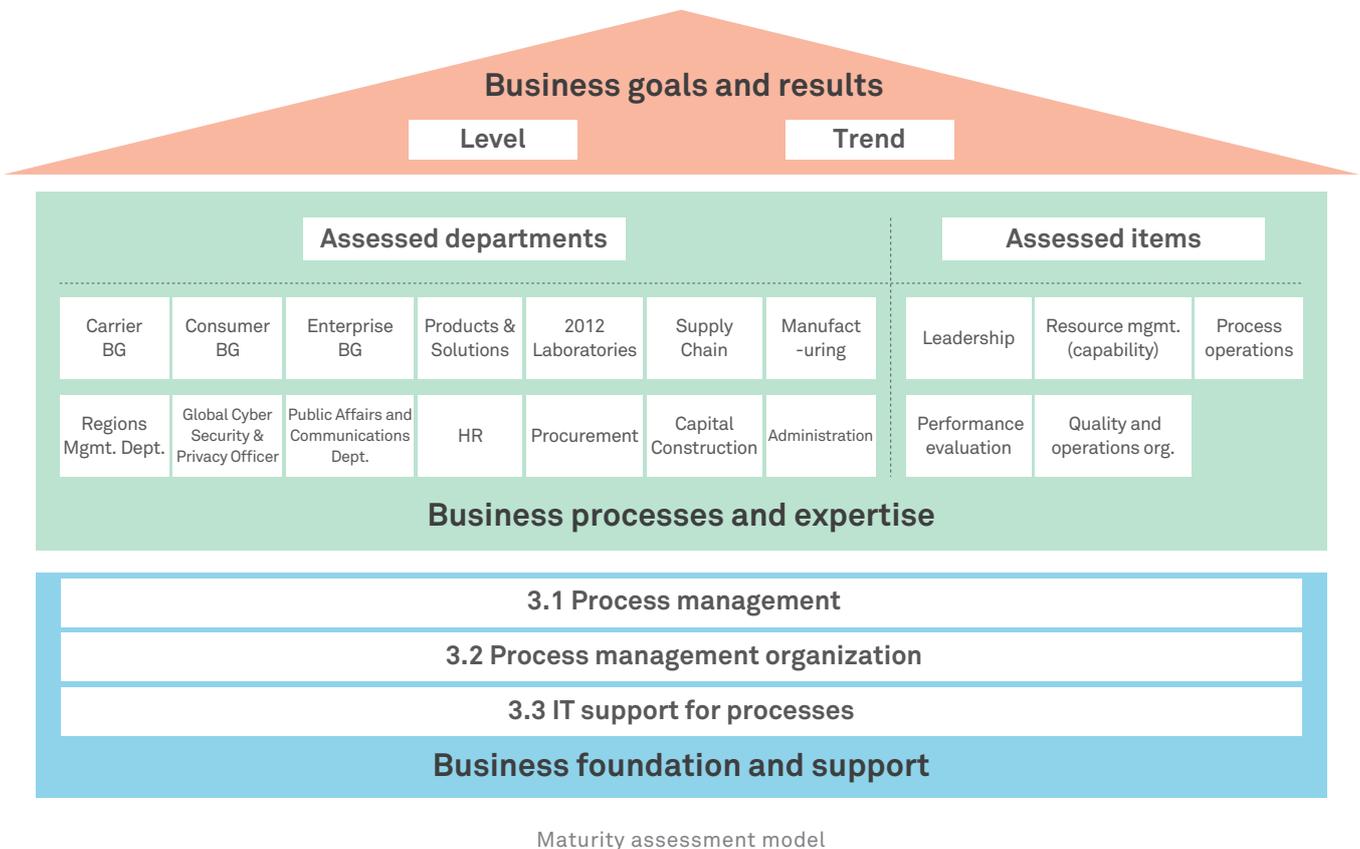
Purposes for sustainability maturity assessment:

- ◉ Improve our sustainability maturity assessment tool by referring to best industry practices to make it better match our business. Provide neutral and specialized assessments and recommendations for improvement to all business domains.
- ◉ Assess the maturity of all business domains and departments

in sustainability management, help us identify weaknesses and pain points where we need to improve, and continue to improve our business capabilities and help achieve our strategic business goals.

- ◉ Help us meet sustainability requirements from customers and other important stakeholders and increase customer satisfaction.

In 2017, Huawei improved its sustainability maturity assessment (SMA) tool and carried out a department-based assessment. The assessment covered major business departments and addressed three main areas: business goals and results, business processes and expertise, and business foundation and support. The 2017 SMA results were markedly better than those in 2016, showing that Huawei's sustainability management system has been continuously improved.



Winning an Award from Global Compact Network China

In 2017, Huawei won the Chinese Enterprise in Achieving SDGs – Best Practice in Global Partnership award from the Global Compact Network China in recognition of its efforts to push forward the 2030 Agenda for Sustainable Development.



1.2 Business Ethics and Integrity

Operational Compliance

We conduct business with integrity, observing international conventions and all applicable laws and regulations in the countries and regions where we operate. This is the cornerstone of operational compliance at Huawei, and has long been a core principle of our management team. Under the guidance and oversight of top company executives, efforts to strengthen a culture of operational compliance are ongoing. We have set up dedicated compliance and oversight teams to further bolster the management and oversight of our global business operations. Through training, awareness programs, performance appraisals, and accountability management, we consistently reinforce awareness of laws and operational compliance among our employees at all levels. Outside of the organization, we openly share our experience with our business partners, giving them insight into our own path towards developing a global compliance system.

In 2017, Huawei made an ongoing effort to improve its regional compliance oversight system, enabling our overseas subsidiaries to reach their compliance targets despite complex political, economic, and business conditions. We also established basic management systems for overseas subsidiaries to lay a more solid foundation for compliance management by subsidiaries as legal entities.

In 2017, Huawei continued to strengthen compliance in multiple business domains, including trade, cyber security, data and privacy protection, anti-corruption, and trade secret protection. By increasing investment in organization and resources, we continue learning from best practices across the industry to reinforce our compliance system. We worked and

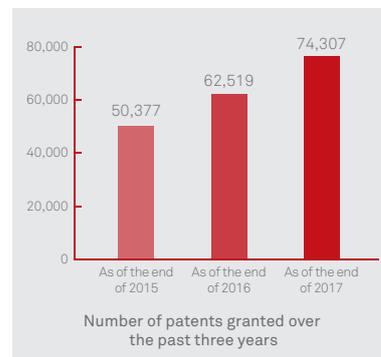
communicated openly and proactively with government agencies and passed governmental audits in Europe and Japan. We invited external consultants to review our compliance in key domains, and actively walked relevant stakeholders through all of our compliance initiatives to foster mutual understanding and trust. Through ongoing efforts to strengthen compliance and increase transparency, Huawei continues to win the respect and recognition of more governments and partners around the world.

Protecting Intellectual Property Rights

Intellectual property rights (IPRs) are a core competency of every enterprise. To maintain our company's IPR competency at the level needed to compete in the market, Huawei invests at least 10% of its revenue in product R&D and technological innovation every year, making the company one of the largest R&D investors around the world.

Huawei complies with all common international rules on IPR, and approaches IPR issues in accordance with international standard practice. We resolve IPR issues in a proactive and open manner, using various mechanisms such as cross-licensing and commercial partnerships. If no solution can be agreed upon for an IPR issue despite much effort, Huawei resorts to legal procedures to address them in accordance with international conventions.

Huawei is one of the largest patent holders in the world. As of December 31, 2017, Huawei has been granted 74,307 patents. Huawei has filed a total of 64,091 patent applications in China and 48,758 patent applications outside of China.



Anti-Corruption and Anti-Bribery

Integrity is at the core of our operations, and we have zero tolerance for bribery or corruption. We have launched various programs to improve our anti-corruption and anti-bribery management system.

All Huawei employees and third parties who do business on behalf of Huawei are required to comply with the laws and regulations of the countries and regions in which we operate as well as our customers' anti-corruption and anti-bribery requirements. All employees must understand and sign our BCGs. We also share our anti-bribery requirements with our partners, requiring them to sign an *Agreement on Honesty and Integrity*. We have established complaint channels through which employees and other parties can report violations.

Ongoing Improvement to the Anti-Corruption and Anti-Bribery Management System

Huawei complies with all applicable laws and regulations in the countries and regions where we operate and all relevant international conventions. Following the company's guiding principles, we make an ongoing effort to

establish and improve our anti-corruption and anti-bribery processes and management system. We have also adopted a series of measures to put in place anti-corruption and anti-bribery practices in our subsidiaries worldwide.

Based on these efforts, Huawei keeps improving its anti-corruption and anti-bribery management system to make it better suit our own business.

🕒 **Culture of integrity and compliance:**

Huawei has adopted a series of initiatives to foster a culture of anti-corruption and anti-bribery. These initiatives include oaths

taken by managers, anti-corruption and anti-bribery training programs targeting employees and partners, and disciplinary actions against violators.

🕒 **Compliance management:**

Huawei reviews how its compliance management system works by checking risk control points and keeps improving its anti-corruption and anti-bribery compliance management system. We regularly assess compliance risks, develop risk management strategies, and break these strategies down to processes and policies. Through

internal control assessments and audits, we discover violations and take disciplinary actions against violators following applicable regulations.

🕒 **External communications:**

We continually communicate with industry peers, partners, and non-government organizations (NGOs) about compliance, showing them our position and attitude towards anti-corruption and anti-bribery. We want to ensure that all stakeholders have a clear understanding of Huawei's compliance regulations and policies.

Channels for submitting complaints and reporting violations

E-mail: BCGcomplain@huawei.com

Huawei keeps any information concerning whistleblowers who report BCG violations strictly confidential and ensures that their legitimate rights are well protected. We forbid any attempts – direct or indirect – to obstruct, suppress, retaliate against or discriminate against whistleblowers.

1.3 Stakeholder Engagement

Huawei's stakeholders include customers, consumers, employees, suppliers, governments, NGOs, industry organizations, the media, academia, and the general public. We have established a comprehensive stakeholder engagement program to communicate and engage with stakeholders on topics of common interest to understand their opinions,

needs, and expectations. Based on this communication, we adjust our sustainability goals and actions accordingly to ensure we respond rapidly and effectively.

Our communication with stakeholders comes in various forms, including attending forums and conferences; conducting joint sustainability

programs; jointly organizing conferences with customers and industry organizations; launching stakeholder surveys; attending sustainability workshops or research programs; communicating and interacting on social media; and publishing research papers and survey reports. These are only some of the ways we gain stakeholder insights.

2017 Stakeholder Engagement Activities

In May 2017, Huawei held the ICT Energy Efficiency Summit 2017 in Dubai. At the summit, Huawei shared its views on ICT industry energy trends with experts from the global energy industry. Participants also shared best practices in carrier network energy management, helping carriers embark on an open road to smart energy.

ICT Energy Efficiency Summit in Dubai ▶



In September 2017, Huawei attended the 11th CSR Asia Summit in Thailand as a partner. The theme of the summit was "Future-proofing Sustainable Business".

Breakfast meeting at the CSR Asia Summit ▶



In October 2017, Huawei and CSR Europe jointly held the third Sustainability & Innovation Conference, with a theme of "Connecting the Future – ICT and the SDGs". The event attracted more than 150 attendees, including policy makers, business communities, and NGOs.

Sustainability & Innovation Conference held by Huawei and CSR Europe ▶



In November 2017, Huawei attended Guangdong's first International Sustainability Conference in Shenzhen, with a theme of "Building a World-Class Business Environment across the Maritime Silk Road." The conference brought together more than 300 attendees, including politicians, business leaders, and representatives from civil society and other international institutions.

Huawei board member and Senior Vice President Chen Lifang delivers a speech ▶





“ Huawei has demonstrated over the years a strong and firm commitment to the sustainable development agenda. The research on the contribution of ICT to the UN Sustainable Development Goals is a landmark work that maps out the way forward. Huawei is taking a leading role in its sector in advancing the need for collaboration with other companies, cities, associations, and other stakeholders. ”

Stefan Crets
CSR Europe Executive Director

BT and Huawei to Invest GBP25 Million to Set Up an R&D Group at the University of Cambridge

In November 2017, BT and Huawei announced a new five-year initiative which aimed to establish a joint research and collaboration group at the University of Cambridge. Backed by GBP25 million in funding over the next five years, the research group is expected to focus on projects related to photonics, digital and access network infrastructure, and media technologies, alongside work aimed at enhancing the societal impact of communications technologies. The research project aims to bring together experts from the BT Labs, the Huawei R&D team, and researchers from the University of Cambridge to explore new technologies which have the potential to unlock economic benefits for UK businesses and organizations, such as reducing the cost of network infrastructure and boosting operational performance. The projects are also expected to focus on the critical role that new technologies can play in delivering



Chief Executive of BT Group, Vice-Chancellor at the University of Cambridge, and Ken Hu, Deputy Chairman and Rotating CEO of Huawei (l-r) sign a collaboration agreement

positive impacts to society. These impacts include reducing inequality, particularly for those groups excluded from digital transformation, and using ICT technologies to improve the resilience of communities to climate change.

Huawei Innovation Research Program

The Huawei Innovation Research Program (HIRP) is a platform for open innovation and collaboration between Huawei and leading universities and research institutes. The program expands Huawei's open collaboration as part of the company's overall strategy.

- HIRP establishes a channel for external communications and maintains regular contact with top researchers from leading global universities on 19 key technologies

including wireless, network, storage, and devices.

- With HIRP, Huawei issues a call for proposal to global universities to attract researchers to be part of our open innovation and research programs.
- Huawei establishes deep, long-term partnerships with leading industry research teams by setting up joint labs or signing long-term framework contracts.

HIRP Gaining Recognition from Academia

In 2017, Huawei received a Corporate Academic Citizen Award from the Faculty of Applied Science & Engineering of the University of Toronto; a Distinguished Knowledge Transfer Award from Hong Kong Polytechnic University; and a Business Model Transformation Award at the World Open Innovation Conference (WOIC) 2017.

HIRP receives a Business Model Transformation Award at WOIC 2017 ▶



Focusing on Material Issues

By identifying our material issues, we are able to find the areas for improvement and optimize our sustainability management. To assess our material issues, we have determined which issues affect our business and which issues are important to our stakeholders. The result is the matrix that displays the issues of highest concern to stakeholders (vertical axis) and to our own business

(horizontal axis) shown below. Based on the overall rankings from the survey responses of multiple stakeholders, we determine the priority of issues on the vertical axis. Based on risk analysis led by in-house experts, strategy alignment, and maturity assessment results, we then determine the priority of issues on the horizontal axis.

Material issue assessment



Working Together to Contribute to Sustainable Development Goals

Huawei believes that ICT technologies will act as a key enabler in driving large-scale, rapid attainment of SDGs while pushing forward the 2030 Agenda for Sustainable Development. As such, Huawei published the 2017 *Huawei ICT Sustainable Development Goals Benchmark* report, in which we selected six SDGs and analyzed 15 different countries and regions as case studies. The results show that

ICT investment can help nations achieve SDGs faster.

In the subsequent chapters, we will show our specific sustainability actions towards achieving the SDGs. Our goal is to contribute to a fairer, a more prosperous, and a more sustainable future by leveraging our influence and working closely with all stakeholders.





02

Sustainable Products and Services

Green Products and Services

Circular Economy

Driving Sustainability Through Innovation

Cyber Security and Privacy Protection



Overview

Energy-efficient Products and Solutions

Huawei's NE9000 backbone router won Runners-up in the Carrier/ISP Networking Category at Interop Tokyo 2017 for industry-leading energy efficiency.

Innovative, Green TubeStar Solution

The TubeStar solution won the Green Mobile Award.

Green Product Certification

Five Huawei phones received the highest level (Gold) UL110 certification and three laptops and seven servers were ENERGY STAR® certified.

BT NGA 2.0

The five-year program of NGA 2.0 can cut CO₂ emissions by 11% and reduce energy use by 8% on average.

Higher Reuse Rate of Network Products

In 2017, the reuse rate of Huawei's products was 81.2%.

Recycling Centers for Consumer Products

We have 1,025 recycling stations in 48 countries and regions.

Driving a Sustainable World Through Innovation

We actively invest and innovate in 5G to drive a more sustainable global economy.

Contributing to Cyber Security Standards

We have made ongoing, major achievements in cyber security standards and submitted 186 security standard proposals to 3GPP SA3.

Privacy Protection Education for Employees

We provide training to all employees to foster a strong culture of cyber security and privacy protection across the company.

2.1 Green Products and Services

As society continues to develop quickly, the number of network connections is soaring, leading to enormous traffic growth and huge bandwidth demand. ICT infrastructure is becoming smarter and can offer faster and smoother connectivity. However, ICT infrastructure and smart devices are consuming more energy and resources. The ICT industry is facing the significant challenge of how to maximize the efficiency of networks and minimize energy consumption and other environmental impacts, without compromising network performance and user experience.



Leading Green ICT Technologies

We have embedded green requirements into our end-to-end product lifecycle, from development and manufacturing to delivery and O&M. All our offerings meet or exceed the requirements of applicable laws, regulations, and standards, allowing our customers to bring their environmental performance to the next level. Through continuous technological innovation, we offer energy-efficient solutions for networks, sites, and equipment that enable customers to operate at lower costs and with higher energy efficiency. We aim to build a fully connected, green world. To get

there, we drive energy conservation and emissions reduction across product lifecycles, with three key focuses:

- Engineering energy conservation and emissions reduction into solution designs
- Driving energy conservation and emissions reduction across the entire supply chain
- Applying innovative technologies to drive energy conservation and emissions reduction for products

Innovative, Green TubeStar Solution

Advancements in mobile communications have changed society and the way people live their lives. More sites are needed to further develop and upgrade existing networks. However, site and other social resources are becoming increasingly scarce and mobile communications infrastructure is consuming huge amounts of energy. It is increasingly necessary to reduce the resources occupied by mobile towers and contribute to a low-carbon society.

Huawei's TubeStar solution features end-to-end system-level site design. The baseband unit, remote radio unit, power supply module, battery, and transmission equipment are all integrated into one tube. This innovative design eliminates the need for equipment rooms and cabinets. The TubeStar solution satisfies current network requirements while paving the way for future evolution. A single site supports five to seven bands for multiple radio access technologies (RATs) (GSM/UMTS/LTE).

The solution also reduces the footprint of a traditional macro site by over 96% (from approximately 50 m² to less than 2 m²) and makes site deployment 70% faster. In terms of energy consumption, the solution features a highly efficient (98%) power supply module, a site-level power-saving system, and air-conditioner-free design. Energy efficiency is 30% higher than that of traditional sites. Rapid deployment also lowers labor and engineering costs, enabling a significant drop in the carbon footprint per site.



Huawei's TubeStar solution is widely deployed around the world

During Mobile World Congress 2018, GSMA awarded the "Green Mobile" award to Huawei's TubeStar solution. This award honors Huawei's innovation in communications infrastructure and recognizes its efforts in reducing emissions, boosting energy efficiency, and lowering O&M costs. It also celebrates Huawei's outstanding contributions to the ICT industry's long-term sustainability.

Driving Energy Conservation and Emissions Reduction Across the Entire Supply Chain

The carbon footprint of a product includes carbon emissions created during the manufacturing process. Huawei encourages suppliers to conduct energy audits, identify opportunities to reduce energy consumption and carbon emissions, and implement energy conservation and emissions reduction practices.

In 2017, BT announced a new target to reduce its carbon emissions by 87% by 2030 against a 2016/2017 baseline. Emissions reduction of the supply chain is part of the plan. To support the customer's target, Huawei worked closely with upstream suppliers. We ran a pilot program using our next-generation access (NGA) product, and adopted the Lifecycle Assessment (LCA) methodology to identify the

parts and suppliers that produce the largest amounts of emissions during the product lifecycle. After that, we examined Huawei's and suppliers' energy conservation and emissions reduction initiatives and their results, in accordance with the International Performance Measurement and Verification Protocol (IPMVP). In collaboration with BT, suppliers, and other stakeholders, we developed baselines and targets for energy conservation and emissions reduction for NGA 2.0. Specifically, the five-year program can cut CO₂ emissions by 11% and reduce energy use by 8% on average. On top of that, we continue to communicate with all stakeholders to implement various energy-saving measures.



“ In 2017, as in previous years, Huawei worked closely with BT on a number of projects. Most notably, in the Next Generation Access 2.0 (NGA 2.0) supply contract between Huawei and BT, we included a unique sustainability clause, which committed Huawei and its suppliers to demonstrating carbon savings during the lifetime of the contract.

