

# Huawei Investment & Holding Co., Ltd. 2020 Sustainability Report



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



# Corporate Profile

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## Who is Huawei?

Founded in 1987, Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We are committed to bringing digital to every person, home and organization for a fully connected, intelligent world. We have approximately 197,000 employees and we operate in over 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 involving 121,269 employees. Only Huawei employees are eligible to participate. No government agency or outside organization holds shares in Huawei.

## Who controls and manages Huawei?

Huawei has a robust corporate governance system that ensures the company's independent operations and management. Shareholding employees elect 115 representatives to form our Representatives' Commission, and the Commission elects the company's Board of Directors and Supervisory Board. The Commission, along with the Board of Directors and Supervisory Board, decides on, manages, and monitors major company matters.

Specifically, the 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 presides over the Representatives' Commission. As Huawei's highest decision-making body, the Commission makes decisions on major company matters, like profit distribution, capital increases, and the elections of members of the Board of Directors and the Supervisory Board.

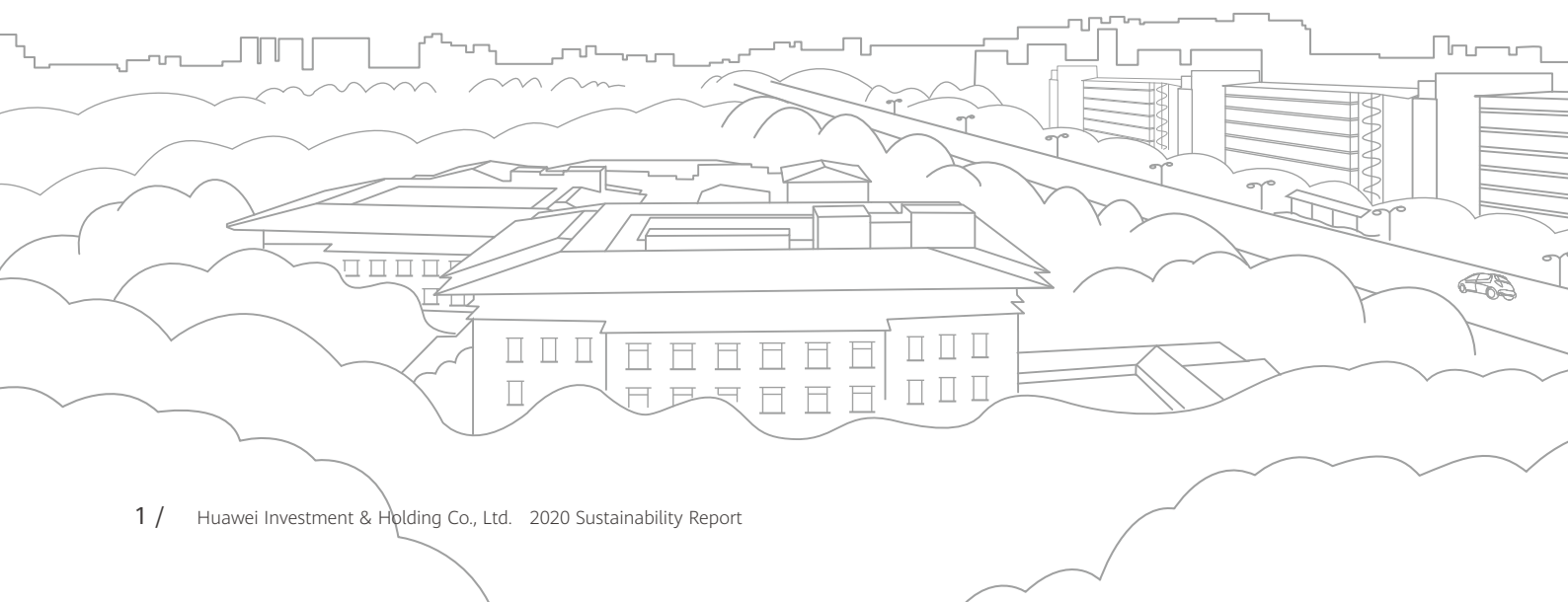
## Who does Huawei work with?

Externally, we rely on our customers and partners. Customers are at the heart of everything we do, and we create value for them with innovative products. Internally, we rely on our hard-working and dedicated employees. At Huawei, those who contribute more get more.

We work with a broad range of stakeholders including 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 taxes, and comply with all applicable laws and regulations in the countries where we operate. We also help local industries go digital, and openly engage with governments, the media, and other stakeholders.

(For more information, refer to the Huawei 2020 Annual Report)



# Report Profile

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Every year since 2008, Huawei Investment & Holding Co., Ltd. ("Huawei", "the company", or "we") has voluntarily released annual sustainability reports and disclosed our sustainability performance as we believe that doing so facilitates communication, awareness, and interaction with our stakeholders.

This report covers all entities that Huawei either has control of, or a significant influence over, in terms of financial and operational policies and measures. The scope of the entities covered in this report is consistent with the scope of organizations discussed in the Huawei 2020 Annual Report. Unless otherwise specified, this report describes the economic, environmental, and social performance of Huawei and its subsidiaries worldwide during the reporting period from January 1, 2020 to December 31, 2020. 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 2020 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 is published online and in print in both Chinese and English in July 2021. (The report for 2019 was published in July 2020.)

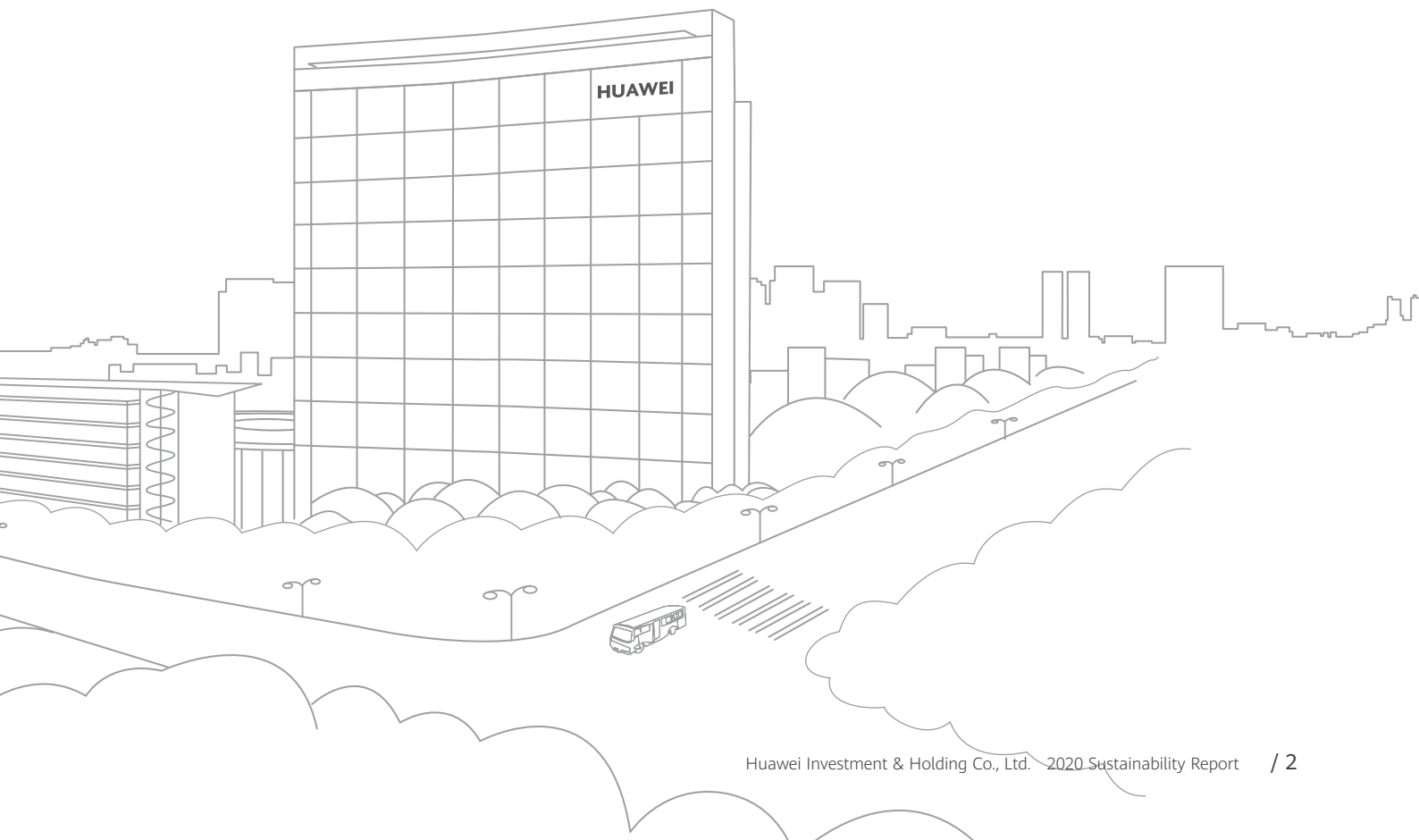
You can view the 2020 Sustainability Report at [www.huawei.com/en/](http://www.huawei.com/en/) or by scanning the following QR code.



For any report-related questions or suggestions, please contact:

Tel: +86 (0)755 2878 0808

E-mail: [sustainability@huawei.com](mailto:sustainability@huawei.com)







— Liang Hua —  
Chairman of the Board

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We are ready and willing to work with partners across the entire value chain, and use innovative technologies to reduce carbon footprints, support environmental protection, and drive greater sustainability. Together, we will bring digital to every person, home and organization for a fully connected, intelligent world.

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## Powering Green and Sustainable Development with Technology

Climate change has become a formidable roadblock to our ongoing development as a society. Now more than ever, we need to reassess our relationship with nature and move faster towards low-carbon development and green growth models.

Fortunately, technology can help. In particular, digital technology is playing an increasingly important role in this process.

The digital economy has become the new engine of economic growth around the world. This has been especially true throughout the pandemic. Technologies like 5G, cloud, and AI have helped keep the very fabric of our society together, enabling many people to work from home, learn remotely, and access better medical resources. With greater connectivity, many everyday activities have gone online, defining the new normal.

Given the close ties between global health, socioeconomic wellbeing, the environment, and digital technology, it's clear that community development has become tightly intertwined with sustainable innovation.

### **A digital economy is, first and foremost, a green economy.**

Carbon neutrality has by and large become a globally recognized mission, one to which the ICT industry is actively contributing. These days, advancements in ICT are focusing more on using less energy to transmit, process, and store more information, while making energy systems more efficient. Take 5G as an example: Its energy consumption per bit is only one-tenth of 4G's, but it can provide 30 times the capacity. This is a significant improvement.

Digital technology can also support renewable and clean electricity generation, while also optimizing energy supply and demand models. This can help accelerate our transition to green energy sources. Ultimately, digital technology is one of our key tools in the fight against climate change and driving more sustainable development as a global community.

The power savings and reductions in carbon emissions that ICT enables in other domains also far exceed what the ICT industry can achieve by itself. According to the Global Enabling Sustainability Initiative (GeSI), ICT has the potential to enable a 20% reduction of global CO<sub>2</sub> emissions by 2030.

Huawei is doing its part to contribute to a greener and more sustainable digital world. Not only do we actively build sustainability into the entire lifecycle of our own products, we are also helping other industries reduce their energy consumption and emissions to support a more circular economy. Ultimately, we want to cut carbon emissions, promote renewable energy, and contribute to more regenerative economic systems.

Take Huawei's PowerStar solution for example. PowerStar is a multi-layered solution for reducing the energy consumption of wireless networks. Through a targeted combination of hardware and software, it intelligently cuts energy



consumption in wireless networks without compromising network performance.

PowerStar has already been verified and deployed in multiple countries, including China, South Africa, and Morocco. With proactive energy management, a single site can save 1.5 kWh of electricity a day. In China, this solution is already being used in more than 400,000 sites, saving up to 200 million kWh of electricity a year.

We also use digital technology to help generate more electricity from renewable sources. As of December 2020, Huawei's digital power solutions have been deployed in more than 170 countries and regions, serving one third of the world's population. To date, these solutions have generated 325 billion kWh of electricity from renewable sources, and saved 10 billion kWh of electricity. These efforts have resulted in a reduction of 160 million tons in CO<sub>2</sub> emissions\*.

Low-carbon, sustainable operations are also an important part of our commitment to a greener future. We are actively working to minimize our environmental impact across all aspects of manufacturing and operations, including efforts that target energy consumption throughout the entire lifecycles of our products and services. In 2020, we worked with 93 of our top 100 suppliers to set carbon emission reduction targets, and generated 12.6 million kWh of electricity through PV power plants on Huawei campuses.

As part of our efforts to help promote a circular economy, we are using more eco-friendly materials, designing our products for greater longevity, using more sustainable packaging, and reducing waste.

### **An intelligent world should also be a green world.**

Advances in technology can help us better understand and protect nature, mitigating the impact of human activity on the planet. We believe that technology can work in harmony with nature and help make this world a better place.

Working together with environmental protection organizations and a range of partners around the world, we are exploring how ICT can amplify critical conservation efforts, such as monitoring, protecting, and preserving at-risk ecosystems.

Since 2019, we have been working with Rainforest Connection (RFCx) to deploy solar-powered sound

monitoring systems in rainforests around the world. The "Nature Guardian" systems use HUAWEI CLOUD AI and upcycled phones to detect sounds of illegal logging and alert local authorities, who can then intervene before it's too late. As of the end of 2020, these Guardians have been deployed in 18 countries across five continents, where they are helping rangers and conservationists better protect nature and local biodiversity.

In addition, Huawei has launched the Tech4Nature program with the International Union for Conservation of Nature (IUCN). This three-year partnership will develop a series of innovative digital tools and solutions for more than 300 protected areas worldwide.

We firmly believe that open collaboration is the best way forward, and we remain committed to working with our partners to foster a business ecosystem that thrives on shared success. In particular, we believe that equipping people with up-to-date digital skills is key to sustainability and to driving the digital economy forward. This is why we are working with our partners to develop a more robust digital talent ecosystem and drive broader digital inclusion through our TECH4ALL program. We want to bring the benefits of technology to everyone.

Throughout all of these efforts, cyber security and privacy protection remain our top priorities. We are committed to communicating and collaborating with all stakeholders in a trustworthy, open, transparent, and responsible manner. As we continue to find new ways to contribute to a greener and more sustainable digital world, we will also continue to address shared cyber security challenges through innovation and supporting the development of industry standards.

Huawei is fully committed to sustainable development and creating value for all industries and communities. We are ready and willing to work with partners across the entire value chain, and use innovative technologies to reduce carbon footprints, support environmental protection, and drive greater sustainability. Together, we will bring digital to every person, home and organization for a fully connected, intelligent world.



\* By International Energy Agency emission factors

# Tech for Good: Sustainable Social Development with ICT

In 2020, Huawei faced challenges including the COVID-19 pandemic, climate change, and heightened geopolitical tensions. Nonetheless, we continued to do our part for the world with our ICT solutions: We supplied technology that helped fight the pandemic, helped people get back to work, and ensured that communications networks continued to function.

We believe in the power of ICT to provide fresh solutions to the problems we all face. We want to create technologies that make lives better, businesses more intelligent, and society more inclusive – technologies that will ultimately bring us closer to a fully connected, intelligent world.

## Technology for a digital world that leaves no one behind

Over the past 30 years, the rapid evolution of information technology has profoundly changed the world. It has made our lives easier, and our work more efficient. However, according to the International Telecommunication Union (ITU), nearly half of the world's population, mostly in rural areas, still does not have access to the Internet. Though they are living in the digital age, they are unable to benefit from digital technology and the opportunities that it provides.

To support more balanced social development, Huawei launched the RuralStar Pro solution, which provides voice and mobile broadband services for sparsely populated remote villages, and helps rural regions go digital. Our RuralStar series solutions now provide mobile Internet services for more than 50 million people in remote areas across over 60 countries and regions.

The COVID-19 pandemic has strained global education and healthcare systems in a way we have never seen before. Nearly one billion students have had their schooling interrupted and more than 100 million people have been infected by COVID-19. Equal access to education and healthcare resources has become more important than ever.

Huawei has been playing its part in the fight against the pandemic. We have provided people across different regions with equal access to quality education and healthcare resources using our innovative ICT solutions. In 2020, we launched the Huawei ICT Academy Program 2.0, through which we cooperate with universities worldwide with the aim of training two million ICT professionals



— Tao Jingwen —

Board Member and Director  
of the CSD Committee

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We believe that technology should be people-centric. Technology should serve people in a manner that fully respects their rights by guaranteeing informed choice and consent.

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## A Message from the Chairman of the Corporate Sustainable Development Committee

over the next five years. We also used ICT to assist the pandemic response in local communities. Huawei provided technical assistance to nearly 90 countries last year, doing our best to support local communities in this time of great need.

To provide universal access to digital technologies and applications, Huawei smartphones provide 15 accessibility functions that help users make use of their phones in many different ways. These functions include StorySign, a sign language reading app developed for hearing-impaired children; PocketVision, a vision aid device developed for the visually impaired; and Simple Mode, specifically designed for older people. These accessibility functions are used by about 10 million people every month, allowing them to enjoy a smart lifestyle.

### Technology for security and trustworthiness

The COVID-19 pandemic has drastically changed the way we live and how organizations operate. Cloud offices, online education, and contactless shopping have become the new normal. As digital transformation picks up pace, our responsibilities for defending cyber security and privacy are getting heavier. Cyber security and privacy protection remain the top priorities for Huawei. We believe that technology should be people-centric. Technology should serve people in a manner that fully respects their rights by guaranteeing informed choice and consent.

Huawei has established and will constantly optimize a sustainable and reliable end-to-end global cyber security assurance system. This is a crucial strategy for Huawei. This system covers everything from corporate policies and organizational structure to business processes, technology, and standardized practices. We have made security assurance part of our business processes relating to R&D, supply chains, sales and marketing, delivery, and technical

services. Such integration is a fundamental requirement of our quality management system, and has been effectively implemented through management regulations and technical specifications. Huawei's security management system has been certified to BS 7799-2/ISO 27001 since 2004.

Huawei takes privacy protection seriously. We comply with the privacy protection laws and regulations of all the countries and regions where we operate. We have built a management system for end-to-end privacy protection with strong supporting technical expertise. In addition, we continue to invest in and optimize our efforts to ensure the rights of data subjects are respected, which include our prompt and effective handling of more than 20,000 data subject requests to date. We continue to conduct internal and external audits in different countries and business domains to ensure our personal privacy protection policies are effectively implemented. We have also signed data processing agreements with more than 5,000 suppliers and performed extensive due diligence on their data processing.

Over the past year, despite the pandemic and Huawei being on the Entity List, we continued to work with our customers to support the stable operations of more than 1,500 networks in over 170 countries and regions, giving users reliable access to ICT services anytime, anywhere. As part of our commitment to shared success, we continued to work with our partners and ensured that Huawei was able to continue to deliver what customers required.

### Technology for a better planet

Technology does not have to harm nature – the two can work in harmony. ICT can bring economic prosperity while making the world a better place. This is a commitment that we have always honored and will continue to honor.



Huawei is committed to providing leading and green products and solutions that meet customer needs and help cut carbon emissions. We assess the carbon footprints of our own equipment using the lifecycle assessment methodology, and minimize our energy consumption at every phase of each product's lifecycle to provide green connectivity. Huawei's NetEngine routers, for example, consume 26–50% less energy than comparable products available in the market. To reduce our use of natural resources and contribute to a circular economy, we maximize the use of resources at every step of each product's lifecycle, from product design and packaging, to use, repair, and recycling, and provide consumers with quality, eco-friendly, and durable products.

As part of our commitment to green operations, we take technical and managerial measures to save energy, and use renewable and clean energy as much as possible to reduce greenhouse gas emissions on our campuses. In 2020, 220 million kWh of the electricity we used in China came from renewable energy sources. That's equivalent to reducing CO<sub>2</sub> emissions by about 188,000 tons. Huawei's CO<sub>2</sub> emissions per million RMB of sales revenue in 2020 showed a 33.2% reduction compared to the base year (2012), meaning that we beat the target we set in 2016.

We also work with our partners up and down the value chain to build a greener supply chain. 93 of our top 100 suppliers have set their carbon emissions reduction targets and implemented related projects. In 2020, total carbon emissions by our suppliers generated in the course of working with Huawei were down 300,000 tons compared with 2019. Together with our partners, we are using digital technology to help 22 protected areas in 18 countries manage resources and protect biodiversity and nature more efficiently.

In 2020, the global environmental non-profit CDP scored more than 5,800 companies for their efforts to tackle climate change, and Huawei was one of the few companies that were recognized with a prestigious 'A' score for our actions to cut emissions, mitigate climate risks and develop the low-carbon economy.

### Technology for the benefit of society

In addition to creating more business value for our customers, Huawei recognizes the importance of creating social value for all stakeholders. We believe that technology ultimately benefits humanity, and that digital technology will accelerate progress towards the UN Sustainable Development Goals and make our world a better place.

We care about our employees and put their safety first. During the COVID-19 pandemic, we took a number of steps to ensure our employees' health and safety. We set up a dedicated team for COVID-19 prevention and control, and shipped more than 620 batches of protective equipment to Huawei subsidiaries in over 120 countries and regions.

We value diversity and inclusion, and want to bring together bright minds from across the globe. We are working to make Huawei an attractive platform where outstanding people can create and share value together. Huawei has employees from 162 countries and regions. In 2020 alone, we made more than 3,400 local hires in our offices outside China, and local hires made up 69% of our overseas workforce.

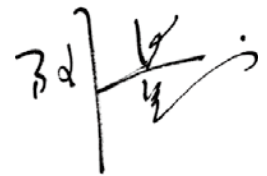
## A Message from the Chairman of the Corporate Sustainable Development Committee

We conduct business with integrity, adhere to standard business ethics, and require all employees to comply with our Business Conduct Guidelines. We work openly and proactively with stakeholders including customers, partners, and government regulators to foster mutual understanding and trust. Through our ongoing compliance efforts, we continue to win the respect and recognition of governments and partners around the world.

Sustainability plays a vital role in our procurement strategy and is regularly assessed throughout our supplier management process, from supplier qualification and selection to performance appraisals and day-to-day management. As part of our efforts to fight COVID-19, in 2020 we added pandemic precautions to the CSR requirements for our suppliers, and we helped suppliers purchase necessary supplies.

Huawei is an active, productive member of the communities where we operate. We work with governments, customers, and non-profit organizations to benefit and support local communities. In 2020, Huawei organized more than 650 charitable activities around the world. We stood with local communities through thick and thin, whether facing the outbreak of COVID-19 or supporting long-term projects like fostering digital skills.

In the post-pandemic era, technology is well poised to play an even greater role in supporting sustainable social development. Technology is a force for good; if we combine our efforts, it will take us far. Let's work together to achieve the UN Sustainable Development Goals.



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# 1 Sustainability Management





**2020 Sustainability Honors and Awards**  
**Sustainability Strategy and Progress**  
**Sustainability Management System**  
**Stakeholder Engagement**







## 2020 Sustainability Honors and Awards



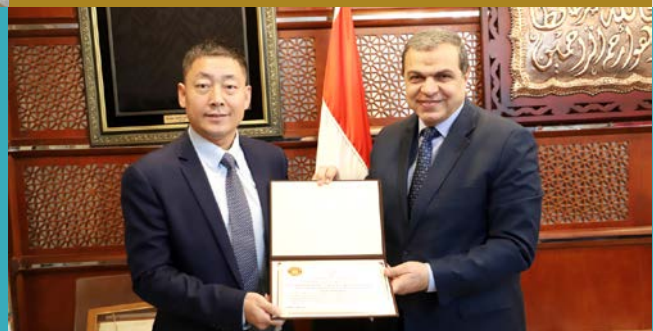
«« Climate A List  
— CDP



«« Prime Minister Award:  
Digital International  
Corporation of the Year  
— Prime Minister's Office of Thailand



Best Practices in Protection »»  
of Labor Rights  
— Egyptian Ministry of Manpower



«« Golden Taxpayer  
— Income and Sales Tax Department  
and Ministry of Finance of Jordan

## Piagam Apresiasi award of KAMI >>> (information security)

— National Cyber and Encryption  
Agency of Indonesia



<<< Award of Excellence for  
Outstanding Performance in Digital  
Technology and Cybersecurity  
— The Senate Committee on ICT and  
Cybercrime of Nigeria

## China Investor of the Year Award >>>

— China-Britain Business Council



<<< Huawei PowerStar, a 3-level  
energy saving solution: Best Mobile  
Innovation for Climate Action at the  
2020 Global Mobile (GLOMO) Awards  
— GSMA

## 2020 Best Practice Award >>> in recognition of Huawei's progress towards SDGs

— Global Compact China Network



# Sustainability Strategy and Progress

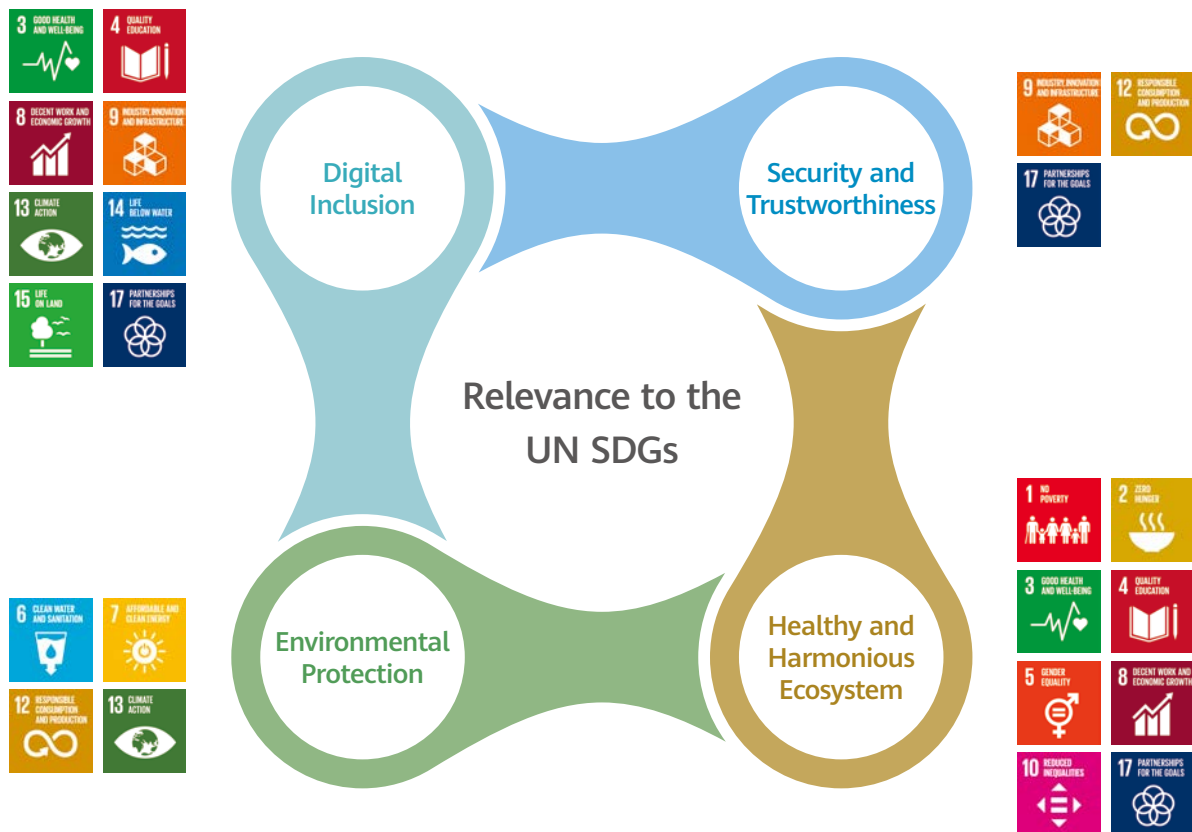
Huawei's vision and mission is to bring digital to every person, home and organization for a fully connected, intelligent world. We believe that ICT can support global economic development while improving people's lives. In 2020, Huawei actively aligned its sustainability efforts with the UN Sustainable Development Goals (UN SDGs) as it continued to focus on its own four sustainability strategies: Digital Inclusion, Security and Trustworthiness, Environmental Protection, and Healthy and Harmonious Ecosystem.

## Leaving no one behind in the digital world

Huawei launched its TECH4ALL initiative to promote digital inclusion for all. We focus on equity in education and conservation of nature, and are making technology more inclusive by investing in technology, applications, and skills. The goal of the initiative is to bring digital technology to every person, home, and organization.

## Taking responsibility to build trust

Cyber security and privacy protection are our top priorities, and we continue to invest and remain transparent in both areas. We have worked to improve our software engineering capabilities and practices, build resilient networks, develop trustworthy and high-quality products, and support stable network operations and business continuity.



## Contributing to a clean, efficient, low-carbon, and circular economy

We are committed to minimizing our environmental impact in manufacturing, operations, and over the entire lifecycles of our products and services. Huawei's innovative products and solutions help industries reduce their energy consumption and emissions, and contribute to the circular economy. We actively work with all our industry partners to shrink our carbon footprint.

## Collaborating for the common good

We operate with integrity and in compliance with all applicable laws and regulations, and continue to enhance sustainability risk management. We work to ensure that our employees can develop and realize their personal value. We conduct due diligence on our global supply chain to ensure its sustainability. We actively contribute to the communities we operate in. We also work with all industry partners to build a healthy and harmonious business ecosystem.



