Huawei Investment & Holding Co., Ltd.

2018 Sustainability Report

Bring digital to every person, home and organization
for a fully connected, intelligent world

HUAWEI

A Message from the Chairman

Building a Better, Greener, and Fully Connected World

In the 1960s, American marine biologist Rachel Carson's book Silent Spring came as a cry in the wilderness, awakening a global environmental consciousness. In the 50 years since, environmental protection and sustainable development have become increasingly important principles guiding socioeconomic development.

Today, technological innovation has become an important driver of the global economy, and sustainable economic and social development relies on sustainable technological innovation. At Huawei, we prioritize environmental protection in all of our product planning, design, research and development, manufacturing, delivery, and operations and maintenance activities, providing our customers with leading products and solutions that are energy-efficient and environmentally friendly.

We believe that all technological innovations or inventions share the same mission: To make the world a better place. We also believe that the fully connected, intelligent world will also be a green one. We aim to minimize the environmental impact of ICT products through technological innovation and green designs. With our green products, we want to do our part to protect our blue skies, beautiful forests, and vast oceans.

According to Huawei's Global Industry Vision (GIV), by 2025 carbon emissions per ICT connection will be reduced by 80% on average. ICT is becoming an important enabling technology for a greener world. ICT-enabled power savings and carbon emission reductions will far exceed the industry's own, helping greatly conserve energy and reduce emissions worldwide.

5G is already here. Huawei takes environment protection into account in all its technologies, products, and solutions, and will continue to do more in the future. Huawei's 5G Power solution supports solar power supplies and uses Huawei-developed high-efficiency solar modules. This helps maximize the use of sunlight, conserve energy, and protect the environment. We have also used high-integration chips, high-efficiency power amplifiers, and 5G-enabled power shutdown technology, cutting 5G equipment power consumption by 15%. In addition, Huawei has worked with carriers to develop 5G energy efficiency assessment standards, improve methodologies for defining and assessing 5G energy efficiency indicators, and drive continuous improvement of 5G energy efficiency.

In the green, fully connected world, we will step up investment to provide ubiquitous connectivity, pervasive intelligence, and truly context-sensitive, intelligent experiences. We will focus on using technology for social good. We operate in more than 170 countries and regions, serving more than 3 billion people worldwide, and we are working to provide more coverage and easier connectivity to bridge the global digital divide. We want to make the benefits of digital technology available to every

person, home, and organization. Therefore, we have launched a global digital inclusion initiative, TECH4ALL, to expand the scope of digital inclusion beyond connectivity to include applications and skills. We can't just think people, but also businesses. This initiative will help more people and organizations benefit from digital technology.

Trust is crucial to the digital world. Huawei is committed to building digital products and services that are secure and trustworthy. To this end, we continually enhance cyber security and user privacy protection from end to end, and ensure every ICT product and solution we develop is secure, trustworthy, and high-quality. At the end of 2018, we announced a transformation program in which we will invest two billion US dollars to improve our software engineering capabilities over the next five years. This will allow us to better address the challenges that our industry faces as a whole and become an innovative leader in cyber security. Thanks to our end-to-end security assurance system, our products and solutions have maintained a solid track record in cyber security.

Open collaboration is key to achieving sustainable development goals. We believe that collaboration leads to shared success, and that is why we proactively engage with all stakeholders including customers, governments, and industry organizations. Our aim is to jointly build a sustainable ecosystem that is more inclusive, flexible, and responsive.

Digital transformation is in full swing, and we find ourselves at the cusp of an intelligent world. We will keep investing and innovating in technology for strategic breakthroughs, and we will integrate sustainability requirements into our corporate strategy, our approach to transformation management, and our business processes. We believe that by working with other industry players, we can help achieve the UN's sustainable development goals using ICT technologies. Together, we will bring digital to every person, home and organization for a fully connected, intelligent world.

Liang Hua
Chairman of the Board

A Message from the Chairman of the CSD Committee

Driving Sustainable Development with ICT

We are entering a digital, intelligent, and fully connected era where everything will be sensing, connected, and intelligent. A new generation of information and communication technologies like the Internet of Things, big data, and artificial intelligence are now the new engines of socioeconomic growth. They are also increasingly a part of our day-to-day lives. Huawei, as a leading global provider of ICT infrastructure and smart devices, believes that ICT is creating a better future for humanity, and will play a key role in achieving the UN's Sustainable Development Goals (SDGs).

In 2018, Huawei stepped up its efforts to meet its social responsibilities and realize sustainable growth with initiatives around four major strategies: digital inclusion, security and trustworthiness, environmental protection, and healthy and harmonious ecosystem.

Digital inclusion

Technology should not be for the few, but for the many. Digital inclusion is Huawei's strategy for bridging the digital divide, extended for the digital era. It addresses how to make ICT technology and applications more accessible for every person, home, and organization, and how to use digital technology for social and economic inclusion. Huawei has created a digital inclusion initiative called TECH4ALL, which involves efforts to spread connectivity, applications, and digital skills. It is helping to extend digital inclusion, and ultimately aims to bring the benefits of digital technologies to every person, home, and organization.

We are committed to developing innovative technologies to deliver ubiquitous connectivity. Our mobile network base stations are lighter than ever. That has made it easier for our customers to quickly build new networks at lower costs, connecting 100 million rural residents and making connectivity for remote regions a reality.

We work to empower our ecosystem and help create more specialized applications for different communities and industries. For example, working with the European Union of the Deaf and the British Deaf Association, we launched StorySign, a mobile app for children with hearing impairment, which can now translate books from ten different European languages into sign languages. So far, this app has improved the reading experience of about 34,000 deaf children and is helping them to realize their full potential.

We also provide training for local people in order to build digital skills for all. Over the course of a decade, our Seeds for the Future Program has helped over 30,000 students from 108 countries and regions build their digital skills, driving the development of local ICT industries.

This is only the beginning. In the future, we hope more people will join us. Technology is good. Pass it on.

Security and trustworthiness

A fully connected, intelligent world is built upon security and trustworthiness. Cyber security must become a responsibility that is shared by the industry, the value chain, and society. We have made cyber security and privacy protection our top priorities, and invest in both on an ongoing basis while ensuring openness and transparency. We also continually optimize our software engineering capabilities and practices, build resilient networks, and develop trustworthy and high-quality products. Moreover, we support stable network operations and ensure business continuity under all circumstances.

Within the next five years, we will be investing US$2 billion in enhancing our software engineering capabilities, so that we can better respond to the cyber security and privacy protection challenges that are affecting the entire industry and position ourselves as an industry leader.

We actively participated in the industry's mainstream cyber security and privacy protection certifications. In 2018, our major products received 11 international mainstream security certifications. We require all staff in key positions to pass and receive certification from a test on cyber security and privacy protection. We evaluated 2,778 of our mainstream suppliers for cyber security risks, and verified the progress of related corrective action plans. We signed a Data Protection Agreement (DPA) with 582 suppliers for privacy protection, and performed due diligence on these suppliers.

Huawei is committed to providing uninterrupted network services to more than 3 billion people around the world and to supporting the stable operations of more than 1,500 networks in over 170 countries and regions. We guaranteed network availability during more than 300 natural disasters and major events such as the magnitude 7.7 earthquake in Sulawesi, Indonesia, the FIFA World Cup in Russia, and the 18th Summit of the Shanghai Cooperation Organization in Qingdao, China.

Environmental protection

Environmental challenges, such as global warming and the depletion of natural resources, are now unfortunately a part of life. Huawei remains committed to reducing and preventing climate change by minimizing the footprint of our manufacturing and operations and of our products throughout their lifecycle. Our innovative products and solutions help many different industries reduce their emissions and develop circular economy processes, and we make ongoing efforts to work with all industry partners to build a low-carbon society.

In 2018, we used 932 million kWh of electricity from renewable sources, representing about 450,000 tons of saved carbon emissions. To build green campuses, we also brought in over 800 new-energy shuttle vehicles for use at our Chinese facilities.

We launched our Three-Star solutions, which provide network connectivity for remote rural regions and incorporate innovative designs that minimize power requirements. For urban networks, our miniaturized equipment saves the most valuable urban resource – space – while also cutting carbon emissions.

We encourage our suppliers to develop their own emissions reduction programs. In 2018, 20 suppliers responded to our call, cutting a total of over 50,000 tons of emissions from their operations. Our wish for a green world also led us to replace oil-based raw materials in our consumer products with bioplastics, and to package our products in cardboard certified by the Forest Stewardship Council as coming from renewable forests.

We also established a global network for recycling our consumer products, with over 1,300 recycling stations set up to date in 48 countries and regions worldwide.

Healthy and harmonious ecosystem

Huawei is a company with a big vision. That means we step up to our responsibilities as a corporate citizen, and work hand in hand with customers, employees, local communities, and industry partners to create a healthy and harmonious ecosystem.

Strong compliance management is the basis for our global operations, so we are committed to integrity, compliance, and strong business ethics. Over a decade of sustained investment and hard work, we have built compliance systems that meet every industry standard. Over 100 of our subsidiaries have aligned their own systems with local laws and the requirements of local industry associations, and have drafted legal compliance handbooks. These steps ensure that we stay within the boundaries of the law wherever we operate.

Our goal is to ensure that all of our staff have the chance to develop and fulfill their own value. We take a positive, diverse, and open approach to managing our human resources, and work with them for shared success. In 2018, Huawei employed 188,000 people around the world, including citizens from nearly 160 different countries and regions. In our offices outside China, local hires make up 70% of our workforce. We spent over CNY13.5 billion on employee benefits in 2018, and over 7% of our management positions are now held by women.

Huawei is an active contributor to local communities and in particular, we support local sustainable growth. Our ICT technologies help to break down barriers, driving advances in local economies, education, healthcare, and many other areas. We work with our partners and participate in many community support programs. In 2018, we organized 177 community support programs worldwide, including a village support program in Bangladesh, disaster relief in Cambodia, and youth development in Uzbekistan.

Sustainability is integrated into all of Huawei's procurement strategies and processes, because it makes our entire supply chain more competitive. In 2018, we carried out sustainability audits on 93 potential suppliers. 16 of them were denied certification as a Huawei supplier because they did not meet our high standards. We also assessed the sustainability performance of 1,321 existing suppliers, and 2 of them were excluded from new projects or had their share of business reduced because of sustainability issues.

In 2019, the global economy and political environment remain highly complex and full of unknowns. Huawei will face many more sustainability challenges. But we believe that there are also many opportunities. These challenges and opportunities will push us to constantly improve and innovate in our products, solutions, and services, so that we can create more social value. As digital and intelligent technologies continue to transform the world, we will work with our partners to build a sustainable economy, environment, and society. We will bring digital to every person, home and organization for a fully connected, intelligent world.

Tao Jingwen
Board Member and Chairman
of the CSD Committee

Corporate Profile

Who is Huawei?

Founded in 1987, Huawei is a leading global information and communications technology (ICT) solutions provider. We are committed to bringing digital to every person, home and organization for a fully connected, intelligent world. We have nearly 188,000 employees, and we operate in more than 170 countries and regions, serving more than three billion people around the world.

Who owns Huawei?

Huawei is a private company wholly owned by its employees. Through the Union of Huawei Investment & Holding Co., Ltd., we implement an Employee Shareholding Scheme that involves 96,768 employee shareholders. This scheme is limited to employees. No government agency or outside organization holds shares in Huawei.

Who controls and manages Huawei?

Huawei has a sound and effective corporate governance system. Shareholding employees elect 115 representatives to form the Representatives' Commission. This Representatives' Commission elects the Chairman of the Board and the remaining 16 board directors. The Board of Directors elects four deputy chairs and three executive directors. Three deputy chairs take turns serving as the company's rotating chairman.

The rotating chairman leads the Board of Directors and its Executive Committee while in office. The board exercises decision-making authority for corporate strategy and operations management, and is the highest body responsible for corporate strategy, operations management, and customer satisfaction.

Meanwhile, the Chairman of the Board chairs the Representatives' Commission. As Huawei's highest decision-making body, the Representatives' Commission makes decisions on important company matters, like profit distribution, capital increases, and the elections of members of the Board of Directors and the Supervisory Board.

Who does Huawei work with?

Externally, we rely on our customers. They are at the center of everything we do, and we create value for them with innovative products. Internally, we rely on our dedicated employees. Dedication is a core part of our work ethic. At Huawei, those who contribute more get more.

We work with stakeholders including suppliers, partners, industry organizations, open source communities, standards organizations, universities, and research institutes all over the world to cultivate a broader ecosystem that thrives on shared success. In this way we can help drive advancements in technology and grow the industry as a whole.

We create local employment opportunities, pay our taxes, and comply with all applicable laws and regulations in the countries where we operate. We help local industries go digital, and we openly engage with governments and the media.

(For more information, refer to the Huawei 2018 Annual Report)

Report Profile

2018 Sustainability Report

Huawei Investment & Holding Co., Ltd.

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 2018 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, 2018 to December 31, 2018 reporting period. All data contained herein is derived from Huawei's official documents and statistical reports. For details about the economic data in the report, refer to the Huawei 2018 Annual Report.

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 was published online and in print in both Chinese and English in July 2019. (The report for 2017 was published in June 2018.) The 2018 Sustainability Report can be viewed at www.huawei.com.

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

E-mail: sustainability@huawei.com

Huawei's Sustainability Awards and Honors

Huawei's PoleStar solution: Outstanding Mobile Contribution to the UN SDGs in Asia

— Mobile World Congress 2018 (GSMA)

Huawei Malaysia: National Excellence Award for Quality and EHS

— Ministry of Human Resources of Malaysia

Huawei South Africa: Health & Safety Recognition, Supplier Annual Award 2018/2019

— Vodacom

Huawei Saudi Arabia: First place prize in the King Khalid Responsible Competitiveness Award in Saudi Arabia

— King Khalid Foundation

Huawei: Gold Recognition Level in CSR Rating

— EcoVadis

Huawei's WTTx solution: 2018 Global Corporate Award: Sustainable Development

— ITU

Huawei Ghana: CSR ICT Company of the Year

— Centre for CSR West Africa

Huawei Tanzania: Certificate of Health & Safety Recognition, Supplier Annual Award 2018/2019

— Vodafone

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2 Digital Inclusion

P26 Ubiquitous Connectivity
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Huawei's Three-Star solutions connect **100 million** people in rural areas

Huawei's Mobile Money solution serves more than **150 million** users

Huawei's ICT academy covers **557** colleges across more than **60** countries and regions

More than **4,700** students from **108** countries and regions have studied at Huawei as part of the Seeds for the Future program, which has just celebrated its 10th anniversary

3 Security and Trustworthiness

P42 Cyber Security and Privacy Protection
P48 Openness and Transparency
P50 Supporting Network Stability
P52 Business Continuity Management

Guaranteed smooth communications for over **3 billion** people

Provided 24/7 technical services for over **1,500** networks in more than **170** countries and regions

Signed cyber security agreements with over **3,400** suppliers

Obtained **11** international security certifications for major products

4 Environmental Protection

P56 Green Products
P63 Green Operations
P68 Green Partners
P69 Green World

Huawei's products and solutions cut power consumption by **10%** to **15%**

6 of our mobile phones received the distinguished UL 110 for environmental friendliness

82.3% of returned products were reused

We used **932 million** kWh of clean energy, representing a reduction in emissions of about **450,000 tons**

5 Healthy and Harmonious Ecosystem

P74 Business Ethics
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Invested more than **CNY13.5 billion** in employee benefits

Appointed and trained compliance officers for over **130** subsidiaries

Certified over **140,000** people in Huawei's Safety Passport program

Launched **177** community support programs around the world

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Sustainability Management System
Stakeholder Engagement

1 Sustainability Management

An Action Required to Realize Our Vision and Mission

Sustainability Management System

Sustainability Strategy

Huawei's vision and mission is to bring digital to every person, home and organization for a fully connected, intelligent world. Based on the company's vision and mission, Huawei has developed its sustainability strategy, considering sustainability to be one of its priorities and incorporating it into the company's overall development strategy. According to our economic, environmental, and social responsibility, as well as the 17 SDGs set out by the UN, Huawei, as a leading global provider of ICT infrastructure and smart devices, has identified four areas of focus around sustainability, i.e. digital inclusion, security and trustworthiness, environmental protection, and healthy and harmonious ecosystem.

Digital inclusion

Envisioning a fully connected, intelligent world

The cloud will become the brain of a fully connected, intelligent world. Devices, like limbs, will enable everything to sense. Networks will connect everything. Together, they will create a fully connected, intelligent world, where the good experiences we have enjoyed in the digital age will be brought to a new level. We hope that these experiences will be inclusive and affordable for all.

Making technology accessible to all: Technology should not be for the few, but for the many. Huawei wants to make more effort in terms of connectivity, applications, and skills to promote digital inclusion for all. Our goal is to bring digital technologies to every person, home, and organization.

Security and trustworthiness

Laying a solid foundation for a fully connected, intelligent world

Huawei is an enabler of the digital and intelligent world. No matter how much uncertainty we face on the way ahead, we will provide the most secure and trustworthy infrastructure, as always, to help lay a solid foundation for a fully connected, intelligent world.

Taking due responsibilities for greater trust: Cyber security and privacy protection are our top priorities, and we keep investing and remain open and transparent in this regard. We also continually improve our software engineering capabilities and practices, build resilient networks, develop trustworthy and high-quality products, and support stable network operations and business continuity.

Environmental protection

Cherishing our physical world

As the digital world evolves into an intelligent world, it is not the case that the physical world will be replaced by the virtual world. Instead, the virtual world is gradually extending its reach into the physical world, leading towards ubiquitous connectivity. We should cherish our physical world, especially nature – the most fragile part.

Contributing to a clean, efficient, low-carbon, and circular economy: We are committed to minimizing our environmental impacts during our production and operations and throughout our product and service lifecycles. We use our innovative products and solutions to help industries conserve energy and reduce emissions, and contribute to a circular economy. We make ongoing efforts to work with all industry partners to build a low-carbon society.

Healthy and harmonious ecosystem

Working hand in hand with partners

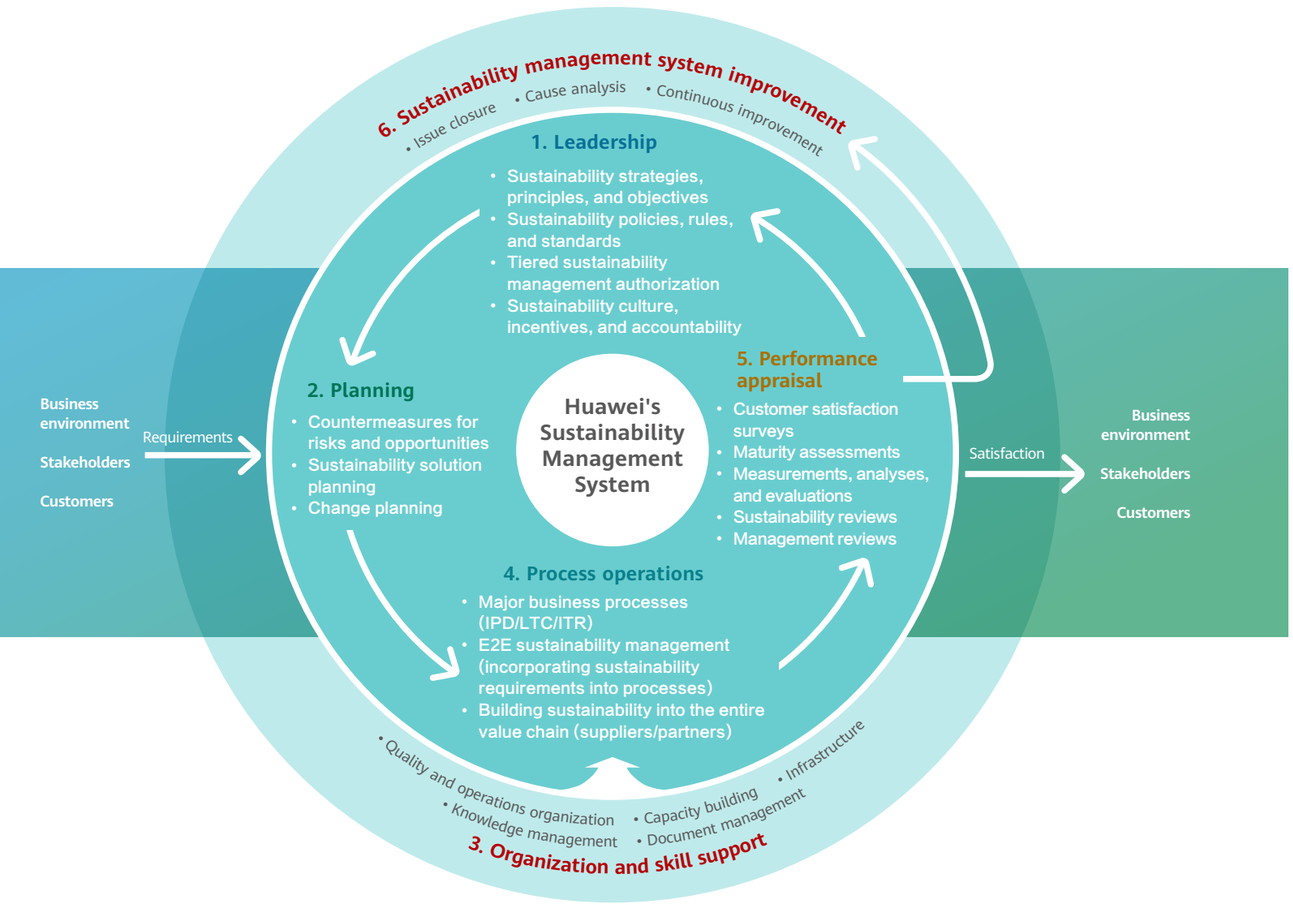
No one can go it alone in the world and that is why we choose to work with partners. In the pursuit of our mission, our customers, employees, industry partners, and communities where we operate are all our important partners.