We were delighted with Huawei's enthusiasm in adopting a new and challenging requirement, and also with the results after just a year which showed that Huawei and its suppliers had saved thousands of tons of carbon.

Huawei and BT also joined forces in a unique collaboration with the University of Cambridge to commence research into the use of technology to tackle the digital divide and the effects of climate change. These are important areas where thought leadership can be very powerful, and we are delighted that Huawei is taking such a lead role.

”

Tony Roy SPM-Head of Governance & Sustainability Group Procurement, BT

Supporting Future Network Evolution with Innovative Energy-saving Technologies

In collaboration with universities and research institutes around the world, we made ground-breaking progress in multiple areas of 5G such as Massive MIMO, network architecture, air interface, and all-digital radio frequency technology. These technologies lower end-to-end network costs while boosting spectrum utilization and energy efficiency.

Helping Carriers Cut Network Energy Consumption with Energy-efficient Sites

In 2017, Huawei and its customers – China Mobile, China Telecom, Vodafone, and Orange – applied innovative technologies with lower energy use and emissions and extensively deployed energy-efficient features in networks. They developed energy-efficient technologies that can deliver on "Double Zero" goals (zero watt@zero load) and researched how to improve the energy efficiency of 5G. We helped China Mobile cut energy use on all their networks. By the end of 2017, the carrier had built over 400,000 energy-efficient sites, saving nearly 300 million kWh of electricity.

Huawei's Energy-efficient NE9000 Backbone Router Helps Carriers Address Data Flow Challenges in the Cloud Era

At Mobile World Congress 2017, Huawei unveiled the industry's highest density 4T router line card. We also released the NE9000 backbone router that can reach a capacity of 80 Tbps while reducing power consumption of each device to only 0.4 W/G, half of the industry average, which satisfies the energy efficiency requirements for backbone network equipment in the cloud era. Huawei's NE9000 backbone router and 4T line card won Runners-up in the Carrier/ISP Networking Category at Interop Tokyo 2017.



Huawei's NE9000 backbone router and 4T line card win Runners-up in the Carrier/ISP Networking Category at Interop Tokyo 2017

Huawei Contributes to Energy Efficiency Standards for the ICT Industry

- ◉ Contributed to energy efficiency standards for sites (ES 202 706) and networks (ES 203 228) as a co-drafter and key contributor to the Environmental Engineering (EE) standards of the European Telecommunications Standards Institute (ETSI).
- ◉ Contributed to the energy efficiency standards for networks and 5G of ITU-T Study Group 5 (SG5).
- ◉ Played an active role in standardization initiatives led by the China Communications Standards Association (CCSA), including national standards (Energy Saving Parameters and Test Methods for Access Equipment: GPON Systems [GB/T 34087-2017] and EPON systems [GB/T 34086-2017] and industry standards (Energy Saving Parameters and Test Methods for Access Equipment: XG-PON Systems [YD/T 3289-2017] and 10G-EPON Systems [YD/T 3288-2017]).

Green Certification for Products

We are conscious of the environment when we design our products, and we implement rigorous controls throughout product lifecycles, from selection of raw materials, manufacturing, packaging, transportation, and usage to maintenance and support, disposal, and recycling. Our goal is to minimize the impact of our products on the environment. We actively participate in green certification programs to offer customers and consumers more competitive and sustainable products. In doing so, we ensure that our products comply with or even exceed relevant standards and requirements.

China Environmental Products Labeling

Huawei embeds the concept of design for the environment across the full lifecycle of its servers to minimize negative impacts from our products and conserve energy resources. In 2017, Huawei's 180 server models, including rack servers, blade servers, multi-node servers, integrated storage servers, and distributed storage servers, were accredited by the China Environmental Products Labeling program, known as the "10-Ring Certification".



Huawei servers are accredited by the China Environmental Products Labeling program

FSC Certified Packaging

Huawei has sought FSC® certified packaging for our products to minimize the impact that our product packaging has on the environment and to protect biodiversity. FSC is a supply chain management certification that ensures the materials for our packaging come from well-managed sustainable forests.

In 2017, the packaging for many of our products was FSC certified, including the Nova Lite, P10, P10 Plus, Mate 10, Mate 10 Pro, and MateBook.



FSC mark on the package of Huawei's Mate 10 Pro smartphone

UL 110 Certification for Smartphone Sustainability

UL110 is a green certification program that assesses the environmental performance of products across eight metrics: sourcing of raw materials, production and processing, energy use, health and safety, packaging, recycling of scrapped products, corporate sustainability management, and innovation.

In 2017, five Huawei mobile phones – the Huawei P10, P10 Plus, P10 Lite, Mate 10, and Mate 10 Pro – received the highest level (Gold) UL110 certification.



UL 110 Green Certificate for Huawei's Mate 10 smartphone

China Quality Certification (CQC) for Environmentally Friendly Electrical and Electronic Products

The certification program was designed based on the lifecycle stages of electrical and electronic products, from product design and manufacturing to product use and recycling. It assesses the environmental factors (e.g. ecological design, energy and resource consumption, material use, pollutant discharge, and reuse) at each of these stages and assigns the assessed products a grade – A, B, or C.

In 2017, eight Huawei smartphones and three tablets received an A, the highest level of certification. They include the Honor 7X, Honor 9 Lite, M3 MediaPad Lite 10, M3 MediaPad Lite 8, and Honor WaterPlay.



Grade A Certificate for the Honor 7X smartphone

TÜV-WT Certification

The TÜV-WT Certification is a joint program organized by TÜV SÜD and Wearable Technologies Group AG (WT AG). They provide testing and certification services for wearables, covering product features like environmental protection, safety, performance, interoperability, and durability. In 2017, the Huawei Watch 2 was TÜV-WT certified.



TÜV-WT Certification for the Huawei Watch 2

TÜV Green Product Mark

TÜV Rheinland's Green Product Mark is a certification program that assesses products across many metrics, including environmental protection, recycling, energy conservation, electromagnetic compatibility (EMC), safety, carbon footprint, and corporate social responsibilities. In 2017, a total of seven models of Huawei routers and switches received TÜV Rheinland's Green Product Mark certificates.



TÜV Rheinland's Green Product Mark certificate for switches

ENERGY STAR® Certification

ENERGY STAR® is a voluntary energy conservation certification program jointly launched by the US Environmental Protection Agency (EPA) and the Department of Energy (DOE). Its goal is to help businesses and consumers save money and protect the environment by reducing energy use and GHG emissions.

In 2017, we had many of our products ENERGY STAR® certified, including seven servers, two uninterruptible power systems, six tablets (Honor Play Tab 2, MediaPad M3 Lite, etc.), and three MateBook laptops.



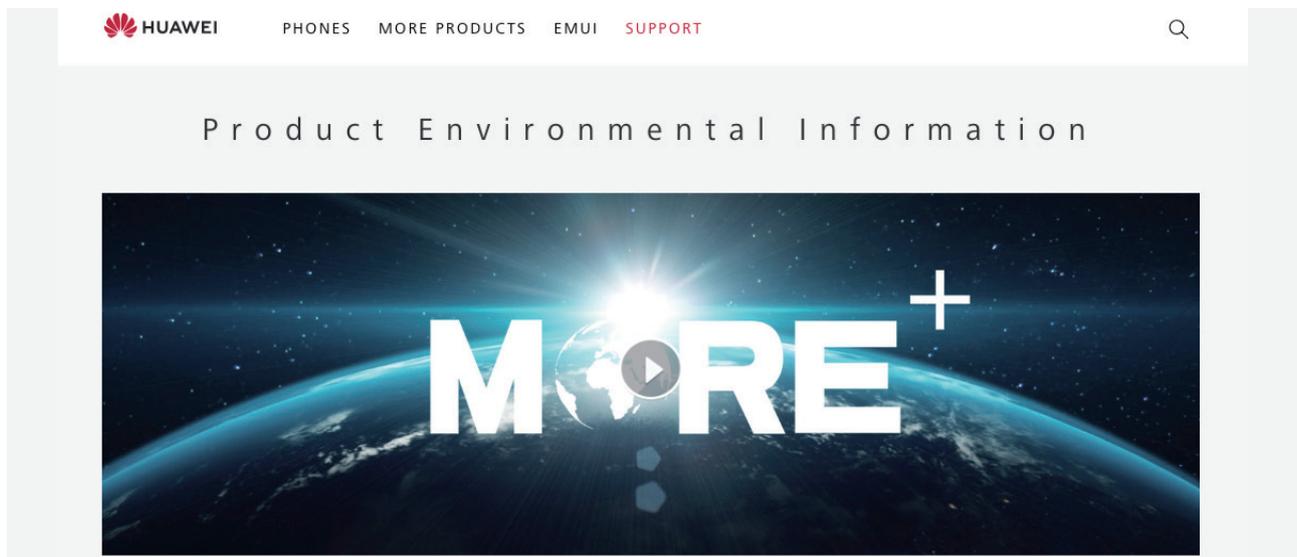
Huawei MateBook ENERGY STAR® Certified

Product Lifecycle Assessment

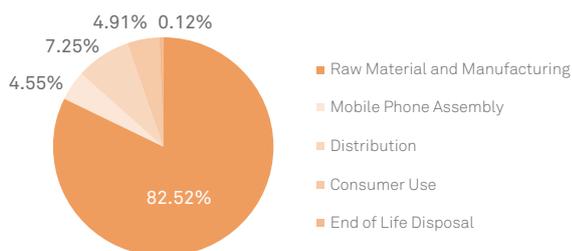
We adopt the Lifecycle Assessment (LCA) methodology to quantify the environmental impact of our products. In fact, we went a step further by introducing quantitative LCA (QLCA), which helped improve both accuracy and efficiency of lifecycle assessment of our major products. LCA not only helps quantify the environmental impact of different products, but also informs how we can improve design of our products to make them more environmentally friendly, spanning material selection, process optimization, energy use improvement, transportation, and recycling.

In 2017, Huawei ran a Product Environmental Information platform for consumer products. On the platform, consumers can find the environmental information about our products. In 2017, we analyzed the carbon and water footprints of nine smartphones and released related environmental information reports.

Link to the platform: <http://consumer.huawei.com/en/support/product-environmental-information/index.htm>

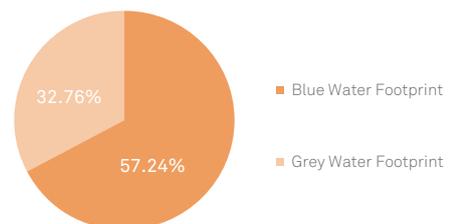


Carbon footprint of a Mate 10 smartphone



GHG emissions: 70.33 kg CO₂e

Water footprint of a Mate 10 smartphone



Water footprint: 1,270 kg

2.2 Circular Economy

ICT can help improve resource efficiency management and support a circular economy. ICT is an enabler that helps industries go digital and smart, make more efficient use of resources and energy, and reduce their carbon emissions and environmental footprint. At the same time, the ICT industry itself has improved and transformed to maximize resource efficiency and operating efficiency. For example, cloud computing has driven the trend of software as a service, with corresponding trends in infrastructure and platforms enabling a sharing economy in the ICT industry, known as servitization.



Product Design for a Circular Economy

Under a circular economy model, all resources are reusable. The goal is to maximize product value and reduce waste and resource consumption, as well as impacts on the environment. Huawei has integrated circular economy practices into our product designs. We adopt the latest technologies to boost resource efficiency. We ensure sustainable resource use by leveraging end-to-end recycling approaches, implementing circular economy policies and requirements, and rewarding circular economy practices.

Elements of Huawei's design approach for a circular economy:

Raw material acquisition

- ▶ Raw material selection: Use more recycled and secondary materials.

- ▶ Lightweight design: Minimize the use of materials, while still ensuring full functionality.

Product use

- ▶ Extend product lifespan through design.
- ▶ Design products as modules or platforms to make them easier to upgrade and repair.

End of lifecycle

- ▶ Products are easy to disassemble. Avoid "always-on" design. High-value modules need to be disassembled without being damaged.
- ▶ Different materials can be easily disposed of separately.

Huawei fully supports cross-sector collaboration and best practices sharing between governments, businesses, industry alliances, and other stakeholders. We contribute to circular economy standards to drive technology development and the circular economy. For example:

- ◉ We collaborate with ETSI EE and ITU SG5 to work on the *Technical Report of Circular Economy in ICT* and define approaches, concepts, and metrics for an ICT-driven circular economy.
- ◉ We collaborate with the ITU-T SG5 on *L.CEM Criteria for Evaluation of the Environmental Impact of Mobile Phones*. The aim is to develop a set of rules for assessing mobile phones' environmental impact across the entire lifecycle from material use, energy consumption, maintainability, and to waste management.
- ◉ We contribute to the GeSI's *Sustainability Assessment Standard Framework (SASF)* which includes circular economy related criteria applied to companies.



“ Within KPN we were pleasantly surprised by the eagerness of Huawei to join us in our ambitions on circularity. Over the past years, Huawei has already proved their focus on sustainability by providing us with clever solutions that extend lifespans and save energy. We look forward to exploring new roads to further improve on, for example, logistics and reducing emissions by process optimization in order to achieve our joint goals. ”

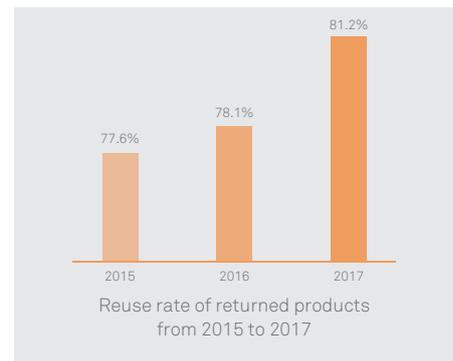
Brechtje Spoorenberg

Head of CSR KPN

Management of Returned Products

For network products, we have put in place a global management system for returned materials, incorporating the collection, storage, disassembly, testing, repair, and disposal of waste. In 2017, we launched an online management system for scrapped items outside China, covering all countries where Huawei has a presence. By raising the standards for handling scrapped items, we refined the classification of scrapping methods, and increased the reuse rate of components, modules, and integrated equipment. Our goal is to recover as much of the value of scrapped items as possible.

At Huawei, every scrapped item is categorized by lifecycle phase and quality. Reusable materials that meet certain criteria are first allocated to our internal reuse channels such as for R&D, parts, and manufacturing. If there is no internal demand for these materials, we resell the items or have them disassembled and recycled by certified recycling service providers without incurring cyber security risks. In this way, a scrapped item becomes circular again. This is how we recover the value of products as much as possible. As of the end of 2017, the reuse rate of Huawei's returned products was 81.2%.



In 2017, we handled 11,318 tons of scrapped materials globally, among which 98.46% were recycled and reused, and only 1.54% of them were landfilled.

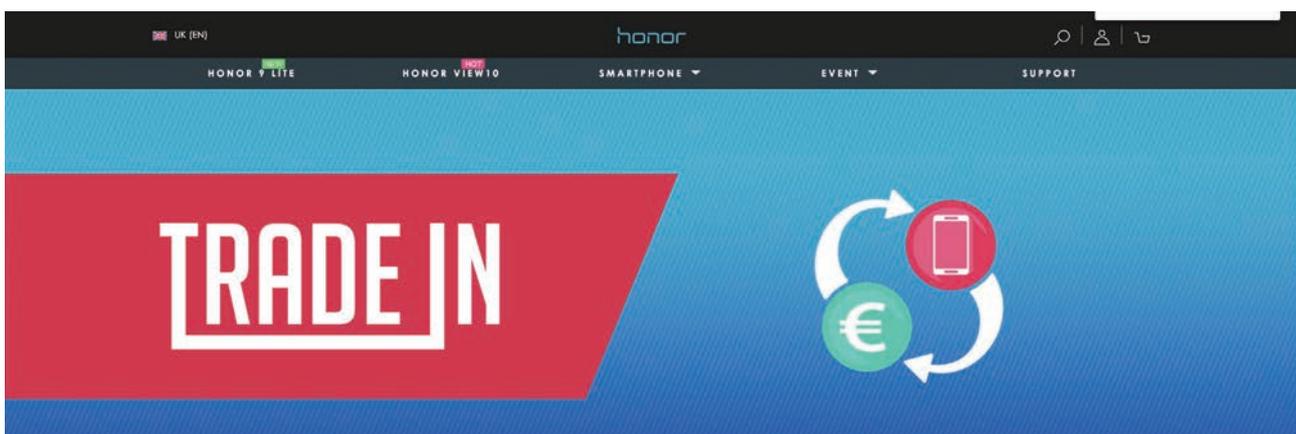
Global Green Recycling Program for Mobile Phones

Huawei runs a Global Green Recycling Program for scrapped mobile phones, tablets, and other electronic products, in which we strive to fulfill our extended producer responsibility. In addition, we organize various phone recycling initiatives and are continually extending the recycling program, aiming to give consumers a better understanding of Huawei's recycling channels, and allow them to participate in the process. In doing so, we strive to maximize the value of scrapped electronic products and contribute to a circular economy. By the end of 2017, we had 1,025 recycling stations in 48 countries and regions.

In 2017, we further scaled up our product trade-in program. In China, apart from online trade-in, our program provides two additional options: in-store trade-in and home pick-up recycling. Our online trade-in program is now available in 15 countries, including Malaysia, Italy, Germany, the UK, and South Africa. In 2017, we recycled more than 200,000 phones in China through the online trade-in program.

Online trade-in platform in China: <https://www.vmall.com/recycle>

Online trade-in platform in the UK: <https://www.hihonor.com/uk/tradein/index.html>



Online trade-in platform in the UK

2.3 Driving Sustainability Through Innovation

In today's world, ICT technologies and solutions are becoming more essential for industrial and social sustainability. The ICT industry should not be content with just ensuring its own sustainability. Rather, it should work to provide innovative products and solutions to enable other industries' energy conservation and emissions reduction initiatives, drive the development of smart cities and green ecosystems, increase operating efficiency, address climate change, and contribute to a better connected, greener world.



Huawei is committed to providing green products through innovation. Every time we develop a new product, we think about how we can use green technologies to ensure all environmental requirements are met across the lifecycle of our product. In 2017, we continued to increase our investment in future-oriented technologies such as 5G, chipsets, and smart devices. A large part of the CNY89.69 billion (14.9% of annual revenue) we spent on R&D in 2017 went to our initiatives to drive innovation, efficiency, energy conservation, and environmental protection. We believe that ICT innovations such as 5G, artificial intelligence (AI), big data, and cloud computing are key enablers for achieving the UN's 2030 SDGs.

How 5G Can Contribute to Sustainable Development

According to GSMA, 5G could account for as many as 1.4 billion connections by 2025. By that time, 5G networks are likely to cover one-third of the world's population. The impact will be profound. 5G is more than a new generation of technology: It marks a new era in which connectivity will become key to connecting everything.



Huawei X Labs aims to explore opportunities for 5G applications and how technologies like IoT, cloud computing, AI, and big data can provide a platform for connected machines, robots, 3D-printing, virtual reality (VR), augmented reality (AR), automated processes, blockchain technology, guided vehicles, goods, and remote work. We believe these innovations will not only expand our business, but also vastly improve resource efficiency and environmental protection, making for a more sustainable global economy. We have selected a few use cases to help illustrate the opportunities that can be introduced by these new digital capabilities. We hope that this can showcase the wide range of exciting possibilities and encourage more people to embrace digital transformation.

- ⦿ **Connected cars:** Connectivity is developing into an important enabler of safer, more sustainable mobility. Key technology trends include autonomous driving, cooperative mobility, and sensor data crowdsourcing, which will deliver improved environmental and safety performance both at highway speeds and in dense urban environments.
- ⦿ **Closed-loop manufacturing:** Advanced sorting, robotic disassembly, and digital tracing will allow for much better material recovery and reuse. This will be particularly important for industries that move to "sharing" business models as manufacturers retain ownership of their products (for example cars), thus incentivizing higher levels of circular recycling.
- ⦿ **3D-printing:** The fabrication of components allows for the production of hardware without large manufacturing operations. This helps to reduce waste while also making it possible to quickly produce replacement parts on an oil rig, for instance, which could improve safety and reduce the chance of contamination incidents.
- ⦿ **Connected drones:** 5G networks will allow new levels of drone automation that will have a transformative impact on multiple industries. Rather than having a live inspection of potential rotor blade damage on a wind turbine done by a human operator, an autonomous drone fleet will be able to capture and analyze the equipment using video. Similar solutions may help protect high-risk energy infrastructure, or increase productivity in agriculture, for example.
- ⦿ **Advanced modeling and virtual reality:** Digital replicas of physical assets can be used not only for research and design, but also remote and real-time performance monitoring, making preventive maintenance more effective and helping to keep products in use for much longer.