Major progress in these four areas in 2020:

## Digital Inclusion Leaving no one behind in the digital world

60,000+

teachers and students from 200+ schools have benefited from TECH4ALL projects

22

protected areas in 18 countries manage natural resources and protect biodiversity more efficiently using Huawei's digital technology

15

accessibility functions are available on Huawei smartphones, which are used by 10 million people every month

50 million+

people living in remote areas in 60+ countries have access to mobile Internet services thanks to Huawei's RuralStar

## Security and Trustworthiness Taking responsibility to build trust

4,000+

suppliers' cyber security risks were assessed, tracked, and managed

5,000+

suppliers signed data processing agreements with Huawei

6

cyber security and privacy protection transparency centers opened

200+

major incidents where Huawei supported network stability

## Environmental Protection Contributing to a clean, efficient, low-carbon, and circular economy

93

of our top 100 suppliers set a carbon emission reduction target

220 million kWh

of the electricity we used in China came from renewable energy sources, equivalent to reducing CO<sub>2</sub> emissions by 188,000 tons\*

33.2%

decrease in carbon emissions per million RMB of sales revenue compared to the base year (2012), beating the target (30%) we set in 2016

4,500+ tons

of smart device e-waste processed by our own recycling stations

## Healthy and Harmonious Ecosystem Collaborating for the common good

CNY11.89 billion

invested in employee benefits

100,000+

active patents across 40,000+ families held by Huawei

2,500+

engineering service suppliers' CEOs signed CSR & EHS commitment letters

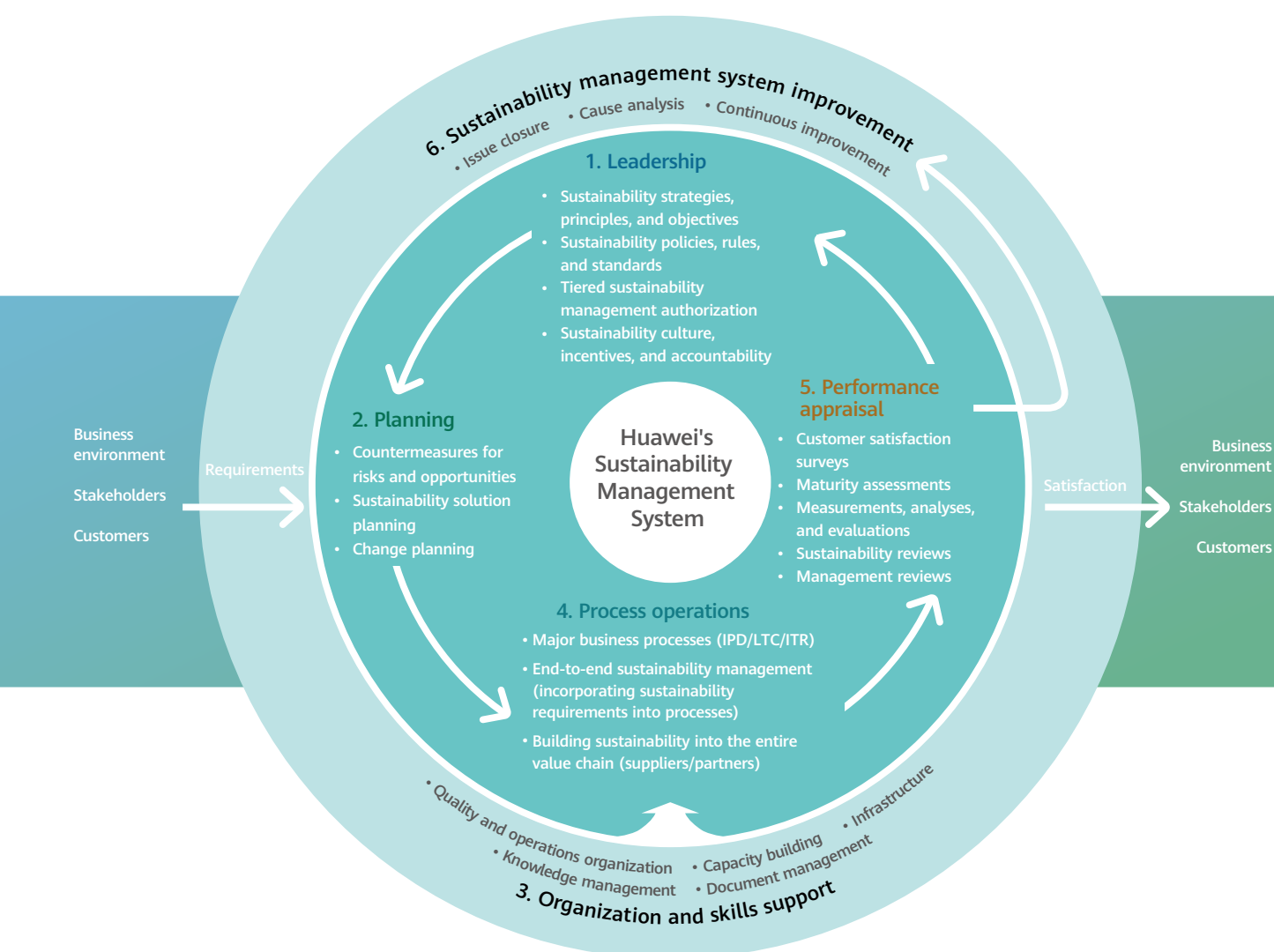
650+

charitable activities organized by Huawei; nearly 90 countries received technical assistance from Huawei for pandemic response

\* By China's regional grid baseline emission factors

# Sustainability Management System

To work towards our strategic sustainability goals, we have, based on international standards and guidelines such as ISO 26000/SA 8000, determined the scope of our sustainability management system and we have created the system using the PDCA (Plan, Do, Check, Act) cycle. This process took into account factors in Huawei's internal and external environment, local laws and regulations, and the requirements of stakeholders like governments, customers, and employees.



Framework of Huawei's Sustainability Management System

## CSD Committee

We have created a Corporate Sustainable Development (CSD) Committee for the Huawei Group, which is responsible for helping Huawei's business units set and work toward sustainability goals in accordance with our four sustainability strategies. The Committee consists of more than 10 senior executives from various departments, including human resources (HR), manufacturing, administration, procurement, and research and development (R&D). The CSD Committee is chaired by Tao Jingwen, a board member and President of the Quality, Business Process & IT Management Department.

The Committee meets quarterly and may convene special meetings as necessary to discuss and take decisions on sustainability issues. The CSD Committee has established a working group responsible for coordinating and completing everyday sustainability work.

### Functions of the CSD Committee

- Develops corporate-level sustainability strategies, guidelines, objectives, and policies; sets the course; and monitors their implementation.
- Coordinates the creation, implementation, and continuous improvement of the sustainability management system; decides on sustainability related matters; and ensures that Huawei's sustainability management complies with relevant laws and regulations, international standards, and customer requirements.
- Facilitates sustainability-related communication with key stakeholders such as customers, regulators, and industry organizations.
- Drives the resolution of sustainability issues across domains or processes and coordinates sustainability operations from end to end.
- Provides guidance on the development, operation, and improvement of our environment, occupational health and safety (EHS) management system, and handles major EHS issues.



## Sustainability Risks and Opportunities

To systematically manage sustainability risks, Huawei has created a guide based on the Risk, Governance, and Control (RGC) methodology. The guide covers risk identification, risk assessment, target setting, risk control, risk monitoring, and risk governance. It helps Huawei business departments improve their sustainability risk management organization and operations to keep risk within an acceptable level.

Sustainability risk management is not just about identifying risks; it also identifies potential opportunities. This is an important input to our annual sustainability goal setting and helps improve our sustainability performance.

## Examples of sustainability risks and opportunities

Sustainability Strategy	Risks and Opportunities	Measure
Digital Inclusion	Economic and institutional inequalities mean that access to educational resources in certain regions is still far below the level enjoyed in the developed world. Unfortunately, the COVID-19 pandemic has only exacerbated this gap, undermining education equity.	Huawei rolled out its Skills on Wheels and Connecting Schools programs in more than 200 schools around the world, benefiting more than 60,000 teachers and students.
	The natural environment that sustains life on Earth is deteriorating. Problems like climate change and rising sea levels threaten the survival and well-being of every living thing.	Huawei used digital technologies to help 22 protected areas in 18 countries manage natural resources and protect biodiversity more efficiently.
	Health is a basic human right, and its importance has been further highlighted by COVID-19. Our shared goal is to make healthcare easier to access for more people, so that all of humankind can enjoy the benefits of good health.	Huawei uses ICT to help different groups of people across different regions gain equal access to high-quality medical resources and digital services, so that no one is left behind in the digital world.
	According to the ITU, nearly half of the world's population does not have access to the Internet. Most of the unconnected are farmers who live in underdeveloped rural areas. Though they are living in the digital age, they are unable to benefit from digital technology and the opportunities that it provides.	Huawei continues to provide cost-effective solutions for ICT infrastructure in remote areas. Its RuralStar series solutions have provided mobile Internet services for more than 50 million people living in remote areas in over 60 countries and regions.
Security and Trustworthiness	Due to COVID-19, telecommuting, video conferencing, remote education, and telemedicine have become the new normal. As digital transformation picks up pace, our burden of responsibility to defend online privacy and cyber security is getting heavier.	Cyber security and privacy protection remain Huawei's top priority. We constantly update our end-to-end systems, making sure that each domain is continuously updated with the latest advances in cyber security and privacy.
	Cyber security is a challenge for all of us. However, certain countries are treating cyber security as an ideological or political issue. This is not conducive to creating a secure cyberspace.	Huawei seeks to engage and work with stakeholders in an open, transparent, and responsible manner. We choose to address cyber security and privacy challenges together, through innovative technologies, standards/certifications, and improved governance. We are committed to protecting people's cyber security and personal privacy while they enjoy the benefits of technological advances.
	During the COVID-19 pandemic, cloud offices, online education, and contactless shopping have made lockdown life possible, but they put a lot of pressure on our digital infrastructure.	More than 5,000 Huawei engineers support customer networks 24/7 from our two global and ten regional technical assistance centers.
	The US Department of Commerce has added some Huawei entities to its Entity List, which has had some impact on the development of Huawei and the industry as a whole.	As a staunch supporter of globalization, we will continue to pursue supply chain diversification without depending on any one country or region. Our supply continuity rests upon a global supply chain.

Sustainability Strategy	Risks and Opportunities	Measure
Environmental Protection	To combat climate change, more and more countries have committed to carbon neutrality targets. This is both a challenge and an opportunity for Huawei.	Huawei is working towards its new medium- and long-term carbon emission reduction targets and encouraging our top 100 suppliers to do the same.
	According to the Renewables 2020 report by the International Energy Agency, renewables will overtake coal to become the largest source of electricity generation worldwide in 2025.	Huawei began to work on photovoltaics in 2010. We continue to innovate in PV technology to cut the cost of electricity generation and to produce more power from each joule of sunlight. Our ultimate goal is to bring green power to every industry and every household, and accelerate progress towards carbon neutrality.
	According to the UN's Global E-waste Monitor 2020, e-waste has become the world's fastest-growing domestic waste stream. Recycling e-waste is a major challenge for Huawei as an ICT infrastructure and smart device provider.	We have built a global recycling program for device products and scaled up our product trade-in program. As of the end of 2020, Huawei had processed more than 4,500 tons of smart device e-waste through our own recycling stations.
Healthy and Harmonious Ecosystem	COVID-19 poses a serious threat to the physical and mental health of our employees worldwide.	To ensure the health and safety of our employees, Huawei took swift action after the outbreak of COVID-19. We developed solutions for our subsidiaries in the countries and regions hit hardest by the pandemic. We reserved sufficient supplies of protective equipment and developed a comprehensive program to handle COVID-19 cases 24/7. The program includes local medical care, online consultation systems, and support from Chinese experts. We organized more than 30 lectures on preventive health measures and also provided counseling for employees.
	Complex political and economic situations and increasing uncertainty are complicating Huawei's global compliance environment.	Huawei continues to enhance our compliance program across multiple domains, including trade compliance, finance, anti-bribery, intellectual property, trade secrets, cyber security, and user privacy. We have worked to foster mutual understanding and trust by communicating actively and openly with stakeholders including our customers, partners, and government regulators.
	The COVID-19 pandemic is bringing new health and safety challenges for Huawei's production suppliers.	Huawei has added effective COVID-19 protection as part of our CSR requirements for suppliers, and we assist our suppliers in purchasing protective equipment so that we can fight the pandemic together.
	The COVID-19 pandemic is an unprecedented challenge for all, and it is part of our social responsibility to work together with local communities to fight the pandemic.	Huawei used ICT solutions to assist the pandemic response in local communities. As part of our commitment to multilateral international cooperation, we worked closely with local governments, community organizations, international organizations, and our customers and partners to protect the health and safety of local residents.



# Stakeholder Engagement

Huawei takes its stakeholders' concerns and requirements seriously. We have developed effective mechanisms for identifying and engaging with stakeholders so that we can hear, understand, and promptly respond to their needs. Huawei's major stakeholders include customers and consumers, employees, suppliers and partners, governments, non-governmental organizations (NGOs), industry organizations, specialist agencies, the media, and local communities.

In 2020, we identified the top concerns of our stakeholders by using a range of communication channels, and developed corresponding strategies to address them. See the table below for details:

Stakeholders	Communication Channels	Major Concerns	Huawei Strategy
Customers and consumers	<ul style="list-style-type: none"> <li>Customer satisfaction surveys</li> <li>Customer meetings</li> <li>Huawei Fan Club for consumers</li> <li>Customer audits, surveys, and joint projects</li> </ul>	<ul style="list-style-type: none"> <li>Climate change/carbon emission reduction</li> <li>Cyber security and privacy protection</li> <li>Supply chain responsibilities</li> <li>Circular economy</li> </ul>	<ul style="list-style-type: none"> <li>Setting Huawei's medium- and long-term carbon emission reduction targets and urging our top 100 suppliers to do the same</li> <li>Making cyber security and privacy protection a top priority at Huawei</li> <li>Integrating sustainability requirements into Huawei's procurement strategy and working more closely with customers and industry organizations to improve the sustainability of our suppliers</li> <li>Integrating sustainability requirements into the entire lifecycle of each product and introducing circular economy practices</li> </ul>
Employees	<ul style="list-style-type: none"> <li>Employee surveys (e.g. organizational climate surveys)</li> <li>Manager Feedback Program (MFP)</li> <li>Meetings with employee representatives</li> <li>Reflection sessions</li> <li>Hotlines and public email addresses for filing complaints, providing suggestions, reporting misconduct, and making an appeal</li> <li>Open Days with managers and experts</li> </ul>	<ul style="list-style-type: none"> <li>Health and safety at work</li> <li>Compensation, benefits, and incentives</li> <li>Employee training and development</li> <li>Employee relations and experience working at Huawei</li> </ul>	<ul style="list-style-type: none"> <li>Establishing COVID-19 emergency response teams to ensure employee health and safety</li> <li>Giving our dedicated employees better lives through both monetary and non-monetary incentives</li> <li>Offering many career development options to help employees grow</li> <li>Creating a warm, productive, and relaxed workplace</li> </ul>
Suppliers and partners	<ul style="list-style-type: none"> <li>Supplier sustainability audits</li> <li>Supplier conferences</li> <li>Supplier training</li> <li>Joint sustainability programs</li> </ul>	<ul style="list-style-type: none"> <li>Fair competition</li> <li>Training</li> <li>Collaboration for shared success</li> <li>Social responsibility</li> <li>Energy saving and emission reduction</li> </ul>	<ul style="list-style-type: none"> <li>Ethical and transparent procurement; zero tolerance of bribery and corruption</li> <li>Encouraging suppliers to adopt best practices through regular sustainability training and coaching</li> <li>Jointly developing a sustainable industry for shared success</li> </ul>
Governments	<ul style="list-style-type: none"> <li>Meetings on government policies</li> <li>Governmental public consultations</li> <li>Government and inter-government conferences</li> <li>Governmental sustainability programs</li> </ul>	<ul style="list-style-type: none"> <li>Operational compliance</li> <li>Employment and value creation</li> <li>ICT talent development</li> </ul>	<ul style="list-style-type: none"> <li>Conducting business with integrity, adhering to common business ethics, and complying with all applicable laws and regulations</li> <li>Making local hires, purchasing from local companies, and paying taxes as required by local law</li> <li>Nurturing skilled ICT professionals for the global workforce through Huawei ICT Academies and Seeds for the Future</li> </ul>
NGOs, industry organizations, and specialist agencies	<ul style="list-style-type: none"> <li>Industry conferences, forums, and work groups</li> <li>Standards conferences</li> <li>Joint sustainability programs</li> <li>Academic research programs</li> </ul>	<ul style="list-style-type: none"> <li>Contributions to the UN SDGs</li> <li>Contributions to the economy, society, and environment</li> <li>Openness and transparency</li> </ul>	<ul style="list-style-type: none"> <li>Communicating and working with NGOs, industry organizations, and specialist agencies in an active and open way, and promptly responding to their requests</li> <li>Regularly disclosing information about our sustainability</li> </ul>
Media	<ul style="list-style-type: none"> <li>Press conferences</li> <li>Exclusive interviews</li> <li>Inviting the media to our conferences and events</li> </ul>	<ul style="list-style-type: none"> <li>Openness and transparency</li> </ul>	<ul style="list-style-type: none"> <li>Regularly disclosing information about sustainability and responding promptly to external concerns and questions</li> </ul>
Communities	<ul style="list-style-type: none"> <li>Local employment and procurement</li> <li>Participation in community projects</li> <li>Holding charity events</li> <li>Interaction through Huawei's websites and social media platforms</li> </ul>	<ul style="list-style-type: none"> <li>Local employment and procurement</li> <li>ICT talent development</li> <li>Environmental protection</li> <li>Contributions to communities</li> </ul>	<ul style="list-style-type: none"> <li>Hiring locally and purchasing from local companies in the places where we do business</li> <li>Nurturing skilled ICT professionals for the global workforce through Huawei ICT Academies and Seeds for the Future</li> <li>Using technology to protect nature and biodiversity</li> <li>Giving back to local communities by creating value and making a lasting, positive difference with digital technologies</li> </ul>

## 2020 Stakeholder Engagement

Huawei organizes or participates in sustainability programs worldwide. We engage in depth with key stakeholders to discuss how to address some of our shared concerns (e.g. COVID-19, climate change, and the circular economy). Through these events, we hope to encourage innovation and collaboration on a broader scale, as part of the effort towards the UN Sustainable Development Goals.

### Learn ON: Huawei, UNESCO IITE, and ICHEI Higher Education Webinar

On April 11, 2020, Huawei, along with UNESCO IITE and UNESCO-ICHEI, held a live webinar on online education. This webinar was part of Huawei's TECH4ALL Learn ON program which was created to ensure continued access to quality education everywhere, so that learning never stopped, even during COVID-19 school closures.



### Sustainability Webinar Hosted by Huawei and GlobeScan

On May 27, 2020, Huawei and GlobeScan jointly hosted a CSR webinar themed "Sustainability and Resilience: The World Post COVID-19 and the Role of Technology". At the event, participants discussed how progress on the Sustainable Development Goals (SDGs) will be impacted in this post COVID-19 reality and the role of technology, and how business and society could respond to the emerging new reality, using the SDGs as the lens through which we can rebuild society. Over 700 people registered for the event, and it was watched by over 350 people from 70 countries. It brought together experts and researchers from various organizations, including the European Parliament, Cambridge University, and the World Economic Forum.



### Huawei at the 2020 Responsible Business Summit

Huawei was a key partner of the virtual Responsible Business Summit held by Reuters Events from June 8 to 16, 2020. The event welcomed 13,000+ participants from governments, businesses, and other international organizations. Huawei shared the approach about the latest innovations and technology available on climate change and how the COVID-19 pandemic has impacted Huawei's environmental ambitions and the biggest lesson from the pandemic.

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## Huawei at UNGC Webinar

On June 11, 2020, the United Nations Global Compact (UNGC) hosted a webinar entitled "Uniting Business to Drive Global Economic Recovery". Business leaders were brought together to discuss how to drive business transformation in response to the COVID-19 pandemic. A Huawei spokesperson stated that the pandemic has accelerated the application of many new technologies and stimulated the digital economy. But it has also exposed how under-developed many digital technologies still are. Huawei called for increased investment in ICT to address the challenges arising from digital transformation.



On December 15, 2020, UNGC held a webinar themed "Uniting Business in a Decade of Action", which reviewed key findings from the UN Global Compact 20th-Anniversary Progress Report with a focus on contributions of different industries to the UN SDGs. Huawei shared its sustainability strategies and principles, and described our work on digital inclusion, environmental protection, and skills development. We called on stakeholders to work together to achieve the UN SDGs.



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## CDP Roundtable on Post-COVID-19 Sustainability Opportunities and Challenges for Chinese Companies

From July 29 to 31, 2020, the CDP held a virtual event to launch its report Facilitating Green Economic Recovery Through Environmental Disclosure, which was followed by a panel discussion. Huawei was presented with the Top-performing Supplier on Climate Action award in recognition of its excellent performance in environmental disclosure in the year of 2019. We were invited to a roundtable on opportunities and challenges in sustainability for Chinese companies in a post-COVID-19 world. At the roundtable event, held on July 29, Huawei explained how the company has established a CSD Committee chaired by a board member, and how, as part of the company's commitment to technology for a better planet, the committee oversees the company's ongoing sustainability efforts.

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## Huawei at the European SDG Summit 2020

Huawei was a partner of the CSR Europe first ever virtual European SDG Summit: "Impactful Partnerships to Build Back Better", that ran from October 26 to 30, 2020. The event was under the patronage of Frans Timmermans, Executive Vice-President of the European Commission. More than 5,500 invited participants attended the event, including 100+ high-level speakers from the European institutions, businesses, governments, industry federations, and academia. Huawei took part in the discussion around circular economy and the future of work, calling for more collaboration and innovation between all relevant stakeholders.

## Huawei's Membership in Sustainability Organizations



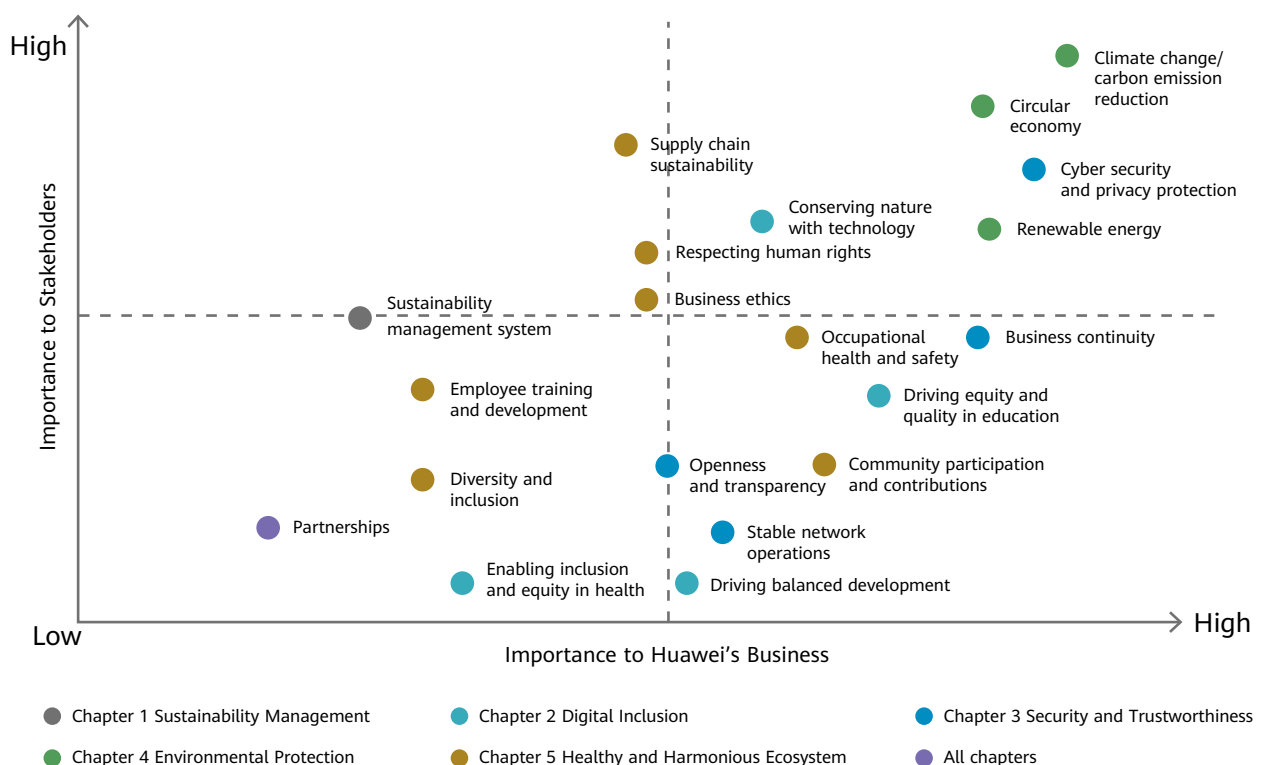
## Focusing on Material Issues

A clear understanding of which issues are material for us is key to improving our sustainability. Materiality allows us to focus on the major issues that concern our stakeholders and that affect our business operations most.

In 2020, after a comprehensive analysis and re-prioritization of our material issues, we adjusted the materiality matrix to include more issues that our stakeholders are concerned about, such as "respecting human rights" and "diversity and inclusion". In addition, the new matrix made "climate change/carbon emission reduction" and "circular economy" a higher priority.

### The ways we identify material issues include but are not limited to:

- Stakeholder surveys
- Customer inquiries, audits, communications, and joint projects
- Industry insight, communications, and benchmarking
- Media engagements
- Internal risk assessments and strategic alignment







## 2 Digital Inclusion





As a facilitator of an intelligent world, the ICT industry plays a key role in promoting economic growth and social well-being. It is also a catalyst for the achievement of the UN SDGs. Through its TECH4ALL digital inclusion initiative, Huawei works with partners to drive equity in education and conserve nature. We are making technology more inclusive by investing in technology, applications, and skills. The goal of the initiative is to bring digital technology to every person, home, and organization.

**Driving Equity and Quality in Education**  
**Conserving Nature with Technology**  
**Enabling Inclusion and Equity in Health**  
**Driving Balanced Development**





Nearly half of the world's population does not have access to the Internet, according to the International Telecommunication Union (ITU). Though they are living in the digital age, they have been left behind in the digital world, as they are unable to benefit from digital technology and the opportunities that it provides. Access to education and healthcare is also highly unequal across different parts of the world and the environment is deteriorating, further widening the regional gaps. Since the emergence of COVID-19, the way we study, work, and live has been completely redefined; cloud offices, online education, and contactless shopping became the new normal. During this process, connectivity has been driving sustainable development in ways we never saw before. The pandemic highlighted that digital inclusion is more necessary and urgent than ever.

## Huawei's Approach and Practices

To leave no one behind in the digital world, Huawei has continued with its TECH4ALL digital inclusion initiative. We have worked with global partners such as UN agencies, NGOs, research institutes, governments, and customers to promote digital inclusion, focusing on four high-impact domains: equity and quality in education, environmental protection, inclusion and equity in health, and balanced development.

As of the end of 2020, Huawei had worked with more than 20 partners, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Union for Conservation of Nature (IUCN), and Rainforest Connection (RFCx), and is delivering real advances in education and nature conservation.



# Driving Equity and Quality in Education

Education is the root of progress, and universal education is a defining feature of modernity. Human civilization took a great step forward when education became a right for every person, and when every person began to enjoy its benefits.

However, economic and institutional inequalities mean that access to educational resources in certain regions is still far below the level enjoyed in the developed world. Unfortunately, the COVID-19 pandemic has only exacerbated this gap, undermining education equity. To address this challenge, Huawei is working with its partners like UNESCO to provide people in different regions with equal access to high-quality education.

## Huawei Launched the Learn Anytime Education Alliance in China During COVID-19

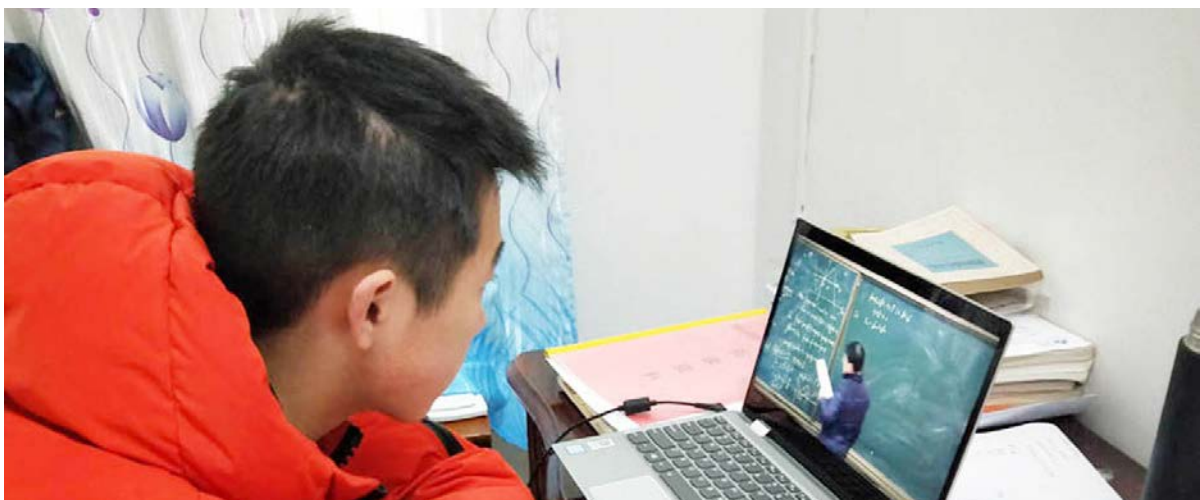
# 50 million+

students provided with 240,000  
online lessons for free

In early 2020, the sudden outbreak of COVID-19 caused the closure of schools in China. However, the government announced that learning would continue. Implementing large-scale online education for hundreds of millions of students nationwide was an unprecedented challenge. Huawei launched the Learn Anytime Education Alliance, together with more than 100 education partners, to help primary and secondary schools, higher education, and training centers provide online teaching services. The aim was to expand the school beyond the school gates and into homes. The program gave students and teachers access to online classrooms anytime, anywhere.

Our solutions included whole-class streaming classrooms, whole-class interactive classrooms, Massive Open Online Courses (MOOCs), remote collaboration, and online learning centers, to meet the distance learning needs of different institutions. Since the establishment of the Learn Anytime Education Alliance, Huawei has supported over 20,000 customers. More than 5,000 schools and companies have benefited from live streaming services provided for free in emergency situations. With Huawei solutions, 240,000 online lessons have been provided to over 50 million students. At peak hours, more than 11 million students were online simultaneously.

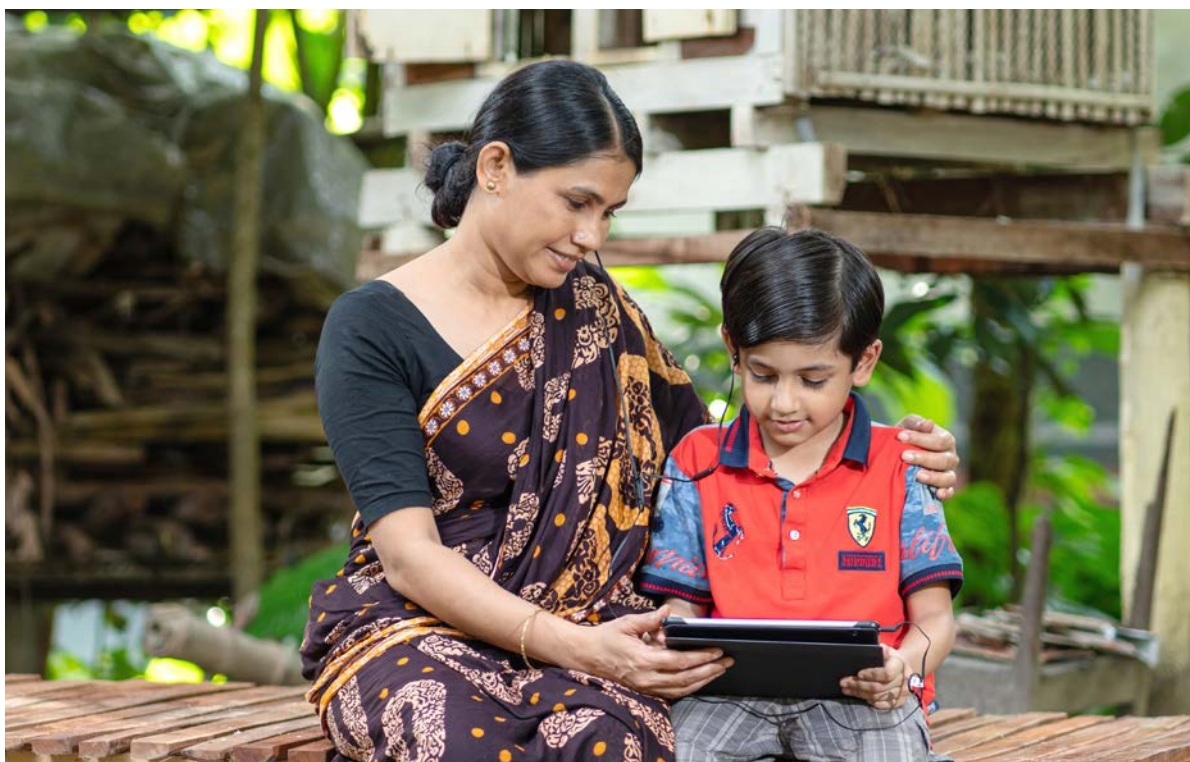
Networked, digital, personalized, and lifelong learning are key features of education today. Huawei will continue to harness cloud, AI, and 5G, and to work with our ecosystem partners to give more people equal access to knowledge and skills, so that they can unleash their potential and create more value for society.