Collaborating for the common good: We operate with integrity and in compliance with all applicable laws and regulations. We work to ensure employee growth and value realization. We actively contribute to the communities where we operate. We also work with all industry partners to jointly build a healthy industry ecosystem.

Sustainability Management System

Huawei has established a sustainability management system based on international standards and guidelines such as ISO 26000 and SA 8000, and developed and published a series of policies, processes, and baselines. We make full use of our sustainability management processes to plan, implement, monitor, and improve our sustainability work. In 2018, we reviewed how our processes worked and streamlined and improved our processes accordingly to make them better match our business operations, create more business value, and boost efficiency.

In 2018, Huawei improved its sustainability maturity assessment (SMA) tool and carried out a comprehensive assessment covering five dimensions: leadership, planning, organization and capabilities, process operations, and performance evaluation. The purpose of the assessment is to fully understand the maturity of each business domain, identify areas for improvement, and drive business departments to make ongoing improvements. 2018 was the fourth year that Huawei conducted an SMA. The results showed that the maturity level of Huawei's sustainability management has continued to steadily improve.



Responsibilities and Operations of the CSD Committee

Responsibilities

- Develop and implement sustainability strategies to ensure that strategic goals are met
- Develop, implement, and continuously improve the sustainability management system
- Discuss and make decisions on major sustainability issues and cross-departmental issues
- Meet stakeholder requirements and build Huawei's competitiveness in sustainability

Operations

- The chair and all members collectively make decisions on sustainability
- Hold a meeting at the end of each quarter
- Hold a sustainability strategy workshop at the beginning of each year
- CSD workgroups: in charge of everyday work coordination and implementation

In 2018, to adapt to the company's new organizational structure, Huawei consolidated all departmental CSD sub-committees into four: the ICT Infrastructure CSD Sub-committee, the Consumer BG CSD Sub-committee, the R&D CSD Sub-committee, and the Platform CSD Sub-committee. In doing so, we aim to ensure the effective execution of the sustainability strategy, make the CSD Committee work more efficiently, better manage sustainability risks, and continue to meet the requirements of stakeholders, like customers and governments.

Different work groups have been established under the CSD Committee. They are responsible for completing and coordinating everyday sustainability tasks, and driving the achievement of strategic goals.

Responsibilities of CSD sub-committees

- Break down the company's sustainability strategy, set their own annual sustainability goals and priorities, and ensure that those goals are met and priorities are well implemented.
- Monitor the progress of sustainability priorities and goal achievement. Review and make decisions on relevant matters.
- Establish a sustainability risk response mechanism. Identify, assess, and control sustainability risks.
- Drive CSR sub-committees to take responsibility and implement the sustainability management system.

Sustainability Risks and Opportunities

Based on ISO 31000 risk management guidelines, Huawei has established a risk management process and guide to systematically manage sustainability risks, covering risk identification, control, response, monitoring and reporting. We believe that sustainability risk management should be part of everyday company management and organizational operations, rather than being independent of business operations. Top management plays a critical role in sustainability risk management. Their role and responsibilities in risk management should be clearly defined to ensure that risks are effectively managed.

Fully identifying sustainability risks and opportunities is an important consideration in our annual strategic planning. This helps us set well-targeted goals and work plans, minimize sustainability risks that Huawei is facing, and maximize our contributions to sustainability.

ISO 31000-based risk management process

Examples of sustainability risks, opportunities, and measures

Strategy	Risk and Opportunity		Measure
Digital inclusion	Risk	The existing strategy of bridging the digital divide cannot meet people's expectations for a digital society.	Hold strategic discussions, redefine what bridging the digital divide means, and release a digital inclusion strategy.
	Opportunity	Billions of people remain offline.	Deploy broadband networks and equipment to help people access the Internet.
		ICT technologies can boost productivity and promote social development.	Provide customized ICT applications and solutions for individuals, businesses, and governments.
		We can promote digital inclusion with our TECH4ALL initiative.	With the TECH4ALL initiative, we will make more efforts in three areas: connectivity, applications, and skills, allowing more individuals and organizations to benefit from digital inclusion.
Security and trustworthiness	Risk	Cyber security and privacy risks reduce demand for ICT or adoption of ICT.	Ensure that products and solutions are secure and user privacy is well protected from end to end.
		Natural disasters and excessive demand for networks cause network failure or unavailability.	Establish a business continuity management system to ensure network stability anytime and anywhere.
	Opportunity	Increasing transparency will win trust and support from stakeholders.	Disclose information via annual reports, sustainability reports, websites, and other channels.
Environmental protection	Risk	Use of nonrenewable resources creates negative environmental impact, including climate change.	Adopt circular economy practices. Pay attention to resource efficiency, durability, and recyclability. Reduce, reuse, or recycle resources as much as possible.
		Network energy consumption will increase in step with the number of connections and bandwidth.	Provide energy-efficient products and solutions to reduce power consumption of equipment, sites, and networks.
		Non-compliance with environmental protection standards causes negative environmental and social impact.	Establish an ISO 14001 environment management system to ensure compliance with regulations and standards.
	Opportunity	ICT solutions can reduce the use of nonrenewable resources	Develop energy-efficient solutions that enable individuals, communities, and industries to conserve resources and cut emissions.
		Energy-efficient products and solutions are greener and more competitive.	Incorporate energy conservation and environmental protection requirements into the product development process.
Healthy and harmonious ecosystem	Risk	As the global legal compliance environment is becoming more complicated, Huawei is facing greater challenges.	Establish a compliance management system as compliance is the best safeguard against external uncertainty.
		Workplace hazards that impact employee health and safety continue to exist.	Establish an environment, health, and safety (EHS) management system to drive the attainment of health and safety goals.
		Manufacturing and installation of products can be dangerous.	Maintain and enhance an ISO 45001 management system to ensure the operational security and safety of employees and subcontractors.
		Suppliers at risk of violating CSR rules, affecting product supply.	Incorporate sustainability requirements into procurement processes and practices.
	Opportunity	People lack the skills needed to earn a better income and open up job opportunities.	Provide training, career development opportunities, and a good workplace environment.
		Business growth can be driven by the improved social, economic, and environmental performance of suppliers.	Intensify efforts to help suppliers improve sustainability management capabilities.
		There are areas for improvement in community conditions, where we can make more contributions.	Carry out community support programs, such as ICT talent cultivation, donations to communities, and disaster relief.

Stakeholder Engagement

Huawei's stakeholders mainly include customers, consumers, employees, suppliers, governments, non-governmental organizations (NGOs), industry organizations, the media, academia, and the general public. We have established comprehensive stakeholder engagement mechanisms to communicate with stakeholders on topics of common interest to understand their opinions, needs, and expectations. Based on this communication, we adjust our sustainability goals and the actions we take to ensure we can respond rapidly and effectively.

We have different ways of communicating with stakeholders and developing insights into their needs, 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.

Huawei keeps engaging with stakeholders to encourage conversation around sustainability challenges and discuss how technology can help address these challenges. We are active in key multi-stakeholder initiatives, industry alliances, and other local, regional, and global sustainability platforms and encourage innovation and collaboration to achieve sustainability goals.

Stakeholders	How, What, and When
Customers/ Consumers	• Customer satisfaction surveys (annual) • Customer meetings (as needed) • Huawei Fan Club (routine) • Taking part in reviews, surveys, and joint sustainability projects, such as attending the events organized by the Joint Audit Cooperation (JAC) (routine)
Employees	• Meetings with employee representatives (routine) • Employee surveys, such as organizational climate surveys (annual) • Manager Feedback Program (MFP) (annual) • Non-monetary incentives for sustainability (annual)
Suppliers	• Supplier sustainability reviews (routine) • Supplier training and supplier conferences, such as the Huawei Global Supplier Sustainability Conference (annual)
Governments	• Government policy communication meetings (as needed) • Contributing to government standard-related work and consultations (as needed) • Government and inter-government meetings (as needed) • Participating in government projects, such as the Chinese government's environmental protection projects (as needed)
Industry/ Standards Associations	• Industry forums and work groups, such as the International Telecommunication Union (ITU), Global e-Sustainability Initiative (GeSI), Responsible Business Alliance (RBA), and JAC • Standards seminars (as needed) • Releasing research reports, such as the Huawei ICT Sustainable Development Goals Benchmark (annual)
NGOs and Communities	• Participating in community programs and charitable activities (routine) • Attending conferences organized by NGOs and inviting them to attend our conferences (as needed) • Cooperating with NGOs or communities on sustainability programs (as needed)
Media/Opinion Leaders	• Exclusive meetings and interviews (as needed) • Organizing activities for media outlets and opinion leaders in key markets (as needed) • Inviting opinion leaders and the media to attend Huawei's events (as needed) • Engagement through social media (as needed)
Research Institutes/ Academia	• Joint research projects and technical cooperation (e.g., developing the Huawei ICT Sustainable Development Goals Benchmark together with SustainAbility) (annual) • Other activities (routine)

2018 Stakeholder Engagement

Huawei at the Responsible Business Summit by Ethical Corporation

Huawei was a key partner of the Responsible Business Summit that took place from June 13 to 14, 2018 in London. The summit was organized by Ethical Corporation and welcomed 500 participants from businesses, governments, key international institutions and organizations (i.e., the UN), think tanks and associations, and NGOs. We also hosted an exclusive Sustainability Salon themed "The Interplay and Opportunities to Achieve the SDGs through ICT Innovation and Collaboration".

Huawei at the 2018 CSR Asia Conference

The 2018 CSR Asia Conference, focusing on Transparency, Integrity and Impact, was held from September 18 to 19, 2018, in Hong Kong. Huawei was its gold sponsor for the fourth consecutive year. Over 500 stakeholders attended the event. During the event, we emphasized that for the UN SDGs to be achieved, there must be increased cooperation between governments, the public sector, the private sector, NGOs, and research and educational institutions. We also hosted an exclusive breakout session: Innovation Lab on Education and ICT, where UNESCO, Google, and Solve Education! were invited to share their case studies.

Huawei-GlobeScan Sustainability Salon

Huawei and GlobeScan co-organized a Sustainability Salon on October 18, 2018 in Nairobi, Kenya. This event was held in partnership with the Kenyan government's Ministry of ICT and ICT Authority, as well as the United Nations' Partnerships for SDGs platform. Over 40 key stakeholders attended the event and discussed how to partner and use ICT to drive progress towards the SDGs and the Big Four Agenda in Kenya.

Huawei–CSR Europe Sustainability Salon and Conference

For the fourth consecutive year, Huawei organized the 2018 Sustainability and Innovation Conference in collaboration with CSR Europe. The event focused on digitalization and work, and assessed the impact of ICT on economies, productivity, and employment. The event, which took place from October 10 to 11, 2018 in Brussels, revolved around the presentation of a report, prepared by the London School of Economics. This report analyzed employment trends and the impact of technologies, such as AI, across a broad spectrum of work activities.

Huawei attended the Leader's Stage summit during the Mobile World Congress Shanghai 2018

During the Mobile World Congress Shanghai 2018, Huawei delivered the keynote "Bringing Hope to Underdeveloped Regions by Providing Digital Connections" at the Leader's Stage summit. At the event, Huawei stated that the company pays great attention to the United Nations' Sustainable Development Goals and is committed to contributing to underdeveloped regions by providing innovative technologies.

Huawei's Membership in Sustainability Organizations

United Nations Global Compact

GeSI ENABLING DIGITAL SUSTAINABILITY

BROADBAND COMMISSION FOR SUSTAINABLE DEVELOPMENT

Responsible Business Alliance
Formerly the Electronic Industry Citizenship Coalition
Advancing Sustainability Globally

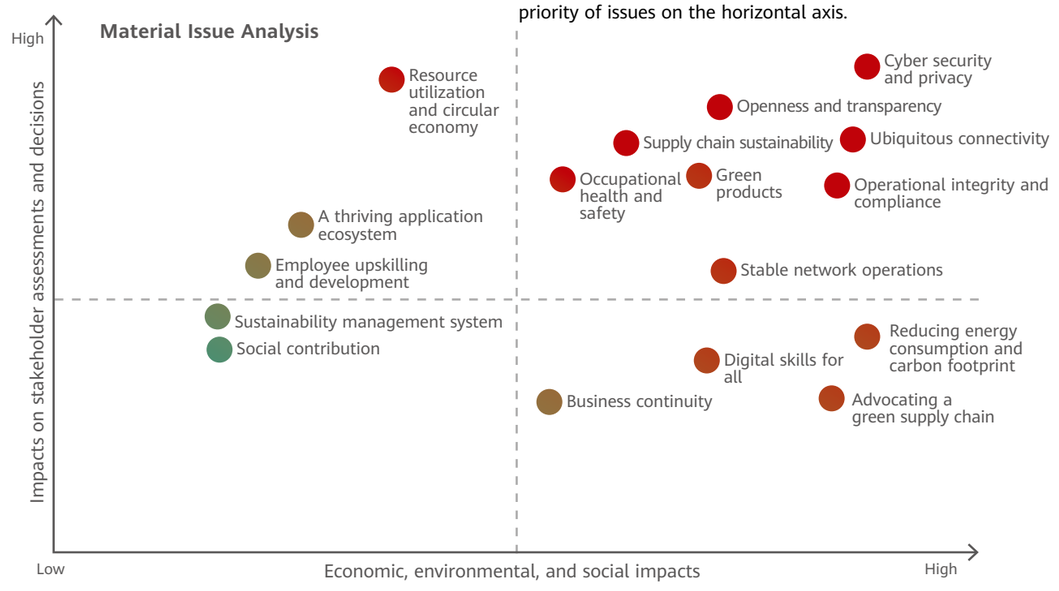
CSR EUROPE

CSRASIA

Focusing on Material Issues

By identifying our material issues, we are able to find areas for improvement and optimize our sustainability management. By assessing our material issues, we have determined which issues most affect our business and which issues are important to our stakeholders. The result is the matrix shown below that displays the impacts on stakeholder assessments and decisions (vertical axis) and importance of economic, environmental, and social impacts (horizontal axis).

Based on the overall data from the responses of multiple stakeholders, we first determine the priority of issues on the vertical axis. Then, based on a risk analysis led by in-house experts, strategy alignment, and maturity assessment results, we determine the priority of issues on the horizontal axis.



As a provider of the infrastructure for the digital age, Huawei believes that as ICT applications become easier to use, more convenient, and more affordable, they will greatly reduce global inequality, bridge the digital divide, and drive the rapid attainment of SDGs.

Digital technologies are reshaping the world. Huawei promotes digital inclusion and aims to ensure that every person, home, and organization will benefit from digital technologies. To this end, we have created an action plan called TECH4ALL. This plan focuses on three priorities of digital inclusion: connectivity, applications, and skills. Our goal is to extend the benefits of digital technology to an additional 500 million people within five years.

We will work on the following three priorities:

Ubiquitous connectivity: We will help more areas and people around the globe benefit from digital technology by building wider, more convenient, and easier-to-use connections. By using innovative technologies to remove access barriers, we will enable people, homes, and organizations in remote areas, extreme environments, and other locations with restricted access to enjoy better digital resources and experiences.

A thriving application ecosystem: We will work to empower the ecosystem by providing customized ICT solutions and easy-to-use development platforms. Our aim is to help create more specialized applications for different communities and industries.

Digital skills for all: We will work more closely with governments, enterprises, organizations, and local communities around the globe to enhance the digital skills of individuals, SMEs, and society as a whole. This is key to the balanced development of global digital economy, and will enable countries to better compete in the digital economy.

Ubiquitous Connectivity
A Thriving Application Ecosystem
Digital Skills for All

2 Digital Inclusion

Ubiquitous Connectivity

Connectivity is the bedrock of digital inclusion, and networks will be the infrastructure of connections. As the first step of our digital inclusion strategy, Huawei aims to build wider, more convenient, and easier-to-use connections.

According to GSMA, more than 1 billion people are not covered by mobile broadband services, while a further 3.8 billion people are still offline. That's half of the world's population. To help connect the 1 billion people in the world that have no access to mobile broadband, Huawei continues to roll out innovative solutions and deploy base stations quickly and at a low cost.

We use our technologies to make base stations lighter and power these stations with solar power, greatly reducing network deployment costs. These efforts have allowed people in remote areas to enjoy effective communication services.

STORY Improving Digitalization in Sri Lanka with Home Broadband

Broadband penetration in Sri Lanka was only 2% in 2013, far below the global average of 9.3%. Digital dividends remain out of reach for many people. This is attributable to the relatively low urbanization rate. Some 80% of Sri Lankans live in the countryside, where population density is low, making the provisioning of fixed-line broadband coverage very expensive. Developing broadband for home and SME users to bridge the digital divide is a top priority for Sri Lanka's government and telecom industry.

Together with Dialog, a local carrier, Huawei brought Sri Lanka's digitalization to the next level. In 2013, Dialog started to deploy Huawei's WTTx solution to provide wireless home broadband services that were affordable and quick to deploy and upgrade. 67% of the country's population now has access to mobile broadband services. The home broadband user base is growing three times faster than before, which means that 15% of households are now connected. The WTTx technology adopted by Dialog has helped Sri Lanka advance in many areas, including remote education, medical diagnosis, women's education, and climate change actions. It has also helped Sri Lanka reach multiple sustainable development goals, including poverty eradication, industrial innovation, education improvement, and environmental improvement.

STORY RuralStar Connects "Information Silos" in Nigeria

In Nigeria, 51% of the population lives in rural villages scattered across vast grasslands or forests, and many villagers lack basic communications infrastructure and live in an "information silo". As mobile signal coverage is poor, most villagers have to walk several miles to make a call in town. The cost of building traditional base stations there is very high due to poor infrastructure and lack of mains supply or power transmission facilities. In addition, the average revenue per user (ARPU) is as low as US$1 to US$1.5, meaning it can take over 10 years to recoup investment.

To solve this problem, Huawei and MTN Group worked together to deploy the Huawei RuralStar 2.0 solution in Nigeria to bring network connections to remote areas. Each RuralStar 2.0 base station employs six solar panels, and does not need an external power supply.

The chief of Tobolo village, Ogun, said that these affordable connections helped Tobolo villagers get in touch with family members away from the village, and this meant a lot to them. A principal of the primary school in Tobolo said: "Now we don't have to take a bus to the Education Bureau 30 kilometers away just to fetch teaching materials. This wireless communication allows us to learn more quickly and easily."

With connectivity, villages are not only connected to each other; they are also connected to a wider world abundant with opportunities and changes.

In 2017, Huawei launched RuralStar, the predecessor of RuralStar 2.0. RuralStar aims to bring ultra-long-distance voice and digital access services to rural areas at affordable prices. In less than a year, the solution quickly enabled Internet access for 20 million previously unconnected people. By the end of 2018, Huawei RuralStar had covered 40 million rural residents that previously had no access to the Internet.

In 2019, Huawei released the RuralStar Lite solution, which reduced deployment costs. The solution provides coverage for more remote villages that only have 500 to 1,000 residents. It has helped carriers quickly grow their user base and reduce the payback period to less than three years.

To date, we have deployed RuralStar in more than 50 countries and used it in more than 110 networks worldwide. The solution meets the demand of different scenarios, including urban villages, rural areas, deserts, islands, highways, plains, hills, and tunnels.

At Mobile World Congress 2018, RuralStar won the Best Mobile Innovation for Emerging Markets award. Thanks to RuralStar, remote areas can now gain access to smart agriculture, e-government, telemedicine, mobile healthcare, smart energy, and mobile payment services.

STORY 3G and 4G Bringing 4,000 French "White Zones" into the Digital World

The majority of French residents live in cities, meaning the return on investment for rural networks is low, hindering network rollout in these areas. According to a report released by French telecom regulator ARCEP in 2009, 99.82% of the population and 97.7% of French regions are covered by telecommunications networks. The unconnected areas are called white zones. By the end of 2018, ARCEP had identified more than 4,000 white-zone towns in France, in which 1% of the nation's total population live.

To address network coverage in white zones, the French government has launched a "white-zone project". Four major carriers have agreed to share their networks in these zones to provide basic voice, SMS, and network services.

Since 2011, Huawei has collaborated with Bouygues Telecom to deploy 3G networks in these white zones. By 2018, we helped cover 3,300 of the 4,000 white zones with 3G networks, and plan to start 4G rollout later this year. All of these zones will be covered with 4G by 2022.

STORY Fast Fiber Broadband Connecting 750,000 Irish Households

The Republic of Ireland has a population of 4.7 million. Roughly 750,000 households live in the suburbs, where broadband coverage is low. The Irish government initiated a national broadband project in 2012, mandating fiber connections for these households. During the initial bidding on the networks for 450,000 households in more remote areas, all three bidders withdrew due to the high cost of laying fiber optical cables. Ultimately, Imagine, a local carrier took on the challenge and started to provide broadband coverage for these areas by using Huawei's TDD-8T8R, a WTTx solution.

This TDD-8T8R solution was tailored to provide wireless broadband coverage for remote areas. Its premium quality ensures fast commercial use and user base growth.

As of today, Imagine has brought fast broadband services to more than 20,000 households in Irish suburbs and has been able to secure an additional investment of 120 million euros. At the same time, Imagine is actively communicating with the Irish government, hoping to include fixed wireless access in future government plans.

STORY Mongolian Wireless Connectivity Brings Better Healthcare and Education

According to a study published by the United States National Library of Medicine in August 2017, while some studies focused on the unbalanced level of health conditions in Mongolia, few highlighted the unequal distribution of medical resources due to geographical constraints. This study found that distribution of doctors, nurses, and beds in Mongolia varied from region to region, and there was a lack of healthcare for children and adults in remote areas. According to the latest UNESCO data, social inequalities still exist in the country, which not only manifest in healthcare, but also in education.

Inequality in healthcare and education has exacerbated the disparity between rich and poor in Mongolia, reducing national economic participation and productivity. Providing better broadband connections is one way to narrow these gaps.