◎ **Digital traceability:** Blockchain solutions for traceability and transparency could help prevent illegal or contaminated materials from entering supply chains. For example, improving traceability in the food industry would be an important breakthrough for retailers.

◎ **Dark factories:** Automated and robotic manufacturing with limited or no human intervention would mean that factories could be operated continuously and without lighting and air-conditioning.

In response to the challenges of big data, heavy data traffic, and high energy consumption, the Huawei network energy team promotes the digital transformation of ICT infrastructure to build a green, intelligent world. We provide comprehensive network energy solutions that meet the requirements of many different ICT scenarios, focusing on communications energy, data center energy, and smart photovoltaics (PV). Our solutions integrate electronic and electrical technology, digital technology, communications technology, and IoT technology. According to the Huawei Global Industry Vision 2025 report, by 2025, the average annual carbon emissions per connection in the global ICT industry are expected to fall to 15 kg, down by 80% compared with 75 kg in 2015, through continuous innovation in

energy-saving technologies for ICT and infrastructure.

To date, Huawei has helped 102 carriers around the world improve network energy efficiency, increase O&M efficiency, reduce energy consumption, and ensure network security and reliability. We have deployed more than 800 large data centers globally with energy solutions that offer low Power Usage Effectiveness (PUE), helping customers reduce power consumption and carbon emissions. We have established comprehensive partnerships with most of the top 100 players in the global PV industry. Together with industry partners, we strive to cultivate an open, healthy, and intelligent PV ecosystem founded on shared success.

Applying Innovative Technology to Provide Energy-efficient Data Center for Dubai Airports

Over the past several years, Dubai Airports' business has grown rapidly. Committed to providing a better passenger experience and fulfilling its social responsibility of eco-friendliness and energy conservation, Dubai Airports has placed data center construction at the heart of its digital transformation.

Huawei's FusionModule1000B prefabricated modular data center solution was adopted to build the new data center for Dubai Airports. The 10 kW/rack power density requirement, plus the extremely high temperatures in Dubai, posed a great challenge to heat dissipation for the data center. Huawei FusionModule1000B uses a wide range of innovative technologies to improve energy efficiency. The variable-frequency in-row air conditioner, highly efficient modular UPS, and aisle containment are solutions that can help achieve the optimal PUE. Enabled by these technologies, Huawei's data center solution consumes at least 30% less energy than a traditional one. In addition, Huawei equipped the new data center with the NetEco intelligent management system to simplify O&M and cut management costs. With the ISO standard-compliant size of the prefabricated modules, capacity can be easily expanded by adding modules as needed. In contrast to traditional data centers, this enables flexible expansion, saves engineering costs, and reduces equipment footprint.



The data center at Dubai Airports

Helping Telefonica Build Green and Efficient Solar Powered Sites

Telefonica has set a goal to reduce energy usage per unit by 50% and carbon emissions by 30% by 2020 as part of its commitment to energy conservation and emissions reduction. Huawei's mission is to provide green and efficient network energy solutions to help our customers save energy and reduce emissions.

In collaboration with Telefonica, Huawei built a solar-powered base station in central Chile. The customer had previously faced many challenges in installing base stations at this very remote site, including a lack of mains electricity, high fault rate of traditional diesel generators, and difficulty in maintaining the equipment. To address these pain points, we provided a self-adaptive solar power solution. The goal was to increase the use of solar power through self-adaptation and self-optimization. With this solution, Telefonica was able to make full use of Chile's abundant solar energy resources to reduce carbon emissions and lower operating expense (OPEX).

In November 2017, Huawei's solar power solution was awarded the Best Energy Efficiency Solution at the 8th Global Workshop on Energy and Climate Change held by Telefonica.



Huawei's solar power solution wins Best Energy Efficiency Solution

Promoting the Development of the Smart PV Industry Using Innovative Technology

With the help of Huawei, Huanghe Hydropower, a subsidiary of the State Power Investment Corporation, was among the first in the industry to adopt the "Internet + PV" model. We helped the customer build smart PV stations in Golmud and Gonghe counties of Qinghai, as well as in Shaanxi Province and other places. These power plants combined generate power of 2 GW. The average power generation per plant increased by more than 2%. The State Power Investment Corporation will soon build the world's largest PV plant control center that will manage all PV plants through a central control interface. Enabled by digital technology, the control center makes intelligent O&M possible. With intelligent management, O&M efficiency can be improved by over 50% with much less or even no human intervention. As the first digital, intelligent, and centralized management platform for PV plants in China, it can shed light on the construction and operations of PV stations elsewhere in the world.

Through joint innovation, Huanghe Hydropower and Huawei released smart diagnosis technology. Equipment using this technology can be used to precisely examine each string (set of solar cells or modules) online, and remotely perform comprehensive troubleshooting scans for PV plants to accurately locate PV string faults and find the root causes, greatly reducing O&M time and costs. In addition, the health of PV plants can be comprehensively evaluated to enable proactive detection of problems and preventive maintenance, ensuring long-term and efficient power generation for PV plants. This technology is a new testament to how intelligent and digital technologies can drive innovation in the PV field.



Digital and smart PV power station

2.4 Cyber Security and Privacy Protection

New technologies like cloud computing, the Internet of Things (IoT), big data, and 5G are improving our lives and also causing profound changes in the ICT industry. The ecosystem is opening up. Solutions are becoming more diverse. New services are going online faster than ever. These changes are making the digital economy more vibrant, but at the same time greater challenges relating to cyber security are emerging. At Huawei, we believe that new challenges are not an excuse for standing still. We should use more advanced technology to solve the problems that we face today, and use new security concepts and measures to address the challenges of new technology.



We should build security through innovation, enhance security through collaboration, and work together to build a digital world that we can trust. This is our core approach to cyber security at Huawei.

Huawei is actively strengthening its competitive edge in cyber security to create greater value for our customers. In 2017, we again saw good results in the development of international technical standards for security. Some of our achievements include:

- Submitting 186 security standard proposals to 3GPP SA3
- Contributing technical proposals on 5G security architecture
- Participating in the development of security standards for southbound and northbound interfaces of SDN controllers and network-wide defense standards at IETF
- Leading the development of security specifications for cloud operating systems at the Cloud Security Alliance (CSA)

Huawei works closely with all of our stakeholders to improve security capabilities and address global cyber security challenges. These initiatives include:

- Continuously expanding cooperation with the security teams of leading global carriers
- Introducing industry best practices like DevSecOps to two new business

domains, our cloud service and consumer businesses, to bolster emergency security response (e.g., building a vulnerability ecosystem and rapid recovery capabilities) and ultimately reduce cyber security risks for users

- Active involvement in open source communities like helping improve code security for the Linux open source community, and working with industry peers to launch the Open Security Controller Project to centralize security service orchestration for multi-cloud environments.

In addition to hands-on contributions, we actively share our ideas and practices regarding concepts, architecture, new technologies, and new solutions in cyber security. Examples of these include:

- In February 2017, Huawei and the Spanish National Institute of Cyber Security (INCIBE) jointly released the Building a Trusted and Managed IoT World white paper at the Mobile World Congress 2017 in Barcelona. This white paper analyzes the development of IoT security technologies, summarizes IoT security practices, and proposes multilayered end-to-end security assurance mechanisms for the IoT.
- In April 2017, Ken Hu, Rotating CEO and Chairman of Huawei's Global Cyber Security and User Privacy Protection Committee (GSPC), attended the conference on

Building International Peace and Security in the Digital Society at the UNESCO headquarters in Paris. At the event, Mr. Hu delivered a keynote highlighting the inherent opportunities and challenges that new technologies bring to cyber security. He shared Huawei's cyber security concepts – building security through innovation, enhancing security through collaboration, and jointly building trust in a digital world.

- In July 2017, Tobias Gondrom, Director of the Security Solution Planning & Architecture Design Department at Huawei, delivered a keynote titled Changing the game: Next-generation strategies protecting global IT systems against new fast evolving threats at the Gartner Security & Risk Management Summit. In his speech, he shared Huawei's insight into cyber security threats that new technologies bring, as well as Huawei's exploration into intrusion-immune security architecture.
- In September 2017, we showcased the security capabilities of Huawei products and solutions at HUAWEI CONNECT 2017, including cutting-edge security technologies. At the event, Huawei also released two white papers: Huawei Cloud Security and Huawei IoT Security. We organized presentations and discussions with the British

Standards Institution (BSI), CSA, DarkMatter, and other third-party organizations and customers on security solutions for new business domains. Other topics which were discussed include security technologies like encrypted state search and trusted technology.

- ◉ In October 2017, Vladimir M. Yordanov, a cyber security expert in Huawei's Enterprise BG, delivered a speech titled Building a Secure Internet of Things World: How Billions of Connected Devices Are Transforming the Cybersecurity Landscape at the Information Security Forum (ISF) annual congress in France. In his speech, he elaborated on Huawei's 3T+1M IoT security model (i.e., three layers of key security technologies and one layer of security management).
- ◉ In November 2017, Huawei's Global Cyber Security & Privacy Officer John Suffolk addressed the fifth Global Conference on Cyberspace in India. During his speech, he pointed out new opportunities in the cyber security protection industry, noting that these opportunities are not just about security management, but also about design, architecture, and monitoring. On the topic of protecting critical information, Mr. Suffolk shared Huawei's cyber security strategy and Huawei's views about data security in the future, stressing the importance of governments working together to cleanse the digital world.
- ◉ In November 2017, Huawei attended the Fourth MBB Cyber Security Mindshare Forum in London. At the event, Huawei released two white papers: 5G Security Architecture White Paper and Top N Cyber Security Threats for Mobile Communications Networks and Countermeasures. In these white papers, Huawei explained security

architecture and new security features in 5G (e.g., scalable identity management, distributed identity authentication, and network slicing security) and showcased the massive potential of 5G security to provide protection for a wide variety of services.

We are constantly building and improving upon our end-to-end cyber security assurance system to ensure that all cyber security requirements are effectively met across the company. Our GSPC is the company's highest organization for managing cyber security and user privacy protection, and has been operating in this capacity for many years. We incorporate cyber security management into our business processes to make it an integral part of our business activities. We specify the cyber security responsibilities of each business department, and ensure that they have the right resources to fulfill these responsibilities. We continue to improve our capabilities in end-to-end cyber security R&D, security technology, cloud services, supply, and professional services. Building the security awareness of each and every employee is also a priority.

- ◉ **R&D:** We have steadily strengthened the security engineering capabilities that we have developed over the course of many years, including configuration management, code compilation, open source and third-party software management, R&D tool management, and traceability platforms. These capabilities are included in Huawei products and solutions to bolster the security of customer systems.
- ◉ **Security technology:** We continue to increase investment in this domain.
 - ▶ We continually develop and strengthen fundamental capabilities

that target vertical industries and IoT, including distributed digital identity authentication and protocols for lightweight transmission and authentication.

- ▶ In line with our in-house chip business, we have built system defense capabilities that combine software and hardware to improve the overall security and efficiency of our systems.
- ▶ We use AI to significantly speed up identification and repair of vulnerabilities. We are also actively researching and deploying anti-exploit technologies like Control Flow Integrity (CFI).
- ◉ **Cloud services:** Our cloud security service architecture includes security services, security governance, and security engineering capabilities. We have also launched cutting-edge full-stack security services, such as those used for database security, which support features like sensitive data identification and dynamic anonymization. These help companies meet compliance requirements when moving their data and applications to the cloud.
- ◉ **Supply chain**
 - ▶ In 2017, Huawei received Authorized Economic Operator (AEO) certification in 12 new countries and regions such as Canada, Hungary, Brazil, Turkey, and Hong Kong. We also received AEO certification in six countries, including the US (Customs-Trade Partnership Against Terrorism, C-TPAT), Mexico (NEEC, Mexico's equivalent of C-TPAT), China, and Malaysia, among others.
 - ▶ We have made further improvements in hardware and software traceability. For hardware, we are able to trace any replaceable components such as capacitors, diodes, and chips within 24 hours.

For software, we have source code-level tracking capabilities, and can automatically trace all related software versions within one hour.

- ⦿ **Professional services:** We continue to improve compliance and delivery quality of our cyber security activities throughout the service delivery process.
- ▶ Our global service centers in Romania, India, and Mexico received ISO 27001 certification for their information security management systems.
- ▶ Huawei's Operation Web Services (OWS) is an open, programmable, software-driven O&M platform

with micro-services architecture, aimed at managing networks in real time and on-demand. The platform received certification for information security management from BSI and gold certification from the CSA Security, Trust & Assurance Registry (STAR).

- ⦿ **Security culture:** Regular awareness training and education on cyber security and privacy protection is conducted for all Huawei employees. Fostering a company-wide climate and culture of cyber security awareness helps ensure that every employee accounts for cyber security and privacy protection in their everyday work.

Moving forward, we will continue to reinforce our engineering practices in security quality improvement, build out a security system that optimizes synergy between chips, devices, networks, and the cloud, and create an end-to-end chain of trust. Together with our customers, we will strengthen the application of big data and AI technology to build secure and trustworthy communications networks. In addition, we will work more closely with ecosystem partners to cultivate a robust and sustainable security ecosystem that, with combined strength, is better equipped to address increasingly complex cyber security threats around the globe.





03

Sustainable Operations

Caring for Employees

Safe Operations

Green Operations

Sustainable Supply Chain



Overview

Workforce Localization Rate

We employed more than 35,000 staff in countries outside China, with a localization rate of nearly 70%.

Investment in Global Employee Benefits

Our 2017 investment in global employee benefits exceeded CNY12.64 billion, an increase of 12% year-on-year.

Procurement of 932 million kWh of Electricity from Clean Energy Sources

We procured 932 million kWh of electricity from clean energy sources, with carbon emissions reduction estimated at 450,000 tons.

Passing ISO 50001 Certification

Our Shenzhen campus passed the ISO 50001 (an energy management system standard) certification.

Building Solar Power Stations

We built solar power stations with total capacity of 19.3 MW in Dongguan and Hangzhou. These solar power stations generated over 17 million kWh of electricity in 2017, equivalent to a reduction in CO₂ emissions of over 15,000 tons.

Reduction in GHG Emissions

In 2017, our CO₂ emissions were 3.11 tons per million RMB, 9.3% lower than the base year.

Global EHS Audits by Third Parties

In 2017, professional third parties conducted EHS audits on more than 4,100 sites worldwide.

Managing a Responsible Cobalt Supply Chain

We ran a survey of the cobalt supply chain and released the *Huawei Statement on Responsible Cobalt Supply Chain*.

Global Supplier Sustainability Conference

We convened the 8th Huawei Global Supplier Sustainability Conference under the theme of "Sustainability Creates Business Value", attracting over 210 supplier executives.

3.1 Caring for Employees

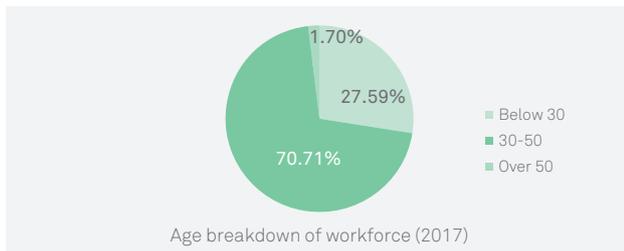
Workforce development is a key issue that every company must address as it goes global. Specifically, the company must give employees equal access to learning and promotion, irrespective of their nationality, gender, age, race, or religion. The company also needs to increase its workforce localization and effectively select, deploy, develop, and retain talented staff to unlock their fullest potential. A positive workplace where employees can work in harmony and take good care of each other is also essential.



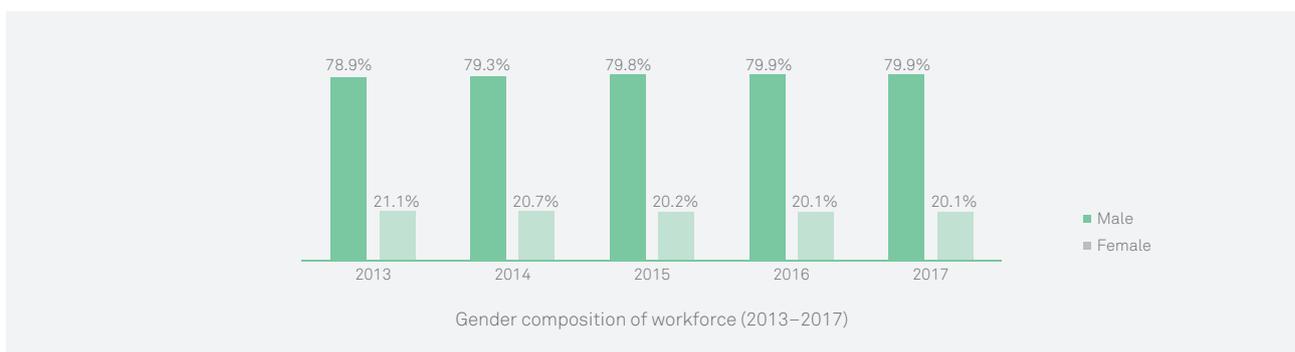
By advocating proactivity, diversity, and openness, we are building a talent management system that promotes collaboration and shared success between Huawei and people who help us thrive. We face a more dynamic business environment today than ever before, and internal demands are growing in complexity. We need to open up the organization to outside talent, and explore ways to unite the world's most outstanding minds under a common purpose. We need to absorb the energy of the universe over a cup of coffee, and serve as the glue that unites the best minds in the world. Internally, we fast-track the promotions of strong performers and give them more growth opportunities. We also adopt different approaches for different groups of talent within the company, forming an integrated structure of commanders, experts, and professionals, each with their own unique purview. This will encourage our top performers to maximize contribution in their prime, in the roles that suit them most, and receive the greatest possible rewards in return.

Workforce Diversification

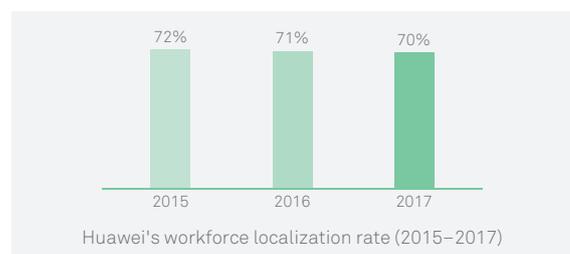
As of December 31, 2017, Huawei employed approximately 180,000 staff in various business segments worldwide. In total, 45% of our employees – approximately 80,000 people – were involved in R&D.



Our employees come from 161 countries and regions. In China alone, our employees are from 38 ethnic groups. We have launched many diversity initiatives geared toward nationality, gender, age, race, and religion. We emphasize gender equality in employment and prohibit gender bias in strict compliance with all applicable international conventions as well as local laws and regulations. The ratio of our female employees has remained stable over the past several years. We also prioritize the selection of female managers and help them advance their career. In 2017, women made up 7.32% of our management team.



As a global company, we actively recruit staff from all over the world to boost workforce localization. Hiring local employees enables us to better understand the unique culture of each country and region where we operate, while promoting local employment and economic growth. In 2017, Huawei employed more than 35,000 staff in countries outside China, with a localization rate of about 70%*.



*Localization rate = Total number of employees hired overseas/Total number of employees working overseas x 100%

Growing Together with Our Employees

Huawei maintains an open and inclusive approach as we welcome outstanding talent from all domains. We believe that growing human capital is more important than growing financial capital. Therefore, we adopt a proactive, diverse, and open approach to talent. We consider talent to be a critical element that contributes to our company's long-term success and the driving force behind Huawei's long-term development. We are building an open talent mix to ensure that our talent grow together with the company for shared success.

We encourage fast-track promotions of outstanding employees. In 2017, we faced a more dynamic business

environment than ever before and internal demands grew in complexity. We fast-tracked the promotions of 4,500 top-performing employees and gave them more growth opportunities. In 2018, we will aim to bring that number up to 6,000. Responsibilities and results, rather than seniority, are the basis of our fast-track promotions. We take a practical approach, promoting people based on the scope of their responsibilities and the outcomes they produce. We will help improve their competency and qualifications. We will also adopt different approaches for different groups of talent within the company, and cultivate a fertile environment where everyone can leverage their strengths,

maximize contribution in the roles that suit them most, and receive the greatest possible rewards in return.