A Chinese student studying online during the COVID-19 pandemic



## Bridging the Education Gap in Bangladesh



A Bangladeshi child studying at home during the pandemic

An estimated one billion children have had their schooling interrupted in some way since the start of the COVID-19 pandemic. In Bangladesh, where there is a relative lack of access to digital technologies compounding the effects of the shutdown, the education system has faced enormous challenges, and more than one million children have been affected.

Huawei has operated in Bangladesh for more than 20 years and is committed to advancing digital development in the country. To reduce the impact of school closures, Huawei teamed up with local company Bijoy Digital and UNESCO in July 2020 to launch a two-year education project, with the goal of ensuring that Bangladeshi children can continue learning from home during the pandemic.

Huawei has provided tablets preloaded with Bijoy Digital education apps. The apps are designed to be fun, with animated graphics to keep students interested and engaged.

With these tablets, children can study in the comfort and safety of their own homes. Teachers also benefit from being able to offer remote help and ensure that children stay on track with their studies.

The initiative has had a positive impact on students and teachers. We plan to expand the program to cover more schools and benefit more students and teachers.

## Learning Never Stops at Senegal DigiSchool

To ensure that students keep learning, UNESCO launched the Global Coalition for Education in March 2020. As in many countries, schools in Senegal have been forced to close due to the pandemic.

As a member of the coalition, Huawei launched the DigiSchool project in August 2020, in partnership with Senegal's Ministry of National Education, the UNESCO Regional Office for West Africa, and the local carrier Sonatel. The project aims to provide remote training to local teachers to ensure that learning never stops – even during the pandemic.

Before joining the coalition, Huawei had already worked with the Ministry of National Education to build smart classrooms in some schools in Dakar and provide students with an interactive multimedia learning experience. The DigiSchool project further deepens the cooperation between Huawei and the Ministry of National Education to promote equity and quality in education.

This project aims to reach 200 schools and benefit 20,000 teachers and 100,000 students. By the end of December 2020, more than 200 teachers had received training in the digital skills required for distance education, which helped 15,000 students in over 60 schools.

200+

teachers have received training in the digital skills required for distance education

15,000+

students in 60+ schools have benefited from DigiSchool



A teacher learning distance education skills

## StorySign: Unlocking the Joy of Reading for Deaf Children

According to a World Health Organization (WHO) report, 34 million children worldwide suffer from 'disabling' hearing loss. They struggle to match words with sounds, which means it is difficult for them to enjoy reading. To help open up the world of books to small children with hearing impairments, Huawei worked with our partners and created the app StorySign.

Focused on supporting deaf children up to 6 years old, StorySign uses AI technology to translate popular children's books into sign language. The app scans the words of selected, popular children's books, instantly translating them into sign language using our friendly signing avatar, Star. StorySign is available for free worldwide and can be downloaded from Huawei AppGallery, Google Play Store, and Apple App Store.

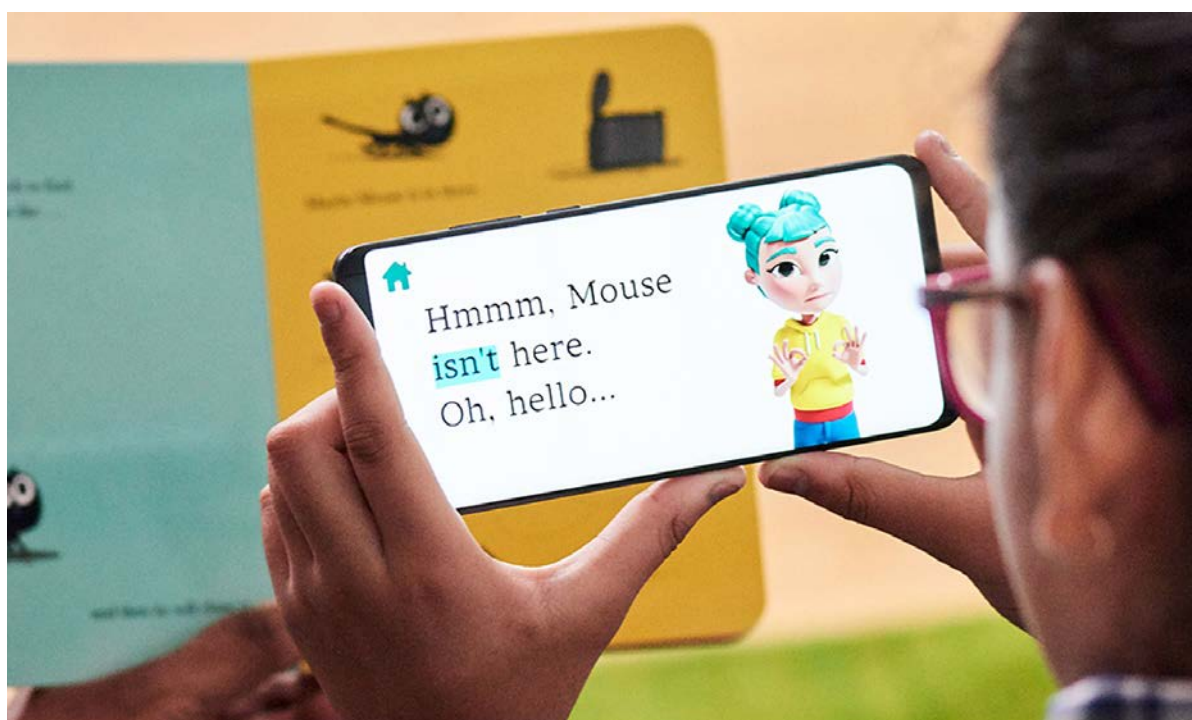
As of the end of 2020, 71 different children's books on the app were available in 15 sign languages, including British Sign Language, American Sign Language, Auslan, Libras, Spanish Sign Language, and French Sign Language.

“

StorySign is really important because there isn't enough out there for deaf children. StorySign is fantastic! It's a technology that will change the future of an entire generation.

”

— Mark Wheatley, Executive Director of European Union of the Deaf



A StorySign user enjoying reading



## Huawei's DigiTruck: Improving Digital Skills of People in Remote Areas



Huawei's DigiTruck mobile digital classroom in Kenya

1,300+

rural young people, teachers, and students in 13 villages in Kenya have received digital skills training through Huawei's DigiTruck

22,000+

hours of digital skills training delivered by Huawei's DigiTruck

To help Kenyans in remote areas benefit from digital technology, Huawei set up the DigiTruck mobile digital classroom in partnership with the Belgian non-profit organization Close the Gap, UNESCO, GSMA, Computers For Schools Kenya (CFSK), and the Kenyan telecom carrier Safaricom.

DigiTruck is a mobile digital classroom that has been converted from a shipping container. The 12-meter classroom is equipped with smart devices like laptops, LED screens, virtual reality (VR) headsets, smartphones, and routers. People can learn Internet skills thanks to wireless broadband access. The VR devices provide a new level of classroom resources. DigiTruck is solar-powered, so classes can be held in remote areas without sufficient power supplies.

By the end of 2020, Huawei's DigiTruck had provided more than 22,000 hours of digital skills training to more than 1,300 rural young people, teachers, and students in 13 villages in Kenya. Moving forward, DigiTruck will continue to deliver digital skills training to even more people in remote regions.

## Making Joint Investments to Foster Skilled ICT Workforce

As digital technologies like 5G, AI, and IoT are widely adopted, digital transformation is picking up pace. One of the challenges hindering this transformation is a lack of a skilled ICT workforce. According to a 2017 estimate from the World Bank, in 10 years' time we will need 10 million more ICT professionals than we currently have. To grow a skilled ICT workforce for the future, Huawei is working with education departments, colleges, and training institutions to define skillsets, build talent alliances, and demonstrate the value of ICT professionals. Together, we are building an open ICT talent ecosystem that thrives on shared success.

- We have continuously optimized our certification system, which currently offers two types of certification: ICT Infrastructure and Cloud Service & Platform. By the end of 2020, more than 400,000 engineers had received a Huawei Certification, with over 13,000 of them receiving the Huawei Certified ICT Expert (HCIE) certification. These engineers are a valuable resource pool to support industry digitalization worldwide.
- In February 2020, we launched the Huawei ICT Academy Program 2.0, through which we will provide incentives worth US\$50 million to Huawei ICT Academies, helping them deliver online courses,

provide online training, perform online experiments, and award online certifications. Through this program, we aim to work with universities worldwide and develop 2 million ICT professionals over the next five years. Ultimately, we aim to build a flourishing talent ecosystem and drive the ICT industry forward.

- In the face of the COVID-19 pandemic, we launched the Learn ON Program, offering more than 300 courses and MOOC resources for free, providing 57 online open lectures, organizing more than 700 classes, and organizing 175 Train the Trainer (TTT) sessions. This helped ensure continuous online learning during the closure of schools and universities.
- The 5th Huawei ICT Competition attracted more than 150,000 students from over 2,000 universities across 83 countries and regions, promoting digital skills and fulfilling corporate social responsibilities.

# 150,000+

students from 2,000+ universities across 83 countries and regions participated in the 5th Huawei ICT Competition



Closing Ceremony of the Huawei ICT Competition 2019-2020

# Conserving Nature with Technology

Economic prosperity has pulled many people out of poverty, but it has also caused serious damage to the environment. As environmental degradation begins to affect human well-being, nature and the environment have become an increasingly major concern for governments and for the public. Together with environmental organizations and other partners, Huawei is exploring how to apply its ICT solutions to protect the environment and reduce the human impact on the environment.

## "Nature Guardians" Deployed in Five New Countries: Protecting Nature and Endangered Animals



Huawei, RFCx, and a local organization working to end the poaching of Balkan Chamois in Greece's Northern Pindos National Park

Tropical rainforests are the "lungs of the planet", absorbing about 30% of the world's carbon dioxide. They are also home to more than half of animal and plant species in the world and are vital to maintaining biodiversity.

As the first line of defense, forest rangers are responsible for preventing fires and illegal logging, as well as protecting wildlife in the forests. However, their patrols are often not enough to safeguard the forests. By the time rangers find out about illegal logging and rush to intervene, the loggers may have already finished felling trees and escaped with the timber.

Huawei and RFCx are working together to use HUAWEI CLOUD AI to identify sounds of illegal logging through a solar-powered sound monitoring system deployed in the rainforest.

The "Nature Guardian" system collects sound data and uploads it to a cloud server. It can run 24/7 even in the extreme temperature, humidity, and rainfall conditions of a rainforest. Whenever it detects the sounds of illegal logging, such as chainsaws and trucks, it immediately sends the location to forest rangers so that they can quickly intervene.

Today, Guardians are no longer just used to detect

22

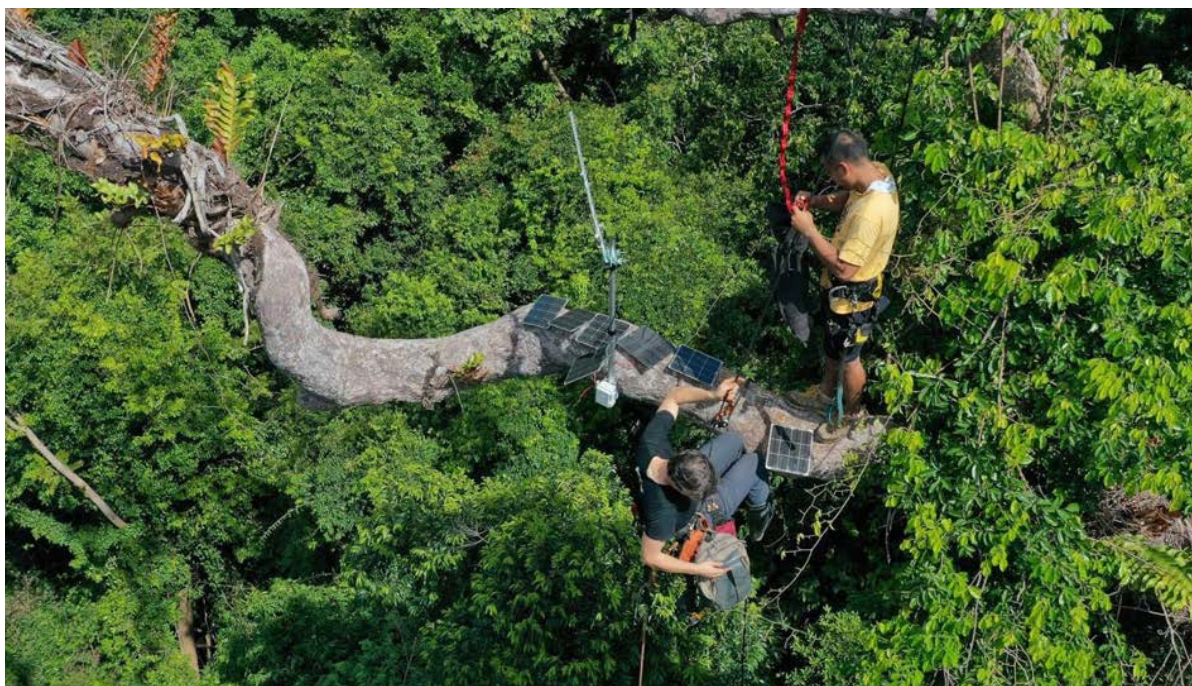
protected areas in 18 countries across 5 continents where "Nature Guardians" are deployed

sounds of logging in rainforests. In 2020, RFCx and Huawei worked together to apply the Guardians in new domains. In Greece, we used Guardians to monitor sounds of gunshots in protected areas to protect wild antelopes from poachers. In Ireland, Guardians are used to identify calls of whales and dolphins so that approaching ships can redirect their course to avoid disturbing or harming these marine species. In Chile, we use Guardians to prevent illegal poaching in Nahuelbuta National Park and to protect the endangered Darwin's foxes. In Palawan in the Philippines and Sarawak in Malaysia, Huawei is working with RFCx and local environmental protection departments to protect local tropical rainforests and monitor illegal logging in the rainforests in real time.

By the end of 2020, "Nature Guardians" were deployed in 22 protected areas in 18 different countries across five continents, helping local rangers and conservationists protect nature and biodiversity.



## Protecting the Palawan Rainforest in the Philippines



Topher White and a worker installing the Nature Guardian system in the Palawan Rainforest



The dedication of the local DENR forest rangers in Palawan is known worldwide. They spare no efforts in protecting this last frontier of Philippine wilderness from logging and environmental threats, and face enormous challenges and great danger. Huawei and Smart Communications teamed up to give RFCx an opportunity to help these brave people.



— Topher White, RFCx CEO and Founder

Palawan is a long, narrow island in the southwest Philippines. Accounting for the bulk of the nation's forest cover, the Palawan rainforest is considered to be the last ecological frontier in the archipelago nation. As one of the world's most biodiverse regions, the rainforest is home to many rare species.

With illegal logging and frequent forest fires, Palawan loses about 5,500 hectares of rainforest every year – the equivalent of 7,700 football pitches. Moreover, forest rangers patrolling the rainforest are in constant danger from illegal loggers carrying weapons.

The good news for the Palawan rainforest is that a technology-driven protection project for the rainforest has been initiated by the Department of Environment and Natural Resources (DENR), the Philippines' wireless and mobile carrier Smart Communications, RFCx, and Huawei.

Results have been promising since the rollout of the Guardians in January 2020, with DENR reporting that many alerts of illegal logging have been verified and addressed by forest rangers.



## Technology Helps Protect the Northeastern China Tiger and Leopard National Park

The International Union for Conservation of Nature (IUCN) categorizes Amur tigers as "endangered" and Amur leopards as "critically endangered" on its Red List. In a field study on the prevalence of these animals in China, a research team from Beijing Normal University uncovered invaluable information: From 2012 to 2014, there were at least 27 Amur tigers and 42 Amur leopards active in China.

However, all of their work was done manually, and slow data collection made conservation efforts extremely inefficient. To address this issue, the Amur Tiger and Amur Leopard Monitoring and Research Center, part of the National Forestry and Grassland Administration of China, developed a sky-to-earth system that covers the entire park. This system is the first of its kind in the world, and monitors, assesses, and manages natural resources in real time.

Powered by a 700 MHz LTE network built by Huawei and Jishi Media, the system can stream real-time HD video captured by infrared camera traps, ecological data, and footage from road checkpoints and fire safety cameras. The system also supports video calls and the tracking of ranger patrols, so that conservationists have remote access to real-time data to support their research.

By the end of 2020, the LTE network almost covered the entire 14,600-square-kilometer national park. Over the past year and a half, the monitoring system has captured over

one million traces of wild animals.

Conservationists have discovered new litters of cubs in the tiger and leopard populations every year, offering hope for those who work to protect the future of these majestic animals.

“

Now we don't need to collect the data in person. All information is transmitted to us in the blink of an eye. We then use big data analytics and AI to reorganize and parse animal species and understand the status of their populations and habitats. It has made a world of difference to our research and marks a turning point in our work.

”

— Dr. Feng Limin

Tiger and Leopard Research Team, Beijing Normal University

Amur Tiger and Amur Leopard Monitoring and Research Center, National Forestry and Grassland Administration, China



An LTE base station in the Northeastern China Tiger and Leopard National Park that reuses existing fire towers

# Enabling Inclusion and Equity in Health

Health is a basic human right. Our shared goal is to make healthcare easier to access for more people, so that all of humankind can enjoy the benefits of good health. Technology can play a role in achieving this goal, so Huawei collaborates with a wide range of partners to apply ICT in healthcare. We are helping different groups of people across different regions gain equal access to high-quality medical resources and digital services, so that no one is left behind in the digital world.

## Connected Healthcare for the Out of Reach in New Zealand

In New Zealand, approximately 700,000 people live in rural areas, and many of them do not receive the level of medical services that they need. As most healthcare workers gravitate towards major cities, the lack of medical services in rural communities has made it difficult for people living there to access clinic services. Patients are frequently forced to travel for hours to distant towns, which for many is costly and time-consuming.

To better provide medical services to remote areas, Dr. Lance O'Sullivan established the MaiHealth platform. With this platform, he hoped to reach to the heart of rural communities. To expand the reach of MaiHealth and its services, Lance approached local network operator 2degrees and Huawei.

We helped them launch a network service of medical clinics called MAiPODs – converted 40-foot shipping containers that can be loaded onto a truck and driven into the heart of remote communities. Each MAiPOD

is staffed by a nurse and an assistant who offer onsite medical services and take care of patients if they need to be transferred to a bigger facility. Powered by a Huawei 4G network, Wi-Fi 6, and cloud platform, each MAiPOD can support remote real-time consultations with doctors and specialists, fast and secure access to medical records, and connectivity for medical devices.

The first clinic went into operation in the Far North town of Kaitia just days before the nationwide lockdown, with COVID-19 testing quickly added to the MAiPOD's healthcare arsenal. Lance and the MaiHealth team worked around the clock, and isolated 64 COVID-19 cases, contributing to New Zealand's pandemic response.

The MAiPOD is now a well-established feature of Kaitia's healthcare. Alongside Dr. O'Sullivan, MaiHealth's technology and healthcare partners are eager to extend the system across New Zealand.



Dr. Lance O'Sullivan, founder of MaiHealth

“

The MAiPOD is designed to help everyone. We can place it into an area of the country that has a health service gap. We're bringing those who have been left behind up alongside us, and as a country we'll enjoy a more prosperous society.

”

— Dr. Lance O'Sullivan

## Trouble-free Hearing for the Deaf & Hard of Hearing



A developer of the Trouble-free Hearing app learning sign language

15,000+

people are using the  
Trouble-free Hearing app

In China, more than 27 million people are deaf or hard of hearing. However, there is a severe shortage of accessibility support and sign language services.

To ensure that these people are not left behind in the digital world, one of our partners has developed the Trouble-free Hearing app. Powered by HUAWEI CLOUD AI, this app is designed to make online learning and entertainment more accessible, and to enable easier communication in everyday scenarios. The app can also help deaf people communicate in more challenging situations, like talking to doctors, financial professionals, lawyers, and service clerks.

This app can generate subtitles for videos played on mobile phones, providing access to a wider range of content. The app also provides face-to-face sign language interpretation services via remote video conferencing for more complex situations. By the end of 2020, more than 15,000 people were using the Trouble-free Hearing app.

## Making Sure Older People Are Not Left Behind in the Digital World



Huawei encourages teaching older people to use smartphones

# 10 million

people use the accessibility functions of Huawei smartphones every month

# 8.8 million+

people in China use Huawei Simple Mode every month

According to the World Health Organization, between 2000 and 2050, the number of people over 60 years old will rise from 605 million to 2 billion, or 22% of the world's population. With the Internet and information technology, older people could enjoy more efficient and convenient smart products and services. However, the digital world can also be difficult for them. Older people often lack digital skills and don't know how to use new tools like health codes, QR codes for phone payments, or ride-hailing apps.

Since 2017, we at Huawei have been adding new accessibility functions to our EMUI phone operating system to ensure that all groups have equal access to digital services. By the end of 2020, 15 accessibility functions are available on Huawei phones, and are used by about 10 million people each month.

During the Spring Festival, Huawei launched an initiative encouraging young people to teach elderly family members how to use smartphones. We published A Guide to Mobile Phones for Mom & Dad, which uses pictorial guides to teach older people to use mobile phones in a straightforward way.

Features designed specifically to help older users include:

- **Simple Mode:** This mode features a simpler layout, and larger icons and fonts in the apps that are used most by older people. Sound volume is automatically turned to maximum, so that older people can hear the phone more clearly. In China alone, about 8.8 million people use Huawei Simple Mode every month.
- **Voice Assistant Celia:** Older people can use voice commands to ask Celia to help them with everyday tasks. For example, when an older user says to Celia, "Help me call a taxi", Celia will immediately open the ride hailing app DiDi.
- **MeeTime:** MeeTime enables older people to make HD video calls with their family members on any Huawei phone, tablet, or smart screen, closely connecting them with their loved ones no matter where they are.



# Driving Balanced Development

According to the ITU, nearly half of the world's population is not yet connected to the Internet. Most of them live in underdeveloped rural areas and make their living from the land. Although they are living in the digital age, they cannot benefit from digital technology and the opportunities it provides.

Huawei's TECH4ALL digital inclusion initiative helps rural areas and underdeveloped industries in developing countries to develop using ICT. We are committed to providing low-cost ICT infrastructure in remote areas, and taking targeted actions to remove the obstacles to last-mile Internet access. With our digital technologies, we help industries go digital and smart so that they will not fall behind. We also help improve working conditions for people who do heavy, repetitive, and dangerous work, so that they can work more safely, more efficiently, and with more dignity.

## RuralStar: Remote Doesn't Mean Unconnected

Many remote areas in Africa are described as information deserts, because a lack of telecommunications infrastructure means the people living there are unable to make phone calls or access the Internet. These remote areas tend to have low population densities, unstable power supplies, and poor road conditions. Deploying traditional cell towers would be difficult and expensive. To address the communication gaps in these areas, Huawei carefully studied local conditions and created an innovative base station which can be installed on just a wooden pole. It is called RuralStar. It is compact and powered by solar energy and can meet the needs of rural telecom carriers for quick and easy rollout.

Because of its unique features, RuralStar has been widely adopted, making it possible for people in remote areas to connect with the outside world. For example, in Ghana, the lives of people in one village have been transformed since we built a RuralStar base station there. The base station was put up in just three days, and cost 70% less than a conventional cell tower. In Nigeria, people in Tobolo have been enjoying a better quality of life because RuralStar allows them to communicate with the outside world and brings them business opportunities. In Thailand, RuralStar allows children in mountainous areas to watch videos on mobile phones and reach out to the outside world. In China, RuralStar has made it possible for residents in the Daliang Mountains to chat online, and for workers on the remote Zhoushan Islands to keep in touch with their families.

RuralStar delivers connectivity to wide plains, steep hills, inhospitable deserts, remote islands, isolated rural areas, warren-like old towns, long highways, and deep tunnels, allowing people there to benefit from the digital world.

# 50 million+

people living in remote areas in 60+ countries and regions have access to mobile Internet services thanks to RuralStar

In 2020, Huawei launched the innovative RuralStar Pro solution, which helps bring high-quality mobile broadband services to remote villages. The solution's innovative integrated access and backhaul design reduces power consumption per site to 100 watts, greatly reducing end-to-end costs. RuralStar Pro is already in use in customer projects, and is making a huge difference in the digital development of rural areas.

To date, our RuralStar series solutions have provided mobile Internet services to more than 50 million people living in remote areas in over 60 countries and regions.



Huawei workers installing a RuralStar base station in a remote village in Guinea

## 5G Smart Factory: Smelter Workers Don't Have to Work in a Sauna



Huawei and China Mobile Hunan helping Xiangtan Steel remotely control its smelter cranes

Iron and steel are integral to the manufacturing industry and play an important role in the national economy. Conventional smelters are labor-intensive, with workers stuck in a high-temperature environment filled with dust and noise. The environment can be unsafe, and harms their health. As a result, traditional plants have suffered from low efficiency and high employee turnover, and have faced difficulties hiring new people.

To address the problems in the old iron and steel industry and embrace the 5G era, Xiangtan Iron and Steel (Xiangtan Steel) collaborated with China Mobile Hunan and Huawei to develop a smart smelter. Xiangtan Steel is the first Chinese steel company in the industry to build a 5G smart plant. With the new plant, the equipment "talks", machines run autonomously, employees work with dignity, and the company can expand efficiently.

With the help of 5G, Xiangtan Steel's workers are working more efficiently in a much better environment.

- Remotely controlled cranes: With remotely controlled cranes, the operator can sit in a quiet and comfortable air-conditioned cabin and remotely control multiple cranes in the steel-making area for unloading, lifting, and maintenance. Computer-aided programs assist with preset crane positioning and real-time crane operation, and the operator has a clear field of vision and can work in comfort.

- 5G robotic arms: With 5G robotic arms, smelter workers no longer have to engage in dangerous, repetitive, and heavy work close to hot furnaces. In fact, they can use a 5G smartphone to remotely start the slag conditioner program. Robotic arms can then evenly and reliably add slag conditioner and adjust the oxygen flow as required. The workers do not have to conduct dangerous operations, and the quality of iron and steel has been significantly improved.
- AI-controlled steel rolling: Workers can control the turning and speed of the rolling mill using a trained cloud-based AI model and video data from 5G cameras. This method of rolling is more efficient, so 6–7 more steel billets can be produced every day.

**Xiangtan Steel's production efficiency and quality have improved with the help of the 5G smart plant. The steel workers are safer and happier because they don't need to work in a hot, noisy, and dangerous environment.**

Smart plants have been set up in Shanghai, Hebei, Beijing, and Guangxi, marking an important step forward for digitalization and automation in China's iron and steel industry.

## 5G Digital Villages: Making a Difference to Remote Villages

Huawei teamed up with China Telecom to support Qingyuan Municipal Government in Guangdong as it built a showcase network for Lianzhang Village. Huawei provided an integrated device-network-cloud solution, providing a solid network for rural digital infrastructure. The Huawei solution will ultimately be able to support better e-government for rural regions, public services, and local industries. The project team is committed to finding new ways to bridge China's urban-rural divide in digital infrastructure and revitalize rural economies.

5G, fiber connections, and Wi-Fi networks that deliver gigabit speeds are already a reality in Lianzhang Village, making it the first village in China to roll out a 5G network. The changes to residents' lives are already apparent:

- 5G networks combined with China Telecom's e-Cloud, smart screens, and VR devices are enabling remote education that is efficient, interactive, and easy to access. These classes will help to bridge the education gap between urban and rural areas, and improve villagers' digital skills.
- Remote diagnostics services and health advice

have been provided online with the support of 5G technology. This enables local residents to access healthcare services close to home. Now residents don't have to leave their village to visit a general practitioner, and chronic and infectious diseases are better controlled.

- Digital technologies have enabled the introduction of new services that are tailored to local needs, such as VR 360° live streaming, farm-to-table supply, and tracing services for agricultural products. These services are helping the revitalization of rural industries.
- WeLink Cloud Conference allows government officials to provide villagers with online services such as online mediation and legal advice, so that village disputes can be resolved before they blow up into serious conflicts.
- The digital management platform plays an important role in supporting services such as care for older people, management of the environment, and management of the emergency services.

We believe that the digital model rolled out in Lianzhang Village will gradually help bridge the digital divide between urban and rural areas. It will lay the foundation for the economic revitalization and sustainable development of new rural China.



Lianzhang Village, a showcase digital village





# 3 Security and Trustworthiness





In a fully connected, intelligent world, the security and trustworthiness of cyberspace is critical to securing people's livelihoods and protecting the vital public and economic functions of any society. Cyber security and privacy protection are becoming inherent requirements and basic core capabilities of our digital world. All stakeholders, including governments, industry and standards organizations, enterprises, and technology suppliers have a shared responsibility to confront this challenge. We rely on ICT to make people's lives easier and must protect their security and privacy in cyberspace. We must also ensure people have access to stable ICT services anytime and anywhere, especially during major emergencies such as natural disasters, epidemics, and conflicts.

## Cyber Security and Privacy Protection

### Openness and Transparency

### Supporting Network Stability

### Business Continuity





2020 was a transformational year. The COVID-19 pandemic has drastically changed the way we live and how organizations operate. Many activities have migrated online, and telecommuting, video conferencing, distance education, and telemedicine have become the new normal. In this context, digital technology has played an irreplaceable role in keeping our lives on track and businesses open. At the same time, as digital transformation picks up speed, we see growing challenges in cyber security and privacy protection. In 2020, the number and scale of security vulnerabilities and cyber attacks reached record levels, with frequent ransomware attacks and data breaches. "Since the start of the COVID-19 pandemic, WHO has seen a dramatic increase in the number of cyber attacks directed at its staff, and email scams targeting the public at large," the World Health Organization reported. "The number of cyber attacks is now more than five times the number directed at the Organization in the same period last year." This makes cyber resilience more important than ever. As for ICT infrastructure providers, the pandemic has made it extremely difficult to maintain customer networks and ensure business continuity, as it disrupted business operations, flights, logistics services, and many other regular processes.