In January 2017, Huawei and Unitel, a Mongolian carrier, launched a plug-and-play Wi-Fi solution for households. This solution works on Unitel's live 4.5G LTE networks across the country, supported by Huawei's B315s-607 wireless router, which is provided to users by Unitel at subsidized rates or free of charge. So far, the service has connected an additional 8% of the population, including 50,000 households, 200,000 individual users, and 1,200 businesses.

Wireless broadband networks also help improve medical services and education. A total of 74 hospitals in Mongolia now offer online consultations to extend the reach of their medical services. In addition, increasing Internet access has allowed 35,000 rural medical professionals to receive further education. Now 35 rural public schools can access and download videos and education materials online.

For 600,000 households that are still offline, Huawei and Unitel plan to add an extra 1,200 base stations. By 2020, the project will connect 300,000 more residents to wireless broadband.

A Thriving Application Ecosystem

We believe that only digital technologies that are accessible, affordable, and effective can contribute to inclusive socioeconomic growth. Therefore, Huawei takes applications as the second priority of its digital inclusion strategy. We are actively developing tailored digital solutions to better serve local communities.

By remaining customer-centric, Huawei invests heavily in R&D and innovation. With Huawei's connectivity-enabled solutions, such as Mobile Money, telemedicine, and smart education, people can truly see the changes brought about by connectivity.

Huawei also provides easy-to-use development platforms for developers and SMEs to create a thriving digital ecosystem. This will give rise to more customized, scenario-based applications, benefiting more industries and people.

Digital applications, of course, have still not realized their full potential. In the future, Huawei will continue to work with industry partners to develop tailored digital solutions that serve different individuals, homes, and organizations and drive digital inclusion.

STORY **Mobile Money: Making Financial Services Available to All Bangladeshi People**

Bangladesh is one of the world's most densely populated countries. In Bangladesh, more than 70% of the population reside in rural areas with no access to major banks, and less than 15% have ever used banking services. Banking activities as simple as making a deposit, withdrawal, or payment are extremely inconvenient. When the nation's many urban migrant workers want to transfer money back to their families in the countryside, they must take time off work and deliver the money themselves. The fact that a huge number of people do not even have a bank account in Bangladesh hinders the country's economic growth.

Luckily, about 68% of the Bangladeshi people have a mobile phone. bKash, a subsidiary of BRAC Bank, provides digital financial services to the Bangladeshi people, particularly those in low-income groups not covered by traditional banking services. Local people can access the financial services on their phones.

To assist bKash in achieving their business goals, Huawei has helped deliver ten mainstream banking services through an app called Mobile Wallet. Through the app, anyone with a mobile phone can access bKash's convenient, affordable, and reliable financial services such as deposits, withdrawals, transfers, and payments, under the Unstructured Supplementary Service Data (USSD) protocol. bKash's secure, easy-to-use, affordable, and convenient mobile payment services have made the lives of people without bank accounts in Bangladesh much easier.

Founded merely six years ago, bKash has gained nearly 30 million registered users, and serves over 98% of mobile users in Bangladesh. Apart from providing a convenient, digital life, bKash has also created a large number of jobs, as 87% of its revenue goes to distributors, carriers, and other partners, which has in turn significantly boosted their own business. Now, distributors provide services even in small corner stores in extremely remote areas at all hours of the day. In the coming days, bKash will continue its partnership with Huawei to build a broader ecosystem engaging carriers, banks, and merchants and further improve mobile payments services in Bangladesh.

Huawei's Mobile Money solution serves users in 19 countries and helps carriers provide banks with convenient mobile financial and payment services, such as Mobile Wallet. Huawei continues to invest in business and technological innovation while exploring new cooperation models with customers to jointly provide universal digital solutions for people in poverty-stricken areas and promote the inclusive development of digital finance.

STORY Digital Applications Are Changing Ten Volcanic Islands in Cape Verde

As is the case with many African nations, education, health, and all other public resources are unevenly distributed in Cape Verde. One-third of Cape Verde's schools are located in its capital Praia, port city Mindelo, and Santa Catarina, while 58.6% of its hospitals are concentrated in two islands: Santiago and Saint Anthony. In addition, schools outside the capital frequently suffer from teacher shortages and poor-quality education. These schools are eager to join a national e-education network to have access to high-quality resources from other schools.

To resolve these issues, Huawei and Cape Verde's Ministry of Education have jointly developed an integrated WebLab ICT training system. The solution is aimed at helping the country cultivate sufficient qualified ICT professionals to support its growing ICT industry. This solution is supported by ICT kits, programmable teaching robots, e-maintenance tools, and office facilities, which are all dispatched in a container. Basic ICT training courses are provided through the cloud-based NOSi National Data Center to middle school students and adults in all of Cape Verde's islands. The system can also serve as a multi-function classroom to deliver other skill training and certification services as needed.

The Surgical Information System is another example. This system provides a platform that connects hospitals and other institutes to facilitate hospital management and demographics monitoring, and improve operational efficiency. Its functions include managing medications, clinical equipment and materials, laboratory diagnoses, admissions, discharges, and appointments. For example, the appointment management (including doctor schedule management) function analyzes online appointment information and develops hospital schedules as needed to better serve patients.

NOSi's President Antonio Joaquim Fernandes said: "Huawei is an important contributor to Cape Verde in its deployment of the National Data Center, data transmission networks, and e-government services. Huawei provides data, voice, and video conferencing services to government departments and public institutions, and has built a digital platform for NOSi to develop the e-government system. We will continue to set up business centers, business incubators, and training centers, transforming Cape Verde into an advanced information service platform in Africa."

STORY AI Is Powering Smart Manufacturing for Sanlian Hope

High-tech manufacturer Sanlian Hope develops technology and equipment for the production of synthetic fiber and its raw materials. It works to build a digital, data-driven information service platform that integrates finance, technology, and information to boost industry development. According to Sanlian Hope's Director and Strategic Investment General Manager, AI can make production much more flexible and will accelerate the shift to smart manufacturing.

Huawei's full-stack, all-scenario AI portfolio supports the use of IoT and AI technologies in both hardware and software. That makes Huawei an excellent system integrator for Sanlian Hope as it applies the AI-powered Huawei Cloud Enterprise Intelligence (EI) solutions in its control systems, which has helped the company quickly go digital and intelligent.

Digital and intelligent applications will help boost the development of the manufacturing sector. These applications will make their production processes more flexible and create production plans tailored to different situations, enabling the sector to better respond to more complex needs.

STORY StorySign – Telling Stories to Deaf Children

In 2018, the mobile AI app StorySign, powered by the HUAWEI HiAI platform, went online.

StorySign was developed in partnership with the European Union of the Deaf and the British Deaf Association to help teach deaf children to read. Users only need to open the app and scan the words on a book to begin this innovative experience. Once the text is uploaded, a cartoon figure appears on the screen and the words will be translated into sign language, allowing deaf children to enjoy reading as easily as other children.

StorySign now supports translation of 10 languages including English, French, German, Italian, Spanish, Dutch, Portuguese, Irish, Flemish, and Swiss-German. According to the World Health Organization, in 2018 about 460 million people worldwide suffered from hearing impairment, of which 34 million were children. With StorySign, story time for hearing-impaired children becomes more interactive and fun.

With AI-powered mobile apps like StorySign, Huawei is committed to unleashing the potential of everyone through technological advancement.

STORY Rustenburg – Digging a Gold Mine for a Smart City in a Platinum Hub

Platinum mining is projected to decline after 2040 in South Africa. In light of these predictions, the government of Rustenburg, the world's platinum hub, released the Vision 2040 program to ensure the city remains full of vitality with a high quality of life for its residents. The program's goal is to make Rustenburg "a world-class city where all communities enjoy a high quality of life", and one that is interconnected, energetic, healthy, green, friendly, secure, smart, prosperous, efficient, and sustainable.

The Rustenburg Smart City project aims to address the city's challenges using digital technologies. By improving public safety and civic participation, this project improves people's living standards and helps enterprises grow faster. To efficiently implement this project and build a smarter Rustenburg, the municipal government has picked a number of partners, including South Africa's ICT and financial technology company Electronic Connect, Sanchuan Water Meter Co., Ltd., intelligent transportation system provider Xiamen Lenz Communication Inc, and Huawei.

With its Smart City solutions, Huawei has developed a nerve system for the city, in which the IoT, big data, video cloud, geographic information systems, and converged communications technologies are integrated through a digital platform that offers shared access to all sorts of basic urban resources. Huawei has also worked with partners to build an ecosystem around the platform, underpinning the city's governance and innovation. With Huawei's Smart City solutions already serving more than 160 cities across more than 40 countries, its rich experience is set to contribute greatly to the shift towards a smart Rustenburg.

Mineral resources will inevitably run out, but the "gold mine" created by a smart city will last and make Rustenburg a leader in this field. Electronic Connect CEO Zamo Mthiyane said: "Smart Rustenburg will be a model city. Other South African cities could deploy similar digital platforms and technologies to quickly go digital, and all industries can benefit from the digital platform's IoT, cloud, big data, and video surveillance resources. Other African cities can also refer to Rustenburg's practices to connect municipal institutions, enterprises, and residents more closely for a better future."

STORY Skytone – Connected Everywhere

As modern citizens in an intelligent, connected world, nothing makes us feel more insecure at home or abroad than a dead phone battery or having no Internet. The inconvenience of life without a smartphone, our personal assistant, is almost unimaginable these days, but a smartphone without a network connection is basically useless. For people who often go abroad, whether on business trips or for vacation, comfort, efficiency, and convenience are something they want most during the travel. As such, overseas roaming services that deliver convenient, fast, and secure mobile connections are preferred. Therefore, Huawei developed Skytone to satisfy user demands, based on its years of experience in the global communications and smart device sectors.

Skytone is a mobile application that offers exclusive overseas roaming services to users of mid- and high-end Huawei and Honor smartphones. By the end of 2018, Skytone was available in 83 countries and regions across the world. This has made Skytone particularly popular among business people and travel lovers. In addition to stable and high-speed connections, Skytone also offers high-quality applications. With Skytone, we want to work with users to explore and envision a better digital life.

Digital Skills for All

Building network infrastructure and applications alone is not enough to achieve digital inclusion. Bridging the huge digital divide between different regions and countries is equally important. To truly address these issues, Huawei works with governments, local communities, and other industries to improve the digital skills of individuals and society as a whole, and help SMEs enhance digital capabilities. By doing this, Huawei contributes to the development of local communities and countries and makes their digital economies more competitive.

STORY Digital Training Buses Are Helping Bangladeshi Women Bridge the Gender Divide

In 2017, the Bangladeshi government, Robi Axiata, the country's second largest telecom carrier, and Huawei launched a joint "digital training bus" program. The program was designed to help women, including high school students and undergraduates, in remote areas learn basic computer skills and telecommunications knowledge.

Six digital training buses, each equipped with 23 workstations, were deployed across the country's 64 districts. These special-purpose buses also boasted laptops, standby generators, air conditioners, wireless networks, learning software, and customized training modules. The basic courses offered covered areas such as computer knowledge and Internet skills. So far, about 50,000 women in Bangladesh have benefited from this program.

Married women in Bangladesh often stay at home, which means they have very limited access to education and job opportunities. Our "digital training bus" program aims to make a difference to their lives by providing them with a learning platform that keeps them informed of what's happening in the world. This can help them create a better future for themselves and future generations.

Bangladesh is a telling example of how even a small step forward in digital development can make a huge difference to the lives of women, and facilitate gender equality, basic education, and economic development.

STORY Teaching the Residents of Villages in Kenya to Use Mobile Phones and Master Digital Skills

Huawei's RuralStar solution has connected many remote locations across Kenya, but some, like the residents of Duse village, still cannot enjoy the benefits of connectivity because they lack the basic skills needed to use smartphones and digital applications. To fully utilize new network infrastructure, these underserved people urgently need education in basic digital skills.

To help Duse village tackle these new challenges, Huawei has developed custom courses to help locals improve their digital skills, focusing on how to use mobile phones and their possible applications. These courses first teach residents how to power on a mobile phone, connect to Wi-Fi, turn on mobile data, and view battery percentage, then move on to how to access the Internet, watch the news, check the weather, listen to music, watch videos, take photos, and finally how to make calls, send messages, send and receive emails, and chat with others on WhatsApp, Facebook, and Twitter. In addition, Huawei worked with local institutions to provide an additional 30+ free online courses to local residents, aimed at helping them increase digital skills. These courses include tutorials on using computer keyboards and mouses, creating email accounts, and using search engines.

With the help of two local volunteers, Huawei trained 551 Duse residents between April and May 2018. Huawei also donated tablets that local residents can use to take free online courses.

According to a post-training survey, all respondents said that they were able to learn how to better use smartphones and digital applications (e.g., sending and receiving messages, chatting with friends, and visiting Facebook, WhatsApp, Twitter, and other social media platforms on a mobile phone) thanks to Huawei's digital training courses.

STORY Huawei ICT Academy: Cultivating the Next Generation of Engineers

Since 2013, Huawei has rolled out the Huawei Authorized Information and Network Academy (Huawei ICT Academy, or HAINA) – a joint program between Huawei and universities from around the world. The Academy transfers knowledge about Huawei's ICT technologies and products to university students worldwide and encourages them to participate in technical certifications. The program aims to develop innovative technical professionals required by the ICT industry and society and build a healthy ICT talent ecosystem.

Huawei ICT Academy provides a variety of ICT courses for global universities on emerging technologies such as cloud, storage, big data, IoT, and AI. By the end of 2018, Huawei ICT Academy had covered 557 universities worldwide, including 42 of the top 500 global universities and 40 leading Chinese universities. About 80,000 students from over 60 countries have participated in the project, and 30,000 students have passed Huawei's certification.

In 2018, Shanghai Jiao Tong University, in partnership with the Huawei ICT Academy, created a course on LiteOS and NB-IoT. This joint project helped foster innovation among students, deepen industry-academia collaboration, and explore a new model for cultivating the next generation of ICT professionals.

STORY The National ICT Talent Development Program

As the world approaches a critical moment in its digital transformation, it has become increasingly clear that the market does not have sufficient ICT talent. Universities do not provide enough opportunities for students to gain hands-on practice, and have not yet developed a mature ICT talent training program. This is a huge challenge facing carriers, governments, and international markets. To address this, Huawei has launched a national ICT talent development program to foster ICT professionals by working with local governments, universities, trade schools, training institutions, and telecom carriers. Huawei provides customized end-to-end ICT talent development solutions to carriers and governments by developing ICT skillsets and competency and qualification criteria based on national ICT talent development strategies and local talent demands.

With its industry-leading ICT talent development practices, Huawei has provided specialized advice and services to carriers and governments to help them build learning organizations and processes, curriculums, train-the-trainer systems, and training centers, to ensure that the ICT talent development program is well executed. In addition, Huawei's cloud services are enabling learners from around the world to access learning resources anytime, anywhere. Huawei's authoritative, all-encompassing, and layered certification system covers different stages of the ICT talent career development lifecycle, helping create clear career development paths for all kinds of learners.

So far, Huawei has deployed the national ICT talent development program in 50 countries and regions worldwide, with a focus on developing countries and regions, including Malaysia, Laos, Myanmar, Cameroon, Guinea, South Africa, Zambia, Saudi Arabia, Bahrain, Uzbekistan, Turkey, Costa Rica, and Macedonia.

STORY The AI Developer Enablement Program: Jointly Creating an Inclusive AI Ecosystem

In October 2018, Huawei released its AI Developer Enablement Program. Powered by Huawei's full-stack and all-scenario AI portfolio, the program aims to build a better development ecosystem by providing AI resources, platforms, courses, joint solutions, and other support. Through this program, Huawei is working with developers, partners, universities, and research institutes to build an affordable, effective, reliable, and inclusive AI platform.

For developers, the program provides 20 hours of free introductory training, 21 days of beginner-level AI training, AI developer contests, and an innovation incubation camp for top talent to help them convert their research into commercial applications.

For partners, Huawei builds joint solutions based on Huawei's AI computing platform and development platform to promote AI application in different industries. In addition, Huawei has set up an AI promotion alliance, built joint innovation labs, and provided 1,000 free development environments including development models and boards. Huawei also supplied the first 20 partners of this program with expert resources, joint solutions, and extra support for AI product launches and technical training. Huawei also shared market resources with partners to jointly expand the market.

For universities and research institutes, Huawei has launched an AI talent development plan. The plan includes an investment of CNY1 billon for developing AI talent by providing AI resources and AI suites. With the plan, Huawei will work with universities and research institutes to develop AI courses, publish textbooks, establish dedicated AI colleges and institutes, build AI laboratories, provide AI certification to students, and participate in the Chinese Ministry of Education's industry-academy cooperation program. Huawei will also include universities in the Huawei Cloud open community which acts as a communication platform for universities, research institutions, and Huawei AI experts. These universities and research institutes will be given access to the computing power and technologies available on Huawei's AI platform to promote scientific research and exploration in AI.

STORY The Huawei ICT Competition: Contributing to the Global ICT Talent Ecosystem

Huawei is committed to driving education digitalization. With our ICT-enabled information sharing platforms, we provide quality education resources that are both free and openly accessible to help more students learn ICT technologies and products. This will help bridge the education divide and promote education equality.

The Huawei ICT Competition is one of Huawei's important initiatives in this regard. In 2018, the Huawei ICT Competition attracted more than 40,000 students from over 800 universities across 32 countries and regions, including China, the UK, Spain, Italy, Russia, Australia, Mexico, South Africa, Egypt, Saudi Arabia, the United Arab Emirates, Pakistan, and India. This event has driven collaboration between Huawei and universities on talent cultivation and helped build a global ICT talent ecosystem.

Security and trustworthiness is becoming the cornerstone of a fully connected, intelligent world.

In an intelligent world where everything is connected, it is essential that ICT infrastructure operations are secure and stable and that data and user privacy are fully protected. This will ensure everyone can trust and easily enjoy the convenience brought about by technological advances in this new world.

All stakeholders have a role to play in ensuring trustworthiness, security, and stability in cyberspace. Huawei supports and promotes an open, secure, stable, and peaceful cyberspace, and respects and protects all basic human rights advocated by the Universal Declaration of Human Rights of the UN, including those related to privacy and communications. We ensure cyber security and protect user personal data in accordance with all applicable laws and industry best practices.

Supporting network stability is our paramount social responsibility. We strive to ensure that everyone is able to communicate, access data, and share information anytime, anywhere. Specifically, we have established a comprehensive customer network support system that covers a range of areas, including organizational structures, designated personnel, processes, and IT tools. We have also established a mature business continuity management (BCM) system to ensure our supply continuity and the timely delivery of our products and services to customers during key events. The BCM system provides contingency plans for a range of emergencies, such as major natural disasters; political, economic, and trade upheavals; social conflicts; and cyber-attacks.

Cyber Security and Privacy Protection
Openness and Transparency
Supporting Network Stability
Business Continuity Management

3 Security and Trustworthiness

Cyber Security and Privacy Protection

As cloud, digitalization, and software-defined everything become more prevalent, the world will become data-centric and intelligent in the future. This new world will bring both challenges and opportunities. We understand that the ICT industry is undergoing rapid technological transformation, with technologies becoming increasingly complex and networks more open.

Against this backdrop, we are aware of the increasing interest and concerns of companies, regulators, and the general public regarding cyber security, which we take very seriously. Users want to get online anytime and anywhere, and efficiently access data. To meet these requirements, product trustworthiness and network resilience have become more important than ever. Compared with new functions and features, customers will focus on the trustworthiness of products and solutions, along with network resilience and cyber security.

Huawei's Cyber Security Framework

Cyber security must be built upon trustworthiness, basic product quality, basic security engineering capabilities, and resilient products and solutions. That is the very foundation of all security activities.

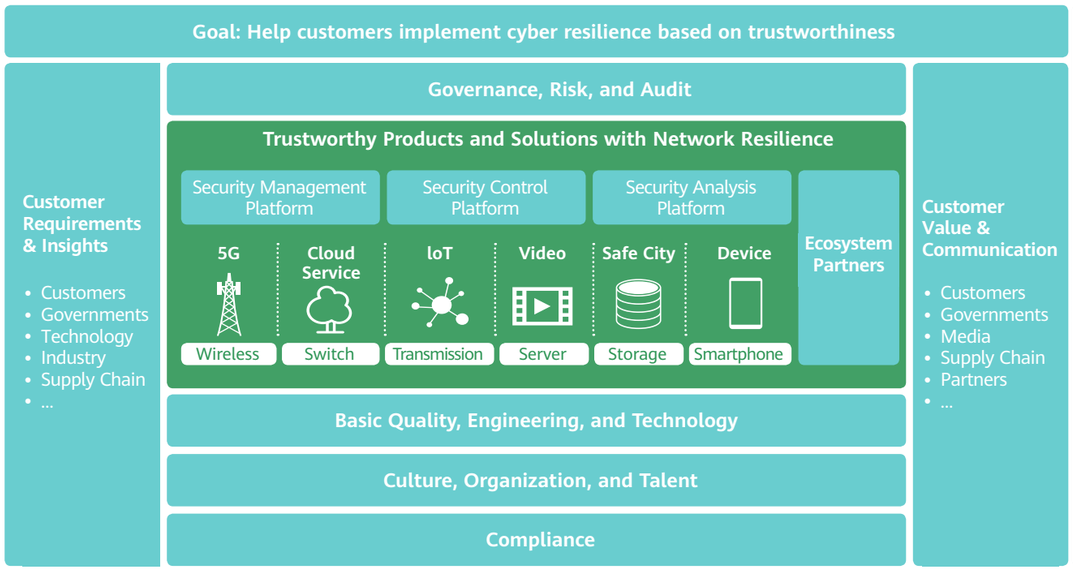
To meet customer requirements in this more complex world, we will initially invest US$2 billion over the next five years to implement a company-wide transformation program. With this program, we aim to optimize our software engineering capabilities, as this is the foundation upon which we will build secure, trustworthy, and high-quality products. The program will entail reassessing the quality of our code, strengthening our grasp on and capabilities in the core elements of secure and resilient architecture design, and, wherever possible, simplifying every element of our products and solutions.