Practice makes perfect. To help employees grow their careers more rapidly, in 2017 Huawei built two practice bases in China – one in Guangdong and another in Guizhou. In these bases, employees learn how things work in the field, how we create value for customers, what services and solutions Huawei has, and what our culture of customer-centricity is all about. By immersing themselves in work at these practice bases, employees are better able to create value for customers and rapidly foster their skills.

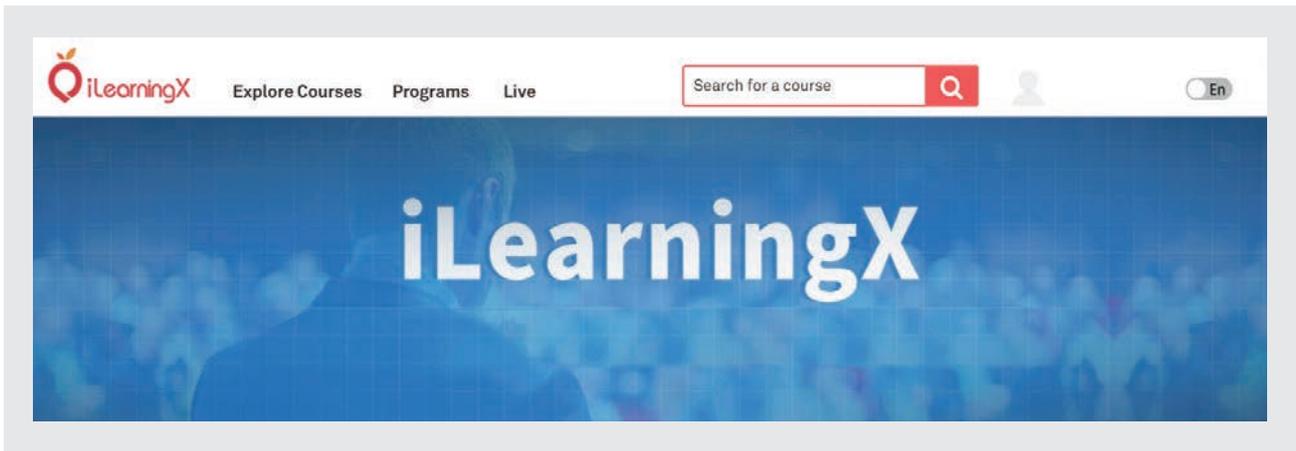


Huawei's Songshan Lake practice base in Dongguan, Guangdong, China

iLearningX – Our Next-generation Learning Platform

We have developed and run the next-generation learning platform – iLearningX – on the Huawei Cloud and big data platforms, and adopted new approaches to training that combine desktop and mobile platforms. The iLearningX platform has been developed based on experience from advanced online learning platforms and offers powerful functionality for learning and improvement. Our aim is to deliver better digital learning experiences to our employees.

During the development and operations of the iLearningX platform, our team made full use of the Huawei Cloud and the company's IT infrastructure to meet business needs from the front line. We adopted a digital mindset when developing products and services. In terms of learning methods, we have used Massive Open Online Courses (MOOCs) and Small Private Online Courses (SPOCs) to deliver a large number of high-quality training and practice sessions. In 2017, the iLearningX platform played a significant role in the training and practice of the Strategic Reserve. A total of 380 MOOC and SPOC classes were run on the platform, covering 13 domain tracks, 7 elite teams, and more than 300 courses across 48 learning curriculums. Last year, 34,000 people participated in courses through the platform, with an average of 109 minutes of learning per person.



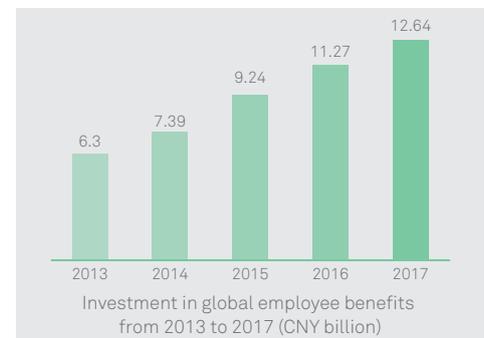
Compensation and Benefits

Huawei has a highly competitive compensation system. We regularly survey compensation data, and adjust employee compensation based on survey results, corporate performance, and individual performance when needed. There is no gender bias in our compensation standards. We employ a "Contribute and Share" bonus distribution system, which links employee bonuses to corporate, departmental, and individual performance. In line with our corporate compensation policy, we review the bonus distribution plan each year and revise it as necessary. In 2017, we continued implementing the Time-based Unit Plan (TUP) worldwide, granting time-based units to employees so they can share in the benefits of Huawei's growth.

We have implemented an effective employee benefits system, which acts as an umbrella to protect our employees. Employee benefits include three parts: social insurance, commercial insurance, and medical assistance. Apart from mandatory insurance plans, we offer every employee global accident insurance, critical illness insurance, life insurance, medical insurance, and business travel insurance, as well as other forms of commercial insurance. We have also implemented medical assistance mechanisms to protect our employees under special circumstances. With these three types of employee benefits, we are able to offer sufficient benefits to protect employees from trouble and difficulty.

Our 2017 investment in global employee benefits exceeded CNY12.64 billion (US\$1.87 billion), an increase of 12% year-on-year.

Natural disasters, critical illnesses, and deteriorating safety situations in certain regions could have considerable implications for employee health and safety. Huawei regards employee safety as a top priority, at all times and under all circumstances. We convey this principle to our employees, and collaborate with international insurance companies and emergency rescue institutions to offer 24/7 employee healthcare services all over the world.



Emergency Medical Transport

Huawei has established an Employee Health Coaching and Emergency Response Department. The department develops policies, standards, processes, and contingency plans for employee health coaching, insurance, and emergency response. It also identifies and assesses employee health risks, adheres to the principle of "prevention first", and provides solutions to these risks. We have established long-term partnerships with qualified insurance suppliers, involving them in our health management. This is necessary for us to help constantly improve our employees' health.



Huawei arranges a medevac flight to transfer an employee suffering a serious illness to another hospital

At the end of 2016, an expatriate in a country suffered a sudden serious illness, was unable to speak or walk, and ran a high fever. Due to the lack of medical resources in the country, the managers and colleagues of the representative office were very anxious and called the Employee Health Coaching and Emergency Response Department for help. After receiving the request, the department immediately coordinated efforts between the insurance company and a rescue agency. They arranged a medevac flight to transfer the employee to a hospital in Turkey where the employee could receive better medical care. After a week of treatment and with the kind care of local colleagues in Turkey, the employee's condition gradually stabilized. Subsequently, the company sent medical personnel to Turkey, bringing the employee back to China to continue treatment until recovery.

Malaria Prevention and Control Pilot Project in Tanzania

To create a healthy work environment for employees in hardship areas, Huawei teamed with insurance companies in 2017 to carry out a pilot project for malaria control in Tanzania. We arranged for professional medical personnel to assess the local environment, survey local medical institutions, and develop and implement malaria control solutions. We also provided training related to infectious diseases and first aid to more than 90% of local employees. This greatly improved employee health awareness and knowledge in this regard.

Health and Stress Tests

Employee health is always our top priority. Health and stress self-assessment is one of the many tools used to help employees assess their stress level. We encourage employees to assess their stress at least once a year. This enables employees to know better about their mental health, become aware of their own stress level, and make changes based on the assessment results. We are responsive to employees' requests and provide support and assistance as needed. The stress test has been positively received by employees for its professionalism, interesting forms of participation, and detailed analysis reports.



Welcome to take the Health and Stress Self-Assessment!

Do you know the standard definition of "health"? According to the World Health Organization, "health" is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Your ability to become aware of your stress level and effectively and promptly relieve your stress is crucial to assessing your mental health.

Fortunately, there are many proven tools and methodologies that can help us become more aware of and relieve our stress.

The Health and Stress Self-Assessment you are about to take is intended to help you become more aware of your health and stress level. After taking this assessment, you can comprehensively and precisely identify factors influencing your health and stress, find the root causes, and explore ways to relieve your stress. The "3+1" campaign (make a friend, join in a sports activity, take up a hobby, and read a thought-provoking book) has proven to be efficient in stress relief. We encourage you to exercise regularly, talk with your loved ones and friends, enjoy your hobbies, and read inspirational books — especially when you feel stressed.

Awareness is the catalyst for change! Let's begin the Health and Stress Self-Assessment!

[Click to enter the system](#)

Creating a Favorable Workplace

As a global company with a presence in over 170 countries and regions, Huawei has built a global value chain with the best resources from around the world. In every country and region, we operate in compliance with local laws and regulations, and share value with our global partners and customers. When executing corporate human resource policies, as well as developing and implementing local regulations, we always keep in mind local laws, regulations, and industry standards. We also give special consideration to local customs and conventions.

We place significant emphasis on the management and development of local hires. In addition to boosting the operating efficiency of our local offices, we support local communities by creating jobs and paying taxes. Through smooth communication, we enhance mutual understanding

between Huawei and local governments, the media, and other external stakeholders. Our goal is to become an innovative enabler of the information society and a collaborative industry contributor.

When it comes to employee recruitment, promotion, and compensation, we never discriminate against our employees on the basis of race, gender, nationality, age, pregnancy, or disability. We prohibit the use of forced, bonded, or indentured labor. We have detailed, equitable regulations covering each major phase of an employee's relationship with the company, including recruitment, employment, and exit. No incidents of forced labor have taken place over the course of Huawei's history.

We prohibit the use of child labor, and have effective policies and measures in place to prevent the recruitment and

use of child labor. We also require the same of our suppliers and conduct regular audits to ensure their compliance.

We respect the legal rights of our employees with regard to freedom of association and collective bargaining. We never prevent employees from participating in the lawful activities of registered labor unions as long as participation is voluntary and is not in violation of local laws. We never harass, discriminate, coerce, or retaliate against these employees.

Our Employee Relationship Department has created communication channels to collect and understand employees' opinions and suggestions. Employees can file complaints through channels like complaint hotline of the Committee of Ethics and Compliance (CEC) and HR services complaint and suggestion hotline.

Release of Statement on Modern Slavery

In 2017, Huawei released its Statement on Modern Slavery, stating its commitment to supporting the UK's Modern Slavery Act and ensuring there is no modern slavery within its supply chain or in any part of its business across the company.

Huawei's Statement on Modern Slavery

https://huawei.eu/sites/default/files/docs/Huawei_MSA%20Statement_Signed_June2017.pdf

3.2 Safe Operations

Safety is the foundation for a company to sustain healthy business development. It should always be a top priority for each and every responsible corporate citizen. Every ICT company should emphasize both operational safety and the safety of in-house staff and contractors working in high-risk environments, especially during project delivery.



Huawei EHS Guidelines: Safety First, Green Environment, Caring for Employees

In all countries and regions where we operate, we implement an EHS management system and corporate-level global accountability mechanism for safety incidents. We enforce our EHS Absolute Rules, and have moved the center of gravity of EHS management down in the organization. We also cultivate a robust safety-first culture. These actions enable us to minimize safety risks and protect the health and safety of our employees, contractors, and other stakeholders. We take EHS incidents very seriously. We have an IT platform for EHS incident management that enables incident reporting, investigation, and improvement. If an incident occurs, we follow it through until it is resolved and closed. We discipline managers who are involved in EHS incidents with significant implications, and we also reward best practices in safety

management. In 2017, we continued to deploy and optimize our EHS management system, with 74% of our representative offices now certified for their occupational safety management. In line with EHS-related laws and regulations, we further improved our EHS management system to mitigate EHS risks and meet customer requirements. We also enhanced cooperation with professional EHS management enterprises and consultants to provide EHS training and conduct onsite assessment worldwide. This helped us identify EHS risks in advance and take preventive measures. In 2017, our regional offices from Latin America and the Middle East to Southeast Asia improved their EHS systems by enhancing their EHS leadership and better managing subcontractors' EHS activities. These actions led to reduced EHS incidents.

Continuous Improvement of the EHS Management System of Huawei's Latin American Regional Office

In 2017, our Latin America Regional Office continued to pursue excellence in EHS and involved leaders from both subcontractors and Huawei in developing standards for the EHS management system. They implemented these standards from end to end, from guidelines, goals, plans, budget, and organization to resources. The regional office also measured and evaluated the performance of subcontractors based on data in IT systems, which helped us make better-informed decisions on rewards and penalties for subcontracting services. This initiative motivated subcontractors to continuously and effectively manage and improve their operations, and helped mitigate EHS risks and reduce EHS incidents.



US Occupational Safety and Health Act training

Winning the Zero Accident Award in Indonesia

On August 10, 2017, Maruli Apul Hasoloan, director general for labor supervision and health and work safety at Indonesia's Manpower Ministry, presented Huawei with a Zero Accident Award. The award is the country's highest accolade for EHS, and recognizes Huawei's consistent efforts on EHS. Huawei is the first ICT equipment vendor to receive it. The director general congratulated Huawei and said that he appreciated and thanked Huawei for its ongoing efforts in maintaining high EHS standards.



The director general for labor supervision and health and work safety at Indonesia's Manpower Ministry presents an award to Huawei

In 2017, we continued to build safety into product design, improved our ability to work safely, and digitally managed sources of risks. Our ultimate goal is zero casualties. To that end, we continued to enhance our management of health and safety on delivery projects to ensure that every person who works for Huawei or our contractors is safe.

Huawei incorporates EHS requirements into all of our business processes. We put health and safety first in everything we do, and we are progressively improving the maturity of our EHS management system, as part of our commitment to sustainability.

Manufacturing Safety

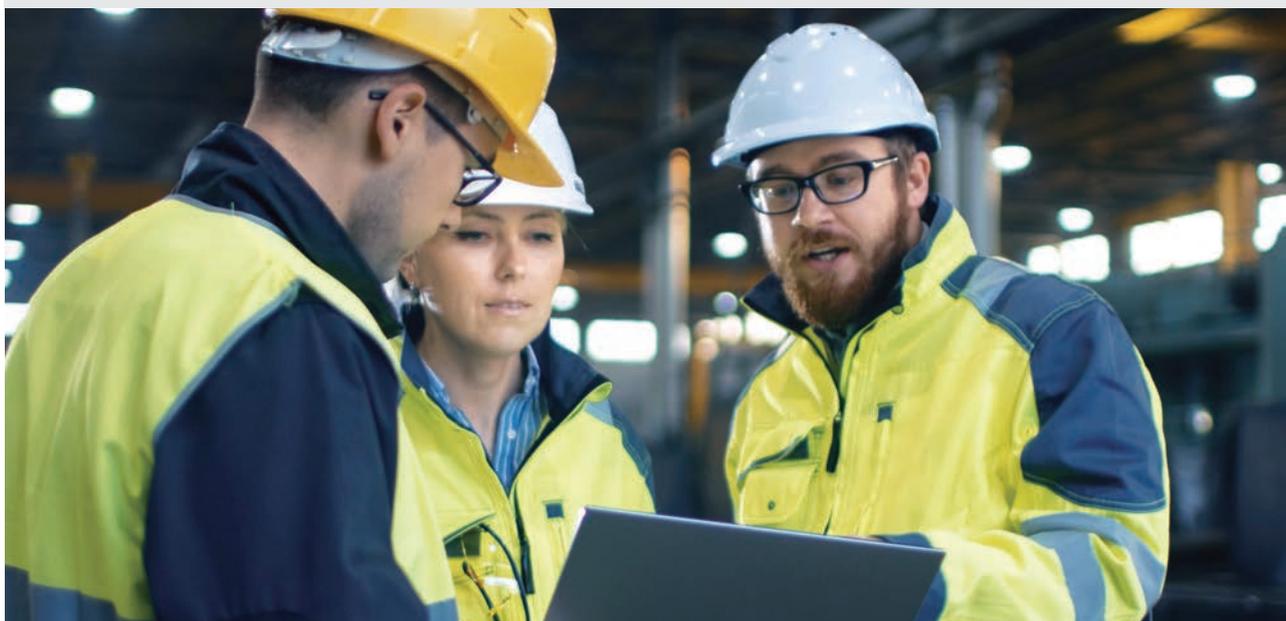
Huawei puts safety first and takes preventive measures. Our goal is to optimize the processes and technologies relating to safety and better manage manufacturing safety. We implemented multiple initiatives in 2017:

- ◉ Upgraded the standards for design by safety to Version 3.0
- ◉ Digitally managed sources of risks, and produced a digital map for the Manufacturing Department
- ◉ Implemented safety improvement plans with coaching from DuPont consultants
- ◉ Continued to build a culture of safety, such as organizing Safe Manufacturing Month and Electrical Safety Week
- ◉ Built safety training centers and provided training to increase expertise in safety assurance work

Digitally Managing Manufacturing Safety

In 2017, Huawei continued to manage sources of risks in manufacturing with digital technologies and built an IT platform that monitors safety and gives alerts when identifying any sources of danger. Specifically, it provides the following functions:

- ◉ Real-time monitoring of toxic, hazardous, flammable, and explosive gases, as well as test systems with high voltage and high current
- ◉ Sending reminders to address significant hazards in everyday work, including maintenance, calibration, and replacement
- ◉ Online monitoring of dynamic sources of danger, such as hot work operations and working at heights
- ◉ Identification and closed-loop management of safety risks



Managing Project Delivery Safety

In 2017, Huawei further integrated EHS requirements into business processes, and fostered EHS capabilities during project delivery. To prevent workplace accidents, we created scenario-specific EHS standards for business activities that involve high risk, and produced and implemented detailed rules. We also incorporated delivery EHS into our compliance management system, and developed tailored criteria for different countries. In addition, we stepped up efforts to manage delivery EHS from end to end, and reinforced compliance checks. An interactive IT platform was developed and launched to manage our delivery EHS. We used the ISDP-Smart QC mobile application to record and monitor worker violations. When we appraised contractor performance, we took the number of violations into account. We worked with third-party EHS audit agencies to conduct EHS audits on 4,144 sites in 130 countries and representative offices and pushed representative offices to make EHS improvement on their own.

Strong EHS expertise is the key to improving delivery EHS management. Huawei has taken the following measures to develop its expertise in this regard:

- Released an EHS training video in multiple languages. The video covers driver safety, EHS risk assessment in field environment, working at heights, hoist safety, and electrical safety.
- Managed EHS separately for tower workers and electricians using an IT platform. The number of certified personnel available on the platform has reached 34,000. More than 100,000 subcontractors have received Huawei's training certificate.
- Completed a pilot project for subcontractors managing EHS on their own in five representative offices in the Philippines, Thailand, Egypt, Saudi Arabia, and the UAE. Seven subcontractors received



A third-party auditor is having an onsite audit

Huawei's EHS self-management certification.

- Regularly communicated with customers about EHS issues, learned about customer requirements and expectations for EHS, applied them to Huawei's EHS management practices, and continuously improved our overall delivery EHS capabilities.

Huawei-Vodafone Annual EHS Summit

We communicate with customers about delivery EHS management on a regular basis. In 2017, Huawei and Vodafone held two EHS summits, during which we came to understand each other better and forged a closer partnership on EHS management. Such engagement allowed Huawei and our customer to deliver business and social value.



Vodafone and Huawei representatives at an EHS summit

3.3 Green Operations

Global demands for energy, water, and other resources are growing. Water, air, and soil pollution from human activities has affected our ecosystem. This has resulted in extreme weather and climate change, which in return poses risks to society. To support the achievement of the 2030 UN SDGs, all enterprises around the world need to face these pressing issues head-on, take measures to conserve energy, reduce emissions, and fight climate change. It's also important to minimize environmental pollution, and adopt new technologies to address environmental problems.



Minimizing the environmental footprint of our operations is a long-term initiative at Huawei and we use a number of approaches to reduce our energy consumption and CO₂ emissions. These include implementing an ISO 50001-based energy management system, launching energy conservation programs, making managerial and technological improvements, and utilizing clean and renewable energy. Our goal is to help fight climate change. Through operational and technological measures, we saved 33.57 million kWh of electricity in 2017. We also built solar power stations on our campuses, generating over 17 million kWh of electricity. These measures combined reduce our CO₂ emissions by more than 45,000 tons*.

* This only includes statistics of Huawei campuses in China.