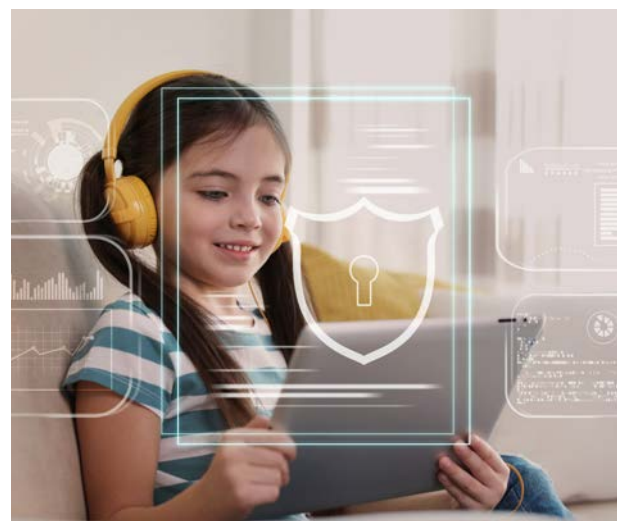
## Huawei's Approach and Practices

As a leading global provider of ICT infrastructure and smart devices, Huawei is committed to bringing digital to every person, home and organization for a fully connected, intelligent world. Over the past three decades, we have built more than 1,500 networks together with our carrier customers and helped millions of enterprises undergo digital transformation, serving over three billion people in more than 170 countries and regions around the world. We have maintained a solid track record in security. That said, as digital transformation accelerates across the world, we realize that business success is impossible without security, trustworthiness, and privacy protection in the digital, intelligent world.

As always, cyber security and privacy protection remain our top priorities. We will confront challenges in these areas through technological innovation and ongoing transformation of our management systems. We will continue to build secure, trustworthy, and quality products, solutions, and services in order to help our customers enhance their cyber resilience.

Supporting the stability of telecom networks and services is one of our top social responsibilities as a company. We strive to make sure that everyone has reliable access to ICT services anytime, anywhere. To this end, we have established comprehensive systems to support customer networks,

including our organizational structures, personnel, processes, and IT tools. We have also developed contingency plans to ensure service continuity in the event of emergencies like earthquakes, floods, conflicts, and epidemics. Through years of sustained investment, Huawei has established a business continuity management system (BCM) that covers our processes end-to-end, from suppliers to Huawei and on to our customers. This system helps ensure continuity of supply and timely delivery of products and services even after major incidents.





# Cyber Security and Privacy Protection

Huawei is committed to developing secure and trustworthy digital products and services and has continuously optimized its end-to-end assurance system, making sure that each domain is constantly refined to stay up-to-date with advancements in cyber security and privacy protection. In 2020, we implemented the following measures relating to process transformation, solutions, technological innovation, independent verification, supply chain, and personnel management:

## Enhancing software engineering capabilities and cyber resilience to build secure, trustworthy, and quality products and solutions

Our management system and R&D processes now feature enhanced capabilities that incorporate several milestones of the software engineering transformation program. At the same time, trustworthy engineering capabilities are embedded into IT systems and tools, providing a more efficient product R&D environment that ensures process trustworthiness.

For software trustworthiness, we released the Software Process Trustworthiness Capability Framework and Assessment Criteria V1.0. This document describes how Huawei is developing 114 sub-capabilities across 44 capabilities under nine capability categories and establishing a complete set of coding production mechanisms that are systematic, sustainable, responsive, and trustworthy.

For hardware trustworthiness, we implemented trustworthy design specifications and security by design on newly developed boards; we also obtained CC EAL4+ certification for key trustworthy hardware components.

For product design, we carried out threat modeling analysis, implemented a secure and resilient architecture, and delivered common security products and components, such as single-domain security management and network element (NE) intrusion detection, to help improve the security situational awareness capabilities of products and solutions, achieving result trustworthiness in architecture.

Moreover, we continue to provide training and certification to consistently improve employees' cyber security capabilities and awareness. In 2020, more than 20,000 employees were certified, and every employee has embraced our trustworthy software culture.

## Technological innovation to help customers handle security risks

We continue to research and explore cutting-edge

technologies, such as cryptography, AI trustworthiness, confidential computing, differential privacy, digital identity, and trust mechanisms, based on the security technology stack at the system, network, application, and data layers, and centering on business scenarios such as 5G, AI, cloud computing, smart devices, autonomous driving, and digital Intelligent Twins. We strive to accelerate the application and implementation of these innovative technologies and improve the native security capabilities of products, enhancing resilience and helping customers manage existing and emerging risks.

Take 5G base stations as an example. We provide functions such as rogue base station detection, subscription permanent identifier (SUPI) encryption, anti-DDoS over the air interface, and built-in firewalls. These functions enhance privacy protection for end users, reduce the attack surface, and strengthen defense, thereby increasing cyber resilience. At HUAWEI CONNECT 2020, we released AI security protection technologies based on the trusted execution environment (TEE), which improve the security of high-value data assets in AI solutions. By the end of 2020, Huawei had been granted 2,963 patents relating to cyber security and privacy protection around the world.

## Cyber security risk management and capacity building of the supply chain

Huawei's comprehensive supply chain security management system, certified to ISO 28000, allows us to identify and control security risks throughout the entire process, from quality control on incoming materials to delivery. It includes industry-leading material trustworthiness specifications and security sourcing testing standards, along with assessment standards for supplier trustworthiness maturity. To be accepted, our suppliers must pass a rigorous security sourcing test and obtain system certification.

In 2020 alone, we assessed, tracked, and managed the cyber security risks of more than 4,000 suppliers worldwide. For privacy protection, we signed data processing agreements (DPAs) with more than 5,000 suppliers and performed extensive due diligence to ensure compliance. Furthermore, we optimized the security baselines and verification processes for supply availability and manufacturing, and implemented them in the production processes of new products.

Considering the global nature of our business, we pay close attention to the supply chain security requirements of each country where we operate. We have obtained 35 Authorized Economic Operator (AEO) certificates in 28 countries and regions across five continents. We continue to optimize





our product delivery tracking system to quickly resolve any issues and mitigate any risks.

### Secure and trustworthy service operations

The global pandemic caused an explosion in network traffic, and therefore a rise in customer requirements for site construction. Using digital means, we improved personnel qualification management, as well as access, operations, and data security control capabilities. We also raised security awareness among delivery and service personnel using various themed activities, such as our monthly Network Safety Day. Furthermore, we set up both local and remote delivery centers to help carriers quickly and securely build networks, thereby supporting their business activities and reducing the impact of the pandemic.

### Security awareness among all employees supporting professional capability improvement

We held a Cyber Security and Privacy Protection Awareness Month, delivering the presidents' messages, expert lectures, a knowledge quiz, an open day at the Cyber Security Transparency Center, technology contest, verification conference, and other themed activities to strengthen our corporate culture around cyber security. All of these initiatives support our key objective to continually raise the overall levels of awareness among employees.

We also encouraged employees to participate in external professional certification programs and provided professional training to improve their professional capabilities. To date, more than 760 employees have obtained industry-recognized certifications such as Certified Information Systems Security Professional (CISSP) and International Association of Privacy Professionals (IAPP).

Furthermore, we planned and developed relevant courses, releasing 204 courses on our online Cyber Security & Privacy Protection Knowledge Center to date. These courses cover topics such as insights into cyber security and privacy protection, process development, and verification and testing, with a total of more than 200,000 individual enrollments.

### Increased investment in third-party independent verification

We continued our cooperation with industry-recognized certification bodies and third-party labs to test the cyber security and privacy protection capabilities of Huawei products, solutions, and services against industry standards and best practices. This includes:

- In 2020, we obtained more than 70 certifications related to cyber security and privacy protection. For example, our 5G and LTE base stations were the first in the industry to pass the Network Equipment Security Assurance Scheme (NESAS) assessment; 5G base stations obtained the CC EAL4+ certification; routers obtained the CSPN certification from the French National Cybersecurity Agency (ANSSI); iTrustee obtained the CC certification also from ANSSI; firewall and campus switch products passed the Payment Card Industry Data Security Standard (PCI DSS) assessment; HUAWEI Mate 40 Series smartphones obtained the digital rights management (DRM) copyright certification and Germany's ePrivacy certification; HUAWEI CLOUD received more than 10 certifications, including Cloud Security Alliance Security, Trust and Assurance Registry (CSA STAR), ISO 27001, ISO 27701, PCI DSS, and Trusted Information Security Assessment Exchange (TISAX).
- In May 2020, ERNW, an independent IT security service provider in Germany, conducted a technical review of the source code of Huawei's unified distributed gateway (UDG) on 5G core networks. Their report notes that "the overall source code quality is a good indicator that Huawei has established a mature and appropriate software engineering process for UDG".
- Our bug bounty program in HUAWEI CLOUD, Huawei Mobile Services, mobile phones, and other domains has been a continued success. Through this program, we encourage white hat hackers to discover vulnerabilities in Huawei products so that we can work with security experts in the industry to build a responsible, transparent, collaborative, and secure vulnerability ecosystem.

### Respecting and protecting user privacy

Huawei is committed to complying with privacy protection laws and regulations around the world. We have built a management system for end-to-end privacy protection with strong supporting technical capabilities. We have also developed robust privacy protection processes and a host of IT tools and platforms, helping us improve compliance effectiveness and management maturity and allowing us to demonstrate our privacy compliance processes and results in a more transparent and clear manner. Furthermore, we continue to invest in and optimize our efforts to assure data subjects' rights, including the prompt and effective handling of more than 20,000 data subject requests to date. We continue to conduct internal and external audits in different countries and business domains to ensure the effective implementation of our personal privacy protection policies.





## HUAWEI Browser: A secure and trustworthy online environment

The importance of the Internet means that browsers are now a key portal through which we understand the world. The primary mission of HUAWEI Browser is to create a secure and trustworthy Internet environment for users. To better protect privacy, HUAWEI Browser comes powered by four key functions:

### Malicious URL detection

Phishing and fraudulent websites masquerade as regular websites to steal personal information. Users entering these sites are at risk of account hacking and identity theft. HUAWEI Browser works with industry-leading security service providers to check website security, inform users of potential risks, and remind users to visit certain websites with caution. As we check website security, we do not share the actual URLs accessed by users with our third-party security service providers. Instead, we only share non-identifiable and anonymized URLs. This means neither Huawei nor security service providers have access to the website content accessed by users. In addition, the malicious URL detection feature is enabled by default on HUAWEI Browser. Users do not need to change any settings to be protected.

### Intelligent anti-tracking

After users view an item on a shopping website, they often find that ads for the same item will start appearing on other websites. This is how tracking cookies work. Advertisers push ads across websites using these tracking cookies. HUAWEI Browser's intelligent anti-tracking function identifies URLs with tracking cookies in advance and shares this information with the user's phone in real time. When a user accesses any website known to track users, HUAWEI Browser automatically disables tracking cookies, thereby

preventing cross-website tracking. This process ensures that the user's privacy is never compromised.

### Content blocking

Pop-up ads can severely affect the user browsing experience. HUAWEI Browser blocks ads by website: The ad blocker on HUAWEI Browser is turned on by default for websites with large numbers of ads. For other websites, users can turn on the blocker if they want to. The number of blocked ads is displayed in a widget in the address bar.

### Intelligent blocking of automatic app opening and downloading

When users are browsing a webpage, HUAWEI Browser stops websites from automatically opening or downloading apps, allowing users to browse the Internet with fewer interruptions. This function is also enabled by default and does not require additional configuration.

In addition to the functions above, HUAWEI Browser has many other privacy and security features, such as making data sharing visible, controllable, and personalized (zero sharing of personal data with third parties); private browsing; information on and control over how third-party websites access sensitive information; and child mode. HUAWEI Browser has been certified by the British Standards Institution (BSI) for four different information security and privacy standards, namely ISO/IEC 27001, ISO/IEC 27018, ISO/IEC 27701, and CSA STAR.

**HUAWEI Browser is a user-centric app that helps to create a secure and trustworthy Internet environment so that users can enjoy smart digital lifestyles.**



HUAWEI Browser Privacy Protection Salon

# Openness and Transparency

Today, cyber security and privacy protection are a common challenge. All stakeholders, including governments, industry and standards organizations, enterprises, and technology suppliers have a shared responsibility to confront this challenge. We call on all stakeholders to establish a set of globally recognized security standards and conformance mechanisms.

Standards as well as standards-based certifications and assessments allow cyber security risks to be assessed in a rational and objective manner and enhance trust in technologies. The mobile communications field widely recognizes the NESAS/SCAS security standards and assessment methods jointly promoted by GSMA and 3GPP as valuable security baselines. These will further improve

the capabilities of mobile networks to protect against cyber security and privacy risks.

We are committed to protecting people's cyber security and personal privacy while they enjoy the benefits of technological advances. To this end, Huawei has maintained ongoing communication and cooperation with stakeholders in an open, transparent, and responsible manner. Together, we have worked to jointly address cyber security and privacy protection challenges through technological innovation, standards and certifications, and improved governance.

In 2020, we received recognition for many of our contributions to the global cyber security community:

In December, the Romanian Digital Transformation Commission presented the "Best Cyber Security Ecosystem for Digital Transformation" award to Huawei, recognizing Huawei's contribution to promoting new technologies and cyber security.

In October, the Senate Committee on ICT and Cyber Crime of Nigeria presented Huawei the "Award of Excellence for Outstanding Contributions to Digital Technology and Cybersecurity". In November, Huawei was awarded "Excellence in ICT and Cybersecurity Development in Nigeria" at the Nigeria Tech Innovation & Telecom Awards (NTITA).

In August, Huawei's 5G RAN gNodeB, 5G Core UDG/UDM/UNC/UPCF, and LTE eNodeB passed the GSMA NESAS assessment on mobile network equipment product development and lifecycle processes, making Huawei the industry's first 5G network equipment vendor to complete the assessment on both wireless and core networks.

In March, the ITU officially released ITU-T X.1365 Security methodology for the use of identity-based cryptography in support of Internet of things services over telecommunication networks, which was proposed by Huawei in collaboration with Shenzhen OLYM Information Security Technology and China Telecom. This standard addresses the challenges of identity authentication and password management in scenarios with hundreds of billions of IoT devices, which greatly reduces management costs and helps build an efficient trust mechanism in the digital industry.

In December, the National Cyber and Encryption Agency (BSSN) of Indonesia presented the "Piagam Apresiasi" award of KAMI (information security) to Huawei, recognizing Huawei's exemplary and outstanding contribution to information security in Indonesia.

In October, the "5G Smart Grid" project put forward by China Mobile, China Southern Power Grid, Huawei, and other partners won first prize in the finals of the third Blossom Cup 5G Application Contest. This project offers a wide portfolio of services tailored to security requirements of electric power applications, safeguards power grid security using diverse measures, and supports 24/7, year-round power grid security monitoring. It was the first to pass the power slice security isolation test and verification, in addition to security testing in all aspects by the IMT-2020 (5G) Promotion Group, among other tests. This project sets a benchmark for synergizing 5G with power grid security.

In July, the German Federal Office for Information Security (BSI) released the TR-03148 Secure Broadband Router Technical Guideline, providing security requirements and test specifications for broadband routers. Huawei was invited to participate in the development and Proof of Concept (PoC) of the specifications.

253 standards contributions on 5G security submitted by Huawei were accepted by 3GPP, making Huawei the top contributor for several consecutive years.



## Huawei Cyber Security Transparency Centers: Building Collective Capabilities and Sharing Value

Huawei has opened six Cyber Security and Privacy Protection Transparency Centers around the world (in the UK, Canada, Germany, the United Arab Emirates, Belgium, and China). These centers serve as a platform for communication and cooperation with stakeholders, and have three main functions:

- Showcasing Huawei's end-to-end cyber security practices, from strategies and supply chain to R&D, products, and solutions
- Facilitating communication and cooperation between Huawei and its key stakeholders to further the development of security standards and verification mechanisms, and to drive technological innovation in cyber security across the industry
- Providing a product security testing and verification platform and related services to Huawei customers

We welcome all stakeholders to use the centers to strengthen communication and cooperation in security standards, testing and verification, and technological innovation. We look forward to continuing to improve capabilities and share value in order to confront the challenges of cyber security and privacy protection together.



January 2020: 5G security workshop at Huawei Cyber Security Transparency Center in Brussels

# Supporting Network Stability

More than 5,000 Huawei engineers support customer networks 24/7 from our two global and ten regional technical assistance centers. The COVID-19 pandemic in 2020 posed huge challenges for customer network maintenance. Our team stood by our customers throughout these difficulties. We guaranteed uninterrupted communications for more than three billion people, supported more than 1,500 customer networks in over 170 countries and regions, and ensured network availability during more than 200 emergencies and major events.



Huawei's global and regional technical assistance centers





## Getting a 5G Network Up and Running at the Huoshenshan Field Hospital in Wuhan

# 181

emergency spare parts supplied

# 463

person-days devoted  
to the project

When the COVID-19 pandemic broke out in early 2020, the central Chinese city of Wuhan was hit the hardest. People from all walks of life played a part in getting the outbreak under control. At this critical juncture, reliable communications networks were of vital importance.

On January 23, the Wuhan Emergency Command Center for COVID-19 Prevention and Control called for the deployment of a 5G network at the Huoshenshan Field Hospital. The Huawei Hubei Rep Office responded to the call and immediately set up an emergency project team with our carrier customer, discussed the network plan overnight, and coordinated the necessary equipment and materials.

On January 24 – Chinese New Year's Eve – a group of more than 50 engineers from Huawei and our contractors divided into different groups and completed site survey, network construction planning, and stockpiling of equipment and materials.

On January 25, 13 engineers went to build the network at the hospital, with support from the back office. Within just one day, the 5G emergency base station was up and running. As patients would be admitted starting from February 4, the project team worked around the clock in a crowded and noisy makeshift warehouse to get the network ready. They finished setting up a videoconferencing system and video surveillance system, and completed network optimization on February 3. These systems allowed the hospital to provide remote consultations and remote monitoring services.

Between the lockdown of Wuhan on January 23 and February 14, the Huawei Hubei Rep Office completed 41 emergency network operations, handled 445 live network problems, and supplied 181 emergency spare parts. A total of 463 person-days were devoted to the project.

In this race against time, Huawei engineers rose to the challenge and helped our customers build communications channels that were critical to saving lives.



Moving Huawei network equipment



Optimizing the network in the hospital

## Restoring Communications During a Flood in Jakarta

On New Year's Eve, 2020, a heavy storm hit Jakarta, the capital of Indonesia, causing severe flooding. More than 300,000 people were evacuated, blackouts occurred in multiple areas, and over 1,200 sites were knocked out. The interruptions to the mobile networks severely affected access to communications services and the government's rescue and relief efforts.

The Huawei Indonesia Rep Office immediately set up a network assurance team with our customer, and began site repair and network enhancement. As too many sites were damaged, the first priority was to use our limited resources on the most critical sites. We helped the customer repair the backbone lines and core sites that were severely damaged, and deployed 21 emergency base stations. Over the next few days, we dispatched more than 210 teams, 150 vehicles, 10 inflatable boats, and 160 mobile diesel engines to Jakarta to support our customers. By the early morning of January 4, most networks had been restored, and all key nodes and sites were functioning again. Our enhanced core equipment rooms were holding up against further flood damage. By



Huawei engineers moving equipment and materials to a flooded site

January 6, all customer network sites were fully restored.

An important part of Huawei's social responsibility is to stay committed and support reliable communications anytime and anywhere.

## Restoring Networks After a Major Earthquake in Turkey



Huawei's network assurance team in Turkey helping customers set up emergency base stations

On January 24, 2020, a magnitude-6.8 earthquake struck the Turkish province of Elazig, followed by more than 200 aftershocks. Buildings collapsed, and many displaced people were in urgent need of rescue. Communication was critical. Every second of service downtime brought added risks.

The Huawei Turkey Rep Office activated its network assurance plan immediately after the earthquake struck and rapidly assembled a team from our Global Technical Assistance Center and R&D departments. We finalized the network recovery plan with our customers within just 20 minutes, and a short time later, seven emergency communications trucks were on their way to the site. Two hours after the earthquake, a network repair team of 21 Huawei employees set off to the affected area with two trucks full of supplies, including wireless equipment, microwave equipment, and power generators. In the cold night, our engineers climbed the towers to repair equipment, test communication links, and set up emergency sites.

Huawei and its customers raced against the clock, and completely repaired all of the severely damaged sites in just three days so that people could get back to their normal lives.



## Restoring Networks During a Major Flood in Gansu, China

In mid-August 2020, Longnan, in China's Gansu Province, was hit by a major flood and mudslides. Power was knocked out, and optical cables snapped. Communications were interrupted in many counties; Wen County was hit the hardest.



Huawei's emergency response team

The Huawei Gansu Rep Office immediately initiated its level-1 emergency response plan and set up an emergency response team to provide support around the clock. On August 17, Huawei and our customers agreed on the emergency network recovery plan, and dispatched more than 20 engineers to Longnan to repair the networks. The roads to Wen County were blocked by mudslides, meaning our engineers had to carry the optical cables 70 kilometers to the affected sites and ensure that communication services were restored in time. By August 20, the backbone network was back up and running.

After one month of hard work, all communication services in affected areas were restored. The Longnan government thanked the Huawei team for fulfilling the company's responsibilities to the community.

## Supporting the Third China International Import Expo

The third China International Import Expo was held in Shanghai from November 4 to 10, 2020. At the opening ceremony, leaders from many countries delivered speeches via video, which required very high-quality connections for real-time streaming. To help our carrier customer provide live video services over private lines and ensure a superior user experience during the Expo, Huawei sent more than 200 engineers to provide 24/7 onsite support in addition to our monitoring services from the network center.

The Expo's network covered the National Convention and Exhibition Center, transportation hub, main roads, and the roads surrounding the Center. Huawei engineers conducted an onsite survey and developed a network optimization plan to ensure that users could enjoy a superior experience anytime and anywhere in these areas. The 3G, 4G, and 5G data networks both inside and outside the stadium performed excellently. According to the field test results, the 5G download speed in the stadium was above 1 Gbit/s. The demonstrations of 5G services, such as holographic live streaming, AI+VR dynamic live streaming, and smart security service were a resounding success. During the seven-day event, China Central Television and Shanghai TV conducted more than 50 live broadcasts over the 5G networks. The streaming was smooth and free of freezing. Our results for customer network support were

impressive: zero service interruptions, zero incidents, and zero complaints.

The success of this network assurance project demonstrated the technical skills of our network assurance team. It also showcased their ability to deliver projects with the support of mature processes and a backend organization, and their commitment to customer-centricity. The outcome won generous praise from our customers.

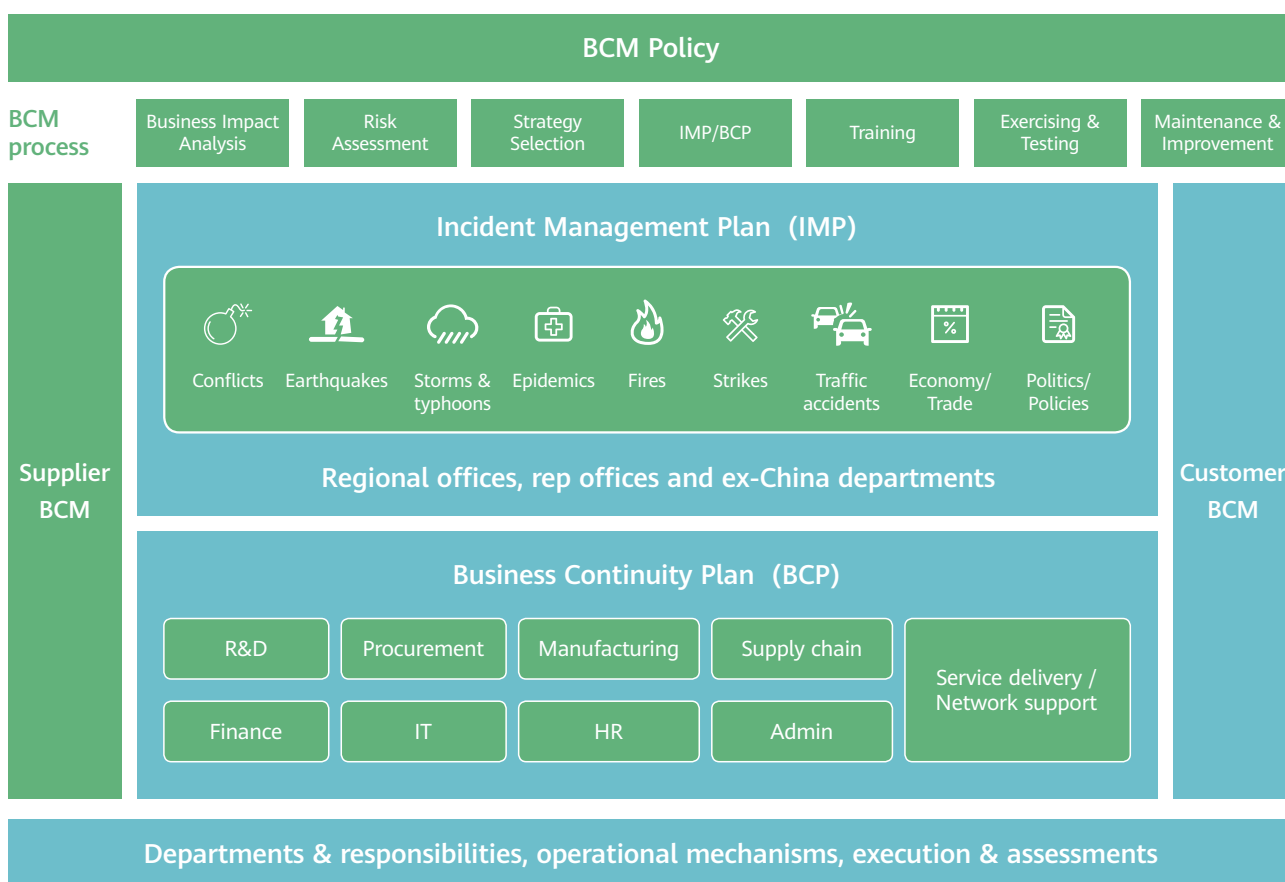


Live streaming of the launch event at the China International Import Expo

# Business Continuity

In today's highly globalized and highly specialized world, Huawei relies heavily on many third parties for procurement, manufacturing, logistics, and global technical services. This makes business continuity management (BCM) critical.

Through years of sustained investment, Huawei has established a BCM system for domains such as procurement, manufacturing, logistics, and global technical services. This system covers our end-to-end processes, from suppliers to Huawei and on to our customers. As part of this system, we have developed and established effective measures to manage risks that arise during our daily work. Specifically, we have built up management organizations, processes, and IT platforms. We have prepared business continuity plans and incident management plans, and have organized BCM training and drills for employees.



Huawei's business continuity management system

## Key Initiatives for BCM in R&D and Procurement

- **Supply chain diversification:** When designing a product, we strive to source raw materials, boards, and products from more than one supplier, prioritizing the supply diversity in raw materials. We prefer suppliers that have multiple manufacturing sites in order to safeguard sustained product availability.
- **Scenario-specific stock-up:** During mass production, we prepare safety stock of raw materials, semi-finished

products, and finished products. This allows us to better address uncertainties from various sources, including customer demand, supply availability, and epidemics.

- **Supply and demand visibility:** Huawei works closely with suppliers to ensure that demand forecasts, purchase orders, and supplier inventory are all visible through IT systems. This ensures that we get timely demand information and have adequate supply.





## Key Initiatives for BCM in Manufacturing, Supply, and Spare Parts

- Manufacturing and supply resource backups:**  
 Huawei considers in-house manufacturing and outsourcing capabilities equally important. We have established strategic partnerships with multiple electronics manufacturing service (EMS) suppliers. Board manufacturing and supply capabilities are shared between Huawei and EMS suppliers, and between multiple EMS suppliers, to ensure there is always a backup. We have established supply centers in Shenzhen, Europe, Latin America, and Dubai. These supply centers also serve as integrated equipment backups for each other.
- Spare part reserves to support full-lifecycle operations:** Huawei reserves spare parts according to market demand and historical usage before a product reaches its end of life (EOL). After EOL is reached, we reserve enough spare parts for the full lifecycle of the product. This prevents any impact on the operational continuity of live customer networks.

Over the past decade, we weathered many crises from natural, political, economic, and trade-related conflicts to even violent conflict in some regions. In 2020, despite the devastation caused by COVID-19, Huawei continued to ensure supply continuity and achieve timely delivery of products and services to our customers. This shows that Huawei's BCM system – as part of our overall management system – is functioning properly. Huawei is a global company that works in the network infrastructure, IT

infrastructure, cloud services, and smart device domains. We have worked with over 10,000 suppliers and partners, and have established sound, long-term partnerships with them.

On May 15 and August 17, 2020\*, the US Department of Commerce amended their foreign-produced direct product rule and released the final ruling on Huawei Technologies Co., Ltd. and a number of its non-US affiliates. This means the export, re-export, or in-country transfer of any item subject to the Export Administration Regulations (EAR) (including hardware, software, and technologies) to Huawei or its listed affiliates requires a license from the Department of Commerce.

This ruling has affected our business development to some extent. As a staunch advocate of globalization, we will continue to pursue supply chain diversity without depending on any one country or region, and then build our supply continuity upon the global supply chain. Remaining on the Entity List does not restrict or prohibit Huawei from providing products and services to our customers in accordance with compliance requirements. Based on the principles of collaboration for shared success and mutual development, Huawei is confident in our ability to work with partners to forge a secure, reliable, competitive, and healthy industry value chain. Huawei products will continue to meet customer requirements for sustained supply and delivery, and we will continue to deliver quality products, solutions, and services to our customers worldwide.

\* Local dates in Washington D.C.



# 4 Environmental Protection

Many business leaders around the world have realized that climate change and environmental degradation represent a significant new source of risk and opportunity in their business competitiveness and development. Many companies have joined initiatives and actions that address climate change. For example, many businesses have signed up to the Climate Pledge and are working to increase their energy efficiency, use renewable energy, reduce waste, and share relevant tools, methods, and best practices. Though different industries have different practices, there is now a growing consensus among businesses and consumers that we need to produce and consume responsibly.

## Reducing Carbon Emissions Promoting Renewable Energy Contributing to a Circular Economy





The 21st century has seen a sharp increase in the severity of climate change, melting glaciers, plastic pollution, soaring e-waste, and other environmental problems, forcing us to reassess our relationship with nature. Even since the signing of the Paris Agreement in 2015, global warming has been still accelerating. However, we are happy to see that more and more countries have committed to the goal of carbon neutrality and are taking more action to slow climate change. Carbon neutrality will mean the shift from the fossil fuel era to a clean energy era. More and more countries and companies are investing in and using more renewable energy. To reduce our carbon footprint and the negative impact of human activities on the environment, people are exploring and developing the circular economy so that we can get the most out of the resources we use.