In 2018, to address the increasingly complex cyber security environment, we used a dynamic response approach to develop an overview of product planning and development. This was based on the assumption that cyberspace is insecure and cyber-attacks are constant. We also released our new Cyber Security Framework.

In 2018, we applied our new Cyber Security Framework through people management, security engineering capabilities, security technologies and standards, security certifications, and supply chain management. Some highlights of this year are listed below.

In people management, we focused on improving employees' security awareness and capabilities:

- We reviewed all key positions across the company relating to cyber security and privacy protection



and mandated that all employees in such positions must pass and receive certification from a cyber security examination.

- All of our employees received privacy protection awareness training and were tested on their mastery of its content. Currently, 98% of our employees have passed this examination, and the exam will be optimized and re-administered annually.
- A total of 97 Huawei employees received International Association of Privacy Professionals (IAPP) certification.

We embedded cyber security into our R&D processes and continued to improve our software engineering capabilities. Over the past several years, we have put an end-to-end security design platform in place, as well as a code security scanning cloud, a security test automation and FUZZ test cloud, and a vulnerability response platform. 2018 in particular saw multiple enhancements in our basic security quality:

- We customized scanning rules and applied AI, enabling the code security scanning cloud to intercept more code security issues faster.
- On our security test cloud, we focused on improving intelligent security testing technology. This technology identified more than 60 vulnerabilities in open-source software, which were then submitted to open source communities.
- We released the DevSecOps platform, incorporating security into the DevOps process. This ensures the security of cloud-based development.
- In the public cloud and consumer domains, we implemented vulnerability reward programs. With these programs, we mobilized industry security experts and worked with the industry to build a responsible, transparent, and collaborative security ecosystem.
- Results from the Building Security in Maturity Model (BSIMM) evaluation that has been conducted for the past five consecutive years showed that Huawei has continuously improved security practices and ranks among the top in the 120 evaluated companies.

In security technologies and standards, we continued research on technology and architecture to improve the trustworthiness of our products and network resilience:

- We launched security technologies including security orchestration and virtual machine escape detection at HUAWEI CONNECT 2018.
- We developed a series of key security technologies for mobile phones, including dynamic measurement, enhanced Return Oriented Programming (ROP) attack defense, and a lightweight applet isolation sandbox. We also researched and adopted formal proof technology to perform formal verification on some key designs and code, ensuring that mobile phone security is well protected.
- We developed and applied privacy protection technologies such as randomized identifiers, data masking, generalization, and multi-attribute differential privacy.
- As a director and technical committee member of the Trusted Computing Group (TCG), we submitted Recommendations for Runtime Integrity Preservation, which their new standards are based upon. As an ETSI NFV SEC rapporteur, we submitted the Report on NFV Remote Attestation Architecture, which also became the basis of their new standards. Huawei is the chair of 3GPP SA, and the 5G security architecture led by Huawei was included in the Standard on 5G Security Architecture and Functions as part of the Release 15 standard TS 33.501.

We actively participated in the industry's mainstream security certification. Our major products received 11 international mainstream security certifications, including:

- Network Device collaborative Protection Profile (NDcPP) certification from the BSI in Germany for our NE40E product software
- Common Criteria (CC) EAL2 certification from the BSI in Germany for our OSN 1800 V product software
- Authoritative security certifications including ISO 27018, SOC1/2, and Payment Card Industry Data Security Standard (PCI DSS) for Huawei Cloud
- Certifications based on ISO 20000 and ISO 22301 for Huawei's Operation Web Services (OWS) Operation Center

In 2014, Huawei's Independent Cyber Security Lab (ICSL) gained ISO/IEC 17025 accreditation for the first time. In 2018, this accreditation was reconfirmed.

Huawei also proactively works with GSMA on 5G security testing and evaluations based on the Network Equipment Security Assurance Scheme (NESAS).

In supply chain management, we manage the cyber security and privacy protection of our suppliers around the world. In 2018, we took significant steps towards that end:

- We evaluated 2,778 of our mainstream suppliers for cyber security risks, and verified the progress of related corrective action plans.
- We signed a Data Protection Agreement (DPA) with 582 suppliers for privacy protection, and performed due diligence on these suppliers.
- We continued to optimize our manufacturing system by developing an independent software test cloud and security assurance system. These were deployed by all of our 62 Electronic Manufacturing Services (EMS) providers, ensuring the security of our manufacturing process.

Protecting the Security and Privacy of Smart Devices

Thanks to advances in mobile Internet, people increasingly rely on mobile smart devices for online access. These devices store a wealth of user data, and the number of apps originating from diverse sources

is continuing to grow. This challenge puts user privacy and security at risk, drawing increasing scrutiny to the security of mobile smart devices.

Huawei puts a high premium on the security of mobile smart devices, delivering end-to-end security solutions while ensuring excellent user experiences.

Chip security solutions

Huawei's HiSilicon chips provide hardware-based, chip-level security protection. They fend off side-channel attacks and other physical attacks through a range of security capabilities: secure boot, secure storage, a trusted execution environment, the True Random Number Generator, hardware-based algorithmic engines, and hardware-level attack prevention. In addition, these chips run in a trusted execution environment to protect device systems, data, and network communications.

Huawei's innovative financial-grade inSE security solution embeds a security chip into a smartphone processor. inSE utilizes a System-on-a-Chip (SOC) design and software algorithms to protect both software and hardware. This ensures chip-grade protection for a smartphone's system security and user privacy, because it can build defenses into software and withstand hardware attacks.

Security of the EMUI operating system

Huawei's Emotion User Interface (EMUI) provides end-to-end security protection for hardware, systems, and apps. This includes security and privacy protection for hardware chips, system kernels, data, apps, networks, payments, cloud services, and device management.

- **Trusted Execution Environment (TEE)**

EMUI supports the secure TEE operating systems of various chip platforms. iTrustee is a TEE OS designed by Huawei, based on Huawei's HiSilicon platform, using ARM TrustZone. iTrustee creates a well-protected and isolated environment for users' confidential data and apps, including fingerprint screen unlocking, fingerprint payments, USB keys, Skytone, and Huawei Wallet.

- **Security of systems and apps**

EMUI ensures security with advanced functions at four levels:

System security: integrity protection (verified boot, Huawei Kernel Integrity Protection, and EMUI Integrity Measurement Architecture), kernel security (Security-Enhanced Linux access control, and kernel address space layout randomization), and system software upgrade

Data security: lock screen passcode protection, file system encryption, Huawei Universal Keystore, secure erasure, and password vault

App security: app signature, app sandbox, runtime memory protection, secure input, app threat detection, AI security defense, malicious website detection, and traffic management

Communications security: defense against rogue base stations, blocks and filters, and device interconnection security

Huawei's mobile cloud services

Huawei's mobile cloud services provide robust security protection for Huawei accounts, HiCloud, and AppGallery.

- **Security of accounts**

Over 500 million people can use their accounts securely thanks to our cutting-edge account protection technologies. These technologies include two-factor authentication, slide verification codes, heuristic security authentication, and account risk control.

- **HiCloud**

On Huawei's HiCloud, users can store and synchronize numerous types of data, such as photos, contacts, text messages, call logs, memos, calendars, and web browser bookmarks. To protect this data, HiCloud employs nine advanced technologies: password security, authentication management, permission management, session management, password algorithms, password management, privacy protection, integrity management, and digital certification management.

- **Huawei AppGallery**

Huawei's AppGallery manages the security of apps with a four-layer system: detecting malicious behavior, scanning security vulnerabilities, checking privacy breaches, and performing manual reassessments. With this system, users can download secure apps from Huawei's AppGallery.

- **Android Green Alliance and green apps**

The first smartphone running the Android operating system (OS) entered China almost ten years ago. At present, 80% of smartphones use Android, but the OS is a double-edged sword. On one hand, it provides a wide array of functions that make lives, work, and learning easier and more effective. On the other hand, it can affect user security and experience with issues such as slow system response times, crashes, and privacy breaches.

To address these issues, Huawei led the formation of the Android Green Alliance in November 2016, which was the first ever organization in China devoted to building an ecosystem of green applications. By 2018, the alliance had brought together over 1,000 members covering more than 3,000 apps. The alliance holds routine technical discussions and eliminates chaos in a market full of apps with different quality standards. The alliance has established standards bodies with industry experts, and explored ways to improve the quality of apps.

In 2017 and 2018, the alliance released the first and second versions of the Experience Standards for Green Apps. According to these standards, green apps must meet requirements for compatibility, stability, power consumption, security, and performance. In Huawei's AppGallery, apps like these have a "Green" mark, so that users can download and use these apps with confidence.

Privacy and security certifications by authoritative institutions

Major products of Huawei's Consumer BG have passed multiple international security certifications that examine devices as well as their chips and cloud services. These certificates attest to our ability to consistently meet high standards for user privacy and security.

The inSE solution for the Kirin 980 chip received an EMVCo certificate in the finance sector. This certificate allows for international mobile payments and mobile financial services. The inSE has also received the China Financial National Rising Authentication (CFNR) Technology Certification of Mobile Financial Service – Chip Security, passed China UnionPay's Card Chip Security Specifications, and obtained the level-2 Certificate for Commercial Cipher Product Models.

iTrustee 2.0, a trusted execution environment for devices, has been awarded the CC EAL 2+ certificate. CC, or Common Criteria, is an international standard for IT security evaluation and certification.

Huawei Mobile Cloud has obtained international security certificates based on ISO 27001 and CSA-STAR.

Vmall, an online store for Huawei products, received the internationally recognized TRUSTe privacy certificate.

Huawei Pay, a mobile payment app, has been granted a PCI DSS certificate, the world's highest security standard.

Openness and Transparency

Over the past 30 years, Huawei has worked with carriers to build more than 1,500 networks, providing network services to over 3 billion people in more than 170 countries and regions. Our customers can testify that Huawei products have never caused a major security incident. Together with our customers, we will maintain this track record.

Huawei is a global company, and we have a deep understanding of and comply with laws and regulations around the world. We use the certainty of legal compliance to deal with the uncertainty of international politics.

Huawei has not been subject to any legal obligation to install or allow others to install backdoors in Huawei equipment. Nor have we had any legal obligation to collect intelligence for any person or organization. In the future, we will continue to deal with any requests to provide improper information by strictly adhering to the rights and procedures specified by the law. Everything we do is focused on our customers. This means we will do everything in our power to protect the legitimate rights and interests of our customers and users.

Huawei's Board of Directors has reinforced the fact that cyber security and privacy protection are and will remain Huawei's top priorities. In accordance with this ongoing position, Huawei has taken many steps and measures to continue this journey.

- We work with governments, industry communities, and our customers in an open, transparent, and constructive way to maximize the benefits of ICT infrastructure while improving its security. We are keenly aware of our responsibilities as a global ICT supplier, and we take the concerns expressed by governments, the general public, and our customers and partners very seriously.
- We have established effective cyber security collaboration and communication mechanisms with the governments of many countries, including the UK, Canada, Germany, and France. Moving forward, technology will continue to evolve and new security risks will emerge, which will require more open and candid communication and closer collaboration. In the future, we will build similar open and transparent security management mechanisms in other parts of the world as required. We will work more closely with governments and our customers and have more dialogues about the value of ICT and what we can do, collectively, to increase protection.
- Huawei has a robust cyber security assurance system, and we have invited third-party security organizations to independently evaluate Huawei products. It has been proven that Huawei equipment has never caused a large-scale network breakdown, and has never experienced any serious security incidents. There is also absolutely no evidence to show that Huawei equipment contains backdoors. Huawei products have and continue to maintain a strong track record in security. According to the most recent survey by market research firm CFI Group, Huawei's equipment has far outperformed the industry average in System Stability and Reliability for three consecutive years.
- Huawei complies with all applicable privacy protection laws around the world, including the EU's General Data Protection Regulation (GDPR). Privacy protection is not just a legal requirement. Huawei is a provider of ICT infrastructure and smart devices and privacy protection is an integral part of our social responsibility. Huawei adopts industry-recognized privacy protection methodologies and practices. To better identify and mitigate privacy-related risks in our business activities, we have included the Privacy by Design (PbD) approach and Privacy Impact Assessment (PIA) process in our product and service development processes.

In this era of globalization, all ICT equipment vendors rely on a global supply chain. The digital infrastructure of the future will inevitably be the result of multi-vendor convergence and collaboration. From a security perspective, we must avoid a closed or narrow-minded approach to cyber security. Instead, we must communicate proactively, enhance transparency, and openly collaborate on a global scale to ensure cyber security and privacy protection can truly safeguard the digital transformation of industries worldwide.

To meet the new challenges that will emerge in the cloud and mobile era, Huawei must ensure cyber security and protect privacy. These are the top priorities that underpin our future survival. We will continue to work with our customers and users to improve capabilities and share value in terms of cyber security and privacy protection.

STORY Huawei's AI Security White Paper

In recent years, the volume of data has kept growing. Computing power is constantly on the rise. Machine learning methodologies and systems continue to evolve. These developments have driven the widespread adoption of artificial intelligence (AI) technology. AI is a game changer for network security: It can be used to build more advanced defense systems, such as malware and attack detection systems, but it can be also exploited by bad actors to launch more effective attacks. The security of mission-critical AI applications is therefore more important than ever. This means that it is essential to build robust AI systems that are immune to external interference.

Huawei is dedicated to AI security research. We aim to provide a secure AI application environment that users can trust, and contribute to an AI-enabled intelligent world.

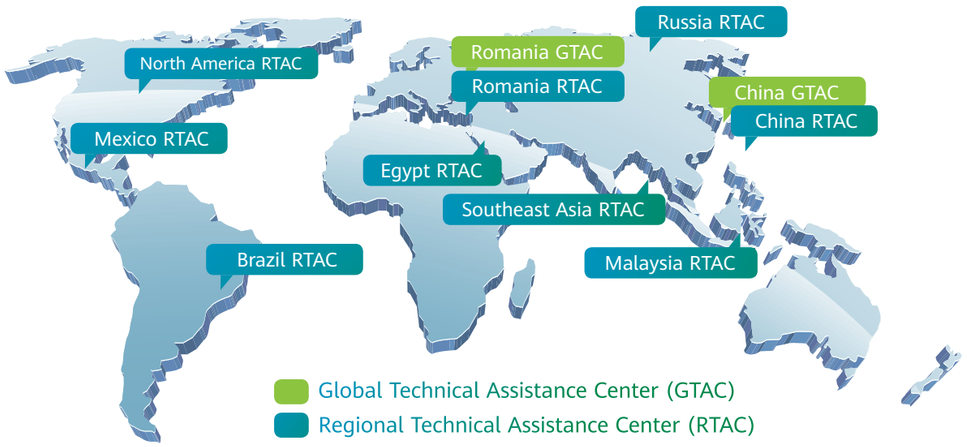
We have released an AI Security White Paper to address AI security challenges as well as technologies for security protection. This white paper explores the security of AI from the perspective of protecting the integrity and confidentiality of AI models and data, and thus preventing attackers from changing inference results or stealing data. The white paper proposes three layers of defense for deploying AI systems: attack mitigation, model security, and architecture security.

https://www.huawei.com/en/about-huawei/cyber-security/whitepaper/ai-security-white-paper

Supporting Network Stability

Supporting network stability is our paramount social responsibility. We strive to ensure that everyone is able to communicate, access data, and share information anytime, anywhere. We have established a comprehensive customer network support system that covers organizational structures, designated personnel, processes, and IT tools.

Huawei has established two global and nine regional technical assistance centers. More than 4,500 Huawei customer support engineers and over 700 service project managers and technology directors provide 24/7 services worldwide. In 2018, we ensured smooth communications for more than 3 billion people, and supported the stable operations of over 1,500 networks in more than 170 countries and regions. We guaranteed network availability during more than 300 natural disasters and major events such as the magnitude 7.7 earthquake in Sulawesi (Indonesia), Ramadān in the Middle East, the FIFA World Cup in Russia, the Jakarta Palembang 2018 Asian Games, and the 18th Summit of the Shanghai Cooperation Organization in Qingdao (China).



STORY Delivering Superior Network Services during the 2018 FIFA World Cup in Russia

During the 32-day World Cup in 2018, Huawei helped local carriers deliver superior services for private lines and live video. Throughout the event, there was not a single network disruption, incident, or complaint.

This was the result of the hard work of over 330 engineers from Huawei's Russia office and GTAC. Our engineers identified and resolved 134 network risks, and handled 346 emergencies to support video assistant referee (VAR) and live broadcasting at extremely low latency. During each match, around 32,000 spectators relied on ultra-high-speed, stable telecom services to transmit an average of 2.3 million images, videos, and text messages via the networks deployed inside the stadiums.

The customer expressed great appreciation to Huawei for our professional network assurance services, technical expertise, mature processes, and platform-based delivery capabilities, as well as our commitment to customer-centricity.

STORY 14 Days of Persistent Efforts to Support Smooth Communications in Earthquake-Stricken Regions in Sulawesi, Indonesia

On the afternoon of September 28, 2018, a magnitude 7.7 earthquake hit Sulawesi, a province in central Indonesia, resulting in a tsunami. The disaster brought down telecom networks and communications services across the province.

Just five minutes after the earthquake, Huawei's Global Technical Assistance Center (GTAC) put together a network recovery team that started working around the clock to restore the networks. Huawei's Indonesia Representative Office formed an onsite repair team with 21 staff members that worked on a repair solution together with 17 GTAC experts and the customer. The onsite repair team also helped the customer repair the main network lines as well as key base stations that had been severely damaged.

Huawei's business continuity management team was committed to ensuring the safety of onsite staff. The team engaged with the Indonesian Red Cross and local healthcare institutions via multiple channels to provide vaccinations and other medical services to our onsite staff.

After 14 days of hard work, the

onsite repair team restored 84 base stations and 3 backbone networks in 5 cities affected by the disaster.

At Huawei, we believe it is part of our social responsibility to protect lives and property by helping customers rapidly restore networks and ensure stable communications during disasters.

STORY Huawei Enabled Smooth Communications during the 18th Summit of the Shanghai Cooperation Organization in Qingdao

The 18th Summit of the Shanghai Cooperation Organization was held in Qingdao, China. As the highest-level international event held in this city, the summit brought together senior government officials and international organizations from 18 countries.

The Qingdao government set up a leadership team to ensure the success of this event. Communications support was one of the team's focuses, and Huawei, as a provider of communications equipment, played an active role in supporting the event.

The Huawei communications support team developed a cyber security and user experience improvement plan for each of the event's five key locations: the May Fourth Square, the Qingdao Olympic Sailing Center, the Qingdao News Center, the Eight Great Passes, and Qingdao Liuting International Airport. In particular, network service quality remained excellent even when more than 8,000 spectators gathered in the May Fourth Square for a fireworks show. Communications services in the other four key locations were also stable and smooth throughout the event.

Huawei's Jinan Representative Office initiated a project as part of this event. Over a period of seven months, 246 Huawei employees handled over ten key tasks, including network inspection, network optimization, emergency drills, and risk mitigation. All of their efforts contributed to a successful event: There was not a single network interruption or complaint throughout the summit.

Business Continuity Management

With today's highly globalized division of labor, Huawei must rely on a wide variety of third parties (including outside companies and agencies) for procurement, manufacturing, logistics, and global technical services. Therefore, the discontinuity of third-party business could directly or indirectly compromise Huawei's operations and business performance.

Through years of ongoing investment, Huawei has established a Business Continuity Management (BCM) system for procurement, manufacturing, logistics, global technical services, and other domains. This system covers end-to-end processes, from suppliers to Huawei, and on to our customers. As part of this system, we have developed and established measures to manage risks that arise from our day-to-day work. Specifically, we have built up management organizations, processes, and IT platforms, prepared business continuity plans and emergency response plans, and organized BCM training and drills for employees.

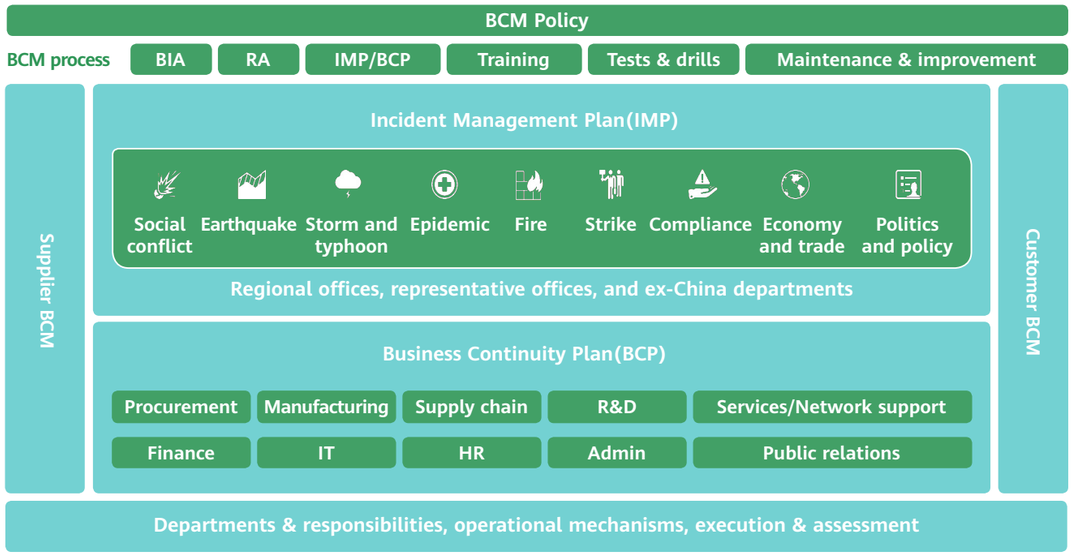
Key Initiatives for R&D and Procurement

Diversity: When designing a product, we strive to source raw materials, boards, and products from more than one supplier and prefer suppliers that have multiple manufacturing sites in order to safeguard product and component availability.