Energy Consumption Statistics of Huawei's China Regional Office from 2013 to 2017

Energy	Unit	2013	2014	2015	2016	2017
Natural gas	1,000 m ³	4,230	4,910	5,220	9,930	7,110
Gasoline	Ton	1,668	390	363	358	600
Diesel	Ton	60	46	41	116	256
Electricity	Million kWh	940.82	1,133.25	1,347	1,686.53	2,070.95
Steam	Ton	20,854	19,881	20,561	20,352	21,801
Water	Ton	4,950,000	5,480,000	7,000,000	9,360,000	8,130,000

Building an ISO 50001-based Energy Management System

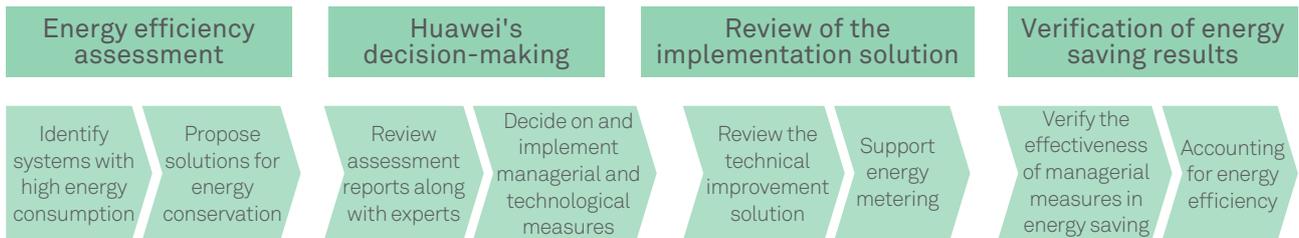
Huawei has established an energy management system in accordance with the ISO 50001 standard and relevant laws and regulations. In 2017, our Shenzhen headquarters obtained an ISO 50001-based third-party certification. We continuously optimized our energy management system, making it more effective and energy efficient, with lower energy consumption. This was achieved through multiple initiatives, including routine monitoring of energy conservation, energy auditing, internal auditing, and upgrading to energy-efficient technologies. When our energy management system was being audited by a third party, we adopted 28 improvement measures, completed energy upgrading projects that saved 2.07 million kWh of electricity, and leveraged management approaches that saved 2.5 million kWh of electricity, equivalent to a carbon emissions reduction of over 3,965 tons.



Maximizing Energy Conservation with Big Data Analytics

We have introduced third-party experts to assess energy efficiency on our Shenzhen and Dongguan campuses. In this pilot project, we identified 36 areas for improvement in energy-saving. In 2017, we improved on 22 areas. Specifically, we upgraded the chiller plants and cooling tower fans with variable-frequency drives in the air conditioning system, and analyzed the big data from the system to develop a mathematical model. By running virtual tests of energy savings, we were able to configure the building automation system for automatic maximum savings based on the conditions outside. Over the course of a year, this system saved 4.62 million kWh of energy, equivalent to a reduction in carbon emissions of 4,008 tons.

Using big data analytics to maximize energy conservation of major systems



Building More PV Plants on Our Campuses

We use clean and renewable energy to build environmentally friendly campuses with low carbon emissions. Our Hangzhou Research Center and Southern Factory in Dongguan completed construction of their smart PV plants in June 2012 and March 2015 respectively and connected them to the grid. The two PV plants together have a capacity of 19.3 MW, and generate over 17 million kWh of electricity each year, equivalent to a reduction in CO₂ emissions of over 15,000 tons. In 2017, Huawei continued to increase its investment in PV plants. Currently, the PV plant in Beijing Research Center is under construction. The project is planned to have a capacity of 771.3 kW, which will meet the majority of the energy needs of the research center.

Beijing Research Center Smart PV Plant



Capacity: 771.3 kW
Status: Under construction

Overview of Huawei Southern Factory Smart PV Plant

- Total Capacity: 17.5 MW
- Phase I: 4 MW, connected to grid in June 2012; annual electricity generation: 4 million kWh
- Phase II: 13.5 MW, connected to grid in March 2015



Inverter Production Factory **FusionSolar Cloud Management Center**

Hangzhou Research Center Smart PV Plant



Capacity: 1.8 MW
Grid Connection: February 14, 2015

To achieve Huawei's 2020 carbon emissions target, we launched a series of projects and activities aimed to save energy and reduce emissions in 2017. In addition to the initiatives mentioned above, we also renovated air-conditioning systems, upgraded light controls, and reduced energy consumption of our manufacturing and lab equipment. These measures created additional reductions in CO₂ emissions of 22,000 tons.

Procuring Green Energy for Green Campuses

As our business continues to grow, we have seen a significant increase in the electricity consumption of our labs and data centers. To reduce operating expenses and use clean energy more efficiently, we engaged in in-depth discussions with our electricity suppliers, and worked to encourage them to sign an agreement with a gas power plant that has installed clean energy capacity. The supplier ended up getting 932 million kWh of electricity from clean energy sources, all of which will be supplied to Huawei in 2018. Huawei obtained a statement on reducing GHG emissions from a third party certification organization, saying our carbon emissions reduction is estimated to reach 450,000 tons.



2017 GHG Emissions

In 2017, the GHG emissions of our China Region operations totaled 1,876,496 tons, an increase of approximately 18.4% from 2016.

This increase is attributable to two factors. First, our business grew significantly, with annual revenue increasing to US\$92.5 billion, up 23% from 2016. Second, we expanded our building facilities.

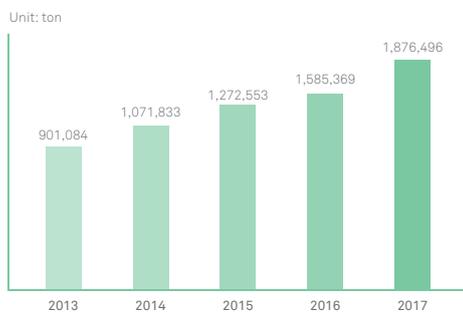
GHG	Scope 1	Scope 2	Total
Emissions (t-CO ₂ e)	35,157	1,841,339	1,876,496
Proportion	1.87%	98.13%	100%

Notes: Scope 1 includes stationary combustion emissions, mobile combustion emissions, and fugitive emissions.
Scope 2 includes indirect emissions from energy.

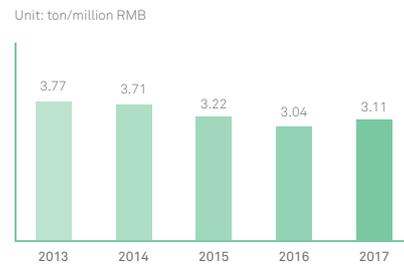
Huawei's carbon emissions target for 2020:

Reduce carbon emissions per million RMB of revenue by 30% compared to the base year (2012) by 2020.

In 2017, our CO₂ emissions per million RMB of sales revenue were 3.11 tons, 9.3% lower compared to the base year.



Total GHG emissions from 2013 to 2017



Intensity of GHG emissions from 2013 to 2017

Introducing New Energy Shuttle Buses for Green Commutes

Huawei encourages our service providers to reduce energy consumption and emissions. In 2017, Huawei introduced 125 shuttle buses running on renewable energy to replace the diesel engine buses serving our Shenzhen and Beijing campuses. This helped cut CO₂ emissions by 5,062 tons each year.

We will gradually increase the proportion of shuttle buses running on new energy, making green commute for employees a reality and reducing carbon emissions.



We replace our former diesel-powered vehicles with new energy buses

Sustainable Design to Build Energy-efficient and Green Campuses

Huawei builds sustainability into campus design at the very outset, aiming to build energy-efficient and green campuses. We used dynamic thermal simulations to optimize the thermal performance of walls, doors, windows, roofs, and building foundations, as well as the design and control of air conditioning systems. We have made full use of passive design, such as natural ventilation and natural lighting. With equipment performance and cost into consideration, we have also deployed new energy-saving equipment and designs, including low radiation glass, double-skin facade, fresh air heat recovery units, chillers with variable-frequency drives, on-demand air supply and air conditioner box control, as well as occupancy sensing lighting systems and equipment.

We also deployed metering and monitoring instruments to collect data. Specifically, we have installed cold and hot water heat meters, as well as sensors to collect data about electricity, temperature, humidity, flow, and pressure. These sensors have enabled us to monitor the running data of air conditioners, lighting systems, and chiller plants in real time, and frequently collect and archive important parameters. We also track important energy efficiency indicators, such as the coefficient of performance (COP) of chiller plants, cold and hot water consumption per unit of building area, and power usage effectiveness (PUE) of data centers.



Huawei's New Songshan Lake Campus (concept image)

3.4 Sustainable Supply Chain

Awareness is growing for issues including the protection of labor rights, human rights, consumer rights and benefits, and the sustainability of supply chains. As a responsible corporate citizen, we invest to ensure the impact of our supply chain is positive for local economies, the environment, and society. We are also concerned about supply availability and risks, and the overall compliance and sustainability of our suppliers. Sustainability is now recognized as an important strategic objective of both buyers and sellers in the supply chain.



We have more broadly implemented our Quality First strategy. As a key element of our Quality First strategy, sustainability is assigned greater weight during our materials and supplier qualification, performance appraisals, and procurement decision-making. We strengthen cooperation in sustainability with customers, suppliers, and industry organizations. We also employ procurement quotas as a tool to help suppliers become more sustainable. All these efforts enable us to minimize supply risks, increase customer satisfaction, and boost the competitiveness of the supply chain.

New Supplier Qualification

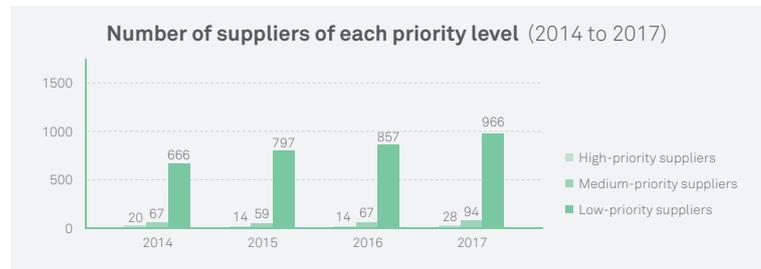
To be eligible to work with Huawei, our suppliers must be able to comply with applicable laws, regulations, and Huawei's Supplier Sustainability Agreement. We developed this agreement based on the Responsible Business Alliance (RBA), formerly the Electronic Industry Citizenship Coalition (EICC), Code of Conduct (Version 6.0), and guidelines from Joint Audit Cooperation (JAC). We have a comprehensive qualification process for all new suppliers, including suppliers' sustainability systems. This qualification process examines suppliers' capacity and their compliance with applicable laws, regulations, and the Supplier Sustainability Agreement. Those who fail the qualification for sustainability systems cannot be deemed qualified suppliers.



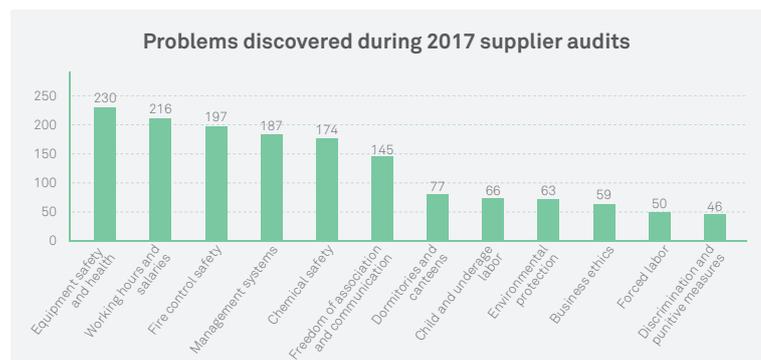
In 2017, we audited 76 potential suppliers in terms of their sustainability performance, and 17 suppliers that failed the audit were denied the opportunity to cooperate with Huawei.

Supplier Risk Rating and Auditing

Every year, we audit suppliers, which combined represent 90% of our procurement spending, and assign them one of three priority levels: high, medium, and low based on sustainability risk. On this basis, a list of suppliers which require particular attention is drawn up. In 2017, we audited 1,088 suppliers with respect to sustainability risks, and conducted onsite audits on 117 suppliers of high- and medium-priority.



If we discover a problem during an audit, we help the supplier analyze root causes, identify ways to mitigate the issue, and take targeted actions using Huawei's Check, Root Cause, Correct, Prevent, and Evaluate (CRCPE) methodology. All problems are recorded in Huawei's Supplier Corrective Action Requirement (SCAR) system for follow-up until closure. We are always ready to help our suppliers improve.



Note: During supplier audits in 2017, we did not discover any instances of child labor or forced labor.

Supplier Performance Management

We appraise suppliers' sustainability performance annually based on their work performance, onsite audit results, and improvements over the previous year. The sustainability performance of a supplier accounts for 5–15% of their overall performance assessment. When we appraised the sustainability performance of tier-1 suppliers in 2017, we took into account how they managed their tier-2 suppliers. We encouraged our tier-1 suppliers to gradually establish a procurement CSR management system and regularly appraise the sustainability performance of tier-2

suppliers in line with the *IPC-1401 Supply Chain Social Responsibility Management System Guidance*. Suppliers are classified into four grades (A, B, C, and D) based on their performance. These grades represent their performance in descending order of acceptability. In 2017, we appraised the sustainability performance of 1,230 suppliers.

The amount of business we do with each supplier depends on their performance, which is also a factor considered in our tendering, supplier selection, portfolio management, and other processes. Suppliers that perform

well are given a larger share in procurement and more business opportunities, while the reverse is true for low-performing suppliers, especially those who have crossed the line we draw for CSR. Depending on the situation, we instruct low-performing suppliers to fix existing issues within a specified timeframe and may even terminate business relationships with suppliers that display exceptionally poor performance. In 2017, we restricted the tendering rights or reduced the quotas of three suppliers as a result of poor sustainability performance.

Supplier Capability Development

We provide training and coaching for suppliers on a regular basis. We also encourage them to embed sustainability into their business strategies, helping them reduce business risks and enhance operating efficiency. Benchmarking the company against industry leaders and learning best practices are low-cost and efficient ways for capability development. In July 2017, to address the popular topic amongst suppliers of how to ensure factory safety, Huawei invited industry experts to a dedicated workshop involving representatives from 50 suppliers. We shared best practices in electrical fire detection, chemical safety management, risk assessment, and root cause analysis.



Representatives of suppliers at the security workshop

Global Supplier Sustainability Conference

In September 2017, Huawei convened its 8th Global Supplier Sustainability Conference. The event attracted 210 attendees from 75 suppliers, and representatives from our customers such as BT, Deutsche Telekom, Vodafone, and other organizations such as China's Ministry of Industry and Information Technology (MIIT), China Association of Communication Enterprises, and the Association Connecting Electronics Industries (IPC).

The theme of the conference was "Sustainability Creates Business Value".

The Chairman of Huawei's CSD Committee addressed the conference, noting that "sustainability is an important part of Huawei's 'Big Quality' strategy. We have embedded sustainability into our Quality First strategy to effectively support our business success. Sustainability is a basic requirement of our customers. We view sustainability as an integral attribute of our products and the manufacturing process. We have integrated sustainability into our value chain to make our products and solutions more competitive."



Chairman of Huawei's CSD Committee is addressing the conference

Deepening Cooperation with Customers and Industry Organizations

We see sustainability as a key customer requirement, and embed it into our procurement strategies and processes. We work closely with customers on supplier management. For example, we invite customers to visit supplier facilities, conduct joint supplier audits with customers, and carry out employee surveys and supplier capacity building projects. All these efforts increase transparency across our supply chain and help improve our own sustainability. In 2017, Huawei and four customers ran onsite audits on eight suppliers, and we shared the audit results with the customers.

Driving Suppliers to Improve Through JAC

In 2017, Huawei designated four suppliers to participate in JAC joint auditing, with expert groups from a third-party auditing firm carrying out onsite audits. The auditing experts and customers expressed satisfaction with the results of the audits on the four suppliers. In particular, the suppliers were found to have incorporated CSR requirements into their internal operations. By making CSR improvements, the suppliers enhanced internal operating efficiency, customer satisfaction, and employee satisfaction. Suppliers were given a high score for their quick and effective improvements in the JAC auditing, and were recommended by two of our customers to attend the JAC CSR Forum held in Guangzhou in January 2018.



Huawei and representatives of award-winning suppliers at the JAC CSR Forum

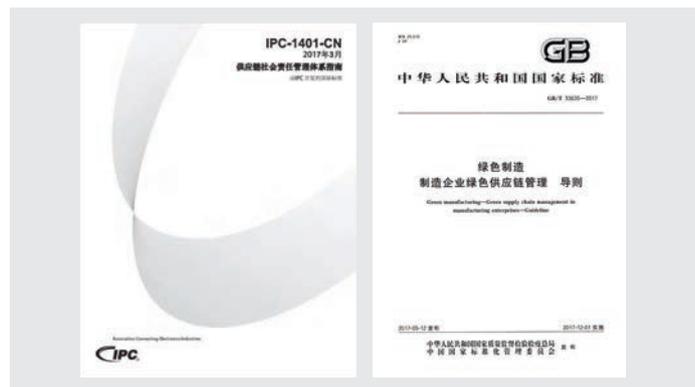
In 2017, JAC launched the JAC Academy project, and provided training to suppliers on auditing methods, so that they can audit their own suppliers using the JAC method. JAC also established a platform whereby suppliers can share knowledge and best practices. Huawei fully supported the JAC Academy project, participated in project design, and shared our best practices in procurement CSR management system, onsite audits, and CRCPE.

“ As a major supplier to DT we very much value our partnership with Huawei to deliver award winning approaches to ensuring our supply chains operate to the highest possible levels of sustainability. We have forged a true partnership in areas such as our supplier development program and look forward to continuing this close relationship as we scale the approach across the industry. ”

Birgit Klesper

Senior Vice President Group Corporate Responsibility, Deutsche Telekom

We are enhancing cooperation with industry organizations, and promoting industry standardization as well as the development of a market-driven green supply chain: *The IPC-1401 Supply Chain Social Responsibility Management System Guidance*, an international standard whose development was led by Huawei, was released in 2017. *The Manufacturer Green Supply Chain Management Guideline (GB/T33635-2017)*, a Chinese national standard developed with Huawei as one of the core contributors, was released in 2017.



Environmental Protection and Energy Conservation Through Suppliers

Since 2011, Huawei has been a member of the Green Choice Alliance, which was established by the Institute of Public and Environmental Affairs (IPE), a non-governmental organization. We have added the IPE's enterprise environmental data to our supplier audit list and supplier self-checklist. When query results show that a supplier violates environmental rules, Huawei immediately asks them to solve the problems within a designated timeframe. In 2017, routine queries about the environmental data of 500 key suppliers revealed 19 violations of environmental protection rules, and these violations were properly addressed. Together with the IPE, we audited three suppliers onsite and requested that they make improvements to meet our requirements within a predefined timeframe. On the IPE's 2017 Greening the Global Supply Chain – Corporate Information Transparency Index (CITI), Huawei was scored as the leading Chinese company and ranked 6th in the ICT sector.

We encourage our suppliers to develop energy metering systems, audit their energy usage, identify opportunities to reduce energy use and CO₂ emissions, study industry-leading practices and case studies, and develop and implement their own energy conservation and emissions reduction plans. In 2017, a total of 25 suppliers took part in our program, together reducing CO₂ emissions by 63,000 tons.

Year	Number of Suppliers	CO ₂ Emissions Reduction (Ton)
2013	4	23,839
2014	20	53,652
2015	35	77,144
2016	20	55,000
2017	25	63,000

Prohibiting the Use of Conflict Minerals

Huawei takes the problem of conflict minerals very seriously, and has released an open statement announcing that we will not procure or support the use of conflict minerals. We require all suppliers not to procure conflict minerals. We also ask our suppliers to cascade this requirement to their suppliers. Through the Responsible Minerals Initiative (RMI), formerly the Conflict-Free Sourcing Initiative (CFSI), we work with companies around the world to jointly address this problem, using the CFSI conflict mineral questionnaire and the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas to survey the supply chain and share results with our customers. In 2017, we shared the survey results with 15 customers. We are also an active participant in the projects of multiple industry organizations, seeking to jointly work out viable solutions to conflict mineral issues.

Huawei Statement on Conflict Minerals:

<http://www.huawei.com/en/about-huawei/declarations/statement-on-conflict-minerals>

As more cobalt is used in lithium-ion batteries in recent years, responsible management of the cobalt supply chain is attracting wider attention. Huawei attaches great importance to ethical procurement in the cobalt supply chain. In May 2016, Huawei joined the Responsible Cobalt Initiative (RCI) as one of the first core members. We are committed to driving the gradual resolution of CSR issues in the cobalt supply chain, through collaboration with upstream and downstream players, and with governments and non-governmental organizations. Huawei is active in RCI activities and proactively works to fulfill its obligations for responsible management.