## Huawei's Approach and Practices

As a leading global provider of ICT infrastructure and smart devices, Huawei believes that technology will play a critical role as we move towards a cleaner planet. We are working to protect the planet with our technology and to contribute to a sustainable world while providing green connectivity. Specifically, we focus on three areas:



### Reducing carbon emissions

We use managerial and technical measures to reduce the carbon footprint of our products. We also work with our upstream and downstream partners to build a greener supply chain by helping them reduce their environmental impact. Our innovative ICT solutions can help entire industries reduce their carbon emissions, and we take every responsible step that we can to cut carbon emissions.



### Promoting renewable energy

Using ICT solutions in combination with photovoltaics, we are driving a shift to a low-carbon energy mix and making the fullest possible use of renewables, ultimately providing green power for the intelligent world.



### Contributing to a circular economy

We are using more eco-friendly materials and reducing our use of raw resources. Our products are more durable and easier to disassemble, and we have expanded our product recycling program. We will make the world a better place by using less resources.





## Reducing Carbon Emissions

We assess the carbon footprints of our own equipment using the lifecycle assessment (LCA) methodology, and minimize our energy consumption at every phase of the product lifecycle. In addition, a series of technical and managerial measures help us to save energy, use renewable and clean energy, and reduce greenhouse gas emissions on Huawei campuses. Our work also extends up and down the supply chain: We encourage our suppliers to set energy saving and emission reduction targets, and work with our partners to help customers in a diverse range of industries cut their energy consumption and emissions using ICT solutions.

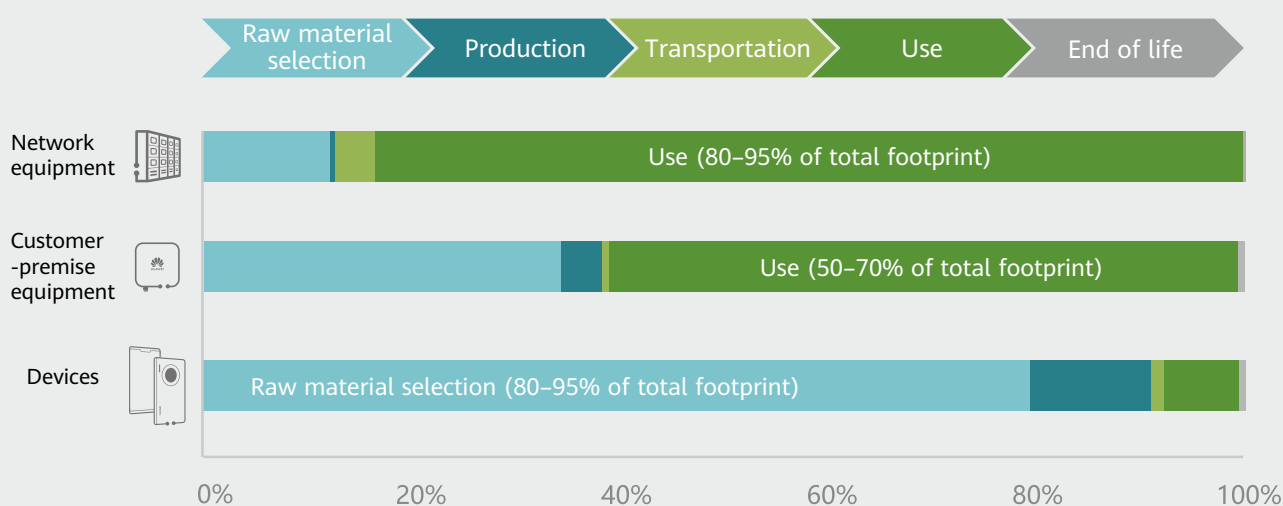
In 2020, the global environmental non-profit CDP scored more than 5,800 companies for their efforts to tackle climate change, and Huawei was one of the few companies that were recognized with a prestigious 'A' score for our actions to cut emissions, mitigate climate risks and develop the low-carbon economy.

### Green Products: Minimizing Our Carbon Footprint

Huawei produces a wide range of products, from smart devices to wireless access, fixed access, data communications, optical transmission, and intelligent computing. Our carbon footprint assessment shows that for network equipment and customer-premise equipment, the largest part of the carbon footprint is generated in the use phase.

If we can cut the energy consumption of ICT products at the source, and increase the use of renewables, our products will have a much smaller carbon footprint. To this end, Huawei has kept innovating in energy-saving technologies to increase product energy efficiency. Our ICT products are enabling energy conservation and emission reduction in a wide range of industries, contributing to a greener world.

### Carbon footprint of the lifecycle of three types of products



\* Carbon footprint of network equipment during the use phase: 80% to 95% of the total

\* Carbon footprint of customer-premise equipment (CPE) during the use phase: 50% to 70% of the total

\* Carbon footprint of devices during the raw material selection phase: 80% to 95% of the total

Data Centers: No Longer Energy-intensive

Today, there are more than 4 billion Internet users. They access a wide variety of smart services, from online shopping and online study to social networking and online entertainment. Every one of these services is built upon data centers. Data centers are the heart of a digital economy, but they also consume large amounts of energy. An ultra-large

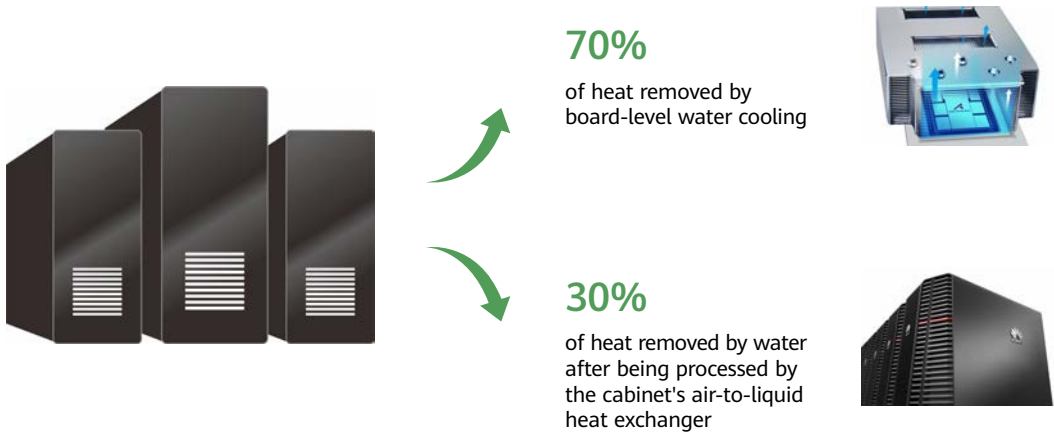
data center consumes nearly 100 million kWh of electricity every year, and according to an estimate, data centers are responsible for 1% of global electricity usage. To make data centers less energy-intensive, Huawei has made the cooling systems of data centers significantly more energy-efficient.

Full Liquid Cooling Makes Data Centers More Energy-efficient

AI applications, high-performance computing, and GPU servers have driven the power consumption of a data center rack as high as 20 kW, 30 kW, or even 50 kW. This increase in power density has posed an unprecedented challenge to conventional cooling systems.

To address this challenge, Huawei developed a full liquid cooling solution. In a closed liquid-cooled cabinet, all heat is dissipated in liquid, reducing the power consumption of cooling systems by 96% and cutting the power usage effectiveness (PUE) from 2.2 to 1.1, compared with a conventional air cooling solution. For a 50-kW cabinet, the annual power saving amounts to about 500,000 kWh. That is equivalent to a reduction of about 237.5 tons\* of CO<sub>2</sub>.

237.5 tons  
Annual CO<sub>2</sub> emission reduction  
for a 50-kW cabinet



A closed liquid-cooled cabinet: All heat dissipated in liquid

\* By International Energy Agency emission factors



## iCooling + Indirect Evaporative Cooling for Smarter Data Center Cooling



iCooling saves Huawei's cloud data center in Langfang 27.64 million kWh of electricity every year

# 13,129 tons

Annual CO<sub>2</sub> emission reduction  
at Huawei's cloud data center  
in Langfang after iCooling was  
deployed

In data centers, cooling systems consume a huge amount of electricity, second only to service applications, so reducing the power consumption of cooling systems is key to making data centers more energy efficient. Huawei's indirect evaporative cooling system is typical of natural cooling solutions. It fully utilizes natural cooling effects, greatly reducing the power consumption of cooling systems.

Traditional cooling systems were mostly manually adjusted. However, as data center loads and their environments constantly change, manual adjustment can no longer keep up with the rapidly changing heat load. To prevent energy from being wasted, cooling systems need smart brains that can intelligently adjust and deliver cooling as necessary.

Huawei's iCooling solution, which integrates big data and AI, enables data centers to learn to save power and automatically optimize their power efficiency, making on-demand, intelligent cooling a reality. The solution reduces data centers' PUE by 8% to 15%.

This solution is deployed at Huawei's cloud data center in Langfang, where it delivers savings of 27.64 million kWh of electricity every year, or 13,129 tons\* of CO<sub>2</sub> emissions.

\* By International Energy Agency emission factors

## Green, Intelligent Connectivity

Connectivity is one of Huawei's core businesses. Every advance in connection technologies means a leap forward for humanity. New connectivity technologies like 5G, optical networks, and IPv6 are bringing us closer to an intelligent world. If we want to live a sustainable smart life, the intelligent world must also be a green world. To provide green, intelligent connectivity, Huawei innovates in every aspect of our communications networks, including 5G, optical networks, IPv6, and site energy.

### Building Energy-efficient 5G Networks for a Green Planet



Huawei's Power Turbo saves 3.5 kWh per day at each 5G site

5G applications have greatly enriched our lives and our ability to communicate. We can enjoy smarter lifestyles with faster networks, a better network experience, and better connected people and things. However, we cannot ignore the increasing energy consumption of 5G networks. The telecoms industry is faced with an urgent problem: How can we provide green network connectivity?

Huawei worked with China Mobile Hunan and China Telecom Guangxi on research into energy savings for wireless networks. Building on its Mobile Automation Engine (MAE), Huawei launched Power Turbo, a whole-network energy saving solution. As part of Huawei's three-level energy saving solution PowerStar, Power Turbo has three key strengths. This solution:

# 10 million kWh

Annual power saving across the entire 5G network of China Mobile Hunan after Power Turbo was used

- Applies intelligent technologies to wireless networks to analyze network co-coverage, enabling power saving across a wider network.
- Learns historical service models, predicts future service models, and applies targeted energy saving policies at each network site for optimal power savings.
- Analyzes the power consumption model of remote radio units (RRUs) and intelligently routes services to achieve network-wide energy saving across multiple bands and multiple radio access technologies (RATs), maximizing network energy efficiency.

Huawei also helped China Mobile Hunan and China Telecom Guangxi in their 5G energy-saving tests, the first such tests ever conducted in China. According to the results from the field test on the live network of China Mobile Hunan, Power Turbo produced savings of about 10% of the network's total energy consumption. Power saving per site per day was 3.5 kWh, which means the annual power saving across the entire 5G network would reach 10 million kWh, equivalent to reducing CO<sub>2</sub> emissions by 4,750 tons\*. Huawei will continue to expand the Power Turbo solution in association with China Mobile Hunan, contributing to a greener planet.

\* By International Energy Agency emission factors





## Huawei's Optical Network Helps Create a Green Lifestyle

Optical networks are ideal for providing low-carbon connectivity because of their high bandwidth, low latency, reduced power consumption, resistance to interference, and small size. Huawei's optical cross-connect (OXC) and passive optical LAN (POL) technologies are being increasingly used in green, energy-efficient, and ultra-broadband networks.

At Dubai Creek Harbour, a 60,000-square-kilometer mega-development being built by Emaar Properties, the Middle East's largest real estate developer, Huawei's optical campus solution was deployed as part of a green and sustainable residential and commercial community.

Unlike conventional aggregation networks, Huawei's POL technology can break the 100-meter limitation

for copper cabling, so it does not require multiple weak-current equipment rooms. This means 80% savings in equipment room space. In addition, the simplified network architecture has helped cut Emaar Properties' power consumption by 30% – about 130,000 kWh every year. That reduces CO<sub>2</sub> emissions by about 62 tons\*.

Green technologies allow networks to coexist with nature. Dubai Creek Harbour, powered by Huawei's optical network, is a model for new smart communities, and provides a blueprint for our future green lifestyle.



Huawei's green optical network helps Dubai Creek Harbour coexist with its natural environment

\* By International Energy Agency emission factors

## Smarter and Greener Optical Modems

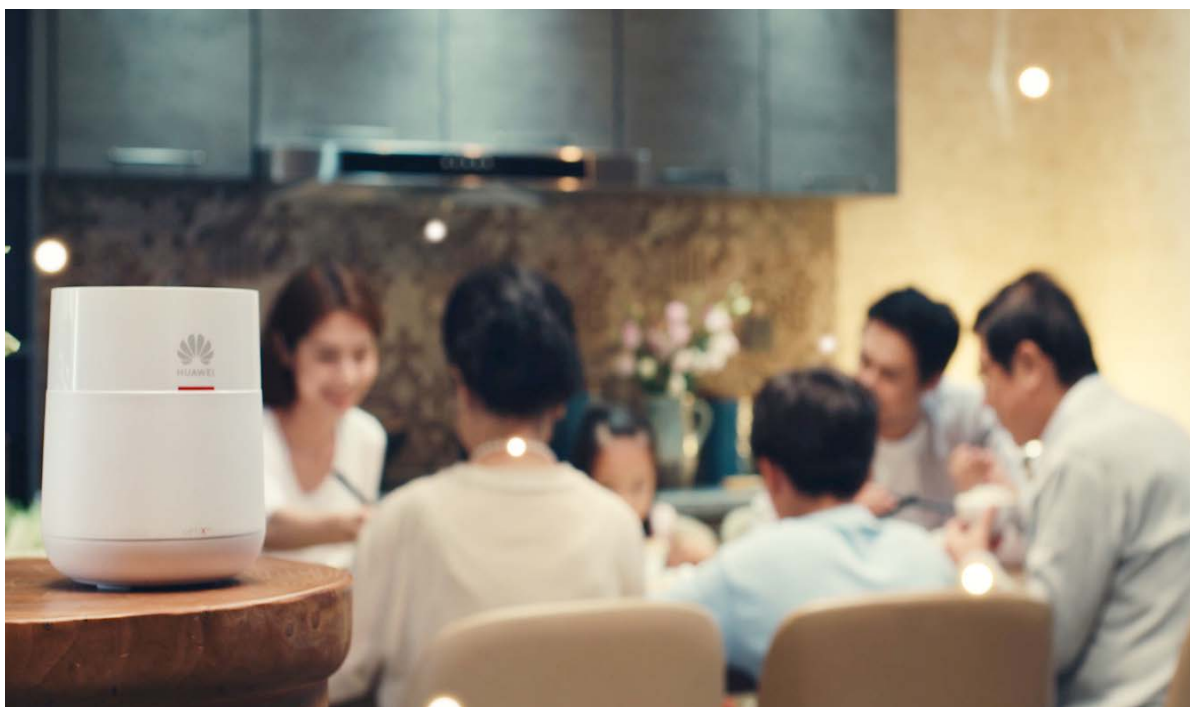
As people increasingly use online education, online offices, and online shopping, there has been an explosion of Wi-Fi devices. Most consumer devices, from mobile phones, tablets, and computers to home appliances and IoT devices, rely on Wi-Fi for Internet access. Wi-Fi networks are now a critical part of home infrastructure. Optical modems offer users direct connections to fiber broadband and the Internet, but for a long time, optical modems and routers were separate devices. This architecture was wasteful and energy-intensive. Power consumption increased even more recently, as optical modems evolved from single-band/Wi-Fi 5 to dual-band/Wi-Fi 6.

# 1.5 billion+ kWh

of electricity saved for 40 million+ households after Huawei OptiXstar was deployed, reducing CO<sub>2</sub> emissions by 730,000+ tons

In 2020, Huawei integrated optical modems and routers into one product, and launched the Huawei OptiXstar smart optical modem series. This product series is the first of its kind. It features three levels of energy saving (algorithm, module, and architecture), enabling power savings in software, hardware, and the system as a whole. Huawei OptiXstar has Advanced Power Management (APM), which puts the device in different modes (active, dormant, sleep) at different times of day, depending on usage patterns. It offers a superior experience to users while maximizing energy savings.

Each Huawei OptiXstar uses only 0.37 kWh per day, which saves users 38.5 kWh every year, compared with competing products. In 2020, the Huawei OptiXstar series was in service in more than 40 million households worldwide, saving over 1.5 billion kWh of electricity and reducing CO<sub>2</sub> emissions by more than 730,000 tons\*, equivalent to planting more than 30 million trees.

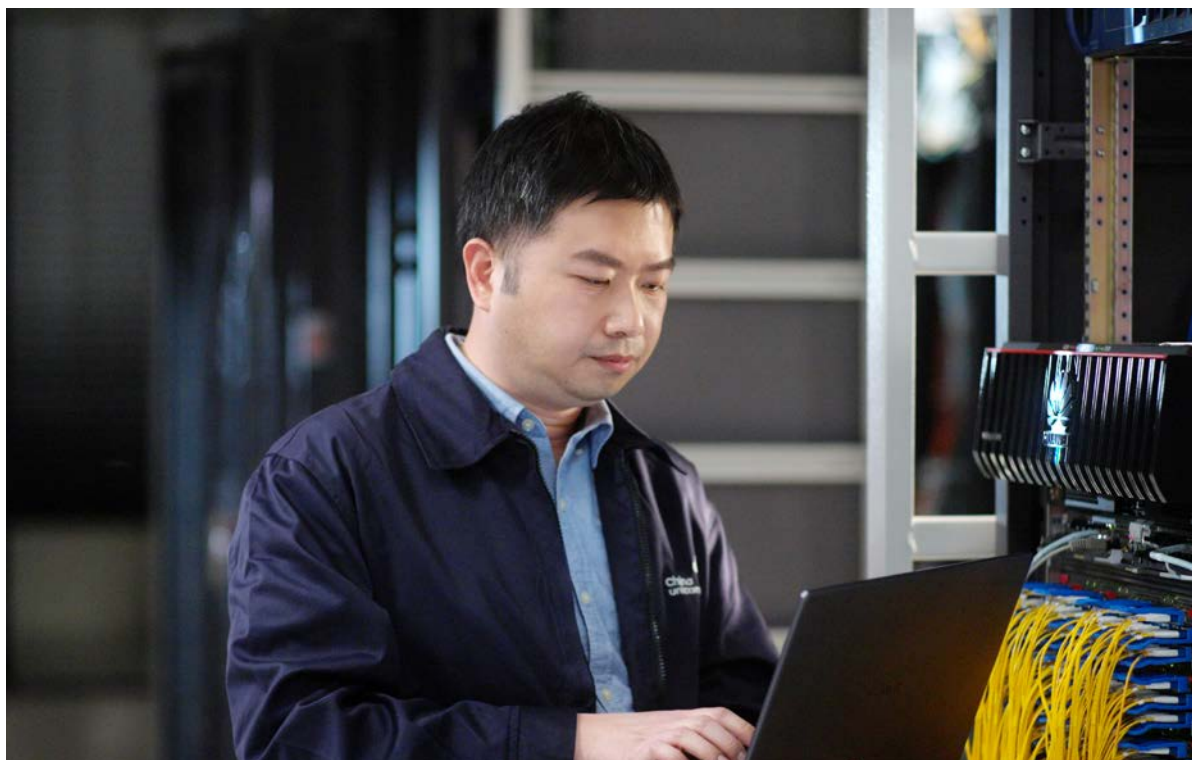


Huawei OptiXstar for a green, connected lifestyle

\* By International Energy Agency emission factors



## Huawei NetEngine Helps China Unicom Beijing Move Towards Carbon Neutrality



An engineer from China Unicom Beijing checking NetEngine

## 2 million kWh

of electricity saved by China Unicom Beijing after using Huawei NetEngine, cutting CO<sub>2</sub> emissions by more than 900 tons

Ubiquitous connectivity is becoming a reality as we move towards an intelligent, fully connected world. We firmly believe that technology can contribute to a better planet. The shared mission of Huawei and our customers is to provide green connectivity and protect our planet.

For the construction of its IP bearer network, China Unicom Beijing used Huawei's NetEngine 5000E-20 and NetEngine 8000, two green, compact high-end routers, to cope with increasing data traffic.

The Huawei NetEngine series routers use three key technologies: SuperCooling, mixed flow fan, and intelligent power supply. Compared with competing products, these routers cut power consumption per bit by 26% to 50%, helping China Unicom Beijing save 2 million kWh of electricity every year, cutting CO<sub>2</sub> emissions by more than 900 tons\*, equivalent to planting more than 40,000 trees.

\* By International Energy Agency emission factors



## iPowerCube: Off-grid, Diesel-free Power Supply for Hebao Island, Zhuhai



Huawei iPowerCube power supply on Hebao Island, Zhuhai

0

carbon emissions from Zhuhai  
VTS station with the help of  
Huawei iPowerCube

On the southern coast of China, lies Hebao Island, characterized by fine sand and clear water. It is here that a vessel traffic service (VTS) station has been built to support orderly, safe navigation and to protect the ocean environment.

As the island is far away from cities and towns, a mains power supply is impossible. The VTS station used to be powered by a pair of diesel generators and an uninterruptible power supply (UPS), but this was noisy and energy-inefficient. Every year, it generated about 25 tons of carbon emissions, which put extra pressure on the already fragile island environment. Later, the station switched to a power solution that combined an off-grid PV system, one diesel generator, UPS, and a lead-acid battery, but problems occurred frequently. The solution had a high failure rate and poor reliability.

In 2020, Huawei conducted a field survey and found that Hebao Island has sufficient sunlight to deploy our iPowerCube off-grid, diesel-free power supply solution. This solution combines solar power and an intelligent lithium battery, replacing the complex old solution. iPowerCube ensures uninterrupted, reliable power supply 24 hours a day, seven days a week. The solution has helped the Zhuhai VTS station save CNY220,000 in fuel costs every year and achieve zero carbon emissions, contributing to a greener environment at Hebao Island.





## Digital Technology Helps Industries Save Energy and Reduce Emissions

The sudden outbreak of COVID-19 in 2020 has accelerated the digital transformation of many countries. According to the World Economic Forum (WEF), digital technologies could help reduce global carbon emissions by up to 15% – or one-third of the 50% reduction required by 2030. Huawei is undertaking its own digital transformation, and leverages innovative ICT solutions to help other industries go digital at a faster speed. That means business benefits for our customers and more protection for the environment.

### Huawei HiCharger DC Charging Module for Green Transport

Electric, intelligent, connected, and shared vehicles represent the future of the global automotive industry. As the electric vehicle market grows, the demand for electric vehicle charging stations is increasing in step. With Huawei HiCharger DC charging modules, Enneagon Energy has built a charging site for electric taxis at Shanghai Hongqiao Airport Terminal 2 that is safe, reliable, efficient, and fast.

The 30 kW Huawei HiCharger DC Charging Module is the industry's first product that has passed TÜV SÜD's Thresher comprehensive certification, with an annual failure rate of less than 0.2%. Leading the industry by 1%–2% in charging efficiency, Huawei HiCharger offers a charging capacity of about 7 million kWh each year, equivalent to reducing CO<sub>2</sub> emissions by about 3,300 tons\*. While helping customers build more reliable and efficient charging sites, we hope that we can work with them to promote green transport and build a low-carbon society.

# 3,300 tons

of CO<sub>2</sub> emissions reduced by the charging site for electric taxis at Shanghai Hongqiao Airport Terminal 2 after Huawei HiCharger DC Charging Module was used



Charging site for electric taxis at Shanghai Hongqiao Airport

\* By International Energy Agency emission factors

## Green Operations: Building Environmentally-friendly Company Campuses

As well as leveraging innovative products and solutions to help other industries go green, Huawei also takes steps to make sure our own operations are green, low-carbon, and sustainable. Guided by the principle of "low consumption, low pollution, high efficiency", we have been striving to build green, sustainable company campuses.

To create green campuses, we use as much renewable and clean energy as possible at the source, take technical and managerial measures to save energy during our operations, and properly dispose of hazardous waste and organize environmental awareness programs. These efforts have enabled us to cut costs, and achieve more efficient, sustainable, low-carbon operations. In 2020, about 220 million kWh of the electricity we used in China came from renewable energy sources, equivalent to reducing CO<sub>2</sub> emissions by 188,000 tons\* .

### Huawei's total energy consumption (2016–2020)

Energy type	Unit	2016	2017	2018	2019	2020
Natural gas	million m <sup>3</sup>	9.93	7.11	11.14	13.13	15.36
Gasoline	Tons	358	600	347	650	608
Diesel	Tons	116	256	77	106	107.7
Electricity (China)	million kWh	1,686.53	2,070.95	2,355.04	3,020.93	3,467.14
Electricity (Overseas)	million kWh	/	/	/	210.32	134.56
Steam	Tons	20,352	21,801	23,143	22,613	22,694

### Huawei's Chengdu Research Center: Fully Powered by Renewable Energy

Huawei's Chengdu Research Center is located in Sichuan Province, which is rich in water resources. The center covers an area of 0.67 square kilometers and accommodates more than 10,000 employees. It has been taking active steps to create a green campus and a green operation and maintenance system. They believe that using renewable energy and building a green campus can help Huawei design products that are green from the very moment of conception and provide reliable, stable, and eco-friendly ICT products for customers worldwide. Together, they can contribute to a greener planet.

Since 2019, the Chengdu Research Center has begun

## 200 million+ kWh

of hydropower is supplied to Chengdu Research Center, reducing its annual carbon footprint by about 177,000 tons of CO<sub>2</sub> emissions

transitioning to hydropower, and now the campus is fully powered with renewable energy. Every year, over 200 million kWh of hydropower is supplied to the center. By switching to hydropower, the Chengdu Research Center has reduced its annual carbon footprint by about 177,000 tons\* of CO<sub>2</sub> emissions.



Huawei's Chengdu Research Center in Sichuan

\* By China's regional grid baseline emission factors



## Huawei's GHG emissions in 2020

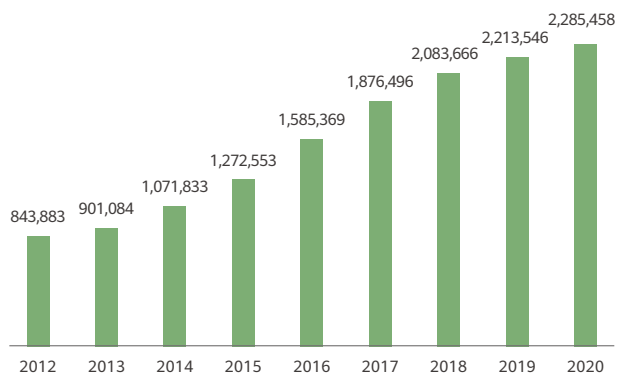
GHG	Scope 1	Scope 2	Total
Emissions (t-CO <sub>2</sub> )	41,736	2,243,722	2,285,458
% of total emissions	1.83%	98.17%	100%

Scope 1 includes stationary combustion emissions, mobile combustion emissions, and fugitive emissions.

Scope 2 includes indirect emissions from energy.

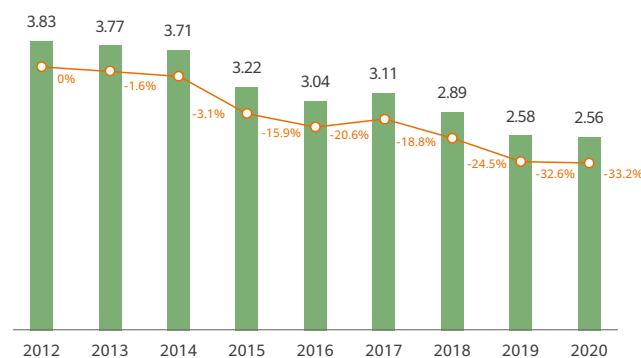
In 2016, Huawei set a carbon emission target (for Scope 1 and Scope 2) for 2020: Reducing carbon emissions per million RMB of sales revenue by 30% compared to the base year (2012). In 2020, our carbon emissions per million RMB of sales revenue were 2.56 tons. This represented a 33.2% decrease compared to the base year (2012), meaning that we beat our 2020 target.

Unit: Ton



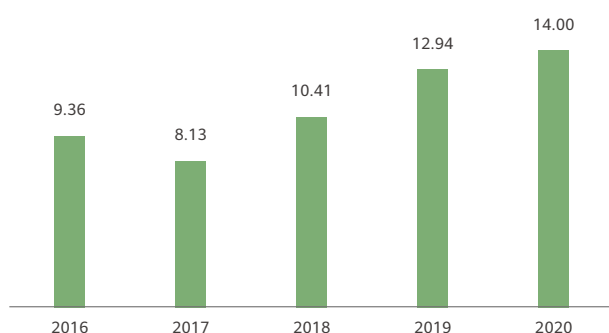
Total GHG emissions\* (2012-2020)

Unit: Tons/Million RMB of revenue



Intensity of GHG emissions (2012-2020)

Unit: Million tons

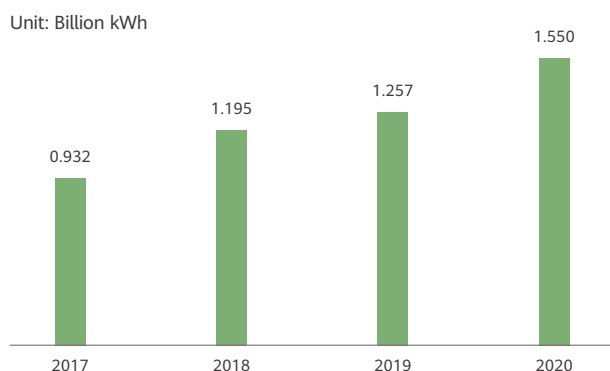


Huawei's water usage in China (2016 to 2020)

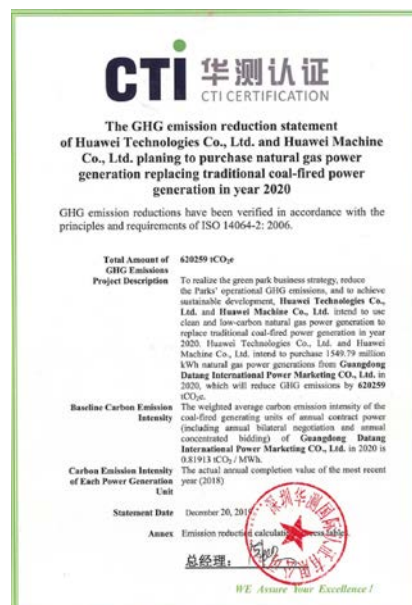
In 2020, Huawei's water usage in China was 14 million tons, up about 8% year-on-year. This increase was largely attributable to growth in our business, larger construction sites, and maintenance of larger landscaped areas. Most of the water we consumed in our operations was used to water our grounds, in our canteens, and for air-conditioning.