Scenario-specific storage: During mass production, we have a reasonable and safe inventory for raw materials, semi-finished products, and finished products, so that we can better respond to fluctuations in demand and supply.

Supply and demand visibility: Huawei works closely with suppliers to ensure that demand forecasts, purchase orders, and supplier inventory are all visible, and guarantee the quick transfer of demand and supply responsiveness through advanced IT systems.

Strategic partnerships: Huawei establishes strategic partnerships with core suppliers to ensure stable supply. We also sign long-term supply assurance agreements with key suppliers to guarantee supply capacity and availability, and avoid material bottlenecks. Additionally, we encourage suppliers to establish their own BCM systems, arrange for special audits, and follow up on their improvements.

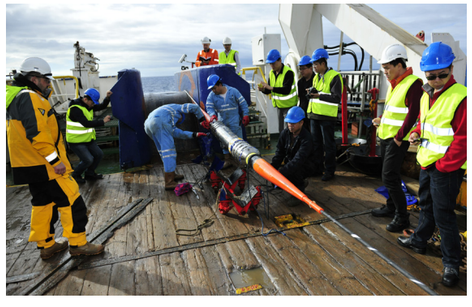


Business Continuity Management System

Key Initiatives for Manufacturing, Logistics, and Spare Parts

Manufacturing resource backups: Huawei has established strategic partnerships with multiple EMS suppliers. Board manufacturing and supply capabilities are shared between Huawei and EMS suppliers, and between different EMS suppliers as backup. We have also established supply centers in Shenzhen, Europe, Latin America, and Dubai, which serve as integrated equipment backups for other regions.

Logistics and transportation backups: Huawei works with many leading global logistics service providers to design a wide and diverse network of transportation routes that cover our global delivery. This network ensures alternative transportation routes are always available in the event of emergencies, enabling us to maintain continuity in logistics and transportation.



Spare part reserves to support full-lifecycle operations: Huawei reserves spare parts according to market demand and historical usage before the end of life (EOL) of a product is determined. After the EOL is determined, we reserve sufficient spare parts for the full lifecycle of the product in one go. This prevents any impact on the operational continuity of live customer networks.

Over the past decade, Huawei has successfully addressed many major political, economic, and trade upheavals; cyber-attacks (e.g., ransomware attacks); and natural disasters like the tsunami in Japan, the floods in Thailand, and the earthquake in Nepal. Throughout all of these challenging situations, Huawei has managed to ensure supply continuity and the timely delivery of products and services. This demonstrates the feasibility of Huawei's supply continuity management system.

Huawei is a global company that works in the network infrastructure, IT infrastructure, cloud services, and smart device domains. We have worked extensively with over 10,000 suppliers and established sound, long-term partnerships with them. Looking to the future, we have confidence that our partners can help us build an ecosystem for shared success and development as well as a secure, reliable, competitive, and healthy industry chain.

Digital technology is rapidly changing the world. This does not just include economies and society, but also the natural environment, which is the very basis of our survival.

As digitalization continues to advance rapidly, ICT infrastructure is becoming smarter and can offer faster and smoother connectivity. But ICT infrastructure and the smart devices that run on it consume huge amounts of energy and resources. The ICT industry is now facing the significant challenge of how to maximize the efficiency of networks and minimize energy and resource consumption, as well as other environmental impacts, without compromising network performance or user experience.

Meanwhile, advances in digital technology are creating new possibilities for environmental sustainability. According to Huawei's Global Industry Vision (GIV), by 2025 carbon emissions per ICT connection will be reduced by 80% on average. ICT is becoming an important enabling technology for a greener world. ICT-enabled power saving and reduction of carbon emissions will far exceed the industry's own power consumption and carbon emissions. In 2025, this will be 11 times higher than the current level.

This will present challenges, but will also create even more opportunities. We need to minimize environmental impacts and risks, and use innovative digital technologies to create new opportunities for promoting the sustainable development of the Earth's ecosystem.

Green Products
Green Operations
Green Partners
Green World

4 Environmental Protection

Green Products

Huawei has built sustainability into its product development processes. We control the use of hazardous substances, and explore how to design more energy-efficient products. To adapt to future network technologies and evolving architecture, we have also created innovative power-saving solutions that reduce power consumption and carbon emissions. In addition, we provide first-class energy-efficient products and promote green ICT solutions to help conserve energy and reduce emissions in various industries.

Huawei has integrated the concept of circular economy into its design. We take environmental impact into account at every stage of the product lifecycle, from raw material selection and processing to use and disposal. We are working to minimize the impact we have on the environment.

Huawei's green design approach

Raw material acquisition

- Selecting harmless materials to reduce the environmental impact of disposed products.
- Using more recycled and secondary materials.
- Lightweight designs: Minimizing the use of materials, while still ensuring full functionality.

Product use

- Extending product lifespan through design.
- Designing products as modules or platforms to make them easier to upgrade and repair, and increasing product utilization.

End of lifecycle

- Products are easy to disassemble, avoiding "always-on" designs, and high-value modules can be disassembled without being damaged.
- Researching the disassembling and reuse of scrapped products and categorizing the materials that can be reused before reprocessing. This has increased the reuse rate of recycled products and components.
- Different materials can be easily disposed of separately.

Product Lifecycle Assessment (LCA)

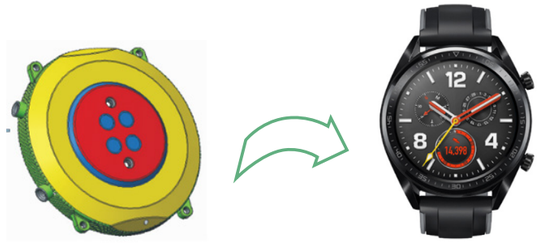
We follow ISO 14040 and ISO 14044 to conduct lifecycle assessments and quantify the environmental impact of our products. LCA not only helps quantify the environmental impact of different products, but also informs us of how we can improve product design to make them more environmentally friendly, including improvements in raw material selection, manufacturing processes, energy use, packaging, transportation, and recycling.

To make its products' environmental information more transparent, Huawei created a Product Environmental Information platform and first rolled it out to its consumer domain. On this platform, we release environmental information reports for our various types of smartphones and tablets, so that consumers can find information regarding the environmental impacts of their products during their lifecycles.

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

STORY **Using Bioplastics to Protect Non-renewable Resources**

Starting in 2013, Huawei has used bioplastics extensively in its mobile phones. Bioplastics are much more eco-friendly than traditional plastics because they are made from plant extracts rather than petroleum – a non-renewable resource. They can help greatly reduce environmental pollution and damage, and protect non-renewable resources.



Base made of bioplastics　　Huawei Watch GT

In 2018, Huawei expanded its use of bioplastics to more products, including the P20, P20 Pro, Mate RS, Mate 20, Mate 20 Pro, and Mate 20 RS, as well as the base of Huawei Watch GT. More than 30% of the bioplastics are extracted from castor oil, leading to a 62.6% reduction in CO_2 emissions. In 2018, Huawei's use of bioplastics helped reduce about 612 tons of CO_2 emissions.

STORY **Using FSC-certified Packaging to Protect Forest Resources**

Huawei Device increasingly uses FSC certified packaging for its products to minimize the impact that product packaging has on the environment and to protect forests. FSC is a supply chain management certification that ensures the materials for our packaging come from well-managed sustainable forests. This marks a huge step forward for protecting biodiversity. In 2018, the packaging for many of our products was FSC certified, including the P20, P20 Pro, Mate RS, Mate 20 Pro, and Mate 20.

Packaging for Huawei's Mate 20 smartphones

STORY Lightweight Packaging Design to Reduce Carbon Emissions

In 2018, our lightweight packaging design also began to see results. Better design for retail packaging has helped improve resource utilization, with most phone packaging now about 20% lighter than previous designs. This equates to an annual reduction in CO_2 emissions of about 5,813 tons.

We have also adopted lightweight designs for our logistics packaging to reduce carbon emissions during transportation. In early 2018, we launched a pilot program to reuse shipping cartons for product delivery. In 2019, this program will be rolled out for all shipments and is expected to reduce carbon emissions by 1,094 tons each year. At the same time, we have improved the materials used in our cartons. We have adopted a lightweight design while ensuring all packaging and assembly requirements are still met. Cartons are now 10% lighter, which is expected to reduce CO_2 emissions by 994 tons each year.

Since 2008, Huawei has started using aircraft pallets, which are 50% lighter than plywood pallets. In 2018, the transported weight was reduced by 3,098 tons, equivalent to a CO_2 emissions reduction of 808 tons.

Reused cartons

Aircraft pallets

STORY Smart Solutions Ensure Long-lasting Battery Life for Smartphones

Continuous Process Improvement and System-level Power Saving Solution: Huawei uses the Kirin 980 chip, which is manufactured using 7nm processors, in its multiple products, beginning with the Mate 20 series. This helps greatly improve performance and energy efficiency, and achieve optimal energy efficiency while providing excellent performance.

The Kirin CPU has an energy efficiency architecture consisting of four ultra-large cores and four small cores. This grants the CPU the flexibility to allocate the optimal amount of resources to heavy, medium, and light tasks, greatly reducing power consumption for the System on a Chip (SoC) in all scenarios.

A proper mechanism for allocating resources to different applications is a key factor that affects power consumption in mobile phones. Huawei's EMUI system can allocate resources in a way that optimizes energy efficiency and enhances battery life based on behavior prediction and component capabilities.

The battery life of the Huawei Mate series and P series is 30% longer than that of their predecessors. A total of 40 million users will save 114,000 kWh of electricity per day.

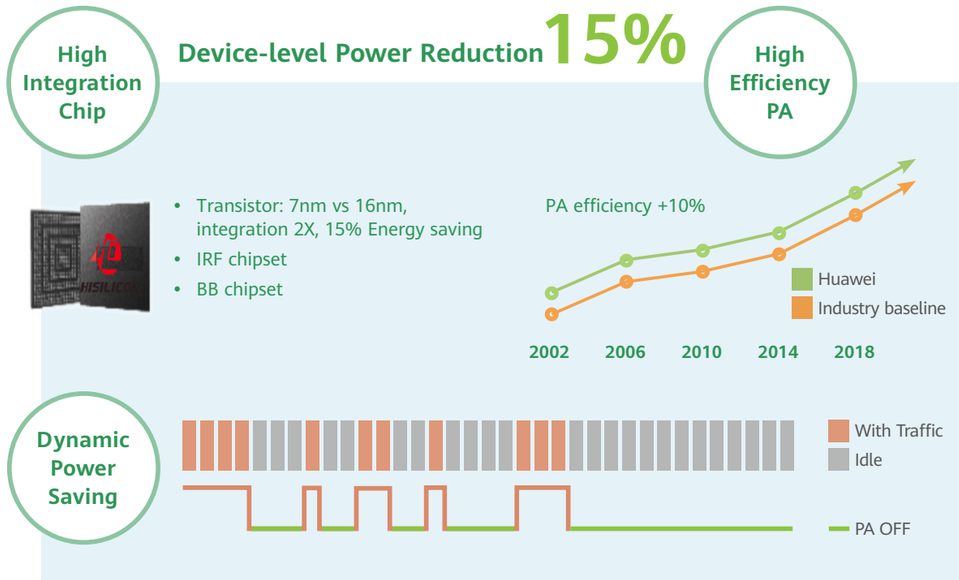
Using Innovative Technologies for Higher Performance and Lower Power Consumption: GPU Turbo, a revolutionary graphics processing acceleration technology, overcame the processing bottlenecks between Huawei's EMUI operating system and smartphone GPUs/CPUs. It makes graphics processing much faster and enables the SoC to use less energy, achieving an optimal balance between performance and power consumption.

As a new Android application compiler, Huawei Ark compiler can significantly improve the operating speed of mobile phones, make system operations smoother, and reduce the system overheads required when performing the same tasks.

STORY Ongoing Innovation in Energy-saving Technologies, Applications, and Products to Support 5G Network Evolution

Huawei owes its leading end-to-end 5G capabilities to its technological innovations in various domains like Massive MIMO, simplified sites, 5G microwave, and 5G chipsets. Huawei's 5G solution helps carriers deploy simplified 5G networks with superior performance. Specifically, this solution helps simplify network architecture, and greatly slash TCO, including buildout and operational costs, while ensuring the rapid deployment of large-scale, high-performance 5G networks.

We have also used high-integration chips, high-efficiency power amplifiers, and 5G-enabled power shutdown to save energy, cutting the power consumption of 5G equipment by 15%. In addition, Huawei has worked with carriers to develop 5G energy efficiency assessment standards, improve the methodology for defining and assessing 5G energy efficiency indicators, and drive continuous improvement of 5G energy efficiency.



Management of Hazardous Substances at Huawei

Hazardous substances include any substances of which the use must be prohibited, restricted, reduced, or reported according to the law or customer requirements. These substances are detrimental to human health or the environment. To handle such substances, Huawei has established a management system in line with IECQ QC 080000 standards. In reference to global environmental laws and regulations as well as industry standards, we have developed regulations for managing controlled substances in consideration of the realities of our products. By doing so, we seek to protect human safety while reducing environmental impact throughout our products' entire lifecycle. These regulations apply to all restricted, reported, and to-be-restricted substances, guide the selection of materials at the product design stage, and set out requirements for suppliers and partners.

On December 26, 2018, Huawei Device was

IEC QUALITY ASSESSMENT SYSTEM (IECQ)
covering Electronic Components, Assemblies, Related Materials and Processes

IECQ Certificate of Conformity
Hazardous Substance Process Management

IECQ Certificate No.: IECQ-H LCIE 18.0008 | Issue No.: 1 | Status: Current
Supersedes: | Issue Date: 2018/11/16 | Org Issue: 2018/11/16
CB Reference No.: 193-18-008 Is.1 | Expiration: 2021/11/15

Applicable to:

- European Directive 2011/65/EU ("RoHS – Restriction of the use Of certain Hazardous Substances") in electrical and electronic equipment, including all published amendments
- European Directive 2006/66/EC ("Batteries and Accumulators and waste batteries") and accumulators and its amendments
- European Directive 94/62/EC ("Packaging and Packaging Waste") and its amendments
- European Directive 2012/19/EU ("WEEE – waste electrical and electronic equipment") recast
- China – RoHS 2 2016-01-21 (Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products)
- European Directive 2015/863/EU (amending Annex II to EU RoHS 2 (Directive 2011/65/EU) to Restrict 4 New Phthalates: DEHP, BBP, DBP and DIBP)

Huawei Device Co., Ltd.
No. 2 New City Avenue, Song Shan Hu Science & Technology Industrial Park,
Dongguan City, Guangdong Province,
China

The organization has developed and implemented Hazardous Substance Process Management procedures and related processes which have been assessed and found to comply with the applicable requirements for IECQ HSPM organization approval which is in accordance with the Basic Rules IECQ 01 and Rules of Procedure IECQ 03-5 "IECQ Hazardous Substances Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ); and with respect to the IECQ Specification:

- IECQ QC 080000:2017 - Hazardous Substance Process Management System Requirements

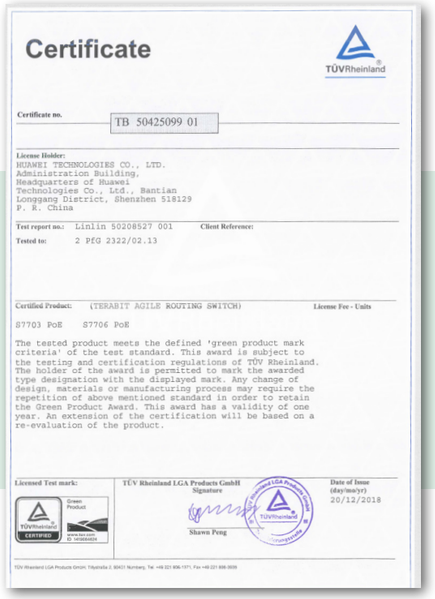
This Certificate is applicable to all electronic components, assemblies, related materials and processes for the following scope of activities:
Manufacture and Delivery Management, Repair Services of Digital Entertainment Products, Telecommunication Terminal Products

Issued by the Certification Body: LCIE Bureau Veritas

33 avenue, du Général Leclerc
92260, Fontenay aux Roses
France

Authorized person:
Jérôme REYSSON

IECQ QC 080000 certificate obtained by Huawei Devicefor servers


Certificate

TÜVRheinland

Certificate no. TB 50425099 01

License Holder:
HUAWEI TECHNOLOGIES CO., LTD.
Administration Building,
Headquarters of Huawei
Technologies Co., Ltd., Bantian
Longgang District, Shenzhen 518129
P. R. China

Test report no.: Linlin 50208527 001 Client Reference:
Tested to: 2 PfG 2322/02.13

Certified Product: (TERABIT AGILE ROUTING SWITCH) License Fee - Units

S7703 PoE S7706 PoE

The tested product meets the defined 'green product mark criteria' of the test standard. This award is subject to the testing and certification regulations of TÜV Rheinland. The holder of the award is permitted to mark the awarded type designation with the displayed mark. Any change of design, materials or manufacturing process may require the repetition of above mentioned standard in order to retain the Green Product Award. This award has a validity of one year. An extension of the certification will be based on a re-evaluation of the product.

Licensed Test mark: TÜV Rheinland LGA Products GmbH Signature Date of Issue (day/mo/yr) 20/12/2018

Shawn Peng

TÜV Green Product Mark certificate for switches

Mate 20

among the first to be awarded the new IECQ QC 080000: 2017 Certificate. The certification attests that the quality management system is more systematic, standardized, transparent, and complete regarding green products and the control of hazardous substances throughout our processes. It also lays a solid foundation to help us enhance compliance and build a sustainable, green device industry.

Green Product Certificates

China Environmental Labeling

Huawei embeds the concept of green design across the full lifecycle of its servers to minimize negative impacts from our products and conserve energy resources. In 2018, more than 200 of Huawei's server models, including rack servers, blade servers, multi-node servers, integrated storage servers, and distributed storage servers, were accredited by the China Environmental Labeling program, known as the "10-Ring Certification". This makes Huawei one of the most certified server providers in the industry.

TÜV Green Product Mark

TÜV Rheinland's Green Product Mark is a renowned 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 2018, two models of Huawei's routers and switches received TÜV Rheinland's Green Product Mark certificates.

Huawei Device Has Obtained China's Green Supply Chain Certification

Green supply chain is about integrating environmental protection and resource conservation into enterprise production, processing, and transportation processes, making sure these business activities are environmentally friendly. Huawei Device has implemented green supply chain management and plays a leading role in environmental protection along the supply chain. In particular, we contribute to society by saving energy, reducing emissions, and protecting the environment during our own operations. We also guide both upstream and downstream enterprises along the supply chain to increase resource and energy utilization, improve their environmental performance, and achieve green development.

Huawei Device is on China's list of recognized green supply chain certified enterprises, thanks to its outstanding performance across six indicators: supply chain management strategy, green supplier management, green production, green recycling, green information platform construction, and green information disclosure.

TLC Certificate for Green Product Certification

In 2018, the Thayer Certification Center (TLC) launched a new certification scheme for green products. The certification focuses on energy conservation and also measures indicators spanning environmental protection, EMC, safety specifications, production processes, packaging, and recycling. Huawei's two uninterruptible power supply (UPS) products have received this certification, making them part of the first batch of products that had been awarded the TLC Certificate for Green Product Certification.

US UL110 Certification for Green Products

UL110 is an environmental standard developed by Underwriters Laboratories (UL) to assess the sustainability of mobile phones. UL110 certification is one of the most recognized green standards. It assesses products in eight areas: sourcing materials, manufacturing and processing, emissions, energy efficiency, health and safety, transportation, disposal and recycling, and innovation. It then produces a final certification assessment.

In 2018, several Huawei phones passed the new UL110 Gold Certification, including the P20, P20 Pro, Mate 20, Mate 20 X, Mate 20 Pro, and Mate 20 RS.

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, resource consumption, material use, pollutant discharge, packaging, and reuse) at each of these stages and assigns the assessed products a grade – A, B, or C. A represents the highest level of certification.

In 2018, 23 Huawei products received an A grade, including the Honor Magic 2, Huawei Enjoy 9 Plus, Huawei MediaPad T5, Honor Note 10, and Honor WaterPlay.

Other Certificates

In 2018, three Huawei wearable products were awarded the TÜV SÜD Wearable Devices Certification Mark: the Huawei Kids Watch 3 Pro, Honor K2 Kids Watch, and Huawei Kids Watch 3. We had several products ENERGY STAR® certified, including four tablets (i.e., Honor WaterPlay, Huawei MediaPad M5, MediaPad C5, and MediaPad T5) and four models of MateBook. So far, Huawei has 40 models across 14 product categories with China's green products design certification, including mobile phones, tablets, and personal computers.

Honor Magic 2

Green Operations

Huawei is committed to ensuring its business is environmentally friendly, which is reflected by our low-carbon campus management. We have adopted initiatives to reduce our energy consumption and CO_2 emissions such as implementing an energy management system, making managerial and technological improvements, and using clean energy. These efforts are helping us minimize the environmental impact of our business operations.