- ⦿ In 2017, Huawei released the Huawei Statement on Responsible Cobalt Supply Chain, stating our responsibility, action plan, and goals on the achievement of a responsible cobalt supply chain.
<http://www.huawei.com/en/about-huawei/declarations/statement-on-responsible-cobalt-supply-chain>
- ⦿ Our Huawei Supplier Social Responsibility Code of Conduct includes guidelines on responsible cobalt management, and specifies that our suppliers must engage in due diligence in cobalt management.
http://www.huawei.com/en/about-huawei/sustainability/win-win-development/develop_supplychain/huawei-supplier-social-responsibility-code-of-conduct
- ⦿ We have recently completed a series of surveys into the cobalt supply chain of lithium-ion battery suppliers, and these results will inform future targeted initiatives.



“ As a founding member of the RCI, Huawei actively fulfills its social responsibilities and attaches great importance to the responsible management of the cobalt supply chain. In 2017, Huawei released the Huawei Statement on Responsible Cobalt Supply Chain and Huawei Supplier Social Responsibility Code of Conduct, stating its commitment to building a responsible cobalt supply chain, and building responsible management into its procurement.

We expect Huawei to become an industry benchmark, and leverage its influence to urge and support suppliers to manage their operations more responsibly. Through RCI initiatives, we will continue to support the achievement of RCI objectives and actions, and help build a greener, more inclusive, and more responsible supply chain.

”

Sun Lihui Sponsor and Chairman of RCI





04

A Sustainable World

Bridging the Digital Divide

Supporting Stable Network
Operations

Supporting Local Communities



Overview

Innovative RuralStar 2.0 Solution

Huawei has worked with 12 operators in eight countries and regions, including Thailand, Ghana, Nigeria, and Mexico, to deploy the RuralStar 2.0 solution, providing mobile coverage for rural areas and driving economic growth.

Huawei ICT Academy

Over 55,000 students from 58 countries and 11 regions have participated in this program, and more than 12,000 students have passed Huawei's certification.

Community Support Programs

In 2017, Huawei organized more than 200 community support programs in over 100 countries and regions.

WTTx Makes Broadband Affordable for All

WTTx helps resolve last-mile access issues encountered when using traditional fixed-line solutions in both densely populated urban centers, and sparsely populated rural areas. It helps cut connectivity costs by 75%.

Supporting Stable Network Operations

In 2017, Huawei supported the stable operations of over 1,500 networks.

Seeds for the Future Program

As of the end of 2017, Huawei's Seeds for the Future program has had participants from 108 countries and regions, helping cultivate ICT talent for local communities.

Smart City Solutions

Huawei's Smart City solutions have been deployed in more than 120 cities in over 40 countries and regions.

Guaranteeing Network Availability During Major Events and Natural Disasters

Huawei guaranteed network availability during nearly 200 major events and natural disasters such as the earthquake in Mexico and the annual Hajj in Saudi Arabia.

Corporate Social Responsibility Campaign of the Year

Huawei's Seeds for the Future program won the Corporate Social Responsibility Campaign of the Year at the 12th CommsMEA Awards ceremony held in the UAE.

4.1 Bridging the Digital Divide

Digital technologies are valuable because they create new opportunities to connect, to inspire, to communicate, to educate, and to change the world. Universal access offers an unprecedented opportunity to revolutionize social development, improve lives, and stimulate economic growth. Huawei has always invested in innovation to achieve technological breakthroughs that make connectivity easier, simpler, and more cost-effective. We work with our customers to deploy those solutions in a way that transforms lives every day around the world. We support the deployment of ICT infrastructure across the globe, because we believe it will result in greater economic, social, and environmental prosperity.



Working Together to Contribute to Sustainable Development Goals

Huawei is committed to bringing digital to every person, home, and organization for a fully connected, intelligent world. In 2017, more than 450 million people were connected to mobile Internet, and more than 30 million families had access to broadband services. According to the Broadband Commission for Sustainable Development, half of the world's population is expected to be

connected to the Internet by the end of 2019. However, this leaves 3.8 billion people unconnected, along with 870 million who do not own mobile phones. Furthermore, the pace of connecting people has begun to slow.

The simple fact is that many people live in areas that are unserved or underserved by ICT infrastructure. This is driven in a large part by associated costs. The problem is exacerbated

further by low levels of digital literacy and a lack of applications that provide relevant services, both of which are needed to drive demand. These factors slow network growth.

Uneven access to the digital economy exacerbates economic and social inequality. For digital to benefit everyone, everywhere, this divide needs to be closed.

Connecting the Unconnected and Allowing More People to Enjoy the Digital Dividend

Access to the Internet has the potential to boost growth, expand economic opportunities, and improve access to services. Therefore, by connecting the unconnected we can accelerate progress to end extreme poverty and promote shared prosperity.

The digital economy is growing 10% a year, significantly faster than the global economy as a whole. To make sure everyone benefits, network coverage needs to be extended to the 3.8 billion people that still lack Internet access.

In 2017, Huawei's R&D expenditures totaled CNY89.69 billion, accounting for 14.9% of our annual revenue. In total we have spent more than CNY394 billion on R&D over the past decade. By investing in innovation and building up our operations in 170 countries and regions, Huawei is able to work with its partners to overcome these inequalities and help complete this unfinished task.

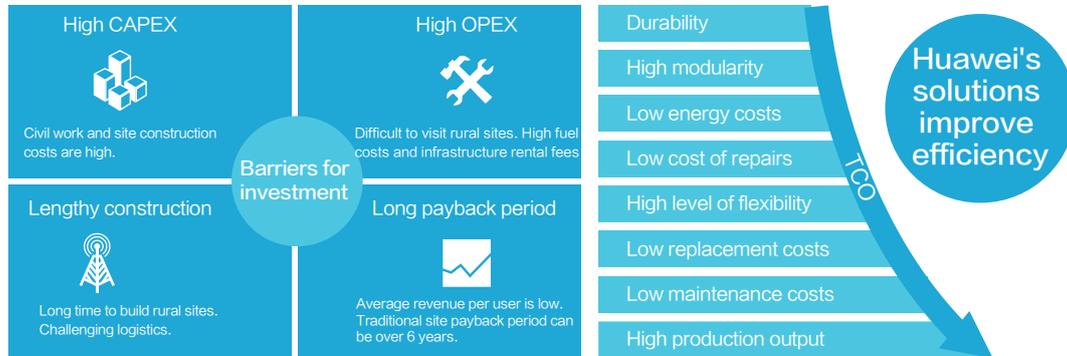
The following section shows how Huawei overcame this challenge in 2017 by providing basic connections, broadband connections, and applications that drive demand and transform lives, and ICT education and skills.

Communications for All

According to International Telecommunication Union (ITU), more than 87% of the world's population is now within range of a mobile signal, and 55% within range of a 3G network. Among the world's poorest 20% of households, nearly 7 out of 10 have a mobile phone – more households in developing countries own a mobile phone than have access to electricity or clean water. However, there is still up to half a billion people unconnected to any form of telecommunications and these people are disproportionately located in developing countries. Huawei understands this challenge and our technologies can enable the

widest possible coverage through high power and more targeted transmission. Huawei also integrates multiple technologies such as cellular, WiFi, and microwave, to make deployment both faster and cheaper. Affordability is critical if we are to bridge the digital divide.

We continuously pursue innovation in network technologies to adapt to the needs of emerging economies and demanding geographies so all people can be within range of a mobile signal.



Huawei's innovations help overcome the challenges of rural coverage

RuralStar Offers a Breakthrough for Remote Communities

Huawei's RuralStar 2.0 solution was launched in 2017 to reduce rural coverage costs. It is specifically designed to provide both 2G voice, SMS, and mobile money services as well as 3G broadband data services for rural communities. With low power consumption, easy installation, and innovative technologies (including battery technology) and tower design, it shortens the payback period for carriers to less than five years and promotes rural network construction in emerging markets. So far, the solution has been successfully deployed by 12 carriers in eight countries and regions, including Thailand, Ghana, Indonesia, Nigeria, and Mexico.

The cost of building and operating traditional rural network macro sites is high, much higher than in urban areas, and the average revenue per

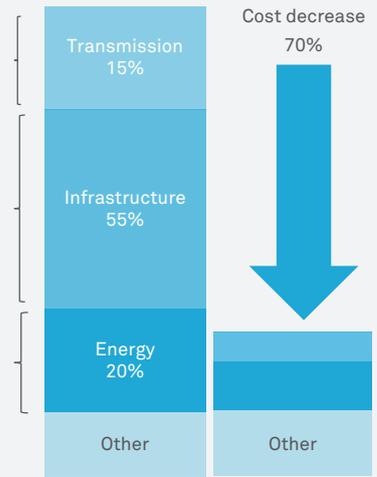
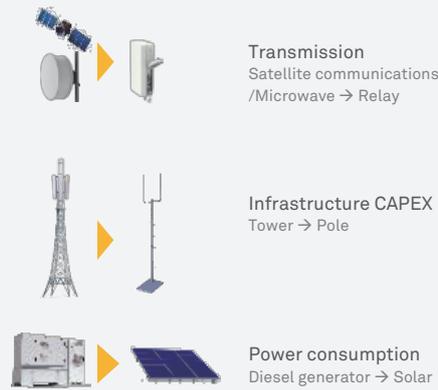
user can be as low as US\$1 to US\$3 in remote areas, much less than in urban areas. These numbers make it hard for carriers to justify a business case for expanding network coverage in rural areas. Carriers face many challenges like difficulty in providing transmission or backhaul to sites, high civil construction costs, lack of stable power supplies, and long deployment time. Investment in traditional network deployment can therefore take over 10 years to recoup, if it is recouped at all. This makes carriers reluctant to invest and requires large subsidies from governments.

For users, RuralStar can offer 2G, 3G, or 4G rural mobile broadband providing rates of over 10 Mbps at cell edges with a coverage of three to five kilometers, more than enough for most small rural villages. RuralStar can extend 2G and 3G

coverage up to 60 kilometers from existing macro sites.

In the Democratic Republic of the Congo, a RuralStar site deployment took only eight days – less than 60% of the time taken for previous towers and at a third of the cost. In Ghana, local villagers used to climb to rooftops and trees, or even ride a dozen kilometers to find telephone signals. RuralStar has addressed these issues. Villagers can now use WhatsApp to communicate and share pictures at home and transfer money and recharge phone accounts through Mobile Money.

Thanks to RuralStar, tens of millions of previously unconnected people will now be able to access mobile networks for the first time and enjoy mobile technology.



Huawei's RuralStar solution in Ghana

RuralStar Transforms Remote Communities

Duse is a remote town in Northeast Kenya with an estimated population of 3,000 people. Before RuralStar was deployed, it had no communication network. People had to walk 20 kilometers to the next town to use the Internet. Literacy levels were low, and security was a challenge. Huawei and its customer, Safaricom, installed RuralStar in 2017 and brought 2G and 3G communications to Duse for the first time. Within two months there were 556 users, of which 95 were using smartphones to access 3G broadband. The effect was transformational.



Connectivity for the first time in Duse Village, Kenya

- ⦿ Better healthcare: People can now call for ambulance services, and nurses who work at the local dispensary can now access online health information to help treat their patients. Previously they had to travel 20 kilometers to the nearest phone booth to place orders for new medicines. Now they can do this whenever supplies run low.
- ⦿ Better security: Villagers reported security as a serious problem with bandit raids all too common.

Public security has now improved. Incidents can be reported quickly and the Kenya Police Reserve and Administration Police can mobilize faster whenever clashes are reported. They can now access online information, monitor events, and submit reports more quickly.

- ⦿ Better services: M-PESA from Safaricom, which is Kenya's most popular mobile money service and runs on Huawei technology, became accessible for the first time. Villagers and shopkeepers can use their phones to securely and conveniently save and store money, trade goods, re-stock their stores, and sell their products.

- ⦿ Better education: Duse primary school has 320 students and eight teachers. According to the head teacher, attendance has improved because of improved security within the village. Teachers with smartphones have been able to access information online, show videos and other content to students to aid their teaching, and stay up to date with government notices.
- ⦿ Whilst other challenges associated with the digital divide remain, such as improving basic knowledge and skills to access mobile services, Duse witnessed real improvement in villagers' lives because of RuralStar. We believe this experience is important and can be replicated throughout the world.

Broadband for All

According to the World Bank, a 10% increase in broadband penetration boosts average GDP by 1.3% and job creation by up to 3%. However, 6 billion people lack access to high speed Internet and 3.8 billion have no Internet access at all.

Huawei works with customers to offer end-to-end solutions, so broadband networks can continue to expand and close these gaps. Our solutions include submarine networks, backhaul networks, backbone networks, fixed networks, and mobile networks, as well as the software that enables them all. Their primary value is to increase the efficiency of network operation and maintenance, make broadband deployment faster, fully leverage

existing network and public assets to unleash site potential, and maximize spectrum efficiency.

These solutions are already delivering tangible benefits for carriers in emerging markets. CloudAIR spectrum cloudification technology has helped maximize spectrum efficiency in India and Thailand. Unlike traditional spectrum sharing solutions, CloudAIR offers spectrum cloudification to allow different radio access technologies (RATs) to dynamically share spectrum resources. This solution enables faster deployment of 3G and 4G networks and unleashes pent-up demand for network services.

In Mongolia, the Philippines, South

Africa, and Sri Lanka, wireless to the x (WTTx) has provided the most cost-effective home broadband services. Over the course of a single year, broadband connections are provided for 10% and 5% of households in Mongolia and Morocco respectively.

Mobile phones still provide the main form of Internet access in developing countries. Affordable, high-quality devices are critical infrastructure and we provide a wide range of products at different prices for all types of users. In 2017, we shipped over 153 million phones. We also worked to extend battery life which is essential in many places without convenient access to power supplies.

WTTx Makes Broadband Affordable for All

Huawei's WTTx broadband solution allows for wide network coverage and fast deployment, helping carriers shorten their network deployment time and reduce network construction costs. WTTx reduces costs by 60% relative to that of fixed broadband networks. It doesn't require digging, trenching, or pole installations. Short time-to-market is another hallmark of WTTx, especially for mobile carriers. Launching WTTx typically only takes a few months. This helps resolve last mile access issues encountered using traditional fixed-line solutions in both densely populated urban centers, and sparsely populated rural areas.

ITU statistics show that 148 countries around the globe have proposed national broadband strategies to enhance broadband penetration rates and Internet experiences. Many carriers in sub-Saharan Africa consider WTTx a top priority. They provided WTTx broadband access to over one million households in 2017. WTTx enabled connectivity can potentially be 75% cheaper and rolled out 90% faster than fixed-line deployments, cutting the payback period for carriers to less than two years.

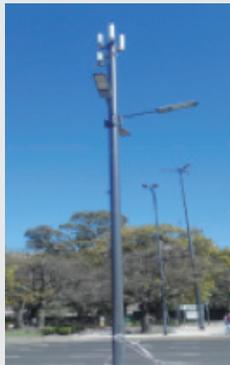
In developed countries, wired broadband penetration rates are high; however, suburbs often lack wired broadband networks due to feasibility and cost. Other users may also need a boost in broadband speeds. As a result, governments there also encourage carriers to provide WTTx in suburbs to promote universal access services and improve user experience. Huawei has deployed WTTx in Japan, Australia, Europe, and North America.

Huawei is focused on meeting the ITU's Connect 2020 target of ensuring 50% of households in the developing world are able to access the Internet by 2020. The global success of our innovative WTTx solution has helped our customers expand their networks in a profitable way. We believe this technology is expected to play a key role in meeting the ITU's target.

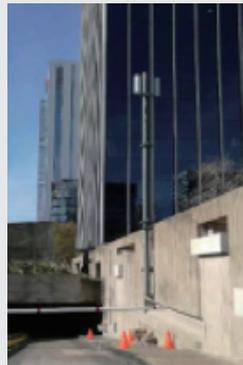
New Partnerships to Make Use of Existing Infrastructure

Huawei works with industry partners in completely new ways, shortening the payback period for carriers and driving further investment in network construction. Huawei helps carriers use existing infrastructure to build site ecosystems and works with partners to improve infrastructure collaboration. In 2017, Huawei helped establish over 30 site alliances to help carriers maximize the efficiency of their investment in infrastructure. Some examples are shown in the figure below.

New site alliances reduce site acquisition costs



Lamp pole-mounted sites



Garage sites



Supermarket sites

Applications for All

Many people remain unconnected because they do not see a need to access digital information. ICT applications must create value. This drives demand for data and incentivizes further investment in expanding network infrastructure and quality.

Huawei works with its customers to unlock the potential of digital solutions. These innovations offer users access to vastly improved healthcare, education, transportation, utilities, public safety, energy, finance, and more that can transform their lives and their communities. For example, Huawei's Mobile Money solution drives financial inclusion. Mobile Money can facilitate basic banking transactions and drive inclusive financial services in unbanked rural areas.

In 2017, we explored how ICT-enabled education can improve access and quality of learning in Asia. Smart city has also become a key focus of

Huawei's innovative efforts as we believe communication technologies and applications can result in fast and open exchange of data, which is key to building better cities.

All of these solutions bridge the digital divide because they enable far greater levels of social inclusion and economic participation. These applications can lead to significant improvements in human wellbeing and quality of life in a way that was not previously possible without digital networks.

Sustainable Development and the Cloud

The cloud will provide the digital infrastructure of tomorrow. It offers a world rich in benefits. From smart transportation, driverless cars and drone taxis, trains and subways, to farms and energy networks – all will be safer and better managed, thanks to the cloud's ability to store and analyze data.

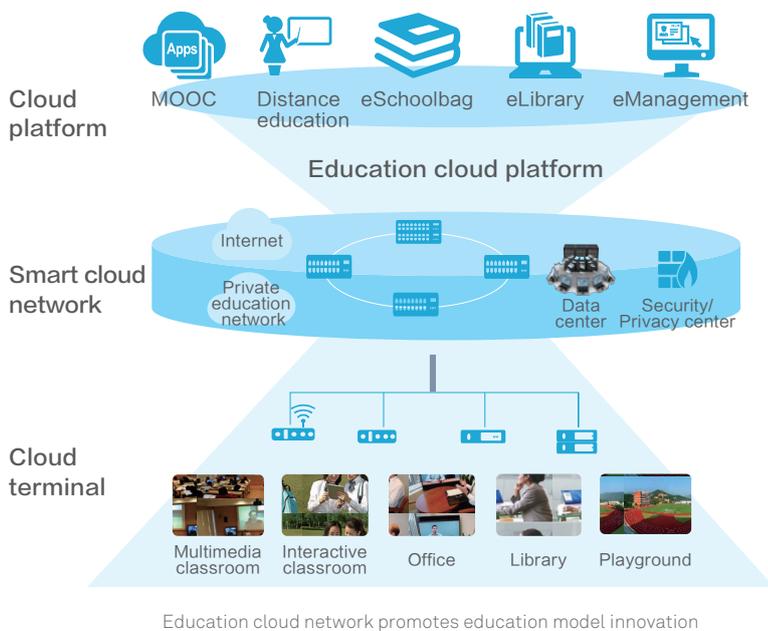
The cloud is not just for business though. With cloud technology, many barriers to education, healthcare, clean energy, and communication will fall away. The cloud will spread the benefits of connectivity. By doing so, it will also help empower marginalized communities, such as the unemployed, women, and rural residents, by giving them access to better services.

Many of these applications rely on the enabling power of Huawei's cloud technology and services. By providing the computing power to convert data into insight, Huawei's cloud innovations will help tackle hard problems like sustainability, education, healthcare, and more.

Reimagining Education with Cloud Technology

Huawei has invested resources in developing education solutions (see the figure below). More and more colleges and universities are integrating Huawei's cloud computing technologies and building next-generation, intelligent campus networks and large-scale data centers for teaching and research applications. Primary and high schools are increasingly utilizing Huawei's resource sharing platforms to enable school-to-school, class-to-class, and person-to-person connectivity.

The use of these technologies will play a crucial role in providing new and innovative support to teachers, students, and the learning process as a whole. With globalization, digital transformation, and increasing demand for a highly skilled workforce, countries are increasingly prioritizing education. Huawei is committed to creating the best tools to increase the efficiency of education systems.



Improved educational equality: education MAN solution

- ⊙ Connects schools and institutions
- ⊙ Transmits different services through different VPN tunnels for security isolation

Leading teaching research: agile campus network solution

- ⊙ Enables learning anytime, anywhere
- ⊙ Delivers future-proof experience
- ⊙ Eliminates information silos using ubiquitous access technology

Unlimited sharing: cloud data center network solution

- ⊙ Supports infinite expansion and sharing of big data
- ⊙ Provides open interfaces for service integration

"Education promotes equality and lifts people out of poverty. It teaches children how to become good citizens. Education is not just for a privileged few; it is for everyone. It is a fundamental human right."