\* Figures for 2019-2020 are for Huawei's global operations, while 2012-2018 are for our operations in the China Region.

In 2020, we completed multiple energy conservation projects on our campuses in China, including upgrading the packing in our cooling towers and adding variable speed pumps to the air conditioning units in our cooling stations, and installing LED lighting systems. These projects helped us save more than 11 million kWh of electricity, equivalent to reducing CO<sub>2</sub> emissions by more than 9,000 tons<sup>1</sup>. In 2020, about 1.55 billion kWh of the electricity we purchased came from clean energy sources, which was equivalent to reducing CO<sub>2</sub> emissions by more than 620,000 tons<sup>2</sup>.



Electricity purchased by Huawei that came from clean energy sources between 2017 and 2020



CTI certification on Huawei's GHG emission reduction

## Major Energy-saving Projects on Huawei Campuses in 2020

No.	Type	City	Project Name
1	Technological	Dongguan	Upgrading packing in cooling towers
2	Technological	Dongguan	Adding variable speed drives to chiller pumps for water chiller systems
3	Technological	Dongguan	Adding variable speed pumps to the air conditioning units in our cooling stations and optimizing their programming and operations
4	Technological	Chengdu	Replacing T5 fluorescent lamps with LED lamps in our facilities
5	Managerial	Dongguan	Resetting landscape lighting timers
6	Managerial	Wuhan	Running air conditioners efficiently and turning off unneeded lights
7	Technological	Langfang	Extending the use of HeatExchanger for cooling (free cooling) to March and September
8	Technological	Langfang	Disconnecting idle fume hoods from main systems
9	Managerial	Shenzhen	Putting air conditioners on an intermittent setting at night
10	Technological	Shenzhen	Updating the lighting systems in labs
11	Technological	Shenzhen	Replacing large chillers with small chillers
12	Technological	Shanghai	Installing LED lighting systems in offices
13	Technological	Nanjing	Replacing fluorescent lamps with LED lamps in offices, canteens, and equipment rooms
14	Technological	Dongguan	Installing LED lighting systems in public areas
15	Technological	Shenzhen	Adding more outlets and variable speed drives to the air-conditioning system in the document rooms

<sup>1</sup> By China's regional grid baseline emission factors

<sup>2</sup> See the CTI Certification on how the amount is calculated.





To better manage waste in our company facilities and minimize our impact on the environment, we hire certified waste disposal companies to classify and dispose of our waste. To reduce waste, we have also organized environmental awareness campaigns and activities, which have received a tremendous response from our employees. Our employees join in these campaigns enthusiastically, and have learned a lot about protecting the environment.

## Management of solid waste, wastewater, and waste gases on Huawei campuses

Waste Classification	Example	Disposal
Solid waste	Non-recyclable waste	Domestic waste
	Canteen waste	Leftovers and waste cooking oil and fats
	Recyclable waste	Packaging boxes and metal parts
	Hazardous waste	Chemical containers
	Construction waste (generated by construction companies)	Waste from refurbishments
Waste water	Canteen wastewater	Oily wastewater from canteens
	Other domestic wastewater	Wastewater from bathrooms, office pantries, and sanitation
	Industrial wastewater	Wastewater generated from the production process
Waste gases	Kitchen waste gases	Cooking fumes from hobs
	Industrial waste gases	Waste gases generated from the production process

## Huawei Environmental Protection Week: Tech for a Better Planet

To celebrate World Environment Day, Huawei kicked off its Environmental Protection Week on June 5, 2020. Based in our Shenzhen campus, the campaign had the theme "Tech for a Better Planet". It included a ceremony for signing a commitment to protecting the environment; an online quiz, and an old-for-new electronics recycling drive. We encouraged every Huawei employee to do their part to protect biodiversity and the planet by doing things like turning off unneeded lights, saving water and paper, traveling green, and living a low-carbon life.

About 5,000 employees took part in some Environmental Protection Week activities at their workplace, and more than 50,000 employees accessed the online activity. Staff who participated said they personally learnt a lot about environmental protection during the activity and hoped that similar activities

would continue to be held at other Huawei campuses in the future.



Huawei Environmental Protection Week 2020

## Green Partners: Encouraging Top 100 Suppliers to Set Emission Reduction Targets and Building a Greener Supply Chain

Huawei has incorporated environmental requirements into our procurement strategy and processes. Environmental factors are considered during supplier qualification, selection, review, performance management, and in selection of materials. In addition to complying with all applicable environmental laws and regulations ourselves, we are also building a competitive and green supply chain by offering proper incentives to suppliers.

In 2020, we encouraged our top 100 suppliers to calculate their carbon emissions, set carbon emission reduction targets, develop plans, and implement programs. By the end of 2020, all the top 100 suppliers had calculated their carbon emissions. 93 suppliers of them had set targets for reducing emissions, and were implementing their emission reduction programs. The remaining 7 suppliers were also making progress. Total carbon emissions by Huawei's suppliers generated in the course of working with Huawei in 2020 were about 12.46 million tons, down 300,000 tons compared with 2019.

### IPE "Green Choice" Initiative: Building a Competitive and Green Supply Chain

Since 2011, Huawei has participated in the Green Choice initiative, which was launched by the Institute of Public and Environmental Affairs (IPE). To encourage suppliers to better manage themselves, promptly fix any problems, and maintain environmental compliance, we continue to use the IPE's Blue Map environmental data search during supplier audits and supplier self-checks. In 2020, we carried out regular checks on the environmental records of 900 key suppliers. In the IPE Green Supply Chain CITI Index, we ranked fourth among all IT companies and first among those from the Chinese mainland. In the IPE Supply Chain Climate Action SCTI Index 2020, Huawei ranked sixth among all IT companies and first among those from the Chinese mainland.





## Promoting Renewable Energy

As the urgency of combating climate change becomes clearer, more countries, regions, and organizations are now interested in acquiring and using renewable energy. Huawei wants to play an active role in the transition to renewable energy. We use renewable energy in our operations wherever possible and are building more PV plants on our campuses. The PV plants located at three of our campuses – Huawei Dongguan Southern Factory, Hangzhou Research Center, and Nanjing Research Center – generated 12.6 million kWh of electricity in 2020. These plants have generated a total of 119.74 million kWh of electricity since they were connected to the grid. We are also integrating ICT with PV technologies so that solar power can be generated more efficiently. We are working to extract more electricity out of every joule of sunlight, bringing green power to many more households. In addition, our smart PV plants for agriculture and fisheries are perfect examples of mixed land use, opening up new possibilities for integrating energy systems into local

environments, industries, and economies.

In the period from 2013 to 2020, Huawei shipped smart PV products to more than 60 countries and regions, coming to a total installed capacity of 160 GW. To date, those products have generated more than 300 billion kWh of green electricity. They have been used in sectors from education and transport to agriculture, animal husbandry, fishing, and homes, and in a range of different forms: large ground installations and distributed systems, on hillsides, on rooftops, and floating in water. In 2020, Huawei introduced a new residential smart PV solution, which includes both solar generation and power storage. This solution can provide households with green electricity and supports a zero-carbon lifestyle. The residential smart PV solution fully utilizes sunlight as the power source for buildings, and integrates a storage component to ensure uninterrupted green power for households.

### Solar + Metro: Green Power for Shanghai Metro

The Longyang Road Metro Rail Yard in Pudong serves Lines 2 and 7 of the Shanghai Metro, with trains coming in and out every day. What many people don't know is that the metro hangar here is a hidden power plant. The hangar rooftop is covered with solar panels providing clean and green electricity for metro trains.

Powered by Huawei's smart PV solution, the solar plant has an installed capacity of 3.66 MW, and generates an average of about 3.4 million kWh of electricity each



The PV solar power plant at Shanghai Metro Longyang Road rail yard (The M represents the metro, and the green grass represents being environmentally friendly)

year. This can help save the equivalent of about 1,200 tons of coal, or a reduction in CO<sub>2</sub> emissions by 3,390 tons\*. The total area of the solar plant on the hangar rooftop is 50,000 square meters, which is equivalent to the size of five or six football fields. Nearly 13,000 280-watt modules have been installed. The solar panels are connected to metro yard substation, which feeds the connecting metro lines. The electricity generated by the solar plant in one year can support about 200,000 km of travel for a Line 2 train with 8 cars, which is equivalent to more than 1,560 round trips of Line 2.

As of the end of 2020, ten Shanghai Metro rail yards have grid-connected PV systems. Together, they represent a total installed capacity of about 24 MW and will generate on average about 23 million kWh each year. Moving forward, more Shanghai Metro systems will shift to solar power.

Using PV in metro systems is a perfect example of how green power can contribute to green transportation and how it can help Shanghai start to cut its carbon emissions sooner.

\* By International Energy Agency emission factors

## Smart Agrivoltaic Power Plant in Ningxia: Turning a Desert into an Oasis

The Binhe New District on the eastern banks of the Yellow River in Ningxia used to be a harsh desert environment. Baofeng Group has been managing this desertified patch of 107 square kilometers by planting alfalfa and goji to improve the soil.

Since 2016, Huawei and Baofeng Group have jointly built large PV power plants over the goji plantations. The solar panels have cut evaporation from the soil by 30–40% and increased vegetation coverage by 86% in just a few years, which has significantly improved the local environment. The desert has turned into an oasis, creating a rich field of ruby-red berries topped by an azure sea of solar cells. As of the end of 2020, these PV power plants had generated 4.31 billion kWh of electricity, displacing 2.047 million tons\* of CO<sub>2</sub> emissions, which is equivalent to planting 89.01 million trees.

The solar panels over the goji plantations have changed local residents' lives in many ways. More than 80,000 jobs have been created, including cleaning the solar panels, and weeding, debudding, pruning, fertilizing, and picking in the goji fields. These extra jobs and the income they generate have given local residents better lives.

# 4.31 billion kWh

of green electricity generated by the PV plants built by Huawei and Baofeng Group

Protecting the environment is not a process that can happen in isolation. It is closely tied to the management of ecosystems, energy resources, economic development, and many other issues. As we promote renewable energy and reduce humanity's carbon footprint, we have come to realize that a green planet is a treasure. Economic development and environmental protection can be simultaneous, mutually-reinforcing processes.



A farmer picking goji berries at the Baofeng Group PV plant in Ningxia

\* By International Energy Agency emission factors





## Hybrid Fishery-Solar Plant in Shandong: A Project that Benefits All Parties



The fishery-solar project in Zhanhua

The Zhanhua District of Binzhou City in northern Shandong used to be covered by salt fields, and the main industry there was traditional aquaculture, meaning the use of land and marine resources was inefficient. A solar power project has breathed new life into this land. The shiny blue PV panels pointing towards the sky are nourishing fish and shrimp in the ponds and providing round-the-clock green electricity to households as part of an integrated fishery-solar system.

This project uses Huawei's smart PV solution. With a total installed capacity of 300 MW, the project generates nearly 400 million kWh of on-grid electricity each year. It is by far the largest fishery-solar project in China, and it serves two purposes at once – generating electricity and supporting green aquaculture.

The project has been up and running since June 2020. It produces green seafood below the water's surface and generates green electricity above it. It represents

# 95,000 tons

of CO<sub>2</sub> emissions reduced at the fishery-solar plant in Zhanhua with the help of Huawei's smart PV solution, which generated about 200 million kWh of electricity

a holistic model of development that uses the Internet and smart energy to modernize aquaculture. As a result, Zhanhua is developing into a showcase for modern eco-development, combining scientific research, public education, fishing, tourism, and restaurants. This model benefits everyone, and demonstrates how we can deliver ecological, economic, and social benefits at the same time. To date, the project has generated about 200 million kWh of electricity, which is equivalent to a reduction of 95,000 tons\* of CO<sub>2</sub> emissions.

\* By International Energy Agency emission factors

# Contributing to a Circular Economy

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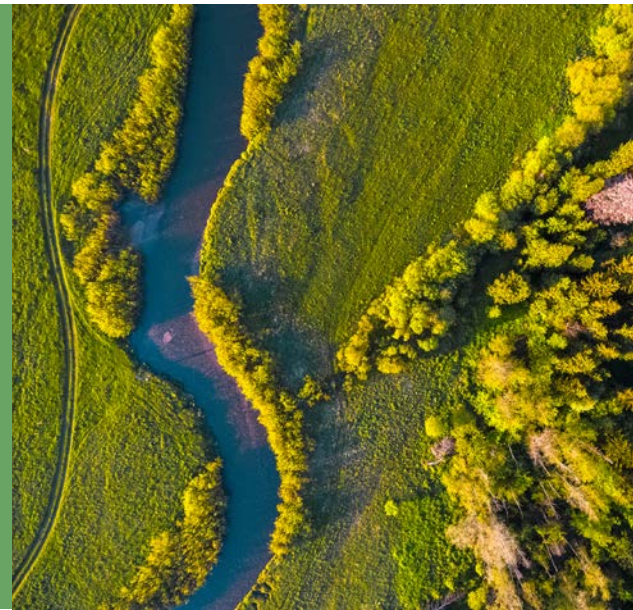
In a linear economy, we acquire materials from natural resources and bury or incinerate them when they are no longer needed. Under this model, we are consuming resources that are already very limited, and burdening our environment. Huawei is committed to exploring how to contribute more to the circular economy, reducing our reliance on natural resources, and providing customers with more eco-friendly products. To reduce the pressure on our environment, Huawei continues to improve its product designs, reduce the weight and size of product packaging, and use fiber-based packaging instead of plastic packaging, so that the packaging materials can be more easily disposed of. We have also established a global recycling program to extract residual value from electronic waste, which will help us reduce our consumption of resources, and contribute to the circular economy.

## More Eco-friendly Materials

One of the key ways to protect the environment and promote the circular economy is to use renewable and more eco-friendly materials and to take less from nature. At Huawei, we continue to source renewable materials for use in our manufacturing. We are already using a dozen renewables in Huawei products, such as recycled aluminum, tin, gold, cobalt, and paper. We are also exploring the possibility of encouraging our suppliers to use more high-quality renewable materials, to increase our own use of renewables and reduce our reliance on the mining of minerals. We want to leave a more sustainable, better world for future generations.

## Reducing Reliance on Non-renewable Resources with Bioplastics

Plastics are indispensable materials used in electronics products, but recycling traditional plastics is extremely difficult. As part of our commitment to building a better planet with technology, we started using bioplastics in Huawei devices, such as HUAWEI P and Mate series smartphones and watches, starting in 2013. Bioplastics are far more eco-friendly than traditional plastics because they are made from plant extracts, rather than non-renewable petroleum. This means bioplastics greatly reduce environmental pollution and damage. The bioplastics we use contain more than 30% castor oil, reducing CO<sub>2</sub> emissions by about 62.6% compared with traditional plastics. By the end of 2020, we had used a total of 1,223 tons of bioplastics, which is equivalent to a reduction of approximately 6,238 tons of CO<sub>2</sub> emissions.



## More Durable Products

One of the most effective ways to conserve resources is to make high-quality, durable products. Huawei always puts quality first and aims to succeed through quality. We stick to this strategy throughout the entire product lifecycle. In the design stage, we select high-quality raw materials and pay premium prices to high-performing suppliers for better quality. In the manufacturing stage, we conduct strict reliability tests against international standards to ensure

our products function normally, even in severe conditions. We also continue to provide users with system updates, as well as convenient and affordable repair services, to extend the service life of our products as much as possible. These practices have helped slash product costs over the lifecycle, and reduce the consumption of natural resources. These are part of our efforts to promote a circular economy.



- **Better product quality:** Huawei has multiple specialized reliability labs worldwide, where we simulate use scenarios and perform reliability tests on over 700 different products and components. These include drop tests, temperature cycling tests, and abrasion tests. These are some of the measures we take to ensure product quality before shipment.
- **More convenient repair services:** We have established more than 3,000 service centers in more than 100

countries and regions worldwide. Through these centers, we provide convenient, affordable repair services to consumers and give them a better after-sales experience.

- **More efficient repair services:** Our professional maintenance engineers can quickly and accurately identify device problems and make appropriate repairs. The time taken to repair a phone was 20% shorter on average than 2011. That means we are saving approximately 140,000 hours for every million repairs.



Huawei service stores



Professional repair services

## Greener packaging

Huawei adopts a green packaging strategy known as "6R1D": Right Packaging (the core), Reduce, Returnable, Reuse, Recycle, Recovery, and Degradable.

**Right & Reduce**  
Developing better and more efficient packaging designs to reduce the use of packaging material and cut packaging and logistics costs

**Degradable**  
Reducing or eliminating the impact of packaging waste on the environment by using biodegradable materials



Huawei's 6R1D packaging strategy

**Returnable & Reuse**  
Enabling packaging materials to be used for longer through recycling and reuse

**Recycle & Recovery**  
Reusing resources and energy by using eco-friendly and renewable materials as much as possible

## Lightweight and Less Plastic Packaging for Flagship Phones

# 550 tons

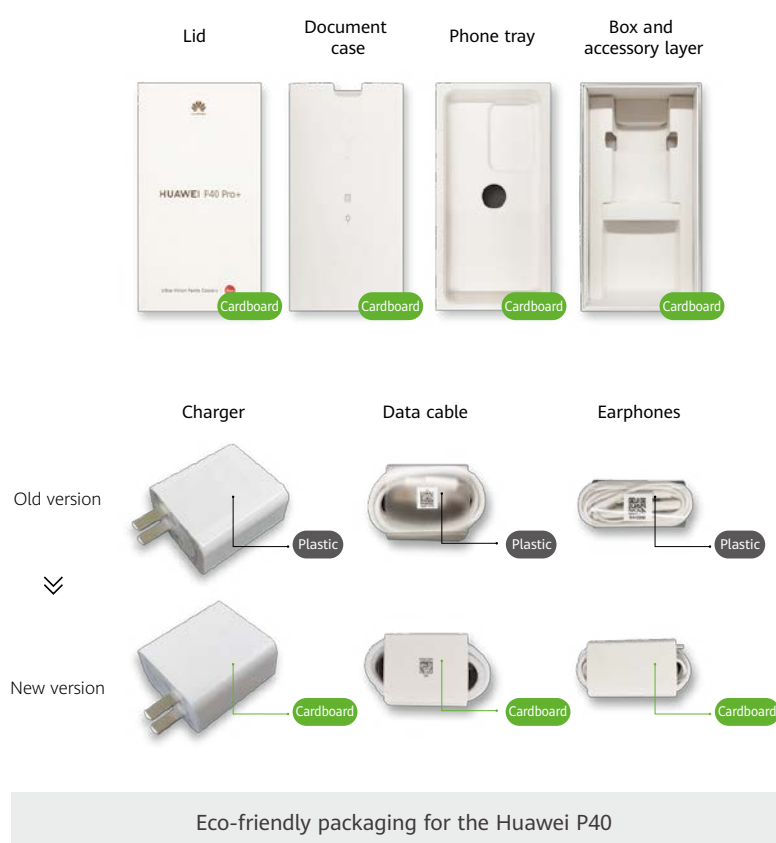
less paper used for the packaging  
of every 10 million HUAWEI  
Mate 40 phones

# 17,500 kg

less plastic used for the  
packaging of every 10 million  
HUAWEI P40 phones

The HUAWEI Mate series and P series are Huawei's flagship phones. We improved the packaging for these flagship phones in 2020. As a result, the packaging utilization rate for the HUAWEI Mate 40 Series was 68% higher than the HUAWEI Mate 7 Series. Each phone's packaging used 55 grams less material, meaning 550 tons less paper for every 10 million units. That's equivalent to planting 9,350 trees.

We also replaced as much plastic packaging as possible with fiber-based packaging for the HUAWEI P40 Series, so that the packaging materials can be more easily disposed of. There was 17% less plastic in the packaging of this phone than there was in its predecessors. That means we used 17,500 kg less plastic per 10 million phones, equivalent to 1.8 million medium-sized supermarket plastic bags.







## Less Packaging Less Emissions

### Simplified Packaging Saves Materials and Manpower and Cuts Carbon Emissions

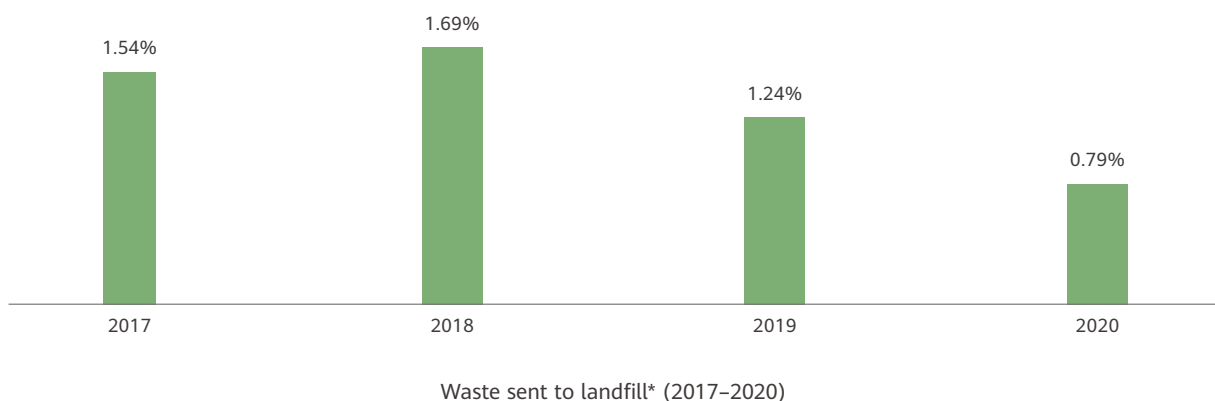
At Huawei, a large number of optical modules are shipped every year. In the past, optical modules were packed separately and shipped in individual packaging. This resulted in the need for more manpower and high logistics costs. When customers received their shipments, they would have to unpack the modules one by one. The whole process was very time- and energy-consuming and not eco-friendly at all, as a lot of packaging waste was generated.

In 2020, Huawei adopted the design for manufacturability (DFM) and matched the packaging of optical modules with what customers actually demanded. We simplified the separate packaging and determined that packaging six optical modules into one was the most optimal approach. Compared with the old individual packaging, the new packs reduced unpacking time by 85% and saved 18 tons of packaging materials for network products used at data centers. That's equivalent to a reduction of about 20 tons in CO<sub>2</sub> emissions.

### Less Waste

According to the UN's Global E-waste Monitor 2020, e-waste has become the world's fastest-growing domestic waste stream. Huawei is a global provider of ICT infrastructure and smart devices. It's an important part of Huawei's social responsibility to reduce e-waste, recycle as much as possible, and reduce landfill.

In close collaboration with leading recycling service providers, Huawei classifies our waste and disposes of each category separately. Much of our waste is recycled for raw materials or incinerated and used to produce thermal energy. Huawei and our recycling service providers have also identified materials that may be harmful to the environment, and developed targeted disposal plans that minimize our environmental impact. In 2020, we disposed of 13,184 tons of ICT e-waste, only 0.79% of which was landfilled.



\* Smart device e-waste is not included

## Smart Device E-waste Recycling

# 4,500+ tons

of smart device e-waste processed by our own recycling stations

As part of our efforts to recycle as much electronic waste as possible, we have built a global recycling program for device products and scaled up our product trade-in program. Over the course of 2020, Huawei processed more than 4,500 tons of smart device e-waste through our own recycling stations.

When we receive e-waste, we first categorize the products so that we can most efficiently recycle them and recoup their full value. Electronics that can be refurbished are handed to our partners for resale through official sales channels. Waste that must be scrapped is given to certified third parties who can disassemble and dispose of them in an environmentally friendly manner, to minimize environmental pollution.

Mobile phone PCBs contain metals, including gold and copper, which can be extracted through the chemical processes of deplating, electrolysis, refining, and smelting. From every 10 million mobile phones, more than 120 kg of gold and 87 tons of copper can be recovered through recycling. That's enough to plate 21,000 Beijing Olympics gold medals and cast 190,000 bronze medals, which would supply nearly 10 Beijing Olympic Games.

Trade-in program at [vmall.com](https://vmall.com) or on Vmall app



Huawei's four-step trade-in process

## Helping an Upstream Supplier Obtain TÜV Rheinland's First Two-star Zero Waste to Landfill Management System Certification

Huawei actively helps its suppliers establish zero-landfill management systems. We require all of our suppliers take a systematic approach to waste management, proactively improve waste management performance, reduce the pressure of their landfills on the environment, and pursue sustainable development.

In 2020, Huawei worked with TÜV Rheinland to help a supplier's factory establish a zero-landfill management system for solid waste. Within half a year, the supplier has reduced its landfill volume by more than 1,400 tons and obtained TÜV Rheinland's Two-Star Zero Waste to Landfill Management System Certification. This factory is the first in the world to obtain TÜV Rheinland's Zero Waste to Landfill Management System Certificate.





In 2020, many of our environmental protection efforts were recognized by the industry:

### ISO 50001 Certified Energy Management Systems

ISO 50001 certified energy management systems focus on improving energy efficiency and reducing energy consumption by standardizing various energy management systems and measures and identifying and utilizing the right energy-saving technologies and methods, as well as best energy management practices. In 2020, Huawei's energy management systems were once again certified as ISO 50001 compliant.



ISO 50001 energy management system certificate

### CQC Certification for Energy-efficient Products

The China Quality Certification Center (CQC) assesses energy efficiency in products based on national standards and technical requirements. This is a voluntary certification program designed to encourage more responsible consumption and the use of energy-efficient and eco-friendly products. In 2020, several Huawei products were CQC certified for their high energy efficiency, including our TD-LTE digital mobile phones, 5G digital mobile phones, tablets, and TD-LTE wireless data terminals.



CQC Certificate for a Huawei energy-efficient product

## China Environmental Labeling

Products with China Environmental Labeling are of high quality, and more eco-friendly and less resource-intensive than comparable products.

In 2020, 360 of Huawei's products, including rack servers, blade servers, multi-node servers, integrated storage servers, distributed storage servers, micro-computers, and displays were accredited by the China Environmental Labeling program.



Huawei's Blade Server certified by the China Environmental Labeling program

## Eco-friendly Certification by CEC for Ethernet Switches

In its Eco-friendly Product Certification Program for Ethernet switches, the China Environmental United Certification Center (CEC) has introduced the lifecycle assessment methodology. It now requires higher standards in terms of product energy efficiency, noise, eco-design, and green manufacturing.

In 2020, 66 of Huawei's switches (including CloudEngine switches for data centers and campus networks) received Eco-friendly Product Certification, making them the first Ethernet switches to be given this certification.



Eco-friendly Product Certification for Huawei's Ethernet switches





### Green & Healthy Intelligent Audio Certification

At the Huawei All-Scenario New Product Launch event held on September 10, 2020, Huawei Consumer BG unveiled its latest HUAWEI FreeBuds Pro earphones and officially announced the Huawei-led green & healthy self-certification standards for intelligent audio. SGS, one of the world's leading certification bodies, issued a certificate to Huawei. Huawei was the first manufacturer to receive this new certification.



Green & Healthy Certificate for  
HUAWEI FreeBuds Pro earphones



# 5 Healthy and Harmonious Ecosystem





Companies, governments, NGOs, and other groups in civil society all play an important role in supporting progress towards the UN SDGs. When they conduct business with integrity, companies can create jobs for local communities, boost the local economy, and reduce poverty and hunger. Together with their partners, companies can help improve health and well-being, reduce inequality, and make their entire business ecosystem more sustainable.

**Caring for Employees**  
**Business Ethics**  
**Supply Chain Responsibilities**  
**Community Responsibilities**





The UN SDGs address common challenges facing the global community. Some of these goals include achieving decent work and economic growth, health and well-being, education, equality, and partnerships. These issues will have a profound, long-term impact on many companies' ability to grow sustainably. As such, companies should align their business strategies with the UN SDGs to ensure their operations are ethical, enhance their own sustainability and transparency, and create safer and more inclusive workplaces for their employees. We also believe that all companies should also work with their partners up and down the value chain to contribute to the UN SDGs and create value for the global community.

## Huawei's Approach and Practices

Today we find ourselves in a business environment full of uncertainty. We are working more closely with our ecosystem partners to contribute more value to society. Our dedicated employees are the foundation we rely on, and we care about their health and safety and personal growth. We conduct business with integrity and adhere to standard business ethics. We believe that legal compliance is

a bulwark against the uncertainties of international politics. We have made sustainability a key part of our procurement strategy and work with our partners across the supply chain to build a healthy and harmonious business ecosystem. Huawei is an active, productive member of the communities where we operate. We actively fulfill our community responsibilities and help local communities to advance.







## Caring for Employees

Employees are our most valuable asset. They are the mainstay of Huawei's sustainable development. It is the hard work of our employees that has made Huawei what it is today. Huawei has become a global company that operates in more than 170 countries and regions, with more than 190,000 employees worldwide. We care for our employees and put their safety first. During the COVID-19 pandemic, we have taken a number of steps to ensure our employees' health and safety. We are working to create a warm, relaxed, and efficient workplace.

Employee professional development remains one of our priorities, and this includes our commitment to training employees through job rotations and offering them a choice of career paths. We encourage employees to keep an open mind and to broaden their perspectives, so that they can proactively manage the uncertainties that lie ahead while pursuing excellence with a spirit of craftsmanship. We value diversity and inclusion, and want to bring together bright minds from across the globe. We are working to make Huawei an attractive space where outstanding people can create and share value together.

### Employee Health and Safety

Huawei always puts employee health and safety first. We do our best to ensure the health and safety of Huawei employees, subcontractors, and other partners. In 2020, our safety efforts covered the safety management system and safety practices in business domains like manufacturing and deliveries.

Health and safety action overview:

- Safety management system: Started applying for the ISO 45001 certification – an upgraded EHS management system – for Huawei subsidiaries worldwide.
- Manufacturing: Organized five Safety Awareness Month activities, covering mechanical safety, electrical safety, fire safety, vehicle safety, and comprehensive safety.
- R&D labs: Provided basic training on EHS for more than 33,000 employees in our R&D labs, and had them sign the EHS commitment letter.
- Logistics and administration: Completed EHS assessment on nine large campuses, covering 10 million square meters.
- Deliveries: Used AI to improve delivery safety in 1,167 projects in more than 100 countries.