Energy and Resource Consumption Statistics of Huawei's China Region Operations from 2014 to 2018

Energy	Unit	2014	2015	2016	2017	2018
Natural gas	10,000 m^3	491	522	993	711	1,114
Gasoline	Ton	390	363	358	600	251
Diesel	Ton	46	41	116	256	77
Electricity	10,000 kWh	113,325	134,700	168,653	207,095	235,504
Steam	Ton	19,881	20,561	20,352	21,801	23,143
Water	10,000 ton	548	700	936	813	1,041

In 2018, our consumption of natural gas, electricity, steam, and water grew as many new campuses and facilities in China became operational during the second half of 2017 and throughout 2018. These campuses and facilities include our Wuhan Research Center, Xi Liu Bei Po Cun in Dongguan, buildings E2B and E2C in Zone D of the Southern Factory in Dongguan, Zone A in the Nanjing Research Center, and Zone K at Shenzhen headquarters.

Most of the water we consume in our operations is used for landscaping, canteens, and air-conditioning systems. To reduce water usage, we have rolled out clean production technologies and adopted a variety of measures such as collecting rainwater, recycling cooling water, and buying reclaimed water for cleaning and landscape maintenance on campuses.

In 2018, we used 10.41 million m^3 of water, up 28% year-on-year. This increase was largely attributable to our business growth, larger construction sites, and bigger landscaping areas.

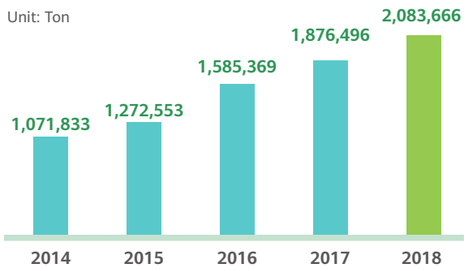
2018 GHG Emissions

GHG	Scope 1	Scope 2	Total
Emissions (t-CO2e)	43,375	2,040,291	2,083,666
Proportion	2.08%	97.92%	100%

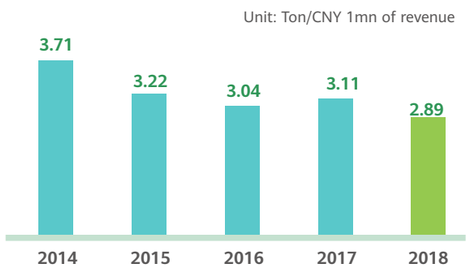
In 2018, the GHG emissions of our China Region operations totaled 2,083,666 tons, an increase of approximately 11% from 2017. This increase can be attributed to three key factors. First, our business grew significantly, with our annual revenue increasing to US$105.19 billion. Second, we built several new campuses. Third, we upgraded our office facilities.

Scope 3 GHG emissions include but are not limited to emissions from employee travel and commutes as well as emissions from suppliers' raw material production, transport of raw materials and products, product use, and product outsourcing. In 2018, Huawei calculated the GHG emissions from employee travel and commutes only.

In 2018, our CO_2 emissions per million RMB of sales revenue were 2.89 tons. This represented a 24.5% decrease compared to the base year (2012).



Total GHG emissions from 2014 to 2018



Intensity of GHG emissions from 2014 to 2018

STORY **Optimizing Energy Management and Passing a Third-Party Audit Based on ISO 50001 Energy Management Standards**

In 2018, we took a variety of initiatives to manage energy: identifying energy-saving opportunities and reinforcing the management of energy consumption by running the energy management system; setting measurable energy consumption targets at the company, regional, system, and equipment levels; and developing actionable energy-saving plans in line with the energy management strategy and energy consumption targets.

During a third-party annual audit, which examined how our Shenzhen campus managed energy, the auditor checked eight technological improvement projects (e.g., upgrading the electromechanical components of water chilling units) and two managerial improvement projects (e.g., reasonably adjusting air-conditioner temperatures) that Huawei had implemented. Improvement projects that were completed by September 2018 on our Shenzhen campus produced positive results, saving 1.72 million kWh of electricity. In November, Huawei passed the third-party annual audit based on ISO 50001 Energy Management Standards.

ENERGY MANAGEMENT SYSTEM CERTIFICATE

Huawei Technologies Co., Ltd.

CHINA QUALITY CERTIFICATION CENTRE

Executing a Green Logistics Service Strategy to Build a Sustainable Office Environment

In 2018, we referred to industry best practices and encouraged our campus management suppliers to manage energy more efficiently. This included setting procedures and control parameters for any common facilities that have a major impact on energy consumption, such as cooling facilities, electricity transformation and distribution systems, laboratories, and lighting systems. We also identified other variables that noticeably affect energy efficiency, such as temperature changes and staff capacity. We set and analyzed the parameters of the energy management system to ensure controls were effective. In 2018, we implemented more than 150 energy-saving programs on our campuses in China, saving over 50 million kWh of electricity.

Typical energy-saving programs are as follows:

No.	Area of Improvement	Involved System	City	Project Name
1	Technological improvement	Lighting	Hangzhou	Upgrading lighting circuits in labs
2	Managerial improvement	Air-conditioner	Hangzhou	Upgrading cooling towers
3	Managerial improvement	Other	Hangzhou	BEOP system
4	Managerial improvement	Lighting	Hangzhou	Energy saving for the Z7 cafeteria
5	Technological improvement	Air conditioner	Nanjing	Removing wet film from air handling units
6	Technological improvement	Air conditioner	Nanjing	Installing wet bulb temperature sensors on cooling towers
7	Technological improvement	Air conditioner	Nanjing	Reducing the temperature of cooling water by changing the fill media of cooling towers
8	Technological improvement	Air conditioner	Nanjing	Upgrading balance tubes in refrigeration stations
9	Technological improvement	Power supply and distribution system	Wuhan	Upgrading power cables in the thermal chamber lab
10	Technological improvement	Air compression system	Chengdu	Replacing and adjusting air compression systems
11	Managerial improvement	Lighting	Chengdu	Optimizing office lighting rules outside working hours
12	Technological improvement	Air conditioner	Chengdu	Adjusting the frequency of secondary pumps inside water chilling systems in data centers
13	Managerial improvement	Air conditioner	Chengdu	Installing balance valves in cooling towers

14	Technological improvement	Air conditioner	Chengdu	Adjusting the temperature of cooling water at the outlet
15	Technological improvement	Air conditioner	Chengdu	Controlling the approach temperature of cooling towers in the north and south sections of the campus
16	Technological improvement	Air conditioner	Chengdu	Adjusting the flow of freezing pumps
17	Technological improvement	Air conditioner	Shenzhen	Installing a device for cleaning condensers when air conditioners are powered on
18	Technological improvement	Air compression system	Shenzhen	Upgrading air compression systems for lower energy use
19	Technological improvement	Air compression system	Dongguan	Upgrading air compression systems for lower energy use
20	Technological improvement	Air conditioner	Dongguan	Calculating efficiency enhancement via the temperature-entropy (T-S) diagram, and comparing the energy consumption of precision air conditioners

Procuring Clean Energy for Green Campuses

In 2018, Huawei continued with its clean energy program. We actively worked with electricity suppliers and engaged with gas power plants that have clean energy capacity, which provided us with gas power to run our campuses. In 2018, we used about 932 million kWh of electricity from clean energy sources, representing an emissions reduction of about 450,000 tons.

We also estimated campus demand for electricity in 2019 and urged our electricity suppliers to negotiate with multiple gas power plants. We purchases 1.19 billion kWh of gas power, which is expected to reduce carbon emissions by more than 560,000 tons.

CTI 华测认证
CTI CERTIFICATION

The GHG emission reduction statement of Huawei Technologies Co., Ltd. and Huawei Machine Co., Ltd. planing to purchase natural gas power generation replacing traditional coal-fired power generation in year 2019

GHG emission reductions have been verified in accordance with the principles and requirements of ISO 14064-2: 2006.

Total Amount of GHG Emissions Project Description	**568529** tCO$_2$e To realize the green park business strategy, reduce the Parks' operational GHG emissions, and to achieve sustainable development, **Huawei Technologies Co., Ltd.** and **Huawei Machine Co., Ltd.** intend to use clean and low-carbon natural gas power generation to replace traditional coal-fired power generation in year 2019. Huawei Technologies Co., Ltd. and Huawei Machine Co., Ltd. intend to purchase 1194.6243 million kWh natural gas power generations from **SECC Power Sales & Service Co., Ltd.** in 2019, which will reduce GHG emissions by **568529** tCO$_2$e.
Baseline Carbon Emission Intensity	The weighted average carbon emission intensity of the coal-fired generating units of annual contract power (including annual bilateral negotiation and annual concentrated bidding) of **SECC Power Sales & Service Co., Ltd.** in 2019 is 0.8995 tCO$_2$ / MWh.
Carbon Emission Intensity of Each Power Generation Unit	The actual annual completion value of the most recent year (2017)
Statement Date	December 7, 2018
Annex	Emission reduction calculation spreadsheet tables

总经理：

WE Assure Your Excellence !

Statement on greenhouse gas emissions reduction

Using Shuttle Buses Powered by New Energy

In 2018, we brought in over 800 new-energy shuttle vehicles for use on our campuses in China, replacing diesel buses. This is expected to reduce annual CO_2 emissions by about 32,000 tons.

Building More PV Plants on Our Campuses

We use clean and renewable energy to build green campuses that boast low carbon emissions. Our Southern Factory in Dongguan, Hangzhou Research Center, and Nanjing Research Center finished constructing their smart PV plants and connected these plants to the grid in June 2012, March 2015, and December 2017, respectively. These PV plants have a combined capacity of 19.35 MW, and generated over 16 million kWh of electricity in 2018. This is equivalent to a reduction in CO_2 emissions of more than 13,000 tons.

Smart PV plant at Huawei's Southern Factory in Dongguan
Capacity: 17.5 MW
Connected to the local grid in June 2012

Smart PV plant at Huawei's Hangzhou Research Center
Capacity: 1.8 MW
Connected to the local grid in March 2015

Smart PV plant at Huawei's Nanjing Research Center
Capacity: 0.05 MW
Connected to the local grid in December 2017

Green Partners

The sustainable development of the industry chain relies on the involvement of suppliers. In recent years, customers and other stakeholders have paid great attention to our ability to reduce carbon emissions through suppliers. This not only helps suppliers improve their energy efficiency and reduce operating costs, but also reduces customers' carbon footprints.

Implementing green management for suppliers is an effective way to make the supply chain more competitive and promote the sustainable development of enterprises to the greatest extent possible. Huawei continues to carry out a green partnership program, and works with suppliers to provide innovative solutions for energy conservation and emission reduction. We also participate in related industry organization activities and the development of related standards to help build a comprehensive green supply chain.

Environmental Protection and Energy Conservation through Suppliers

Since 2011, Huawei has been supporting 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 2018, routine queries about the environmental data of 900 key suppliers revealed 52 violations of environmental protection rules, and these violations were properly addressed. On the IPE's 2018 Greening the Global Supply Chain – Corporate Information Transparency Index (CITI), Huawei was scored as the leading company in mainland China and ranked 7th in the IT sector.

We encourage our suppliers to develop energy metering systems, audit their energy usage, identify opportunities to reduce energy use and carbon emissions, study industry-leading practices and case studies, and develop and implement their own energy conservation and emissions reduction plans.

In 2018, a total of 20 suppliers took part in our program, together reducing CO_2 emissions by 51,094 tons.

CO_2 Emissions Reduction of Suppliers Involved in Our Program from 2014 to 2018

Year	Number of Suppliers	CO_2 Emissions Reduction (Ton)
2014	20	53,652
2015	35	77,144
2016	20	55,000
2017	25	63,000
2018	20	51,094

Green World

Huawei is committed to promoting green ICT solutions. We aim to drive industries to conserve energy and reduce emissions and build an environmentally friendly low-carbon society that saves resources. We use innovative energy solutions to help our customers and users reduce their power consumption and carbon emissions. At the same time, we take products' environmental impacts into account throughout the entire supply process. In particular, we carry out waste recycling, product trade-in programs, and other such activities to improve the reuse rate of returned materials, reduce the landfill rate of waste, and minimize the negative impact on the environment. We work with all other players in the industry chain to build a more beautiful, greener world.

STORY **Huawei's PowerStar Energy-saving Solution Reduces Carbon Emissions of Base Stations**

At the Huawei Global Analyst Summit 2018, Huawei launched PowerStar, a new solution aimed at reducing the energy consumption of multi-mode multi-band mobile communications networks. With PowerStar on networks, base stations typically use between 10% and 15% less energy, cutting around 2,000 tons of CO_2 emissions annually for every 1,000 sites. Huawei's solution allows carriers to cut network OPEX, while helping take the telecom industry one step closer to the UN's SDG 13 – Climate Action.

Enabled by AI and other innovative technologies, Huawei's PowerStar solution allows well-coordinated energy saving across different base stations of a network working on different bands and modes. With the solution, power saving strategies can be customized based on network configuration and data traffic.

That means a different energy-saving policy can be adopted for each base station, reducing unnecessary energy consumption in wireless networks. Our aim is to ensure "Zero Bit, Zero Watt", and save as much energy as possible without undermining wireless network performance.

Huawei's PowerStar solution has been verified and deployed in multiple countries such as China, South Africa, and Morocco. According to a GSMA case study on PowerStar in South Africa, the solution can help increase carrier energy savings on main wireless network equipment by 11.6%, saving 6.43 kWh per day for a single base station while maintaining stable network performance.

In Zhejiang Province, China, PowerStar helped carriers reduce power consumption by 12% on main wireless network equipment. This solution is expected to save 26 million kWh power for all wireless networks in Zhejiang each year. It is estimated that a typical live network with 1,000 base stations can save 1.46 million kWh of power per year with PowerStar, equivalent to a reduction of 1,370 tons of carbon emissions per year.

STORY Building a Recycling System for Less Environmental Pollution

Huawei fulfills its extended producer responsibility. We have developed a global recycling system for consumer products and offer consumers channels for recycling their used electronics products. This helps reduce the environmental impact, such as pollution, caused by scrapping electronic products. We have also organized recycling initiatives to give consumers a better understanding of Huawei's recycling channels, and invite them to participate in the recycling process. These efforts have contributed to a circular economy. By the end of 2018, we had more than 1,300 recycling stations in 48 countries and regions around the world.

Recycling website outside China: https://consumer.huawei.com/en/support/recycling/

In 2018, we further scaled up our product trade-in program to lower the purchase cost of new products while increasing the reuse rate of old products. In China, we also introduced a new online program: credit-based recycling, where we give users coupons in return for recycling. We also established 193 new trade-in stations. Outside China, our trade-in program is available in nine countries, including Russia, Italy, Germany, and the United Arab Emirates. In 2018, we recycled more than 140,000 phones worldwide through the trade-in program.

STORY Improving Software and Hardware to Extend Mobile Phone Lifespans

Huawei EMUI, a custom mobile operating system based on Android, offers free upgrades to old users. The EMUI system that is based on major Android releases is updated every year, and some phone models can even enjoy two free upgrades of major Android releases each year. In this way, users can enjoy the latest experiences enabled by EMUI and Android over the course of their mobile phone's lifespan.

Huawei is committed to quickly upgrading old phones to the latest major EMUI version. We also continuously launch new technologies like GPU Turbo and new features, such as full-screen gestures, emergency SOS, WeChat fingerprint payment, and security patches, to older models so they can stay up to date. Our latest EMUI versions provide users of older models with the latest features and rich, smart experiences in their work and entertainment. This extends the lifecycle of mobile phones, maximizes the benefits for consumers, and contributes greatly to the circular economy.

In 2018, Huawei Device launched a Battery Replacement program, through which users can replace their old phone batteries at a fixed low price. This program covers more than 70 old and new models at more than 1,200 service centers and through multiple digital retail platforms. Through this program, Huawei provides cost-effective and convenient battery replacement services for 200,000 consumers every month, extending the lifespans of their phones. In addition, we provide standard battery disposal programs to avoid potential security risks caused by unauthorized removal, installation, or maintenance of batteries.

We have also initiated a discounted repair program to help reduce maintenance costs for consumers, maximize the reuse of spare parts and other related resources, and extend mobile phones lifespans through maintenance. With this program, Huawei even returns consumers' phones directly to production factories for general repair, screen replacement, and motherboard maintenance.

STORY Huawei's Green Energy Solution Helps Carriers Cut Power Consumption

Huawei's hybrid power solution PowerCube 1000 helps to provide stable power supply in a green, intelligent, and cost-effective manner and provides digital connectivity to remote areas, especially remote areas in Africa where power is inaccessible or unstable.

The solution integrates enhanced digital and AI technologies. In Africa, for example, the solution helped dramatically cut the TCO, making it possible to build wireless base stations in a more economical manner. In addition, this helped customers halve both their fuel costs and carbon emissions. For example, after deploying Huawei PowerCube 1000, a carrier in Ethiopia saw annual fuel savings of 12 million liters.

By the end of 2018, the Huawei PowerCube 1000 solution had been widely applied across 93 countries and regions and provided telecom energy services for more than 130 carriers, helping Huawei earn customer trust and support.

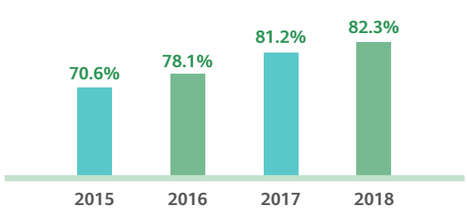
At the awards ceremony of the 21st AfricaCom, held in November 2018, Huawei's hybrid power solution PowerCube 1000 received the Best Sustainable Power Solution award.

Building a Reverse Supply Chain That Is Secure, Compliant, Green, Efficient, and Intelligent

While ensuring security and compliance, we have used digital technologies to establish a global management system for returned materials, covering material return and storage, and scrapping. This can help increase the reuse rate of materials and better dispose of waste.

Increasing the Reuse Rate of Returned Materials

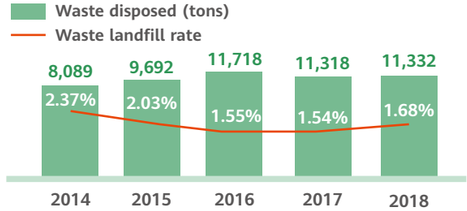
We have gradually refined the channels for handling returned materials, and have different reuse channels based on materials' lifecycle phase, quality, and packaging. Reusable products that meet certain criteria are first allocated to our internal reuse channels such as for R&D, spare parts, and new manufacturing. For materials that do not involve cyber security risks or sensitive information, we resell the items or have them disassembled and recycled by certified service providers if there is no internal demand for these materials. As of the end of 2018, the reuse rate of Huawei's returned products was 82.3%.



Reuse rate of returned products from 2015 to 2018

Reducing Landfill Rate of Waste

Huawei fully complies with related standards for e-waste disposal. We have put in place a global scrapped materials management system that records the type, quantity, and weight of scrapped materials worldwide. We have also expanded our partnerships with leading e-waste disposal companies, and shared our waste disposal data with them. We have worked together to identify key materials that impact the environment, and developed targeted disposal solutions to help reduce landfill e-waste. In 2018, we disposed of 11,332 tons of e-waste globally, among which 190 tons (only 1.68%) were landfilled.



Waste disposal and landfill rate from 2014 to 2018

No one can reach the future alone. Huawei works with its customers, employees, local communities, and upstream and downstream partners wherever the company operates to deliver the fully connected, digital world that we have promised. In pursuit of this, Huawei is committed to building a harmonious, healthy, and trustworthy business ecosystem, and fulfilling our commitment to shared success.

For years, we have embedded the company's core values, operational responsibilities, and social responsibilities into our daily operations, aiming for healthy and sustainable development. We hold ourselves to the highest standards when it comes to operational integrity and compliance, in order to monitor our operational activities. Sticking to our core value of customer-centricity, we care about the development and value realization of our employees, contribute to the robust development of local communities, and encourage suppliers to fulfill their responsibilities. Ultimately, we want to promote the sustainability of the supply chain.

Business Ethics
Caring for Employees
Safe Operations
Supply Chain Responsibilities
Community Responsibilities

5 Healthy and Harmonious Ecosystem

Business Ethics

Trade compliance, cyber security, data and privacy protection, environmental protection, and anti-corruption and anti-bribery are all common topics of discussion. This is because these are the key areas we must get right in order to foster a fair business environment and maintain order throughout the business world. As far as companies are concerned, these issues must be addressed if they want to survive and thrive in the market.

Compliance Management System Building

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. With 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 and awareness programs, performance appraisals, and accountability management, we consistently reinforce awareness of laws and operational compliance among our employees at all levels.

We continuously enhance our compliance program in all our overseas subsidiaries. So far, we have drafted handbooks for ensuring compliance with local ICT laws and regulations after analyzing local legal requirements, as well as requirements raised by industry associations, in more than 100 countries where Huawei has a business presence. We are defining compliance responsibilities and selecting, training, and appointing compliance officers in all of our subsidiaries. We have also established oversight-oriented subsidiary boards, which manage and oversee the operational compliance of these subsidiaries. These measures have ensured that our subsidiaries' compliance work is in line with local legal requirements and the Group's compliance strategy.

In 2018, Huawei continued to strengthen its 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 to reinforce our compliance system to meet industry standards. We have 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.

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 customers' anti-corruption and anti-bribery requirements. All employees must understand and sign the company's Business Conduct Guidelines (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 of the Anti-corruption and Anti-bribery Management System

Huawei complies with all applicable laws and regulations in the countries and regions where we operate, as well as all relevant international conventions. Following the company's guiding principles, we make ongoing efforts to establish and improve our anti-corruption and anti-bribery processes and management system. We have also put in place anti-corruption and anti-bribery practices in 145 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 for employees and partners, and disciplinary actions against violators. These initiatives aim to continue to increase awareness.

Compliance management: Huawei regularly conducts compliance audits to identify potential risks in all business scenarios, develops corresponding control measures, and oversees implementation. We review how our compliance management system works by checking risk control points. Based on the checking results, we take corrective measures to keep improving our anti-corruption and anti-bribery compliance management system.

External communications: We continually communicate with industry peers, consultants, partners, and NGOs about compliance, making clear our views on anti-corruption and anti-bribery. We ensure that all stakeholders have a clear understanding of Huawei's compliance regulations and policies.