—Ban Ki-moon, 8th Secretary-General of the United Nations



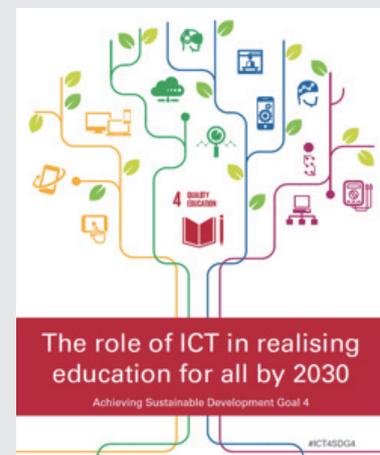
Role of ICT in Driving Education Development

As of December 2017, the global population is estimated to be 7.6 billion with almost a quarter under the age of 18. ICT solutions will be critical to achieving SDG 4 (Ensure inclusive and quality education for all and promote lifelong learning). Together with CSR Asia, a leading Asia-based consultancy, Huawei prepared a whitepaper to explore the potential of ICT in China and the Southeast Asia region. In the whitepaper, we call for a re-imagining of learning experiences with ICT to provide universal access to a quality education.

The whitepaper maps out a number of education opportunities that could benefit from digital solutions, including the provision of specialized learning methods for vulnerable people, improving the quality of education systems, and enabling lifelong learning by creating flexible learning spaces, such as interactive websites, chat rooms, web-based courses, and online libraries.

Link to the whitepaper:

<http://www.huawei.com/~media/CORPORATE/PDF/Sustainability/huawei-csr-asia-white-paper-february-2017>



Smart Cities Drive Sustainability

According to the World Bank, cities generate over 80% of global GDP. They also consume two-thirds of the world's energy and produce over 70% of global CO₂ emissions. In 2014, 54% of the world's population lived in urban environments and the number is expected to reach 66% by 2050, an increase of 2.5 billion people. This continued growth will have significant ramifications for the future and could further exacerbate current issues like traffic, access to clean water, crime rates, and the growth of slums or informal settlements.



Smart city technologies will play a key role in tackling these challenges. Using new ICT like cloud computing, big data, IoT, and Artificial Intelligence (AI), Smart City solutions will help drive unified coordination, cross-sector collaboration, and intelligent analysis and provide better public services. Currently, Huawei's Smart City solutions are serving over 120 cities in more than 40 countries and regions.

Huawei's Smart City Solution for Weifang in China

Huawei's Smart City project for Weifang City in Shandong, China, was recognized as a model for others to follow at the 2017 Smart City Expo World Congress (SCEWC). Our approach was developed according to the city's own "people-oriented, innovation-driven" concept. Together with the Weifang City government we created a Narrowband (NB)-IoT network following a "one network, one platform, N applications" model using IoT, cloud computing, big data, and other ICT solutions. Using the Huawei OceanConnect IoT platform, a city-level IoT platform was created for Weifang, enabling unified access, management and data collection from IoT-enabled sensors. By gathering IoT data in real time from smart devices around the city, the platform enables big data analytics.

Smart lighting, an innovative IoT application enabled by the standardized NB-IoT, is the first of its kind in China. The smart lighting

system monitors the status of street lamps in real time, adjusts brightness automatically, and detects faults, among other functions. This system helped reduce electricity consumption by 80% and maintenance costs by 90%.

Additionally, Huawei and the Weifang City government established the Huawei-Weifang IoT Innovation R&D Center and the Huawei-Weifang Smart City IoT Industry Alliance. These initiatives are designed to enhance and expand industrial applications of NB-IoT and drive continuous improvement of city management and public services.

AI and Smart Cities

Last year, Huawei launched our new Intelligent Operations Center (IOC) – a Smart City "brain" or nerve center that controls our systems. The AI-enabled IOC is an important breakthrough for smart city technology. Instead of simply managing operations according to pre-defined rules and processes, the IOC can interpret data and come up with meaningful actions depending on actual circumstances. The solution also applies virtual reality (VR) and augmented reality (AR).

This means the IOC can retrieve data from various sources, visualize it in context, and come up with an action that suits the environment. For instance it can take static maps and overlay them with live data. A classic example would be an intelligent traffic management system. This offers citizens great value because it eases their commuting experience. Other examples include saving electricity by using motion sensors to turn off street lights when there is no movement.

Huawei's open systems all interoperate with the IOC, which means cities can continue to add value that goes beyond what is possible today.



Huawei discusses how to build open platforms with city leaders from around the world

At SCEWC 2017, Huawei shared its vision for smart city development with more than 400 city administrators from around the world.

"With our innovations and investment in various technologies, we develop an open platform for smart cities, which is compatible with various devices and supports a wide range of applications. We aim to be the rich soil that supports the robust and sustainable development of smart cities. Huawei is one of the few ICT solutions providers in the industry that can offer end-to-end cloud-pipe-device solutions, leading the way to connecting the physical and digital worlds. We will continue to work together with our partners to create top-level designs addressing city administrators' needs and achieving the ultimate goals of a smart city – to enable good governance, promote industry development, and deliver benefits for the people."



World's First Commercial Smart Water Network in Shenzhen

Sending utility staff to homes to read water meters is costly and inefficient. More importantly, these staff are unable to record water losses from pipes. Records in China suggest that municipal water mains have a 37% loss rate due to leaking pipes.

In March 2017, Huawei partnered with Shenzhen Water Group and China Telecom to launch the world's first commercial smart water network, deploying more than 1,200 NB-IoT-enabled smart water meters across the city. Deployment was complicated, requiring city-wide network coverage that could also connect with meters mostly located on underground inlets or in basements. Despite this challenge, the solution saved money and improved data completeness and accuracy. To date, data is retrieved from over 99.5% of the meters at every reading. The meters are also able to check water pressure, and compare throughput across the pipe network, which enables the company to identify leaks and carry out preventive maintenance. Smart meters also enable differentiated rates at peak and non-peak times of day, helping the utility company use its water resources more efficiently.

Mobile Money: Improving Financial Inclusion in Emerging Economies

Globally, two billion people do not have bank accounts and 200 million small businesses in emerging economies lack access to formal savings and credit. Their financial transactions are in cash and they have no safe way to save or invest their money. Instead they rely on informal lenders and personal networks for credit. In other words, they have no access to safe, secure, and affordable financial services.

However, 1.6 billion of these people do have mobile phones. Mobile technology can provide access to savings accounts, credit, and loans, which can expand middle-class populations and stimulate further economic growth. Mobile money is one of the most exciting innovations to

address financial inclusion. According to GSMA, there are more than 690 million registered mobile money accounts around the world which collectively move around a billion dollars a day. To give an indication of the level of "digital disruption" underway, approximately 70% of these accounts are provided by mobile carriers rather than traditional banks.

Large-scale Benefits of Digitally-enabled Financial Inclusion

According to global management consulting firm McKinsey, digital finance in developing economies could:

- ⦿ Provide access to 1.6 billion unbanked people, more than half of whom are women
- ⦿ Boost GDP by US\$3.7 trillion (6%) by 2025
- ⦿ Create 95 million new jobs
- ⦿ Reduce annual leakage in public spending and tax collection by US\$110 billion
- ⦿ Create US\$2.1 trillion in new credit
- ⦿ Create US\$4.2 trillion in new deposits

Source: McKinsey Global Institute

This opportunity is clear to see; however, the business landscape is complex and unique as it straddles both the financial and telecommunication industries, and responds to the needs of individuals that have never used formal financial services before.

Huawei has applied its technology, and worked diligently with its customers and partners to help overcome this challenge. Huawei's Mobile Money solution enables carriers and banks to deliver innovative, reliable mobile banking services without adding too much to their asset base. It utilizes existing communications network capabilities, so these services can be used seamlessly with feature phones or smartphones. Huawei's Mobile Money solution has so far been commercially deployed in 19 countries and regions and serves over 152 million users, accounting for 22% of the world's registered accounts. In fact, approximately 50% of all mobile money transactions now take place on Huawei's platform. Our partners in Africa include Safaricom, Vodafone, Vodacom, and Teasy Mobile in 10 African countries, including big markets like Kenya, Ghana, Nigeria, and Zimbabwe. In 2017, we continued to expand our service and joined forces with Xpress Money, one of the world's most dependable money transfer brands. By growing Xpress Money's mobile money footprint and strengthening Huawei's international reach, our new partnership will help to further reduce the cost of remittance services and drive financial inclusion for millions of more mobile money users.

At the International Forum for China Financial Inclusion (IFCFI) in September 2017, Huawei shared its experience in mobile payment and financial inclusion platform construction in Africa as a partner of the Bill & Melinda Gates Foundation's Level One Project.

The director of Huawei Mobile Money said, "It's Huawei's goal to fully integrate and develop its core technologies and capacities in the financial sector, provide large-scale and cost-effective financial services for people in the poor and low-income bracket, make financial services more accessible and convenient, and promote financial inclusion."



Huawei shares its experience to encourage open platforms and collaboration among stakeholders

Offering Premium Applications to Shape a New Experience in an Intelligent, Fully Connected World

Huawei is committed to offering premium applications and solutions, providing global users with a convenient, digital experience. We offer a full portfolio of products and solutions for different types of user groups. We provide unique solutions based on our deep insight into the habits of different types of consumers. We provide easy-to-use office applications for business people; solutions for students that can reduce the negative impacts on their eyesight due to long-term use of bright-screen products; solutions for those with disabilities enabling them to easily access information; QR code plus one-click ordering solutions for consumers; and Huawei Pay, a mobile payment solution that is secure and protects user privacy. We put our consumers first and bring them innovative communications technology and a brand new experience in an intelligent, fully connected world.

Improving Digital Skills

Connectivity alone cannot bridge the digital divide – limited knowledge and training in digital technologies and a lack of digital skills exacerbates the divide. Huawei recognizes that efforts are needed to educate more people about the benefits of digital technologies and how to access and use such knowledge.

Through better training, people can make better use of the information and digital tools available to them. An inclusive digital economy can lead to more trade, better capital use, improved efficiency, and accelerated innovation. This is why Huawei continues to focus on improving ICT education. With the right skills, many more people will be able to invent, create, communicate, and share knowledge with others in ways that help stimulate local job markets and enrich the world even further.

Huawei Authorized Information and Network Academy Continues to Grow

In 2013, Huawei launched a joint project with universities called the Huawei Authorized Information and Network Academy (HAINA), or the Huawei ICT Academy. Through this project, cooperating universities deliver courses on Huawei ICT technologies, encourage students to get Huawei certifications, cultivate professionals with practical skills for the ICT industry, and build a healthy ICT talent ecosystem.

Since we started in 2013, over 55,000 students from 58 countries and 11 regions have participated in this program, and more than 12,000 have passed Huawei's certifications. In 2017, 5,475 students obtained HAINA certifications and continued on to attend training to expand their career. In 2017, the project included Edinburgh Napier University, Northumbria University, and the University of Surrey in the UK, the University of São Paulo in Brazil, the University of Johannesburg in South Africa, Shanghai Jiaotong University, and Hunan University in China, as well as many other new universities and colleges. The project provides courses over six main areas, including routing and switching, security, WLAN, cloud, storage, and big data.

ICT Skill Competition is part of the HAINA project. In 2017, the competition attracted 12,500 students from 26 provinces in China and five regions overseas, including Western Europe, Southern Pacific, Southern Europe, the Middle East, and South Africa. The ICT Skill Competition Middle East Final attracted 10,285 participants, with 30 of them from 10 Middle Eastern countries standing out to vie for the top 3 places. As a mature talent cultivation program, the competition plays a critical role in helping build an ICT talent ecosystem.



Huawei's Global ICT Skill Competition Final 2017 in Shenzhen



“ The future of education is set to change dramatically. ICT provides us with an opportunity to increase access to education amongst the poor and vulnerable, breaking the cycle of poverty. It also provides us with tools to increase the quality of education for all and enhance life-long learning. Huawei has been a leader in thinking about how the whole industry can play a part in these new and exciting opportunities.

”

Richard Welford
CSR Asia Chairman

4.2 Supporting Stable Network Operations

Connectivity is fundamental to modern life. When networks are down, there are real economic and social consequences. Supporting stable network operations is Huawei's most important social responsibility. Even under extreme conditions like earthquakes and typhoons, our employees will do their utmost to support network stability.



Huawei has established a comprehensive customer network support system across four dimensions: organizational structure, personnel, processes, and IT tools. In doing so, we ensure that everyone is entitled to communication and information access and sharing anytime anywhere. We have also established a mature business continuity management (BCM) system that provides a contingency plan for emergencies such as earthquakes or outbreaks of war. This system allows us to quickly restore customer networks and resume stable operations following critical emergencies, thus helping safeguard lives and property.

We have established three global and nine regional technical assistance centers. Nearly 4,000 Huawei technical support engineers provide 24/7 services worldwide. In 2017, we ensured smooth communication for more than one-third of the world's population, and supported the stable operations of over 1,500 networks in more than 170 countries and regions. We guaranteed network availability during nearly 200 major events, natural disasters, and special occasions such as the magnitude 8.2 earthquake in Mexico, the magnitude 7.0 earthquake in Jiuzhaigou, Sichuan, China, and the annual Hajj in Saudi Arabia.

Supporting Network Availability During the Mexico Earthquake

On September 7 and 19, 2017, Mexico City was struck by two earthquakes, recorded at magnitudes 8.2 and 7.1 respectively. The disaster disrupted 1,081 communications sites of our customers. Duty called. Soon after the first earthquake, our Global Technical Assistance Center initiated its Business Continuity Management procedures for emergencies and formed an emergency support team. To restore the damaged networks, within just 15 minutes of the disaster occurring, our team obtained customer consent to remotely access their networks and began repair work. Our Mexican subsidiary also assigned experts to work on site.

Our close collaboration with local carrier customers supported strong lines of communications in disaster-stricken areas. We assigned over 170 engineers to work on site for over 2,200 hours, and supplied 12 diesel generators and 24 vehicles for relief efforts. We also helped a customer rapidly migrate users from a peer's congested network to a new one. We temporarily shut down 4G cells in order to extend the battery life of sites. We also implemented a contingency plan to protect networks from the impact of traffic surges.

Supporting smooth communications, and enabling rapid disaster recovery and stability of networks to protect lives and property: These are our most important social responsibilities. Our network support team won customer recognition for our professional processes and organizations, visualized real-time monitoring, and rapid emergency response measures.



Huawei engineers are remotely recovering a network upon customer authorization



Huawei sends diesel generators to a site to ensure smooth communications

Ensuring Smooth Communications in Areas Hit by Volcanic Eruptions and Floods in Indonesia

In early October 2017, smoke could be seen wafting up intermittently from Mount Agung. That prompted Huawei's O&M team in Indonesia to immediately set up a key event assurance team. This team took a wide range of actions to mitigate risks including identifying vulnerable sites and checking stock levels for spare parts. We added battery capacity, reduced exposure to dust at VIP sites, and performed a drill for the eventual volcanic eruption. On November 21, Mount Agung spewed ash and fumes, sending glowing red columns of ash 4,000 meters into the sky. The region's international airport closed and some 100,000 residents from 22 villages had to be evacuated. Thanks to our thorough preparation, the impact on network equipment was limited. On the day of the eruption, a central supporting base station went down. As a result, the five base stations it served were also affected. A Huawei employee drove through the ash cloud to the site and fixed the station, ensuring smooth communications.

On November 28, floods hit Pactitan and Yogyakarta, resulting in more than 200 sites in East Java going offline. We immediately adjusted the transmission plans for the sites that were down and restored more than 20 sites within three hours. We also prepared materials for the sites in advance together with customers so that they could be ready once the remaining flooding subsided. For high-priority VIP sites, we did everything we could to get out to the sites and power them with over 20 mobile diesel generators. After the flood waters had receded some ten hours later, we had a bulldozer clear roads to affected areas so materials could be delivered overnight. After a grueling 30-plus hours, we had all sites back up and running.

Ensuring Smooth Communications During the Hajj in Saudi Arabia

From August 29 to September 5, 2017, 3.5 million pilgrims from around the world headed to Mecca for the Hajj, marking a 30% increase over the previous year's participation. The pilgrims gathered in an area of 10 square kilometers, causing a spike in international roaming users and a surge in voice traffic, placing great strain on communications networks.

To ensure smooth communications, Huawei established a project team, covering five major telecom carriers in Saudi Arabia. The team consisted of 740 experts providing support either onsite or remotely. To increase network reliability, they took a series of measures in advance, including checking the health of networks in key regions, eliminating risks, upgrading software, expanding network capacity, developing contingency plans for possible emergencies, and performing drills.

Starting on August 25, the project team worked around the clock, monitoring network operations in real time, promptly reporting any network abnormalities, and regularly sending progress reports to customers. Due to abnormal power supply during this period, large numbers of communications sites went down three separate times, with over 100 sites dropping each time. Each time, Huawei's project team recovered networks within 30 minutes, preventing any serious impact.

During the eight-day Hajj, Huawei delivered uninterrupted communications for 33 million users, who generated 7.8 million hours of voice traffic and 70,000 terabytes of data traffic.



Huawei's network support team for Hajj

4.3 Supporting Local Communities

Every company, large or small, can make long-term contributions to local communities by creating jobs, reducing poverty, and fostering an entrepreneurial environment. Companies can enrich local culture, support local healthcare, generate income, and build infrastructure.



We actively fulfill our social responsibilities and support local communities while pursuing our own business growth. Local recruitment is one of our priorities. We create jobs in the local communities where we operate. Beyond that, we integrate leading local companies into our global value chain and extend their reach worldwide. Local creativity and innovation can generate value globally, and local ICT industries can become more competitive. Together with governments, customers, and non-profit organizations, we use our ICT expertise and management experience to roll out many different projects aimed at giving back to local communities. Through these projects, we support ICT innovation; facilitate green initiatives and traditional cultural events; enable talent development and education; and support underprivileged groups. Our goal is to be a responsible and respected corporate citizen in every community where we operate.

Seeds for the Future Program: Training ICT Professionals

Seeds for the Future is our flagship global CSR program. Initiated in 2008, the program seeks to develop local ICT talent, enhance knowledge transfer, promote a greater understanding of and interest in the ICT industry, and encourage greater participation in digital communities at regional and national levels.

By the end of 2017, the Seeds for the Future program has had participants from 108 countries and regions. To date, the program has benefited over 30,000 students from more than 350 universities worldwide. Through this program, a total of 3,600 top college students have been able to visit and study at Huawei's headquarters in China.

Seeds for the Future in Turkey

Top students from seven leading Turkish universities were awarded opportunities to study in China. Senior Turkish government officials and the Chinese ambassador to Turkey attended the awards ceremony.

Turkish Seeds for the Future participants ▶



Seeds for the Future in Romania

Seeds for the Future has run in Romania for four straight years, helping cultivating ICT talent for local communities. In 2017, the program brought 40 students to study in China. The Romanian Minister of National Education and Minister of Communications and Information Society publicly praised Huawei for its outstanding contributions to the country's education and economy.

The Deputy Minister of Communications and Information Society of Romania, the CEO of Huawei Romania, and Romanian Seeds for the Future participants ▶



Seeds for the Future in the United Arab Emirates (UAE)

In March 2017, Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi; Hamdan bin Mohammed Al Maktoum, Crown Prince of Dubai; and the UAE Minister of State for Higher Education met with students participating in the Seeds for the Future program, listened to their reports on the project, and commended Huawei for its outstanding contributions to knowledge transfer and talent cultivation.

Hamdan bin Mohammed Al Maktoum, Crown Prince of Dubai, ▶ meets with Seeds for the Future participants



Global Social Contribution Activities

Companies receive the support and respect of local communities when they consider the local impacts of their operations. Companies should also play their part in supporting local traditions, caring for underprivileged groups, and developing local education. As a responsible corporate citizen, Huawei undertakes a range of social contribution projects, and works hand-in-hand with community organizations to deliver health services, provide support in times of natural disasters, and organize other activities for the benefit of the communities in which we operate.

Giving Away 100 Pianos to Schools in Low-income Areas of New Zealand

In April 2016, Huawei CEO Ren Zhengfei pledged to give away 100 pianos to schools in low-income areas of New Zealand during his meeting with the then New Zealand Prime Minister Bill English. As of the end of 2017, 70 schools in low- and middle-income areas have received this surprise from tens of thousands of miles away.