Huawei manufacturing safety awareness month in July 2020

# CNY11.89 billion

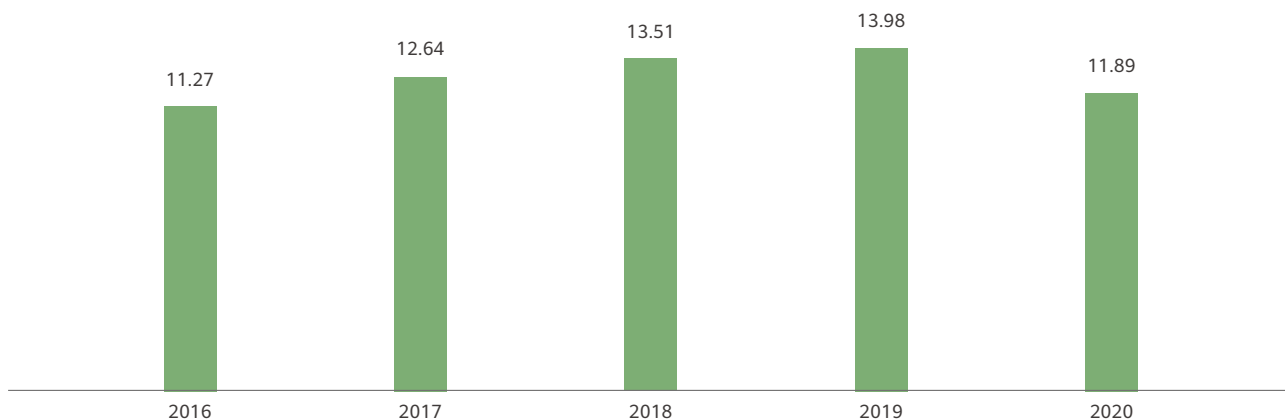
invested in employee benefits

Huawei has a robust employee health and safety management system. Our comprehensive employee insurance and health support are designed to give our employees worldwide strong support. Employee insurance includes social insurance, commercial insurance, and medical assistance, while health support covers health checks, health centers and consultations, global medical emergency services, and lifestyle guidance. In 2020, we invested CNY11.89 billion in employee benefits.

In China, we continued to improve health and safety on our campuses. In particular, we established 17 health centers, 30 health service stations, and provided more than 600 automated external defibrillators (AEDs) and first aid kits. We also trained more than 10,000 employees and emergency response team (ERT) members in an effort to build a healthy work environment. To improve our overseas offices' ability to manage employee health and safety, we established three regional safety centers and a remote medical system that provides 24/7 medical consultation and assistance services for Chinese staff overseas. We also vetted and recommended more than 180 certified medical service providers to our overseas offices, and our staff recorded 99% satisfaction ratings with their medical services.



CNY billion



Spending on employee benefits (2016–2020) \*

\* Due to additional support provided as part of various governments' COVID-19 responses, our own spending on employee benefits declined slightly in 2020.



## Ensuring Employee Health and Safety During the COVID-19 Pandemic



Huawei employees receiving COVID-19 tests

# 620+

batches of supplies shipped to Huawei subsidiaries in 120+ countries and regions

# 100,000+

staff members from 130+ countries and regions attended lectures on preventive health measures

COVID-19 posed a serious threat to people's physical and mental health. To ensure the health and safety of our employees, Huawei took swift action after the outbreak of COVID-19. We developed solutions for our subsidiaries in the countries and regions hit hardest by the pandemic. Our efforts included:

- Set up a dedicated team and developed preventive measures for day-to-day activities.
- Quickly reserved sufficient supplies of protective equipment and shipped more than 620 batches of supplies to Huawei subsidiaries in over 120 countries and regions.
- Gave medical insurance for COVID-19 to family members accompanying our expatriate employees; increased the sum insured for employees affected by work-related or infectious diseases, and introduced more health insurance suppliers to ensure high quality employee insurance services.
- Developed a comprehensive treatment program to handle COVID-19 cases 24/7 that includes local medical resources, online platforms, and support from Chinese experts.

To minimize the fear caused by the pandemic, we coordinated internal and external resources and organized more than 30 lectures on preventive health measures. More than 100,000 staff members from over 130 countries and regions attended these lectures. We also provided counseling for over 3,500 employees who suffered from COVID-19-related anxiety.



Huawei has long been an advocate for a healthy work-life balance. In 2020, we made extensive efforts to fight the COVID-19 pandemic. At the same time, we overcame many difficulties to improve the working and living conditions of employees outside China, and organized many team building activities. Our aim was to foster an efficient and relaxed environment where employees can enjoy great dining, accommodation, and entertainment services. This can give our staff a strong sense of belonging and happiness.

## Dining at Huawei

Huawei sets up canteens on its campuses all over the world. More than 140 Huawei canteens kept serving employees throughout the COVID-19 pandemic. Many local offices faced a lack of supplies as shopping malls and supermarkets were closed, but our chefs worked with what was available to keep hot meals on people's plates. They organized teaching activities and events like "having hotpot in the cloud" to keep up morale and make sure the team and their families were taken care of. To us, pots and plates are an integral part of well-being and productivity.



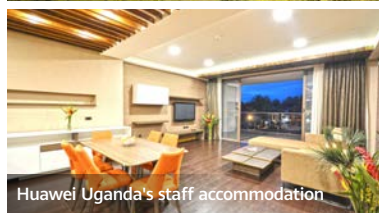
A bite of Huawei



Huawei's new office building in Chad



Huawei's new campus in Jamaica



Huawei Uganda's staff accommodation



Huawei's new offices in Honduras

Better working and living conditions for Huawei employees

## Accommodation at Huawei

It is company policy to provide high-quality living and working environments for our employees around the world, no matter whether we make profits or not. COVID-19 forced the world to hit the pause button. However, it did not stop Huawei from improving the working and living conditions of our employees. In 2020, more Huawei employees moved to beautiful, safe, and comfortable apartment complexes with gardens. Some moved to sea-view dormitories equipped with gyms and karaoke rooms. These efforts have given our staff a stronger sense of safety and happiness.





## Entertainment at Huawei

Huawei employees have set up more than 30 employee clubs to enrich their leisure time. These include a music club, dance club, reading club, calligraphy and painting club, and gym club. Despite the pandemic, various clubs and departments still managed to organize many leisure activities in 2020, allowing our employees to enjoy their spare time.



Some of the leisure activities enjoyed at Huawei

## Employee Training and Development

We greatly value the development of our employees' capabilities and careers, and provide them all with sufficient training and equal promotion opportunities. We have various training programs, such as the Strategic Reserve, First-Line Manager Development Program (FLDP), and New Employee Orientation (NEO), to reskill and upskill employees. We run an internal talent market that allows employees to move around the company and make the most of their expertise. Mentors are assigned to help local employees adapt to their new jobs and our corporate culture as quickly as possible, so that they can contribute to our growth in local markets.

In 2020, we offered about 11,000 face-to-face training courses that were taken by more than 128,000 employees, including more than 14,000 local employees. More than 200,000 people\*, including 20,000 local hires, took our online courses. More than 50,000 training certificates for

36 hours

Average time Huawei employees spent in training sessions

50,000+

training certificates awarded for MOOCs

massive open online courses (MOOCs) were awarded. Employees across the company spent an average of 36 hours in training sessions in 2020, and local hires spent an average of 51 hours in training sessions.



Huawei employees at a training session

\* Employees who left Huawei in 2020 were also counted.

After the outbreak of COVID-19, we invested more in online training for employees. Training on our online iLearning platform takes many different forms, including micro courses, MOOCs, small private online courses, and live-streaming courses. We provided prompt, high-quality online orientation training for more than 3,400 new employees overseas. These efforts have helped improve the expertise of our local hires outside China and allowed them to quickly adapt to the company's culture.

We offer clear career development opportunities, with two distinct career paths for our employees to follow: the technical expert path and the manager path. If an employee wants to be an expert, they can follow a ladder

that goes from senior professional to expert and then to leader of a technical field. If an employee is looking to become a manager, they can start as a first-line manager, then move on to project leader or functional leader, and finally a business leader. These two paths can also overlap, depending on the company's business needs and the employee's career plan. Whichever path an employee takes, expert or manager, they can contribute their unique value and become an integral part of the company. To help employees improve their professional skills, Huawei has implemented a competency & qualification (C&Q) system. Huawei has 19 C&Q families and 527 sub-categories, and about 180,000 people currently have a valid C&Q level.

## Assigning the Brightest Minds to Develop Even Brighter Ones

14,000+

trainers selected

670+

trainers presented with a gold medal award

Huawei has an effective system for employee training and development. Our NEO program helps new hires understand and integrate into the company. Our manager development programs help first-line managers, project managers, and other managers hone their skills and maximize their value. For our senior managers, we have launched the Senior Management Seminar, which helps them broaden their horizons and better understand company strategies. Our Strategic Reserve involves different lines of business across the company. Combining training and hands-on practice, the Strategic Reserve helps participants take what they have learned and apply it in real-world projects to improve their skills.

We believe that the brightest minds can develop even brighter ones. That's why trainers at Huawei are all outstanding managers and experts from different business domains. Presidents at all levels also talk with employees face to face and answer their questions during the Strategic Reserve training, meetings with new employees, and senior management training. Between 2013 and 2020, we selected more than 14,000 trainers, including 2,000 local trainers. More than 670 trainers, including 80 local trainers, were presented with a gold medal award. We pay trainers for their training, which is a recognition of their contribution to developing a highly skilled workforce at Huawei.

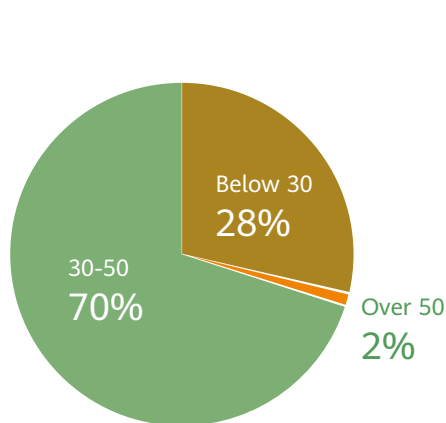


Huawei Carrier Business HR Director meets mentors for new employees

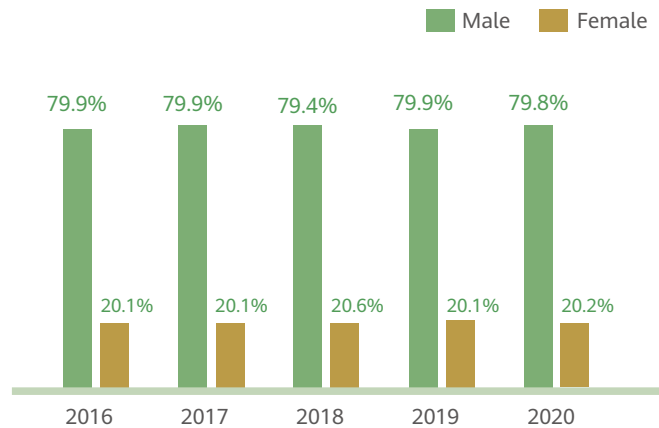


## Diverse and Inclusive Workforce

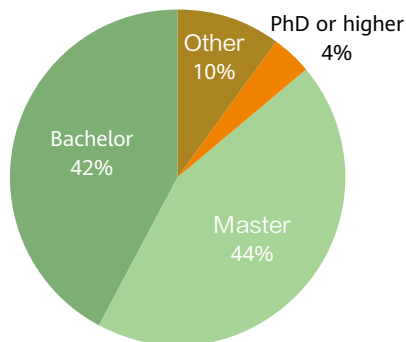
As a global company, Huawei has employees from 162 countries and regions. Among our Chinese employees, 49 different ethnic groups are represented. Outside of China, we aim to hire local professionals and work to build a diversified workforce. As of December 31, 2020, Huawei had approximately 197,000 employees worldwide, 53.4% of whom (about 105,000 employees) work in R&D. In 2020, we made more than 3,400 local hires in our offices outside China, and local hires made up 69% of our overseas workforce. This is one of the ways we create jobs and economic opportunities for local communities.



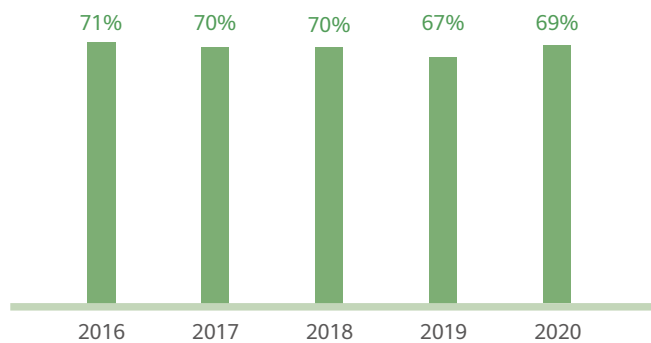
Employee ages (2020)



Male and female employees (2016-2020)



Level of education



Overseas workforce localization rate\* (2016-2020)

\* Overseas workforce localization rate = Total number of local hires / Total number of employees in overseas offices × 100%

Huawei values diversity in the workplace and is committed to creating an inclusive workplace where all employees enjoy equal opportunities. We respect the lifestyles of all of our employees and encourage our departments and local subsidiaries to engage with their staff in the most appropriate way. We do not interfere with rights of minority groups to practice their beliefs and customs; instead, we create an environment that makes it easier for them to do so.

For example, Huawei has opened prayer rooms on its campuses in a move to meet the needs of employees of various faiths. We also run facilities like gyms, libraries, cafes, and lactation rooms on our campuses, as part of our efforts to provide services that meet the diverse needs of our employees.

When it comes to employee recruitment, compensation, and promotions, we do not discriminate against anyone based on factors like race, nationality, descent, religion, disability, gender, sexual orientation, marital status, and age.

We prohibit the use of child labor or any other forms of forced or involuntary labor, and we have effective policies and measures in place to prevent the use of child labor and forced labor, covering each major phase of an employee's relationship with the company, including recruitment, employment, and exit. We also require the same of our suppliers, and conduct regular audits to ensure their compliance. No incidents of child labor or forced labor have ever taken place in Huawei's history.

We offer a supportive workplace and maintain effective mechanisms to ensure that our employees' voices are heard. We are working to establish positive relationships with our employees. For example, we gather our employees' opinions and suggestions through the Manager Feedback Program (MFP), the organizational climate survey, self-reflection sessions, the manager open day program, and more. Employees can file complaints and seek assistance through channels such as the complaint hotline of the Committee of Ethics and Compliance (CEC) and the internal service hotline.



Library



Gym



Prayer room



Cafe

Facilities on Huawei campuses that meet employees' diverse needs





## Building Bridges for Cross-cultural Communication



Huawei cross-cultural awareness training

Globalization demands the integration of diverse cultures. Huawei attaches great importance to global and diversified operations. We have launched multiple training courses, such as Diversity Management, Adaptation for International Assignments, and Cross-cultural Awareness, in an effort to facilitate communication between Chinese and local employees, enhance the cross-cultural awareness of managers and employees, and build a diverse team with mutual trust. Chinese expatriates must study these courses and pass related exams, while new hires outside China must complete these courses as part of their onboarding training. This can help both Chinese expatriates and local new hires adapt to a different culture and integrate into their teams.

In 2020, the company required all Chinese employees holding positions that target the global market to use English as their working language, and pass relevant certifications\*. By the end of December 2020, more than 8,300 Chinese employees and more than 2,200 Chinese managers had obtained relevant English certifications. In the future, we will continue to create a supportive environment for learning and using English to better support localization and easy communication with customers.

# 8,300+

Chinese employees and 2,200+ Chinese managers have obtained relevant English certifications

\* Anyone based in regions that speak languages other than Chinese and English (e.g., Spanish, Portuguese, French, Russian, and Japanese) can meet this requirement by obtaining certifications in the local language from a recognized institution.

# Business Ethics

We conduct business with integrity, adhere to standard business ethics, and observe all applicable laws and regulations in the countries and regions in which we operate. This is a guiding principle for our management team. For years, we have invested heavily in building a compliance management system that aligns with industry best practices and embeds compliance management into every link of our business activities and processes. These efforts continue to this day. We value and work hard to create a culture of integrity. All employees are required to comply with our Business Conduct Guidelines (BCGs).

The Huawei Compliance Management White Paper, released in 2020, draws on our extensive experience in compliance management as well as on international standards, guidelines, and best practices. It describes how we manage compliance in a risk-based manner, while accommodating the characteristics of different countries and business domains.

Building a professional compliance management team is a long-term effort. In every country or region where we operate, we appoint full-time compliance officers who manage and oversee the operational compliance of local subsidiaries. In particular, we have taken the following steps to ensure local compliance:

- Compliance is included in the key performance indicators (KPIs) for every team. We adopt a reward and discipline mechanism for good/poor compliance records, and steer subsidiaries' investment in compliance management.
- Guided by Huawei's general compliance requirements, all subsidiaries develop their own compliance management

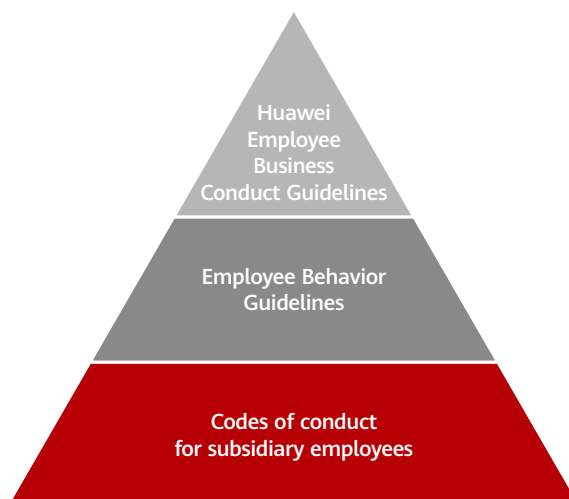
policies and systems with reference to local laws and regulations, to ensure that all of our business activities comply with local law.

- Subsidiaries identify and analyze compliance risks, and on that basis set annual compliance objectives, develop and implement control measures, and regularly review progress to ensure that the measures are effectively implemented.
- Self-assessments, checks by compliance oversight bodies, and independent internal audits are conducted to assess whether compliance management mechanisms are effective. These assessments inform continuous improvement in compliance management.

Huawei is committed to building a culture of compliance and an atmosphere of integrity. Our senior management team leads by example and lives our core value of integrity. The company runs a variety of awareness programs – including internal communications, training, and exams – that remind employees of their obligations and responsibilities in compliance.

In 2020, Huawei continued to enhance our compliance program across multiple domains, including anti-corruption, anti-bribery, protection of intellectual property and trade secrets, trade compliance, financial compliance, cyber security, and privacy protection. We have engaged and collaborated openly and proactively with stakeholders including our customers, partners, and government regulators, to foster mutual understanding and trust. Through ongoing efforts to strengthen compliance, Huawei continues to win the respect and approval of governments and partners around the world.

## Huawei Employee Business Conduct Guidelines + Codes of conduct for subsidiary employees: Incorporating compliance requirements into employee behavior





## Anti-corruption and Anti-bribery

Huawei has zero tolerance for bribery or corruption. In every country in which we operate, we conduct all business under a legal framework that supports fair competition and opposes bribery and corruption. We place our obligation to fight bribery and corruption above our own commercial interests, and we are working to ensure that our business is conducted in a fair and transparent manner.

- We are strengthening our anti-bribery and anti-corruption compliance system in four ways: a culture of compliance, governance and oversight, compliance risk assessment and prevention-discovery-response techniques, and continuous operations. We regularly conduct compliance audits to identify potential compliance risks in all business scenarios, develop targeted control measures, and embed these measures into our business activities and processes.
- Huawei values and works hard to create a culture of integrity. All employees are required to study, sign, and comply with the company's BCGs and anti-corruption policies. Our customized training addresses the different risk scenarios in different countries and regions where Huawei operates, and is available for different employee groups. Training content is distributed in many ways, such as video, forums, and dedicated online training channels, in order to facilitate learning. All partners of Huawei – whether

they are directly providing services and fulfilling their contractual obligations to Huawei, or providing services and fulfilling their contractual obligations to Huawei customers or other third parties on behalf of Huawei – are also required to comply with all applicable laws and regulations, industry ethical standards, and Huawei's Anti-corruption Policies for Partners, Huawei Supplier Social Responsibility Code of Conduct, Code of Conduct for Partners of Huawei, and Honesty and Integrity Agreement.

- We have established complaint channels through which employees and other parties can report violations. When Huawei receives a complaint, we launch an investigation and protect the whistleblower from any form of threat or retaliation by keeping their identity secret.
- We continually communicate with our stakeholders (e.g., industry peers, consultants, partners, and NGOs) about compliance, clarifying our position and views on anti-bribery and anti-corruption. This helps ensure that all stakeholders have a clear understanding of Huawei's compliance regulations and policies.

For details about Huawei's statements and policies on anti-corruption and anti-bribery, please visit [www.huawei.com/en/](http://www.huawei.com/en/)



Anti-corruption training at Huawei Thailand

## Intellectual Property and Trade Secret Protection

Huawei is dedicated to its long-term investments into R&D and continuously enriching its intellectual property (IP) portfolio. Huawei is one of the world's largest patent holders. By the end of 2020, Huawei held more than 100,000 active patents, across over 40,000 families. The company believes that respecting and protecting IP is the foundation of innovation. As a follower and practitioner of IP rules, and a contributor to those rules, as well as an innovator, Huawei has reached cross-license agreements with major ICT companies around the world. We also work tirelessly to improve the environment for protecting innovation and IP in the industry and across countries and regions.

Huawei is committed to protecting its own IP and trade secrets, while respecting those of others. We explicitly prohibit our employees from improperly acquiring, disclosing, using, or disposing of trade secrets of others. Specifically, the key measures Huawei has taken to protect the trade secrets of others include:

- Issuing the Regulations on Respecting and Protecting Third Party Trade Secrets, which sets out clear rules that employees must follow to respect and protect trade secrets of others during business activities and ensure that employees carry out business activities legally and in accordance with our contracts.
- Embedding trade secret protection requirements into business processes such as R&D, sales, procurement, and HR, conducting regular reviews, and continuously improving management mechanisms by taking away lessons and case studies from day-to-day operations.
- Organizing publicity, training, and exams on trade secret protection for all employees, so that they are all fully aware of the obligations and responsibilities they have in terms of trade secret protection compliance.
- Conducting supervision, including checks and audits, to examine efforts aimed at protecting trade secrets of others and thus ensuring effective implementation of policies, rules, and processes.
- Establishing an accountability system based on official corporate policies such as the Accountability Protocol for Infringements of Other Parties' Trade Secrets and the Accountability Rating Criteria for Information Security Violations to hold violators accountable.



**Huawei has one of the largest patent portfolios in the world**

By the end of 2020, Huawei held a total of 100,000+ active patents, across 40,000+ families.

Every year, Huawei invests over 10% of its sales revenue into R&D.



Huawei's R&D investment over the past decade has exceeded CNY720,000 million.







## Trade Compliance

Huawei has long been dedicated to complying with all applicable laws and regulations of the countries and regions in which it operates. These include all applicable export control and sanction laws and regulations of the UN, China, the US, and the EU. We have expended immense effort for more than 10 years to establish a mature and sustainable internal system for trade compliance in line with industry best practices and to constantly improve this system.

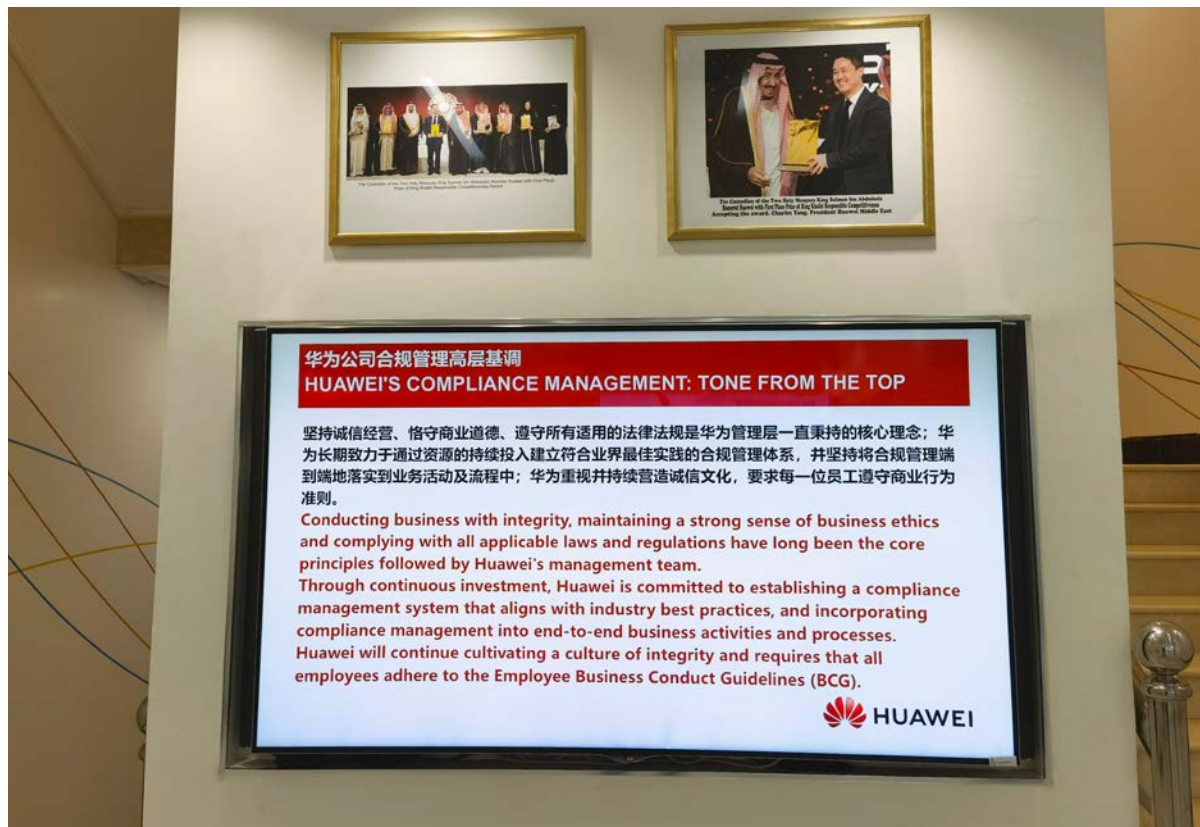
Following industry best practices, we have established an integrated trade compliance management department within the company. This department manages trade compliance across both group functions and field offices. We have also established specialist teams in our global offices that monitor changes to local laws, integrate trade compliance into the company's rules and processes, and manage and oversee trade compliance in each link of our business operations, from procurement, R&D, and sales to supply and services.

Huawei continuously works to push employees to further their own trade compliance awareness. Every

employee must sign the BCGs each year, which includes a commitment to comply with all applicable export control laws and regulations. Huawei provides training sessions on trade compliance to managers and employees across the company, and the format of this training varies from session to session. These efforts, combined with targeted training for specific business scenarios, help employees to fully understand the company's and their own responsibilities and obligations for export control.

Since Huawei Technologies Co., Ltd. and some of its affiliates were added to the Entity List by the US Department of Commerce, the company has reiterated the importance of compliance with export controls and has worked to ensure control measures are in place. We have also maintained communication with our customers, suppliers, and other partners, enhancing mutual understanding and trust.

For details about Huawei's statement of compliance with export control regulations, please visit [www.huawei.com/en/](http://www.huawei.com/en/)



Compliance publicity at Huawei's subsidiary in Saudi Arabia

# Supply Chain Responsibilities

Huawei manages our sustainability in line with industry best practices and globally recognized standards. Sustainability plays a vital role in our procurement strategy and is a key part of our supplier management process, from supplier qualification and selection to performance appraisals and day-to-day management. We regularly appraise suppliers' sustainability and facilitate their ongoing improvement by working closely with customers, suppliers, industry organizations, and other stakeholders.

As part of our efforts to fight COVID-19, in 2020 we incorporated pandemic prevention into our CSR requirements for procurement, and helped suppliers purchase necessary supplies.

## Procurement CSR Management System

Huawei developed our comprehensive procurement CSR management system and our Supplier CSR Agreement based on the United Nations Guiding Principles on Business and Human Rights; the OECD Guidelines for Multinational Enterprises; the International Labour Organization's Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy; the Responsible Business Alliance's Code of Conduct; the Joint Audit Cooperation's Supply Chain Sustainability Guidelines; and the IPC-1401 Supply Chain Social Responsibility Management System Guidance.

Huawei requires that all suppliers sign and abide by the Supplier CSR Agreement. This agreement covers areas like labor standards, safety and health, environmental protection, business ethics, and management systems. Huawei sees the use of child labor or forced labor as a red line issue, and regards compliance in this respect as a prerequisite for supplier qualification. We have zero tolerance for violations of CSR red lines, and will immediately terminate relationships with any supplier that breaches these rules.

In furtherance of our goal of sustainable procurement, we regularly deliver CSR training to all procurement staff. This training covers procurement CSR agreements, red lines, processes, and audit practices. CSR requirements are incorporated into the performance indicators of all teams in our procurement department.

## Supplier Risk Rating and Auditing

Huawei adopts a risk-based approach to supplier audits. Every year, we audit all major suppliers. Combined, these suppliers represent 90% or more of our procurement spending. We assign each supplier one of three risk ratings (high, medium, or low) after a comprehensive assessment of

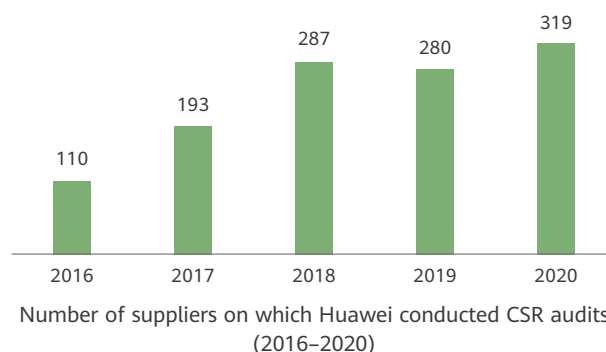
indicators such as procurement amount, material category, supplier locations, severity of CSR risks, and CSR score from the previous year. We develop an annual sustainability audit plan to deal with suppliers that are assessed as posing a medium or high risk.

We perform onsite assessments on all potential suppliers to examine their sustainability systems, their capacity to comply with applicable laws, regulations, and the Supplier CSR Agreement, and their actual level of compliance. No company that fails the assessment is eligible for consideration to become a Huawei supplier.

We have developed our Supplier CSR Audit Checklist which references industry best practices and is adapted to the specific features of our suppliers. This checklist is regularly reviewed and updated. The CSR audit covers issues including prohibition of child labor, modern slavery, and forced labor; protection for underage workers; prevention of discrimination and punishment of employees; freedom of association; working hours; wages and benefits; fire control; safety and health; environmental protection; carbon emissions reduction; business ethics; and management of the CSR practices of tier-2 suppliers.

We conduct supplier CSR audits using internationally recognized methods, such as onsite inspections, employee interviews, management interviews, documentation reviews, and online searches. We use the Blue Map developed by the Institute of Public and Environmental Affairs (IPE) to assess suppliers' compliance with environmental requirements. Prior to audits, we provide suppliers with coaching on CSR self-assessments. During audits, we arrange for experts to work onsite with suppliers so that they can identify problems and suggest improvements.

In 2020, we assigned CSR risk ratings to more than 1,600 major suppliers, and conducted onsite audits on 319 suppliers, including new suppliers and current suppliers that posed medium or high risk. 116 of these suppliers were audited by third-party auditors.