IPR and Trade Secret Protection

Huawei applies common international IPR rules and handles IPR affairs in accordance with international conventions. We adopt a proactive, friendly attitude to address IPR issues through various channels like cross-licensing and business partnerships. In addition, we invest in long-term R&D and continuously enrich our IPR portfolio. Huawei is one of the world's top owners of patents.

Huawei also strictly complies with applicable laws and regulations that protect trade secrets, and embeds requirements to protect trade secrets into our policies, instructions, and processes. We have proactively built a global system for tracking related legislation, actively communicated with judicial bodies, associations, law firms, and other such consulting firms through workshops and other formats, and endeavored to learn as much as we can from them. Through these actions, we have built up a complete trade secret protection system, and we are resolutely against any practices that infringe upon the trade secrets of others.

As of December 31, 2018

Total number of patents granted to Huawei

87,805

Patents granted in China 43,371

Patents granted outside of China 44,434

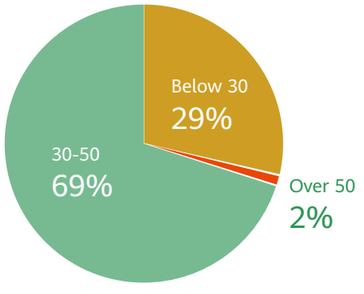
Caring for Employees

Employees are valuable company assets and important contributors to a company's sustainability. A company's growth and success also drives the realization of employees' personal value. At Huawei, we believe that we must take action to care for our employees and ensure they have a sense of belonging. We must also provide a broad platform where employees can realize their personal value. This is the only way our company can achieve sustainable development while remaining full of vitality.

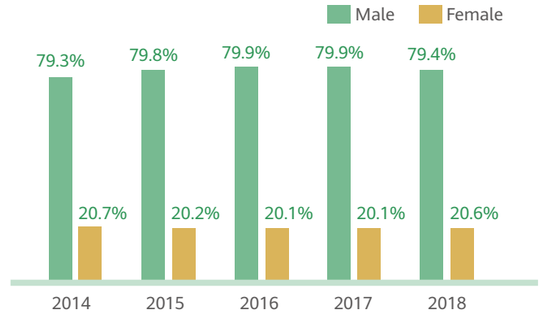
By advocating proactivity, diversity, and openness, we are building a talent management system that promotes collaboration and shared success between Huawei and its employees. We face a more dynamic business environment today than ever before, with internal demands growing in complexity. We need to open up the organization to outside talent, and explore ways to unite the world's best minds with a common purpose. Internally, we fast-track the promotion 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 leaders, experts, and professionals, each with their own unique purview. This will encourage our top performers to maximize contributions in their prime, in the roles that suit them most, and receive the greatest possible rewards in return.

Workforce Diversity

As of December 31, 2018, Huawei had approximately 188,000 employees worldwide. Our employees come from about 160 countries and regions. In China alone, our employees come from 41 ethnic groups. We have launched many diversity initiatives focusing on nationality, gender, age, race, and religion. For example, 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 proportion of female employees has remained stable over the past several years. We also prioritize the selection of female managers and help them advance their careers. In 2018, women made up 7.05% of our management team.



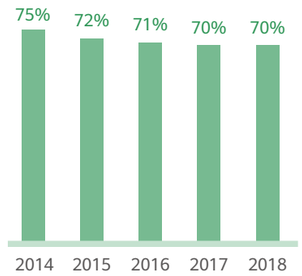
Age of employees (2018)



Ratio of female employees to male employees (2014–2018)

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 2018, Huawei had over 28,000 employees in countries outside China, with a localization rate of about 70%*.

*Overseas workforce localization rate = Number of local hires/Total number of employees in an overseas office x100%



Overseas workforce localization rate (2014–2018)

"During my three years working at Huawei, I discovered a great company that is really focused on serving its customers and contributes to society by investing heavily in R&D. This brings the world top-quality digital communication solutions and connectivity. As a local employee, I am warmly welcomed by the whole team, and at Huawei we are all doing our best to ensure multi-cultural integration with a sense of ownership of one team."

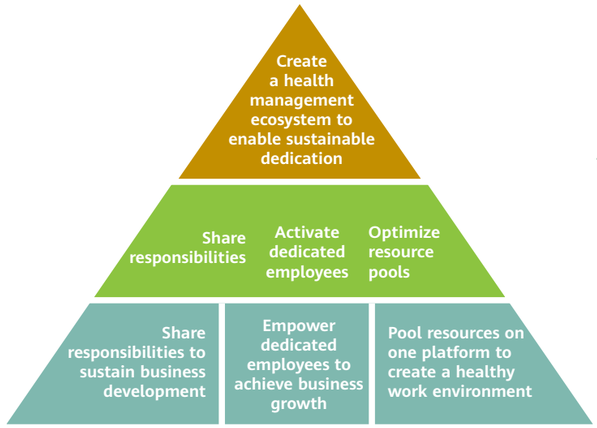
— Fernando Manuel Montes Martinez, Latin America Carrier Business Department

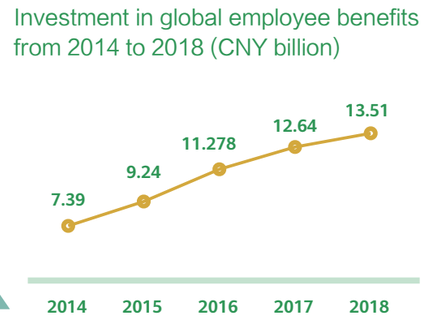
Employee Healthcare Management

Huawei has a robust employee healthcare management system. In 2018, Huawei focused more on preventive healthcare and developed an "umbrella" of protection for Huawei employees around the world. We raised awareness and encouraged employees to stay healthy and take care of themselves. By pooling together internal and external resources, we established an integrated healthcare platform. This provides employees with access to different healthcare channels and services and more effectively protects them from health risks.

As well as mandatory insurance plans required by law, we offer every employee global accident insurance, critical illness insurance, life insurance, and commercial insurance (e.g., business travel insurance), and medical assistance. Huawei's employee benefits include three parts: social insurance, commercial insurance, and medical assistance. With these three types of benefits, we can offer sufficient benefits to protect employees.

In 2018, Huawei established a medical support team for hardship regions like Africa. We sent a team of doctors and healthcare professionals to more than 10 countries, including Cameroon, the Central African Republic, Burkina Faso, and Nigeria. By working with local medical resources, we intend to improve the health of our employees working in hardship regions and protect them from diseases so that they can work safely. We also replicate any successful experiences in other hardship countries.





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 world's best resources. We comply with the local laws and regulations in every country and region in which we operate, and we share value with our global partners and customers. When executing corporate human resource policies, as well as developing and implementing local regulations, we always consider local laws, regulations, and industry standards. We also give special consideration to local customs and conventions.

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

We prohibit the use of child labor, and have effective policies and measures in place to prevent any recruitment or 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 regarding 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 does not violate local laws.

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

STORY Promoting Preventive Healthcare and Building a Healthy Culture

To explore preventive healthcare programs, Huawei worked closely with its healthcare and insurance partners. We piloted a "health bonus points" program to encourage employees to exercise more through walking, jogging, yoga, and swimming. Participants could claim rewards with the points they collected. The awards are typically fitness products or services such as healthy meals, healthy drinks, and health insurance. The program was warmly welcomed by our employees, reinforcing Huawei's philosophy that everyone should care for their own health.

STORY Nurturing Mental Health

At Huawei, we care deeply about employees' mental health. The Self-assessment Checklist on Mental Health and Stress is one of the many tools we use to help employees assess their stress levels and regularly seek health advice. In addition, we bring in or work with many experienced mental health experts and institutions to promptly respond to employees' needs. Huawei pays close attention to employees working in hardship regions outside of China. These employees often work in harsh natural or physical conditions, so we have established a mental health hotline to provide a psychological safety net for them and their families.

STORY Protecting Employees from Ebola

In May 2018, there was another outbreak of Ebola in West Africa. In response, Huawei immediately established specialist monitoring groups in the affected countries and regions, developed notification mechanisms, and regulated the movement of employees into and out of the affected areas. In addition, Huawei invited experts from China's National Health Commission and the Chinese Center for Disease Control and Prevention to give lectures about Ebola. We also sent medical experts to the frontline to ensure the health of Huawei employees and their family members in affected areas. By the end of 2018, no Huawei employee or family members had been reported to have contracted Ebola.

Safe Operations

In accordance with ISO 14001 and OHSAS 18001 standards, customer requirements, and applicable laws and regulations, Huawei implements an EHS management system. The system covers leadership, planning, organization and capability support, process operations, performance evaluation, and continuous improvement. Huawei's EHS guidelines are Safety First, Green Environment, and Caring for Employees.

Based on these guidelines, we have established layered EHS management teams and systems, regularly detected EHS risks, established corresponding controls, and made ongoing improvements. We have also passed our EHS requirements on to the executives of our suppliers, with reward and accountability measures in place. This way, we were able to help our suppliers improve their EHS capabilities.

Global EHS Management System

Throughout its operations, Huawei always puts EHS first. We have established a global EHS management system based on the OHSAS 18001 standard. So far, 69 Huawei offices outside of China have been OHSAS 18001 certified, accounting for 80% of the total. Our security practices cover everything from the security management system to manufacturing safety and delivery safety. We do everything we can to ensure the safety of Huawei employees, subcontractors, and other stakeholders.

STORY EHS Management System in Huawei's North African Regional Office

Huawei's regional office in North Africa continues to improve its EHS management and capabilities by adopting innovative approaches. All country offices in the region have established a Field Service Center (FSC) to monitor onsite EHS management. These centers photograph the installation process every 30 minutes before, during, and after equipment is mounted to the tower. This process also includes self-checks before the equipment is installed on the tower and approvals at every stage. This way, we have safely completed more than 250,000 installations. The regional office also runs a Delivery Operation Center (DOC) to centrally monitor the EHS management of all country offices in the region. The center produces high-quality EHS plans and circulates monitoring reports each week, helping enhance EHS management. All country offices in the region have received OHSAS 18001 certification.

In addition, the regional office encouraged subcontractors to improve EHS management as part of the joint EHS management plan.

Now, all major subcontractors conduct the first stage of EHS management, covering 81% of sites. While improving its own EHS management, the regional office has also shared its experience with other regional offices, helping them improve EHS management.

STORY EHS Management System in Huawei's South Pacific Regional Office

Our regional office in the South Pacific is committed to developing EHS rules and systems to ensure that EHS resources are readily available at regional and country office levels. In addition to regular audits by third parties which ensure robust operations and continuous improvements, the regional office sought to create an EHS culture and enhance the EHS management system by using the digital tool, ISDP-QC. The office also runs numerous EHS leadership programs.

In December 2018, the Papua New Guinea office obtained its OHSAS 18001 certificate, meaning that all Huawei offices in the South Pacific region are OHSAS 18001 certified. The regional office was recognized by stakeholders for its ongoing efforts and achievements in EHS management. Our country offices also won many accolades in recognition of Huawei's EHS management in project delivery. For example, our Indonesia office was awarded the Zero Accident Award by the local government for two consecutive years; the Malaysia

office obtained the 2018 EHS Excellence Award for the Malaysian telecoms industry; the Australia EHS management team was awarded the Five-Star (highest-level) certificate; and the Singapore EHS management team was awarded the bizSAFE Star certificate by the government.

EHS Management in Project Delivery

We continued to enhance EHS management in project delivery with a series of measures. Specifically, we adopted digital technologies to manage EHS risks. By monitoring key risks in real time, deploying pre-warning functions based on pre-set parameters, and taking measures in advance, we were able to prevent numerous risks. To drive suppliers to improve their EHS capabilities, we ran a supplier EHS capability development program, covering EHS leadership improvements, process management, capability assessments, reward and accountability systems, etc. To improve the EHS awareness and skills of operating staff, we developed an EHS video tutorial covering multiple scenarios. In addition, we used AI technology to identify EHS violations. We continued to nurture our EHS culture in order to improve the awareness of all employees.

In the meantime, we stepped up efforts to pass our EHS requirements for project delivery on to our suppliers. We held EHS Golden Seeds training for regional staff to teach them how to reduce EHS risks, prevent major EHS incidents, and prompt suppliers to improve their EHS capabilities. As a result, we developed best practices in supplier EHS self-management, which improved suppliers' leadership and self-management capabilities in EHS. In 2018, more than 140,000 Safety Passport holders were registered in Huawei's online system.

STORY Subcontractor EHS Competence Development

To develop a long-term approach to managing subcontractor EHS performance and encourage subcontractor management of EHS across the entire value chain, Huawei has created a work team together with 15 partner subcontractors from around the world to develop their EHS capabilities and run a pilot program on EHS capability improvement.

The project team's work focused on four area: subcontractor EHS leadership development and communication, process management optimization, establishment and implementation of data-informed rewarding and disciplinary mechanisms, and subcontractor security management capability assessments. As a result of these efforts, subcontractor EHS performance in on-site EHS violation frequency, security self-management capabilities, and executives' security management awareness improved significantly. The pilot results show that the average number of subcontractor EHS violations dropped by 0.26%, average EHS management costs dropped by 52.04%, and average EHS assessment score increased by 62%. The performance of capital construction and administrative suppliers covered in the pilot program also improved by 8% and 2% respectively, according to an annual third-party audit. EHS violations recorded at capital construction sites decreased by 40% and one of the construction sites was even named one of Jiangsu Province's "Excellent Construction Sites".

Manufacturing EHS Management

To ensure safe manufacturing, we paid great attention to intrinsic safety, safety techniques and competence, safety precision management, digital risk and hazard management, and safety leadership and culture. In addition, we applied safety assurance techniques not only during the manufacturing process, but also throughout the entire lifecycle including during R&D and procurement. In line with our long-standing strategy of putting safety first and taking preventive measures, we continued improving manufacturing safety and took it as a top priority over the past year. We refined manufacturing regulations, further promoted the use of safety processes and techniques, and introduced digital technologies to enhance our safety assurance capabilities. With all these measures in place, our manufacturing activities remained smooth and safe. In 2018, no major incidents were recorded in relation to our manufacturing safety.

Building safety leadership and creating a safety culture: Continued to enhance manufacturing safety leadership and create a safety culture through activities such as Safe Manufacturing Month, Felt Leadership activities, regular safety meetings, and sharing industry best practices.

Intrinsic safety: Upgraded DFS standards to cover more business scenarios. All manufacturing equipment and tools have been improved and certified. We have audited the intrinsic safety of Electronics Manufacturing Services (EMS) providers and held technical exchanges with them to help them

improve capabilities in this regard.

Safety assurance techniques and capabilities: Pushed for the adoption of safety assurance techniques that suited Huawei's specific manufacturing scenarios and created and implemented four technical specifications, including Technical Specifications for Lithium-Ion Battery Safety of Hand Tools and Technical Specifications for Dust Explosion Protection.

Safety precision management: Implemented 14 safety improvement projects with onsite coaching from DuPont consultants. Improved safety, specifically for 12 pieces of high-risk equipment, which included automated precision equipment and optical component manufacturing equipment.

Digital hazard and risk management: Refined the digital manufacturing map, identified high-risk manufacturing activities on the digital map, and developed prevention measures for these risks. This helped quickly manage manufacturing risks in a timely and closed-loop manner.

STORY Manufacturing Safety Leadership

In 2018, our manufacturing department carried out a series of Felt Leadership activities to develop Huawei's leadership in manufacturing safety.

Every six months, the president of our manufacturing department presides over an EHS meeting to review the manufacturing safety management work over the past six months and plan for the next six months. Any safety exceptions are reported every two weeks at manufacturing staff team meetings. All departments have appointed owners for manufacturing safety and managers have signed commitments on manufacturing safety and issued personal action plans. In addition, all departments allocated special funds for EHS management, and organized qualification assessments for EHS management technicians, including training and certification programs, for safety technicians, safety Golden Seeds, and special operating staff. By 2018, we had 570 employees with EHS management qualifications. This ensures that we have enough human resources to engage in EHS management.

R&D EHS Management

In 2018, our R&D departments focused on R&D lab EHS management across the entire lifecycle, from process design and procurement to access assessment and routine operations. By introducing EHS risk management philosophies and implementing various EHS controls, we maintained the record of zero EHS incident in our R&D activities. We also introduced digital technologies to manage EHS and standardize EHS controls and processes, which allowed us to view the EHS risks in all laboratories worldwide on the digital risk map and monitor EHS risks in real time. In addition, we enhanced EHS leadership and created an EHS culture within our R&D departments. For example, more than 50,000 employees (including managers) signed a zero-incident commitment letter. To continuously increase the safety awareness of all R&D staff, we organized online learning activities, sent EHS risk alerts to business managers, and carried out EHS publicity activities.

Zero EHS accidents, starting with me!
EHS Management Team of Huawei's 2012 Laboratories

Supply Chain Responsibilities

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. These efforts enable us to minimize supply risks, increase customer satisfaction, and boost the competitiveness of the supply chain. We also actively collaborate with industries and participate in the development of industry standards. We integrate social responsibility as a basic norm into products and the supply chain. The aim is to take on social responsibilities in innovative ways to make the company and wider supply chain more competitive.

New Supplier Qualification

We developed the Supplier Sustainability Agreement based on industry standards such as the Responsible Business Alliance (RBA) Code of Conduct, and guidelines from Joint Audit Cooperation (JAC) of the global telecom industry. 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 are not deemed qualified suppliers.

In 2018, we audited 93 potential suppliers in terms of their sustainability performance, and 16 suppliers that failed the audit were denied the opportunity to cooperate with Huawei.

Supplier Priority Rating and Auditing

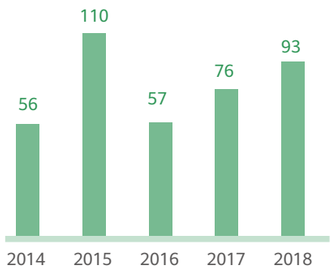
Every year, we audit suppliers, which combined represent 90% of our procurement spending, and assign them one of three priority levels: high, medium, and low. On this basis, we drew up a list of suppliers that require annual audits. In 2018, we assigned priority levels to 1,183 suppliers (more than in 2017), and conducted onsite audits on 194 high- and medium-priority suppliers, 130 of which were audited by third parties.

If we discover a problem during an audit, we help the supplier with Huawei's Check, Root Cause, Correct, Prevent, and Evaluate (CRCPE) methodology to identify common problems, analyze root causes, and take targeted actions to mitigate the issue. Ongoing assessments and improvements are made against established benchmarks. 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.

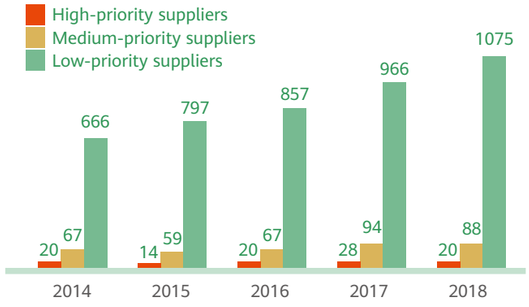
Supplier Performance Management

We appraise suppliers' sustainability performance annually based on their work performance, onsite audit results, and improvements made 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 2018, 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

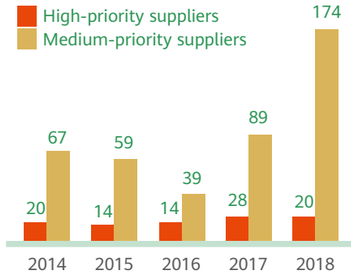
Number of qualified new suppliers (2014 to 2018)



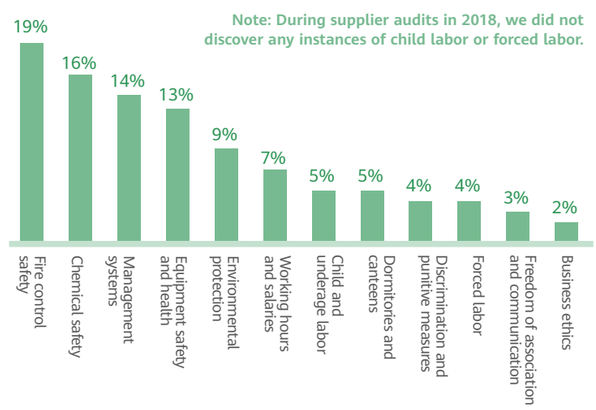
Number of suppliers of each priority level (2014 to 2018)



Number of suppliers audited onsite (2014 to 2018)



Problems discovered during 2018 supplier CSR audits



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 2018, we appraised the sustainability performance of 1,321 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 of procurement and more business opportunities. 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 2018, we disqualified two suppliers for new partnerships or had their quotas reduced due to poor sustainability performance.

Supplier Capability Development

We provide training and coaching for suppliers on a regular basis. We also encourage them to adopt industry best practices and embed sustainability into their business strategies, helping them reduce business risks and enhance operating efficiency. After years of exploration, we have developed a cost effective "learning by benchmarking" model. We encourage suppliers to learn by benchmarking and competing, and continuously learn to raise their competency. Each supplier has its unique experience and competencies, allowing them to complement each other.

For common issues, we invited experts to share their experiences, held workshops, and set up online and offline learning groups for peer benchmarking. This allowed us to learn about industry best practices quickly through low-cost and localized approaches. In recognition of this practice, Huawei won the Best Practices Award from the United Nations Global Compact Network China.

In 2018, 293 people from 156 suppliers participated in our training programs on learning by benchmarking. The topics covered in these training programs included fire prevention, environmental compliance, code of conduct for the battery industry, and tier-2 supplier management.

We also worked with professional organizations on three programs to improve environmental protection, fire safety, and the occupational health of suppliers. In total, 96 suppliers benefited from these programs. These programs helped suppliers fully identify potential risks, improve internal management, and develop a professional management team, greatly enhancing their expertise in environmental protection, fire safety, and occupational health.