Although New Zealand is considered to be a rich country, many schools in low- and middle-income areas are in serious shortage of musical instruments, and some even do not have a piano. Many children who love music are eager to have one. Huawei and the Play It Strange Trust organized a competition for schools in low- and middle-income areas. Schools competed for the pianos by submitting student-created songs, dances, short stories, poems, plays, or murals. Georaeah Edmonds, a 9-year-old student at Rongomai School, loves music, but she had never learned how to play piano. As soon as her school received one of the prize pianos, she immediately started to play it with joy. Through this program teachers of winning schools were able to give at-risk students opportunities to perform, helping them find self-confidence in music.

To cultivate talent, Huawei pays equal attention to knowledge transfer in particular domains and support for basic education. We hope to help broaden students' horizons, and develop their character and way of thinking. As an indispensable part of basic education, music inspires imagination. With these pianos, we want to fully unleash students' imagination and help them build a bridge leading to an intelligent world.



Students gather around a piano



Nine-year-old student Georaeah Edmonds-Cooper enjoys a piano donated by Huawei

Donating Necessities to Refugees in Northern Nigeria

Huawei has been operating in Nigeria for over 18 years and has been active in fulfilling its corporate social responsibilities. After hearing news reports about the refugees in northern Nigeria, Huawei and the Federal Ministry of Interior of Nigeria donated rice, cooking oil, and sugar to the refugees, offering them humanitarian assistance and disaster relief. At an event held on February 10, 2017, the Federal Minister of Interior accepted the donation from Huawei, and said that providing assistance to refugees was not just the responsibility of government. He encouraged more foreign companies to learn from Huawei's example and to provide assistance to refugees when necessary. After the ceremony, the supplies were delivered directly to the refugee camps in northern Nigeria by the Ministry of Interior.



Providing assistance to Nigerian refugees

Providing ICT Skills Training for Young People in Nigeria



Huawei's training center in Nigeria



Young people in Nigeria learn ICT knowledge through the ICT for Change program

Nigeria has a population of 180 million, the largest in Africa. Its unemployment rate remains high at 14.2%, and many of the unemployed are youth. This creates a breeding ground for social problems. Since it took power in 2015, the incumbent government has been working to create jobs for young people and has made reducing the unemployment rate as one of its major goals. Huawei has worked with the federal government to provide an ICT for Change training program for 2,000 people. We offered unemployed youth practical courses in areas such as website design, computer repair, and the Huawei Certified Datacom Associate (HCDA) program. The purpose of this program was to equip young locals with the necessary skills to start a career and promote local employment. The program completed at the end of 2017, receiving wide acclaim.

Donating Food to Plague-stricken Areas in Madagascar

Madagascar is one of the poorest countries in the world. Due to its under-developed economy and limited access to proper hygiene and healthcare, there are more than 200 cases of plague every year. In 2017, a plague outbreak hit densely populated areas, such as the capital Antananarivo. Most of the infected were diagnosed with pneumonic plague which carries a high risk of death. This was different from previous years when plague usually broke out in remote regions. Due to the serious conditions, Madagascar declared a state of emergency and the UN and the World Health Organization provided large-scale assistance.



Donating food to plague-stricken areas in Madagascar

Huawei donated two tons of rice, one ton of white sugar, 1,350 barrels of cooking oil, and 1,350 boxes of cheese to the disaster-hit areas through the First Lady's Office and the President's Office. We wanted to help the government fight against the epidemic, take better care of the patients, and allow local residents to eat clean and healthy food so they could recover from the disease as soon as possible.

Restoring Communications for Areas Hit by Mudslides and Donating Supplies to Residents in Peru

In March 2017, 13 of Peru's 24 regions were hit by serious floods and mudslides. Nearly 100,000 people were displaced by the disaster, with almost 100 dead, and 627,000 people affected. Huawei provided networks for 80% of local residents, so ensuring the stability of communications networks was Huawei's primary social responsibility.

Huawei Peru assigned large numbers of engineers and invested many resources in working with local carriers to restore equipment. We restored communications networks as quickly as possible and ensured smooth communications and disaster relief. Huawei also donated supplies weighing 20 tons with a value of 100,000 sol to residents in the disaster-stricken areas as well as eLTE emergency communications equipment worth US\$600,000, helping Peru with its disaster relief efforts.



Donating supplies to disaster-stricken areas in Peru

Organizing the First Technological Innovation Competition for the Elderly in Partnership with the Chilean President's Foundation

Chile has more than three million people aged over 60 and the social needs of this group are increasing as technology advances. However, this population is often ignored by technological progress. To address this problem, Huawei and the Chilean President's Foundation jointly organized a technological innovation competition for the elderly, the first of its kind in the country. The competition called on entrepreneurs, SMEs, and individual innovators to develop IT solutions that can improve quality of life for the elderly. A total of 89 innovative proposals were received. Through this event, the public paid more attention to the elderly and had a better understanding of Huawei's technological innovations. The event was held in high regard by Chilean President Michelle Bachelet.



Minister of Transport and Telecommunications of Chile, chair of the President's Foundation, and Huawei Chile CEO present awards to the winners

In an interview, the president said, "It's the responsibility of all Chilean people to improve the quality of life of our elderly since they have contributed greatly to the development of our country. We should give back by improving our innovation capacity and developing technology. So please join Huawei and the President's Foundation and apply innovative technologies to drive social development. Let's use our wisdom, goals, and imagination to build Chile into a fairer and more harmonious society."

Huawei France and Web@cadémie Join Up to Help Secondary School Dropouts Acquire Professional Skills

In 2016, Huawei announced a three-year partnership agreement with French nonprofit education group, Web@cadémie, to provide ICT training to students who didn't graduate from secondary school. The program will help equip them with necessary skills to work in IT companies. The program was supported by former French President Mr. François Hollande, Minister of Education Ms. Najat Vallaud Belkacem, and Minister of Labour Ms. Myriam El Komri. In addition to scholarships, Huawei also arranged for its R&D experts to share knowledge with program participants.

By 2019, Huawei and Web@cadémie will carry out educational programs in 12 cities across France, benefiting more than



Outstanding students from Web@cadémie program

1,000 students. During this time, Huawei will arrange for engineers and researchers to provide students with training and help them garner an understanding of the latest technological trends. Huawei specifically will grant 10 scholarships a year to talented students so they can complete their studies at Web@cadémie, and every year, 10 students from the Web@cadémie program will be invited to participate in Huawei's Seeds for the Future program. These students will travel to Beijing and Shenzhen in China to undergo an immersive training program, where they will learn about cutting-edge technology and the latest ICT industry trends.

Appendix I: Sustainability Goals and Progress

No.	Goals and Initiatives	Progress	Status
1	Release the world's first ICT Sustainable Development Goals Benchmark report	The report was released in June 2017	●
2	Support network continuity during major events and natural disasters worldwide	100%	●
3	Develop practices for end-to-end security and privacy in solutions and products	Completed	●
4	Reduce carbon emissions per million RMB of revenue by 18% compared to base year	9.3%	○
5	Conserve 43 million kWh of energy every year	33.57 million kWh of energy was conserved in 2017	○
6	Reduce landfill to 1.85% of products	1.80%	●
7	Reduce the use of wood in product packaging by 45,000 m ³	Shipped 746,000 products using green packaging and cut use of wood by 138,000 m ³	●
8	Reevaluate suppliers when their Green Partner certification requires updating	100%	●
9	Expand the Global Green Recycling Program to 1,000 recycling stations in 50 countries and regions	Established 1,025 recycling stations in 48 countries and regions	◎
10	10 of Huawei's device products (e.g., smartphones, tablets, PCs, and wearables) to obtain the highest level green certification	16 of Huawei's products obtained the industry's highest-level green certification: 5 Huawei smart phones received the Gold UL110 certification; 8 Huawei smartphones and 3 tablets received an A, the highest level of China Quality Certification	●
11	Develop basic compliance policies for 95 overseas subsidiaries	Compliance policies have been completed for 96 subsidiaries	●
12	Complete sustainability audits on all new suppliers and all existing medium- and high-priority suppliers	100%	●
13	Launch Seeds for the Future in 100 countries and regions	The program has been launched in 108 countries and regions	●
14	Sponsor university competitions in China	287 universities participated, with more than 2,000 projects in total	●
15	Improve communication with customers, governments, the media, and other key stakeholders	Held 10 engagement activities with stakeholders, such as the Huawei Global Supplier Sustainability Conference, and the Sustainability & Innovation Conference held by Huawei and CSR Europe	●
16	Ensure zero serious safety incidents in manufacturing	No serious safety incidents in manufacturing	●
17	Establish CSD sub-committees to make for a stronger CSD organization	Established 14 CSD sub-committees at the department level	●
18	Optimize sustainability standards and incorporate them into business processes	Completed sustainability standards, now gradually incorporating them into business processes	◎
19	Complete the 2017 sustainability maturity assessment	The assessment has been completed	●

● Achieved ◎ Partially achieved ○ Not achieved

Appendix II: GRI Standards

General Disclosures

Organizational profile			
Disclosure	Indicators	SDG	Page
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102-4	Location of operations		Inside the front cover
102-5	Ownership and legal form		Inside the front cover
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102-8	Information on employees and other workers		38-42
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102-11	Precautionary Principle or approach		12
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102-13	Membership of associations		10
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102-15	Key impacts, risks, and opportunities		12
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102-20	Executive-level responsibility for economic, environmental, and social topics		12
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102-22	Composition of the highest governance body and its committees	SDG16	12
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102-24	Nominating and selecting the highest governance body		12
102-25	Conflicts of interest	SDG5,16	/
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102-28	Evaluating the highest governance body's performance		13
102-29	Identifying and managing economic, environmental, and social impacts	SDG16	12
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102-40	List of stakeholder groups		16
102-41	Collective bargaining agreements		16
102-42	Identifying and selecting stakeholders		16
102-43	Approach to stakeholder engagement		16
102-44	Key topics and concerns raised		18
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Management Approach			
103-1	Explanation of the material topic and its Boundary		18
103-2	The management approach and its components		12-13
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Specific Disclosures

Economic Performance			
Disclosure	Indicators	SDG	Page
201-1	Direct economic value generated and distributed	SDG2,5,7,8,9	48
201-2	Financial implications and other risks and opportunities due to climate change	SDG13	46
201-3	Defined benefit plan obligations and other retirement plans		/
201-4	Financial assistance received from government		/
Market Presence			
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	SDG1,5,8	40
202-2	Proportion of senior management hired from the local community	SDG8	38
Indirect Economic Impacts			
203-1	Infrastructure investments and services supported	SDG11,2,5,7,9	/
203-2	Significant indirect economic impacts	SDG1,10,17,2,3,8	69-72
Procurement Practices			
204-1	Proportion of spending on local suppliers	SDG12	/
Anti-corruption			
205-1	Operations assessed for risks related to corruption	SDG16	14
205-2	Communication and training about anti-corruption policies and procedures	SDG16	14
205-3	Confirmed incidents of corruption and actions taken	SDG16	14
Anti-competitive Behavior			
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	SDG16	/
Materials			
301-1	Materials used by weight or volume	SDG12,8	/
301-2	Recycled input materials used	SDG12,8	28
301-3	Reclaimed products and their packaging materials	SDG12,8	28
Energy			
302-1	Energy consumption within the organization	SDG12,13,7,8	46
302-2	Energy consumption outside of the organization	SDG12,13,7,8	46
302-3	Energy intensity	SDG12,13,7,8	46
302-4	Reduction of energy consumption	SDG12,13,7,8	46-49
302-5	Reductions in energy requirements of products and services	SDG12,13,7,8	22-23
Water			
303-1	Water withdrawal by source	SDG6	46
303-2	Water sources significantly affected by withdrawal of water	SDG6	/
303-3	Water recycled and reused	SDG6	/

Biodiversity			
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	SDG14,15,6	/
304-2	Significant impacts of activities, products, and services on biodiversity		/
304-3	Habitats protected or restored		/
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations		/
Emissions			
305-1	Direct (Scope 1) GHG emissions	SDG12,13,14,15	48
305-2	Energy indirect (Scope 2) GHG emissions	SDG12,13,14,15	48
305-3	Other indirect (Scope 3) GHG emissions	SDG12,13,14,15	53
305-4	GHG emissions intensity	SDG13,14,15	48
305-5	Reduction of GHG emissions	SDG13,14,15	46
305-6	Emissions of ozone-depleting substances (ODS)	SDG12,3	/
305-7	Nitrogen oxides(NOX), sulfur oxides(SOX), and other significant air emissions	SDG12,14,15,3	/
Effluents and Waste			
306-1	Water discharge by quality and destination	SDG12,14,3,6	/
306-2	Waste by type and disposal method	SDG12,3,6	28
306-3	Significant spills	SDG12,14,15,3,6	No significant spills
306-4	Transport of hazardous waste	SDG12,3	/
306-5	Water bodies affected by water discharges and/or runoff	SDG14,15,6	/
Environmental Compliance			
307-1	Non-compliance with environmental laws and regulations	SDG16	/
Supplier Environmental Assessment			
308-1	New suppliers that were screened using environmental criteria		50
308-2	Negative environmental impacts in the supply chain and actions taken		50
Employment			
401-1	New employee hires and employee turnover	SDG5,8	38
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees		40
401-3	Parental leave	SDG5,8	40
Labor/Management Relations			
402-1	Minimum notice periods regarding operational changes		/
Occupational Health and Safety			
403-1	Workers representation in formal joint management–worker health and safety committees	SDG8	43-44
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	SDG3,8	43-44

■ Appendix II: GRI Standards

403-3	Workers with high incidence or high risk of diseases related to their occupation	SDG3,8	43-45
403-4	Health and safety topics covered in formal agreements with trade unions	SDG8	/
Training and Education			
404-1	Average hours of training per year per employee	SDG4,5,8	39
404-2	Programs for upgrading employee skills and transition assistance programs	SDG8	39
404-3	Percentage of employees receiving regular performance and career development reviews	SDG5,8	40
Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	SDG5,8	38
405-2	Ratio of basic salary and remuneration of women to men	SDG10,5,8	40
Non-discrimination			
406-1	Incidents of discrimination and corrective actions taken 6	SDG16,5,8	42
Freedom of Association and Collective Bargaining			
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	SDG8	42.50
Child Labor			
408-1	Operations and suppliers at significant risk for incidents of child labor	SDG16,8	42.50
Forced or Compulsory Labor			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	SDG8	42.50
Security Practices			
410-1	Security personnel trained in human rights policies or procedures	SDG16	/
Rights of Indigenous Peoples			
411-1	Incidents of violations involving rights of indigenous peoples	SDG2	/
Human Rights Assessment			
412-1	Operations that have been subject to human rights reviews or impact assessments		42
412-2	Employee training on human rights policies or procedures		39
413-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening		/
Local Communities			
413-1	Operations with local community engagement, impact assessments, and development programs		69-72
413-2	Operations with significant actual and potential negative impacts on local communities	SDG1,2	69-72
Supplier Social Assessment			
414-1	New suppliers that were screened using social criteria		50
414-2	Negative social impacts in the supply chain and actions taken		50-53
Public Policy			
415-1	Political contributions	SDG1,2	/

Customer Health and Safety			
416-1	Assessment of the health and safety impacts of product and service categories		/
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	SDG16	/
Marketing and Labeling			
417-1	Requirements for product and service information and labeling	SDG12	/
417-2	Incidents of non-compliance concerning product and service information and labeling	SDG16	No incidents of non-compliance
417-3	Incidents of non-compliance concerning marketing communications		No incidents of non-compliance
Customer Privacy			
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	SDG16	None
Socioeconomic Compliance			
419-1	Non-compliance with laws and regulations in the social and economic area		None

■ Appendix III: Terms and Abbreviations

Abbreviations	Full Name
3G	The Third Generation Mobile Communication Technology
3GPP	The 3rd Generation Partnership Project
4G	The Fourth Generation Mobile Communication Technology
5G	The Fifth Generation Mobile Communication Technology
APP	Application
BCG	Business Conduct Guideline
CEO	Chief Executive Officer
CFSI	Conflict-Free Sourcing Initiative
CSR	Corporate Social Responsibility
CSD	Corporate Sustainable Development
EHS	Environment, Health and Safety
EICC	Electronic Industry Citizenship Coalition
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GeSI	Global e-Sustainability Initiative
GRI	Global Reporting Initiative
GSMA	Global System for Mobile Communications Association
ICT	Information and Communications Technology
IPC	Association Connecting Electronics Industries
ISO	International Standardization Organizations
ITU	International Telecommunication Union
JAC	Joint Audit Committee
LCA	Life Cycle Assessment
LTE	Long Term Evolution
NB-IoT	Narrow Band Internet of Things
NGO	Non-government organization
PUE	Power Usage Effectiveness
SDN	Software-Defined Networking
SDG	Sustainable Development Goals
TUP	Time-based Unit Plan
UNGC	United Nations Global Compact
UPS	Interruptible Power Supply
WLAN	Wireless Local Area Networks
WTTx	Wireless To The x



INDEPENDENT ASSURANCE STATEMENT

Introduction and objectives of work

BUREAU VERITAS has been engaged by Huawei Investment & Holding Co., Ltd. (hereafter referred to as "Huawei") to conduct an independent assurance to Huawei 2017 Sustainability Report (hereafter referred to as "the Report"). This Assurance Statement applies to the related information included within the scope of work described below.

This information and its presentation in the report are the sole responsibility of the management of Huawei. Bureau Veritas was not involved in the drafting of the Report. Our sole responsibility was to provide independent assurance on its content.

Scope of work

- ⊙ Data and information included in the report for the report period from 2017.1.1 to 2017.12.31;
- ⊙ Appropriateness and robustness of underlying reporting systems and processes, used to collect, analyse and review the information reported;
- ⊙ The assessment team visited Huawei head-quarters (located in Longgang District, Shenzhen City, China) and relative functional departments, BV did not visit its other stakeholders.

Excluded from the scope of our work is any assurance of information relating to:

- ⊙ Activities outside the defined assurance period;
- ⊙ Positional statements (statements of beliefs, goals, future intention and future commitment);
- ⊙ Much of the operating financial data in this Report is taken from Huawei Annual Reporting and accounts, which is separately audited by an external auditor and therefore excluded from the scope of the Bureau Veritas assurance.

Methodology

As part of its independent assurance, Bureau Veritas undertook the following activities:

- ⊙ Interviews with relevant personnel of Huawei;
- ⊙ Review of documentary evidence produced by Huawei;
- ⊙ Audit of sampled CSR performance data;
- ⊙ Assessment of data and information systems for collection, aggregation, analysis and review.

Our work was conducted against Bureau Veritas' standard procedures and guidelines for external Assurance of Sustainability Reports, based on current best practice in independent assurance. For this assignment, we have used the verification rules and instructions IASE3000, AA1000 and GRI standards. The work was planned and carried out to provide reasonable, rather than absolute assurance and we believe it provides a reasonable basis for our conclusions.

Our findings

On the basis of our methodology and the activities described above, it is our opinion that:

The revised information included in the report are objective, reliable and free from material mistake or misstatement.

Objectivity

The information and data presented in the report is objective and reliable. Huawei uses information system to collect and aggregation sustainability data. Through on-site verification, the evidence provided by Huawei is reliable and the content of the report is objective.

Completeness

The report covers Huawei and all its entities that have control over finances and operations. The report focuses on "sustainable products and services," "sustainable operations," and "Bridging the digital divide." It also discloses the company's sustainable development management, community development issues etc. which stakeholders concerned. The report is accordance with GRI standards "Core" option.

Materiality

According to GRI standards requirements, Huawei identifies relative key sustainability issues in a rational manner, and discloses the company's strategy, management actions and performance data. The content of the report is materiality.

Responsiveness

Focused on issues stakeholders concerned, the report discloses and responds particularly to key sustainability issues such as green products and services, product safety, stable network operations, human resource management, and sustainable supplier management and so on. So the report is responsive.

Statement of independence, impartiality and competence

Bureau Veritas is an independent professional services company that specialises in Quality, Health, Safety, Society responsibility and Environmental management with 190 years history in providing independent assurance services. No member of the assurance team has a business relationship with Huawei. We have conducted this verification independently, and there has been no conflict of interest.

Fanny Zou

Director For Greater China Region

Bureau Veritas Certification

2018-05-16

May Huang

Assurance Team Leader

Bureau Veritas Certification

2018-05-16

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