Deepening Cooperation with Customers and Industry Organizations

We see sustainability as a key customer requirement, and embed it into our procurement strategies and processes to increase transparency across our supply chain. 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 help improve our own sustainability.

In 2018, Huawei and seven customers ran onsite audits on 21 suppliers, and we shared the audit results with the customers.

STORY **Driving Suppliers to Improve Through JAC**

In 2018, Huawei nominated six 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 six 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.

In 2018, Huawei participated in the JAC Academy pilot project. Our designated experts attended auditing training provided by JAC Academy and were presented auditor certificates issued by JAC Academy. We also nominated five suppliers to be audited by the JAC Academy and submitted the audit reports to JAC, which followed up on their corrective measures. Huawei supported and joined the JAC Academy project, participated in project design optimization, and shared our experiences and best practices. The CRCPE methodology was shared at the 8th JAC CSR Forum as a recommended topic, winning the excellent practice award following a vote by over 200 experts at the forum.

Promoting Industry Standardization

Sustainability problems in supply chains are mostly systemic problems that have accrued over the years. Industry cooperation and standardization are meaningful ways to resolve systemic problems in the industry. Huawei proactively works with industry organizations to promote industry cooperation and standardization. We also work with upstream and downstream companies in the supply chain and convert industry best practices into industry standards to raise the sustainability of the industry to a new level. The IPC-1401 corporate social responsibility management system integrates social responsibilities into products and supply chains as a basic requirement. Through continuous improvement driven by business incentives and supplier improvement driven by sustained procurement, we can effectively mitigate risks and enhance competitiveness. In 2018, Huawei held training and workshops on IPC-1401 to promote it to suppliers and encourage suppliers to establish their social responsibility management system based on IPC-1401.

In 2018, Huawei joined the Alliance of Green Consumption and Green Supply Chain as the vice-chair and attended the China Green Supply Chain Management Innovation Summit. At the summit, we shared our market-oriented green supply chain innovation model, which integrates environmental protection into products and supply chains as a customer requirement, as well as increasing companies' competitiveness through environmental protection innovations.

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. As a member of the Responsible Business Alliance (RBA), we work with companies around the

world to jointly address this problem through the Responsible Minerals Initiative (RMI). We use the RMI 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 2018, we shared the survey results with 17 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

Responsible Cobalt Management

More cobalt has been used for lithium-ion batteries in recent years, which is attracting wider attention toward the responsible management of the cobalt supply chain. Huawei attaches great importance to ethical procurement within the cobalt supply chain. As a member of the Responsible Cobalt Initiative (RCI), Huawei engages in due diligence in cobalt management according to the Five-Step Framework specified in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals. We have also released the Huawei Statement on Responsible Cobalt Supply Chain in 2017.

Huawei Statement on Responsible Cobalt Supply Chain:

http://www.huawei.com/en/about-huawei/declarations/statement-on-responsible-cobalt-supply-chain

We integrated responsible cobalt management into the Huawei Supplier Social Responsibility Code of Conduct, which requires suppliers to engage in due diligence during cobalt management and pass these requirements on to their upstream suppliers.

Huawei Supplier Social Responsibility Code of Conduct:

http://www.huawei.com/en/sustainability/win-win-development/develop_supplychain/huawei-supplier-social-responsibility-code-of-conduct

In 2017, we completed the first round of due diligence on the supply chain of lithium-ion battery suppliers. After analyses based on the survey results, we identified six major links in Huawei's cobalt supply chain from downstream to upstream: batteries, battery cells, cathode materials, precursors, cobalt smelters/refineries, and cobalt mines.

In the first half of 2018, we reviewed our battery suppliers at each level, and used the Cobalt Reporting Template (CRT) of the Responsible Minerals Initiative (RMI). This allowed us to conduct due diligence on the cobalt smelters in the upstream of the supply chain and preliminarily identify 18 upstream smelters.

During the second half of 2018, we engaged a third-party organization, RCS, to review the due diligence of battery cell suppliers during cobalt management. This review was based on the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals and the Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains. The review aimed to check whether the battery cell suppliers had built a due diligence management system for the supply chain, and whether they are engaged in due diligence management according to the Five-Step Framework.

Moving forward, Huawei will continue to work with industry organizations and upstream and downstream players to encourage upstream smelters to collect, study, and confirm the chain of custody and traceability of information, as well as to identify risks together with the upstream mines. We will also encourage upstream smelters to take measures that ensure due diligence is carried out on suppliers, sources, or situations with potential risks to lower these risks. Additionally, we will continue to provide training on due diligence management for the supply chain to make suppliers more aware and capable of managing their due diligence on cobalt.

Community Responsibilities

As a leading player in the ICT industry, we believe that the best way to create value for local communities is to use our advanced ICT technology to empower and benefit them. Luckily, the connectivity and access to information at anytime and anywhere that are enabled by ICT technology are inherently inclusive. They are conducive to the development of local economies, education, healthcare, media, and many other areas. In the meantime, we work with governments, customers, enterprises, and NGOs to tackle economic, environmental, and social challenges in all countries and regions where we operate. One of our major initiatives is providing access to education and cultivating ICT professionals. In collaboration with relevant parties, we organize diverse social contribution programs, make charity donations, and carry out environmental protection activities, making our due contributions to the robust and sustainable development of local communities.

Seeds for the Future Program: Developing Skilled ICT Talent

Seeds for the Future is Huawei's flagship global CSR program. The program was launched in 2008, and had its 10th anniversary in 2018. This program aims to develop skilled, local ICT talent and bridge communication between countries and cultures. By sharing our ICT expertise and experiences in the global business environment, young people from different countries can learn about advanced technologies in the ICT industry through the Seeds for the Future program, accumulate ICT expertise and skills, and provide impetus for the development of the local ICT industry, contributing to the progress of the global ICT industry.

By the end of 2018, more than 4,700 students from 108 countries and regions participated in the program and visited and studied at Huawei's headquarters. So far, this program has helped more than 30,000 students improve their digital skills, driving the development of local ICT industries.

The Seeds for the Future Program 2018 being launched at the Industry 4.0 Vietnam event, with Vietnamese Prime Minister Nguyễn Xuân Phúc in attendance

European students participating in a Seeds for the Future 2018 activity in Brussels

The Prime Minister of Trinidad and Tobago Dr. Keith Rowley attending the Seeds for the Future opening ceremony at Huawei HQ, Shenzhen

Contributions to Local Communities

A company will earn the support and respect of community residents only if it fully considers the impact its operations have on the community and takes effective measures that help local communities. This could include helping local communities improve their livelihoods, supporting traditional activities, caring for their disadvantaged groups, and supporting their education. As a responsible corporate citizen, Huawei remains committed to social development activities and working with relevant community organizations to contribute to charity activities such as disaster relief, health, and social welfare.

Bangladesh: Relief activities in rural areas

During Ramadan, Huawei participated in relief activities in rural areas of Bangladesh, providing daily necessities for communities in Singra Upazila, Natore, including clothing for women. These activities were carried out in partnership with China Railway International Group, demonstrating Huawei's commitment to giving back to local communities.

Australia: Supporting local youth education

Huawei has worked with the Clontarf Foundation of Australia for five consecutive years to support local youth education. This joint project includes cultural exchanges between the two organizations, such as inviting Clontarf alumni to visit China, where they can experience Huawei's futuristic R&D centers and manufacturing exhibition halls. We also provided the Clontarf Foundation with the latest smartphones, Wi-Fi equipment, and video conferencing equipment, better connecting its staff and management.

Ukraine: Launching the Trip of Love program

In 2016, Huawei launched the Trip of Love program to help disadvantaged groups in Ukraine and provide them with access to digital technology. Huawei Ukraine staff visited special secondary boarding school for children in Mostyshche, Kyiv region each year, donating Huawei tablets, digital TVs, gym facilities, and kitchen facilities. Since 2018, Huawei has been donating Wi-Fi equipment to the Feofaniya Clinical Hospital to help patients access the Internet and provide an access network for doctors to carry out telemedicine.

Uzbekistan: Supporting the development of young talent

Training young people and supporting science, technology, engineering, and mathematics (STEM) education is one of Huawei Uzbekistan's priorities in social contribution. We worked with Robokids Education to support the development of young talent in robotics and IT.

India: Building sanitation for villages

Huawei built sanitation facilities for schools in several villages in India to provide clean water. These facilities have provided services to more than 1,000 school-age children in grades one through eight, positively affecting the schools.

Cambodia: Supporting government disaster relief activities

Huawei worked with the Civil Society Alliance Forum (CSAF) of Cambodia to help families seriously affected by floods and families in need of clean drinking water. We donated 2,941 water purifiers to the Cambodian government for daily use by communities.

Zambia: Supporting the Ministry of Health against cholera

Since late 2017, the cholera epidemic in Zambia has affected thousands of people. As part of the relief effort, Huawei provided financial support to the Zambian Ministry of Health to combat the cholera epidemic and strengthen preventive measures.

Russia: Honor Cup and CSR Education Day

Huawei organized the fourth Honor Cup and CSR Education Day in Russia to help young students in the ICT field improve their skills, as well as to encourage them to participate in the Russian digital economy. Huawei also signed an agreement with Moscow Technical University of Communications and Informatics to establish a laboratory at the university and jointly implement the Huawei Authorized Information and Network Academy (HAINA) program.

Appendix I: Sustainability Goals and Progress

● Achieved ◐ Partially achieved ○ Not achieved

Sustainability Strategy	Goals and Initiatives	Progress	Status
Digital inclusion	Release the second ICT Sustainable Development Goals Benchmark report	The report was released in June 2018	●
	Establish 500 ICT academies worldwide to nurture local ICT talent	557 ICT academies were established	●
	ICT academies to certify 200 teachers and 18,000 students every year	ICT academies certified 456 teachers and 18,893 students in 2018	●
	More than 4,000 students participate in the Seeds for the Future program in 2018	More than 4,700 students from 108 countries and regions participated in the program	●
Security and trustworthiness	Support network continuity during major events and natural disasters worldwide	100% network continuity achieved	●
	Over 90% of incidents rectified within 60 minutes	97.3% of incidents rectified within 60 minutes	●
	Manage suppliers' cyber security and privacy protection	We assessed and followed up on the risks of 2,778 suppliers. We also signed a Data Protection Agreement with 582 suppliers and performed due diligence on these suppliers.	●
	All employees receive privacy awareness training and take related exams	98% of our employees passed the exam and 97 Huawei employees received the International Association of Privacy Professionals (IAPP) certification. We will continue with this effort and make ongoing improvements.	●
Environmental protection	Reduce carbon emissions per million RMB of revenue by 18% compared to base year	Carbon emissions per million RMB of revenue were reduced by 24.5% compared to base year	●
	82% of returned products are reused	82.3% of returned products were reused	●
	Reduce power consumption in public areas by 1% year-on-year	Power consumption in public areas was reduced by 2.34% year-on-year	●
	Reduce total products going to landfills to less than 1.8%	1.69% of products went to landfills in 2018	●
	Save forest resources used by packaging of consumer products by 10% compared with 2017	Cartons are 10% lighter	●
	20 of Huawei's consumer products (e.g., smartphones, tablets, PCs, and wearables) to obtain the highest level green certification	13 Huawei smartphones and 6 tablets received an A, the highest level of China Quality Certification; 6 products received the Gold UL110 certification	●
Healthy and harmonious ecosystem	Appoint and train compliance officers for overseas subsidiaries	We are appointing and training compliance officers for all subsidiaries	●
	Complete sustainability audits on all new suppliers and all existing medium- and high-priority suppliers	100% of such sustainability audits completed	●
	Review and publish policies on caring for employees in all overseas subsidiaries	100% of such policies reviewed and published	●
	Enhance communication with key stakeholders, including customers, governments, and the media	Organized more than 50 activities to engage with stakeholders	●
	Ensure no serious safety incidents in manufacturing	No serious safety incidents in manufacturing	●
	Consolidate CSD sub-committees to strengthen the CSD organization	Consolidated CSD sub-committees according to the company's latest organizational structure	●
	Identify, assess, and close sustainability risks	Sustainability risks have been identified and assessed, and are being closed.	◐
	Complete the 2018 sustainability maturity assessment	Assessment completed	●

Appendix II: GRI Standards

General Disclosures			
Organizational Profile			
Disclosure	Indicators	SDG	Page
102-1	Name of the organization		6-7
102-2	Activities, brands, products, and services		6
102-3	Location of headquarters		The back cover
102-4	Location of operations		The back cover
102-5	Ownership and legal form		6
102-6	Markets served		6
102-7	Scale of the organization		6
102-8	Information on employees and other workers		77-80
102-9	Supply chain		86-90
102-10	Significant changes to the organization and its supply chain		86-90
102-11	Precautionary Principle or approach		16
102-12	External initiatives		20-23
102-13	Membership of associations		23
Strategy			
102-14	Statement from senior decision-maker		1-5
102-15	Key impacts, risks, and opportunities		18-19
Ethics and Integrity			
102-16	Values, principles, standards, and norms of behavior		74-76
102-17	Mechanisms for advice and concerns about ethics		74-76
Governance			
102-18	Governance structure		16-18
102-19	Delegating authority		16-18
102-20	Executive-level responsibility for economic, environmental, and social topics		16-18
102-21	Consulting stakeholders on economic, environmental, and social topics	SDG16	20-23
102-22	Composition of the highest governance body and its committees	SDG5,16	16-18
102-23	Chair of the highest governance body		16-18
102-24	Nominating and selecting the highest governance body	SDG5,16	16-18
102-25	Conflicts of interest		/
102-26	Role of highest governance body in setting purpose, values, and strategy		16-18
102-27	Collective knowledge of highest governance body		16-18
102-28	Evaluating the highest governance body's performance		16-18
102-29	Identifying and managing economic, environmental, and social impacts	SDG16	16-18
102-30	Effectiveness of risk management processes		/
102-31	Review of economic, environmental, and social topics		16-18
102-32	Highest governance body's role in sustainability reporting		16-18
102-33	Communicating critical concerns		23
102-34	Nature and total number of critical concerns		23
102-35	Remuneration policies		/
102-36	Process for determining remuneration	SDG16	/
102-37	Stakeholders' involvement in remuneration		/
102-38	Annual total compensation ratio		/
102-39	Percentage increase in annual total compensation ratio		/
Stakeholder Engagement			
102-40	List of stakeholder groups		20-21
102-41	Collective bargaining agreements		20-23
102-42	Identifying and selecting stakeholders		20-23
102-43	Approach to stakeholder engagement		20-23
102-44	Key topics and concerns raised		23
Reporting Practice			
102-45	Entities included in the consolidated financial statements		7
102-46	Defining report content and topic Boundaries		23
102-47	List of material topics		23
102-48	Restatements of information		/
102-49	Changes in reporting		7
102-50	Reporting period		7

102-51	Date of most recent report		7
102-52	Reporting cycle		7
102-53	Contact point for questions regarding the report		7
102-54	Claims of reporting in accordance with the GRI Standards		7
102-55	GRI content index		Appendix II
102-56	External assurance		Appendix IV
Management Approach			
103-1	Explanation of the material topic and its Boundary		23
103-2	The management approach and its components		16-18
103-3	Evaluation of the management approach		16-18
Specific Disclosures			
Economic Performance			
Disclosure	Indicators	SDG	Page
201-1	Direct economic value generated and distributed	SDG2,5,7,8,9	7
201-2	Financial implications and other risks and opportunities due to climate change	SDG13	63-67
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	/
202-2	Proportion of senior management hired from the local communit	SDG8	77-78
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	91-93
Procurement Practices			
204-1	Proportion of spending on local suppliers	SDG12	/
Anti-corruption			
205-1	Operations assessed for risks related to corruption	SDG16	74-76
205-2	Communication and training about anti-corruption policies and procedures	SDG16	74-76
205-3	Confirmed incidents of corruption and actions taken	SDG16	74-76
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	57-58
301-2	Recycled input materials used	SDG12,8	70-71
301-3	Reclaimed products and their packaging materials	SDG12,8	57-58,70-71
Energy			
302-1	Energy consumption within the organization	SDG12,13,7,8	63-67
302-2	Energy consumption outside of the organization	SDG12,13,7,8	68
302-3	Energy intensity	SDG12,13,7,8	63-64
302-4	Reduction of energy consumption	SDG12,13,7,8	65-67
302-5	Reductions in energy requirements of products and services	SDG12,13,7,8	56-62,69
Water and Effluents			
303-1	Interactions with water as a shared resource	SDG6	63
303-2	Management of water discharge-related impacts	SDG6	63
303-3	Water withdrawal	SDG6	63
303-4	Water discharge	SDG6	/
303-5	Water consumption	SDG6	63
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	SDG14,15	/
304-3	Habitats protected or restored	SDG14,15,6	/
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	SDG14,15,6	/
Emissions			
305-1	Direct (Scope 1) GHG emissions	SDG12,13,14,15	64
305-2	Energy indirect (Scope 2) GHG emissions	SDG12,13,14,15	64
305-3	Other indirect (Scope 3) GHG emissions	SDG12,13,14,15	64
305-4	GHG emissions intensity	SDG13,14,15	64
305-5	Reduction of GHG emissions	SDG13,14,15	64-67
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	71
306-3	Significant spills	SDG12,14,15,3,6	None
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	None
Supplier Environmental Assessment			
308-1	New suppliers that were screened using environmental criteria		86-90
308-2	Negative environmental impacts in the supply chain and actions taken		68, 86-90
Employment			
401-1	New employee hires and employee turnover	SDG5,8	77-78
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees		78-80
401-3	Parental leave	SDG5,8	79
Labor/Management Relations			
402-1	Minimum notice periods regarding operational changes		/
Occupational Health and Safety			
403-1	Occupational health and safety management system	SDG8	81-85
403-2	Hazard identification, risk assessment, and incident investigation	SDG3,8	81-85
403-3	Occupational health services	SDG3,8	81-85
403-4	Worker participation, consultation, and communication on occupational health and safety	SDG8	81-85
403-5	Worker training on occupational health and safety	SDG8	81-85
403-6	Promotion of worker health	SDG8	81-85
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	SDG8	81-85
403-8	Workers covered by an occupational health and safety management system	SDG8	81-85
403-9	Work-related injuries	SDG8	81-85
403-10	Work-related ill health	SDG8	81-85
Training and Education			
404-1	Average hours of training per year per employee	SDG4,5,8	/
404-2	Programs for upgrading employee skills and transition assistance programs	SDG8	81-85
404-3	Percentage of employees receiving regular performance and career development reviews	SDG5,8	/
Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	SDG5,8	77-78
405-2	Ratio of basic salary and remuneration of women to men	SDG10,5,8	/
Non-discrimination			
406-1	Incidents of discrimination and corrective actions taken 6	SDG16,5,8	79
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	79
Child Labor			
408-1	Operations and suppliers at significant risk for incidents of child labor	SDG16,8	79, 86-87
Forced or Compulsory Labor			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	SDG8	79, 86-87
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		79
412-2	Employee training on human rights policies or procedures		79

413-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	SDG1,2	/
Local Communities			
413-1	Operations with local community engagement, impact assessments, and development programs		91-93
413-2	Operations with significant actual and potential negative impacts on local communities		/
Supplier Social Assessment			
414-1	New suppliers that were screened using social criteria		86
414-2	Negative social impacts in the supply chain and actions taken		89-90
Public Policy			
415-1	Political contributions	SDG16	/
Customer Health and Safety			
416-1	Assessment of the health and safety impacts of product and service categories		56-58
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: Abbreviations

Abbreviation	Full Name
3GPP	3rd Generation Partnership Project
AI	Artificial Intelligence
BCG	Business Conduct Guideline
BCM	Business Continuity Management
BCP	Business Continuity Plan
BIA	Business Impact Analysis
CEO	Chief Executive Officer
CFSI	Conflict-Free Sourcing Initiative
CQC	China Quality Certification Center
CSR	Corporate Social Responsibility
CSD	Corporate Sustainable Development
EHS	Environment, Health and Safety
EMS	Electronics Manufacturing Services
FSC	Forest Stewardship Council
FWA	Fixed Wireless Access
GDPR	General Data Protection Regulation
GHG	Greenhouse Gas
GIS	Geographic Information System
GeSI	Global e-Sustainability Initiative
GRI	Global Reporting Initiative
GSMA	Global System for Mobile Communications Association
ICT	Information and Communications Technology
IEC	International Electrotechnical Commission
IMP	Incident Management Plan
IoT	Internet of Things
IPC	Association Connecting Electronics Industries
IPE	Institute of Public and Environmental Affairs
ISO	International Organization for Standardization
ITU	International Telecommunication Union
JAC	Joint Audit Cooperation
LCA	Life Cycle Assessment
LTE	Long Term Evolution

NB-IoT	Narrow Band Internet of Things
NGO	Non-government organization
OECD	Organisation for Economic Co-operation and Development
PIA	Privacy Impact Assessment
PUE	Power Usage Effectiveness
RA	Risk Assessment
RBA	Responsible Business Alliance
RMI	Responsible Minerals Initiative
ROI	Return on Investment
ROP	Return-Oriented Programming
SDN	Software-Defined Networking
SDG	Sustainable Development Goal
SCAR	Supplier Corrective Action Request
SoC	System on a Chip
TCO	Total Cost of Operation
TDD	Time Division Duplex
UNGC	United Nations Global Compact
UPS	Uninterruptible Power Supply
USSD	Unstructured Supplementary Service Data
VAR	Video Assistant Referee
WLAN	Wireless Local Area Networks
WTTx	Wireless to the X

Appendix IV: External Verification Certificate

BUREAU VERITAS
Certification

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 2018 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 2018.1.1 to 2018.12.31**;
- 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.

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BUREAU VERITAS
Certification

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 "digital inclusion", "security and trustworthiness", "environmental protection" and "a healthy ecosystem". 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.

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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, cyber security, 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 over 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
2019-05-15

Sean Pan
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2019-05-15

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