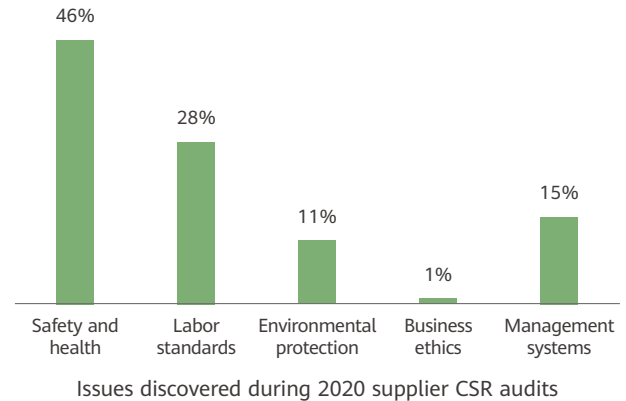


If we discover a problem during an onsite audit, we help the supplier resolve the issue using the CRCPE methodology (check, root cause analysis, correct, prevent, evaluate). This methodology helps suppliers to identify common problems and develop targeted solutions.

## Supplier Performance Management

Every year, Huawei appraises suppliers' overall performance based on their sustainability performance, onsite audit results, and improvements made. When we appraise the sustainability performance of our suppliers, we take into account how they manage their suppliers' sustainability. We encourage our suppliers to develop a CSR management system based on the IPC-1401 Supply Chain Social Responsibility Management System Guidance. Suppliers are classified into four grades (A, B, C, and D) based on their sustainability performance.

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



other factors are equal, suppliers that perform well in sustainability are given a larger share of business or more business opportunities. The reverse is true for low-performing suppliers. Depending on the situation, we may instruct suppliers with poor sustainability performance to resolve existing issues within a specified timeframe; or we may reduce their share of business or offer them fewer business opportunities; or we may even terminate our business relationships with those that display exceptionally poor performance.

## Managing CSR of Tier-2 Suppliers



CSR audit at a tier-2 supplier

Our Supplier CSR Agreement requires our suppliers to extend our CSR requirements to their suppliers

(tier-2 suppliers). When we appraise suppliers' sustainability performance, we also take into account the sustainability records of their suppliers.

In 2020, we helped 33 suppliers develop systems for better managing CSR in their own supply chain. Actions taken include defining management responsibilities, providing internal training, adopting industry standards, drafting CSR agreements, qualifying new suppliers, rating supply chain risks, performing audits on suppliers, linking CSR performance with business opportunities, and developing a reward and discipline system. These 33 suppliers signed CSR agreements with nearly 4,000 tier-2 suppliers, and conducted CSR audits on nearly 400 tier-2 suppliers. We conducted onsite checks on four tier-2 suppliers to confirm that our suppliers' procurement CSR management systems were effective.

## Supplier Capability Improvement

Huawei regularly provides sustainability training and coaching for our suppliers. We ask our suppliers to adopt industry best practices and to embed sustainability requirements into their business strategies in order to reduce risk and boost their efficiency.

We are aware that each supplier brings unique experience and competencies to sustainability that may benefit their peers, so we encourage our suppliers to learn from each other and grow together through benchmarking. Based on our many years of experience, we have developed a cost-effective and efficient "Learning by Benchmarking" model for suppliers. This model includes the following steps:

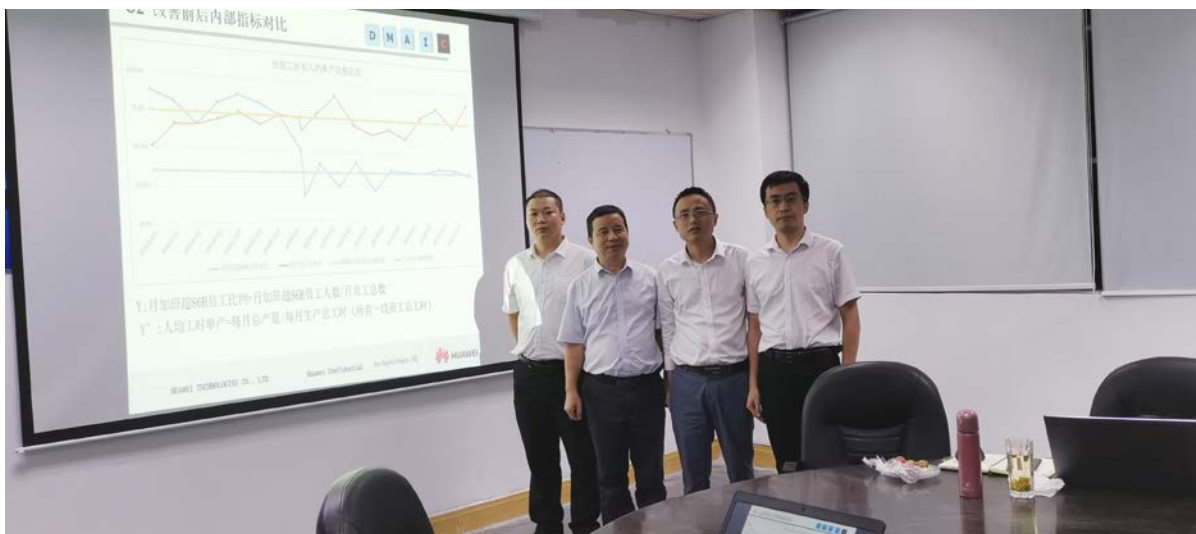
- Setting priorities: We ask suppliers about their CSR concerns, list the most common issues, and rank them in order of priority.
- Identifying benchmarks: We identify which suppliers perform best, and analyze their best practices.
- Sharing and learning: We invite the benchmark suppliers to share their best practices, and encourage all suppliers to learn industry standards and norms.
- Implementation: We ask experts to develop templates and checklists, and help suppliers assess their own performance and introduce best practices.

### Helping Suppliers Address Overtime Issues with the Six Sigma Methodology

Employees working excessive hours is one of the major concerns among our suppliers. There are many factors for this issue, including high volumes of orders, poor manufacturing planning, lack of materials, low skills, and poor working processes. Relevant stakeholders include customers and suppliers as well as company sales, manufacturing, procurement, and human resources departments.

Huawei has been working with a supplier to test how the Six Sigma methodology can help prevent excessive

overtime on an ongoing basis. The supplier analyzed when and where overtime was most likely to occur, factors that led to excessive overtime, and problems in business and manufacturing processes. Then the supplier developed targeted solutions, such as identifying process bottlenecks, manufacturing automation, more training sessions, better staff retention in key positions, cross-departmental information sharing, more communications with customers and suppliers, and better manufacturing plans. All of these solutions resulted in less overtime and higher efficiency.



Huawei-led training on how a supplier should address excessive overtime issues





## Stakeholder Engagement

Huawei engages actively with all stakeholders on sustainability issues. We hold CSR-themed workshops with customers and suppliers, invite customers to visit supplier facilities, conduct joint supplier audits with customers, run supplier capability improvement programs, discuss sustainability issues with industry peers, and contribute to industry standards. All of these efforts are part of Huawei's commitment to creating a more transparent and sustainable supply chain together with all stakeholders.

### Supply Chain Transparency Surveys with Customers

Supply chain transparency is one of the major concerns for our customers. In recent years, Huawei has carried out a number of surveys in partnership with our customers so that they can hear directly from the people who work in our supply chains. In 2020, Huawei and Deutsche Telekom ran an online survey through a mobile phone app. The survey process was very user-friendly: Supply chain workers scanned a QR code and then gave anonymous, confidential answers to questions of concern to Deutsche Telekom.

These surveys allow respondents to speak their mind, and provide a bridge that connects supply chain workers to customers. They are also an opportunity to assess the effectiveness of our CSR audit mechanisms. Huawei and our customers use survey results as input to help suppliers identify opportunities for improvement, and we encourage our suppliers to use similar tools to collect feedback from their own workers.



A supply chain transparency survey organized by Huawei and one of our customers

## EHS for Engineering Service Suppliers



EHS training and protective equipment for our engineering service suppliers

Huawei has taken a number of measures to continuously enhance engineering service suppliers' EHS management. We use digital technologies to manage EHS risks; monitor serious risks in real time; use AI to identify EHS rule violations; have automatic warnings triggered by preconfigured risk indicators; and provide videos covering all EHS scenarios.

We encourage our engineering service suppliers worldwide to build and maintain effective EHS management systems and to obtain ISO 45001 certification. To improve suppliers' EHS awareness and skills, Huawei has launched an EHS capability development program. This program helps suppliers to continually improve their own EHS performance by boosting EHS leadership, managing processes more effectively, carrying out their own EHS

assessments, and creating EHS incentive programs. As of the end of 2020, the CEOs of more than 2,500 Huawei engineering service suppliers have signed the CSR and EHS commitment letter.

To support the fight against COVID-19, in 2020 Huawei and our partners continued to build networks in affected areas as requested by carriers and governments, to provide essential communication services. Huawei's Guide to Safe Construction and Protection in Affected Areas encourages partners to take effective preventive measures, to work safely, and to reduce the risk of infection by providing clear instructions to staff on how to work before, during, and after construction, and on how to handle emergencies.



## Helping Production Suppliers Resume Work Safely During the COVID-19 Pandemic



Medical supplies provided by Huawei to a production supplier

In early 2020, the COVID-19 outbreak halted the operations of many of our production suppliers, which in turn threatened our supply chain. Huawei took the following actions to help our production suppliers resume work safely:

- Risk identification: We identified suppliers that faced high risk, listed the affected materials and their codes, and explored solutions together with the suppliers and local government.
- Experience sharing: We sent a Proposal for Ensuring Effective Pandemic Prevention and Control to

more than 500 suppliers, and provided a Checklist on Onsite Pandemic Prevention and Control for Production Department in four languages (Chinese, English, Japanese, and Korean). The checklist includes 94 items in 18 categories across 4 dimensions. We also shared Huawei's best practices in COVID-19 prevention and control.

- Medical supplies: We worked with medical institutions to create purchase channels for face masks, with steady supply, standardized pricing, centralized distribution routes, and demand-driven allocations.
- Workforce assurance: We collaborated with the Human Resources and Social Security Bureaus of Shenzhen and Dongguan to develop and implement transportation plans that enabled over 500 of our suppliers' key employees to safely return to work after Chinese New Year.

Through our joint efforts, we helped our major suppliers quickly resume work. This allowed us to maintain on-time delivery of customers' key projects, and support smooth communications during the COVID-19 pandemic.

## Responsible Management of Minerals

Huawei is committed to responsible procurement of products containing raw materials such as tin, tantalum, tungsten, gold, and cobalt. We comply with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and the Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains. In collaboration with industry peers, we encourage suppliers to take proactive steps to reduce the risk that minerals contained in their products may directly or indirectly support human rights abuses, harm the environment or personal health and safety, or breed corruption.

As a member of the Responsible Business Alliance (RBA), we work with companies around the world to address issues of conflict minerals through the Responsible Minerals Initiative (RMI). We use the RMI conflict minerals questionnaire to

survey the supply chain. This enables us to trace the sources of minerals used in the products we buy from our suppliers, and identify a complete list of originating smelters. Survey results are shared with our customers.

In 2020, we shared the survey results with 20 customers. We also participated in a number of industry-wide campaigns seeking viable solutions to conflict mineral issues.

As a member of the Responsible Cobalt Initiative (RCI), Huawei has published the Huawei Statement on Responsible Mineral Supply Chain Due Diligence Management (visit [www.huawei.com/en/](http://www.huawei.com/en/) for details). We have drawn a cobalt supply chain map, identified supply chain risks, commissioned third-party audits, and informed customers about our cobalt due diligence.

### Sharing Best Practices at the 2020 International Forum on Sustainable Mineral Supply Chains



2020 International Forum on Sustainable Mineral Supply Chains

At the Forum on Responsible Governance and Challenges of Cobalt Supply Chains, Huawei participated as a representative of customers of cobalt products, and shared our best practices in building a more sustainable supply chain. This event was held as part of the 2020 International Forum on Sustainable Mineral Supply Chains (SMISC Forum) and the Week of Sustainable Supply Chains in December 2020. The practices shared by Huawei were welcomed by the organizations in attendance.

Convened by the China Chamber of Commerce of

Metals Minerals & Chemicals Importers & Exporters, the SMISC Forum had the theme of "Rule Change and Governance Improvement in New Era," and addressed a range of topics, including responsible mineral tracing, responsible governance and challenges in the cobalt supply chain, and the European Union's regulations on conflict minerals. The forum provided a platform for industry leaders and experts from international organizations, government agencies, standards bodies, businesses involved in mineral supply chains, and investors to share best practices and find better ways towards sustainable development.



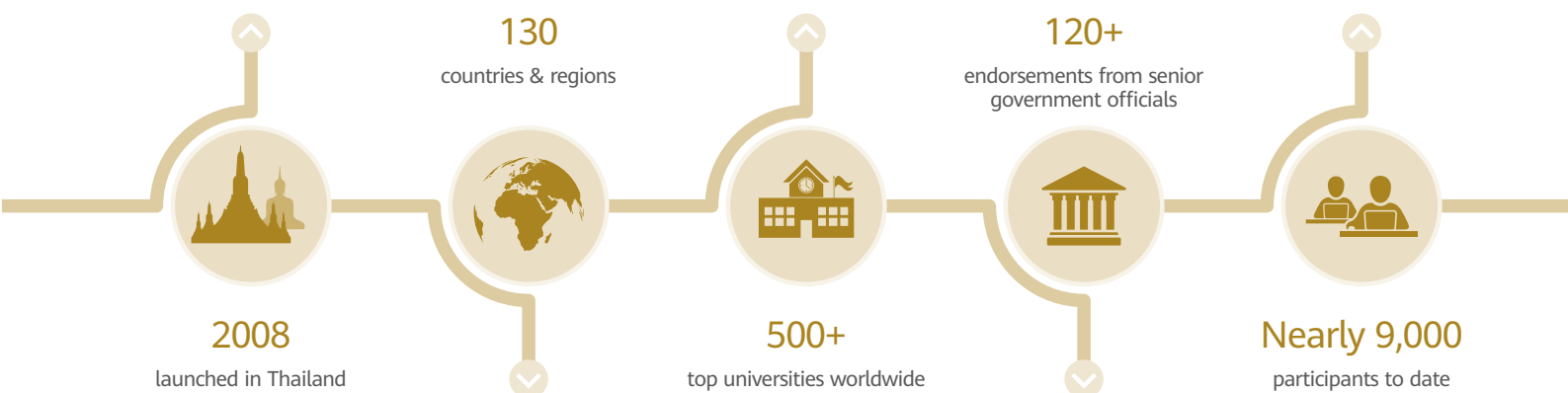


## Community Responsibilities

Huawei is an active, productive member of the communities in which we operate. We believe in the power of communication, and work to promote digital inclusion and socioeconomic development in local communities using ICT solutions. We value collaboration, and work with governments, customers, and non-profit organizations to organize a wide range of charitable activities. From cultivating ICT skills to promoting gender equality and fighting COVID-19 with technology, our efforts have a positive and ongoing impact on local communities.

### Seeds for the Future Program

Launched in 2008, the Seeds for the Future program is Huawei's longest-lasting flagship CSR program, and the one in which we have invested the most. This program helps train highly-skilled ICT professionals in the countries and regions where Huawei operates, and facilitates local ICT industry development. The program brings together outstanding students from all over the world, and provides them with opportunities to learn about advanced ICT solutions and engage with global industry leaders and experts. The experience they gain in cross-cultural communication helps them broaden their horizons and learn more, sowing the seeds for their future success in the ICT industry.



## First Online Seeds for the Future During the COVID-19 Pandemic

# 3,000+

students from 100+ countries participated in the online program

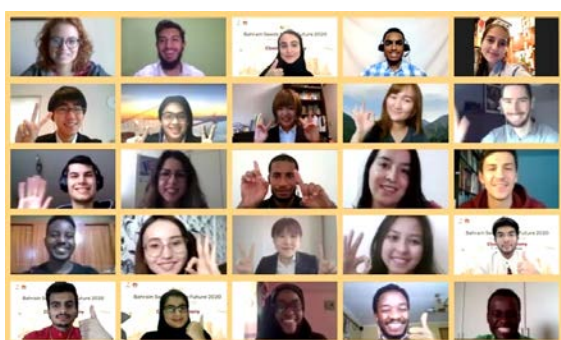
Because of the COVID-19 pandemic, the Seeds for the Future program was held online for the first time in 2020. COVID-19 has isolated many people, but the Internet has reconnected the world. As online programs are not subject to geographical limits, we were able to hold a range of activities to expand the program's scope and influence. Ultimately, the 2020 program attracted more than 3,000 students from over 100 countries, of whom one third were women.

We have established a permanent open learning platform for this program, through which participants are able to access online courses and resources anytime, anywhere. We organized a series of live webinars where industry experts, professors, researchers, and enterprise executives discussed global hot topics with the young students and answered their questions. We also encouraged Huawei's local offices to design localized extension courses. The Seeds for the Future 2020 program still had opening and closing ceremonies, to which we invited local government officials, key opinion leaders, and researchers so that they could see how the students had developed and learned. More than 400

stakeholders engaged with the students as part of the program, and gave very positive feedback.

2020 marked the 12th anniversary of the Seeds for the Future program. We have created an alumni group for all participants of the program on LinkedIn. This provides them with an avenue where they can make friends with peers in the ICT industry anytime they want. In the alumni group, we push posts, polls, and videos about ICT skills, career development experience, and alumni news. We also organize activities specifically for program alumni, such as online forums and dialogues with experts. At the end of 2020, we held the first online year-end celebration of the Seeds for the Future program, bringing together more than 2,400 alumni from more than 110 countries and regions. Together, we bid farewell to 2020 in a positive and enjoyable way.

For more information about the Seeds for the Future program, please scan the QR code:



Participants in the Seeds for the Future program attending online training



An alumnus of the Seeds for the Future program watching the 2020 online year-end celebration



## Guinea: The Seeds for the Future Program Helped Students Win Major Internship Offers



Students at the opening ceremony of the Seeds for the Future program in Guinea

In October 2020, Huawei launched the second Seeds for the Future program in Guinea. This program aims to help local ICT students keep pace with the forefront of digital transformation. The Guinean President, Minister of Education, Minister of Telecommunications, representatives from local carriers, and more than 150 guests from universities attended the opening ceremony and extended heartfelt congratulations and encouragement to the participating students. President Alpha Condé called on the students to value this program and seize the opportunities it offered to learn more about ICT and other relevant skills. He said he hoped that the students would help drive the Fourth Industrial Revolution and contribute to faster local socioeconomic development.

Because of COVID-19, the program combined online and offline training to give students the best possible experience. Huawei Guinea worked with the Telecommunications Ministry, Education Ministry, and charitable organizations to provide participants with the devices and online resources they needed to learn new ICT skills, and encouraged them to learn

independently. During the program, there was a period when participating students lost network connection due to a country-wide network outage, but the students continued to learn and quickly caught up with the courses after the networks were restored. In the end, all participants earned their graduation certificates, and 10 top-performing students received internship offers from major companies in Guinea.

“

The Seeds for the Future program has met all our expectations. Through this program, we have enriched our understanding, and made new friends. The training on 5G, AI, and cloud computing in particular will help us grow and contribute to the industry in Guinea. ”

— Oumar Traore, who came first in the second Seeds for the Future program in Guinea

## Creating Value for Local Communities

As a responsible corporate citizen, Huawei actively organizes charitable activities in the countries and regions where we operate. We work with partners, including governments and both international and regional organizations, to benefit and support local communities. Over the years, Huawei has carried out a range of charitable activities and offered voluntary services to address problems facing local communities, facilitate the development of local culture, art, and sports, protect the environment, and support vulnerable groups.

In 2020, Huawei organized more than 650 charitable activities around the world. We stood with local communities through thick and thin, whether facing the outbreak of COVID-19 or supporting long-term projects like fostering digital skills.

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### Italy: Fighting COVID-19 Together, Giving Technology a "Human Touch"

In February 2020, COVID-19 began to spread rapidly across Italy. Italian hospitals and regional governments were confronted with unprecedented pressure and challenges. At that critical moment, Huawei worked with partners to provide pandemic prevention supplies, digital devices, and other assistance to Italian regional governments, hospitals, and communities. We showed our care for the Italian people and stood with them to weather the challenging time together.

#### Donation of Materials

As the virus spread rapidly in Italy, basic healthcare supplies were in serious shortage. Huawei donated supplies to

the Civil Protection Department, a number of regional governments, hospitals, and partners responsible for the operation of Italy's infrastructure, to help protect the health and safety of local residents.

#### Healthcare Service Support

The COVID-19 pandemic also put heavy pressure on local healthcare resources, and all hospitals were quickly overwhelmed. To help hospitals diagnose and communicate with patients more efficiently, and to cut the workload of medical staff, Huawei donated videoconferencing systems, network gateways, and AI-powered diagnostic equipment to many hospitals across Italy. Huawei also supported online meetings between Chinese and Italian hospitals so that they could discuss their respective experience with the disease.

#### More than Medical Care

People in the pandemic particularly need warmth and care from others. Together with our partners, Huawei donated electronic devices to critically ill patients and locals who were quarantined at home so they could better communicate with their families and friends even though they were physically separated. This gave technology a human touch. Huawei also sponsored the online charity concert The Heart of Jazz, held by the Italian Red Cross. The concert paid tribute to people working on the front lines against COVID-19, and collected donations to support them. It was broadcast live in 11 countries across Europe.



Experts from Italian and Chinese hospitals discussing COVID-19 prevention and control using Huawei's videoconferencing system





### Japan: Fighting COVID-19 with Technology to Weather the Challenge Together

When the COVID-19 pandemic reached Japan, the country faced a serious shortage of local medical supplies. Meanwhile, attempts to import supplies from abroad were frustrated as a large number of international flights had been suspended. After overcoming many difficulties, Huawei managed to find a way to ship these urgently needed supplies to Japan. Huawei also sent its own staff to warehouses in Japan where they worked around the clock to ensure that the supplies were promptly distributed to people in need.

Huawei installed videoconferencing systems for multiple hospitals, local governments, and education committees in Japan, to help hospitals become more efficient and better communicate with other organizations. Huawei also provided assistance to the Kansai Economic Federation COVID-19 Medical System Foundation to help Japan's medical institutions improve their treatment systems for critically ill patients.



Huawei donating pandemic prevention supplies to Aichi Medical University in Japan

### South Africa: Building a Better Future for Kids with DigiSchool

According to the Progress in International Reading Literacy Study, 78% of South African fourth-grade students lack basic English reading comprehension abilities.

To improve this situation, Huawei launched the DigiSchool project together with South African carrier Rain and non-profit education organization Click Foundation in July 2020. Following calls from the South African government, this project aims to ensure that all children can fluently read and understand their course content before they finish the third grade.

The project plans to connect 100 local primary schools to the Internet within a year. As part of the project, Huawei provides connectivity devices and funds to Click Foundation and high-quality learning resources to schools. Rain provides the 4G and 5G networks needed to connect the schools. By the end of 2020, this project had connected 29 schools, benefiting more than 22,000 students.



Huawei South Africa's DigiSchool project

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## India: Vocational Skills Training Center Helping Students Find Jobs



The Vocational Skills Training Center in India helps its students get jobs

In March 2020, India entered a nationwide lockdown in response to the spread of COVID-19. Huawei India quickly moved the courses it was already offering through its Vocational Skills Training Center to an online platform and encouraged students to continue studying.

As India began gradually lifting lockdown restrictions in June, the center's faculty visited 436 families and enrolled 57 new students. They also improved students' learning experience by offering learning materials and online courses during these visits. The center also provided offline courses of appropriate size for students who did not have smartphones. This ensured that young people in rural areas had equal access to vocational skills training and employment guidance during the pandemic.

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## Central America: Digital Education Ensuring School Continuity Despite Lockdowns

Because of COVID-19, basic education could not continue in many countries in Central America and the Caribbean. Huawei provided local schools with cloud solutions and devices using our ICT solutions. Huawei also partnered with UNESCO to plan and carry out digital education projects in multiple countries, ensuring that schooling could continue despite the lockdown.

In Panama, Huawei provided cloud solutions and platform resources to help Ayudinga, an online education charitable organization, develop better content for their digital education platform, which is available to students throughout all of Spanish-speaking Latin America, from Mexico to Argentina. This support was widely praised by international organizations, governments, and local education institutions.

In El Salvador, Guatemala, Costa Rica, and Panama, students in remote, under-developed areas lacked the digital devices needed for online learning, so Huawei provided new devices to ensure they had equal access to education during the pandemic.



Huawei signing an agreement with Ayudinga and the Panamanian government



## Promoting Gender Equality

According to the ITU, in 2019, the proportion of women using the Internet globally was 48%, compared to 58% of men. There is still a huge gap between men and women in terms of Internet access and usage, as well as participation and leadership in the technology sector. Huawei believes that in the digital era, more opportunities and support must be given to women to ensure they are competitive in the digital economy. This has been proven to promote social integration, inclusiveness, and diversity.

In 2020, Huawei Senior Vice President Chen Lifang became one of the founder members of the Chinese Chapter of the BRICS Women's Business Alliance (WBA) and signed the WBA Declaration. The alliance is committed to supporting the development of women entrepreneurs, and Huawei is active in calling for more training and better incentives for women in technology and innovation.

To this end, Huawei has launched the Women in Technology initiative to share the stories of some of the great women working at Huawei and to increase the visibility of gender equality issues. Huawei also participates in and organizes forums and summits around the world where women in the technology sector can make their voices heard and promote gender equality.

For more information about the Women in Technology initiative, please scan the QR code:



## Europe: HUAWEI4HER Program for Women in Technology

In 2020, Huawei launched a series of HUAWEI4HER activities across Europe to help boost women's voices in the technology sector. This program received positive feedback from people of all circles.

In March, Huawei held its first Women in the Digital Era event in Brussels where female tech experts shared their own experiences and discussed how to eliminate stereotypes and attract more women into the technology sector. They also shared stories about the positive role women have played in leading the fight against COVID-19 within the technology sector.

In June, Huawei hosted leaders from Finnish political, academic, and non-profit sectors to discuss Finland's successes in gender equality.

At the Huawei Innovation Day hosted in Poland in November, HUAWEI4HER was a key topic of discussion. The event included discussions and debates on how to improve gender equality, diversity, and inclusiveness in the technology sector.

In December, a Huawei representative delivered a keynote speech at the Women in Tech Summit in Poland. A female executive from Huawei Poland was named one of 15

Outstanding Women in Poland's 5G Industry. Huawei and a local foundation launched the Digital Inclusion program in the Businesswoman of the Year competition to motivate female tech entrepreneurs in relevant fields.

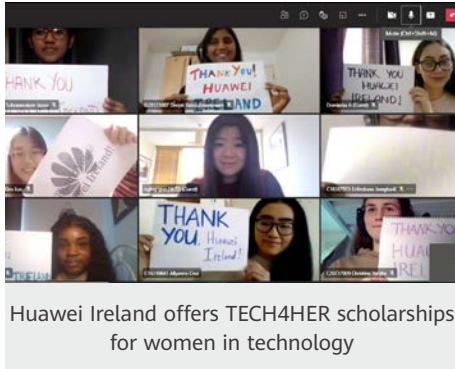
In addition, Huawei Europe published a series of Women Power Talks on its official website. In these videos, senior stakeholders shared stories about women's power in the technology sector, trying to expand the scope of the discussion around gender equality issues.



First Women in the Digital Era event in Brussels

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## Ireland: TECH4HER Scholarship for Women in Technology



In 2020, Huawei Ireland offered the TECH4HER Scholarship for women in technology at two Irish universities – the University College Dublin (UCD) and the Technological University Dublin (TU Dublin). In its first year, the program awarded scholarships to 11 female undergraduate and graduate students majoring in science, technology, engineering, or mathematics (STEM) at the two universities.

This scholarship supports women in STEM majors, and encourages more women to work in the ICT industry. Scholarship winners will also have opportunities to talk with mentors at Huawei R&D centers and to engage with experts from across the ICT industry.

Scholarships will be available to students at more universities, to provide coaching to groups that are underrepresented in the ICT industry, including women and students with disabilities.

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## Uganda: Supporting Female Entrepreneurs

In 2020, Huawei Uganda worked with the Uganda Communications Commission on the ICT Startup Competition. The winner of this year's competition, Vouch, was an app developed by female entrepreneur Evelyn Namara. This app serves as a government information sharing platform to help farmers in remote areas obtain information and resources from the government and NGOs. This app has improved local farmers' living standards by sharing information and increasing farm efficiency. Huawei Uganda provided assistance to Vouch and produced videos featuring the app. Vouch has now expanded its workforce to include eight full-time employees and attracted nearly 30,000 active users.

Namara's story has been widely publicized in local communities, in order to encourage more women to see ICT as a potential tool for realizing their dreams and helping the people around them.

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## Kenya: ICT Training for Women Through the WITH Initiative

In 2019, Huawei Kenya launched the Women In Technology Huawei (WITH) program. By working with industry partners, including the Kenyan carrier Safaricom, CIO magazine, and other channel partners, Huawei has organized a series of activities focused on many different groups and topics, including ICT training for aspiring female entrepreneurs working in SMEs, and industry events. The program is helping women improve their ICT skills and promoting gender equality across the industry.

In 2020, WITH organized a three-day ICT training program for female entrepreneurs working in SMEs in Kenya, covering AI, big data, cloud computing, and other cutting-edge technologies. By the end of 2020, more than 1,000 women had benefited from WITH activities.



Huawei WITH initiative: Promoting gender equality in the ICT industry



Huawei donations to DEA

## Cote d'Ivoire: ICT Skills Training for Women with DEA

In July 2020, Huawei Cote d'Ivoire started working with DynExcAfrica (DEA), a charitable organization for women. Huawei donated computers, laser printers, and other resources to DEA, and helped DEA improve their ICT education and training for young women in Cote d'Ivoire. Multiple training sessions and activities for women were hosted by Huawei with DEA's support.

## Respecting Human Rights

Huawei adheres to all applicable international and national laws and policies and develops products and services in compliance with international standards and certifications. Huawei respects all basic human rights as promoted by the Universal Declaration of Human Rights. We strive to ensure that our business activities will not adversely impact human rights. Huawei has been a member of the United Nations Global Compact (UNGC) since 2004, and has been a member of the Responsible Business Alliance (RBA) since 2018. In addition, Huawei is committed to the United Nations Guiding Principles on Business and Human Rights and standards released by the International Labour Organization (ILO), among others.

Huawei believes that connectivity is a basic right for every human being. We are committed to building better network connectivity and providing convenient and affordable information and communications services to billions of people around the world using our innovative technologies. Ubiquitous broadband and connectivity will create new jobs, promote development, decrease poverty, and improve quality of life. In addition, connectivity will help us respond to global challenges, reduce the human impact on the environment, and provide essential communications services to support rescue and relief efforts during natural disasters.

## Key Areas

Building on its existing corporate sustainable development organization, Huawei has strengthened its management of key areas that may have an impact on human rights.

This team is responsible for managing and overseeing any adverse impact on human rights that may exist within our business activities and supply chain.

- **Ensuring that technology is used to benefit humanity:**

Technology should be used to enhance human, social, and environmental well-being. Huawei opposes the misuse of technology that may have an adverse impact on human rights. We carefully evaluate the long-term and potential impact of our new technologies on society in the design, development, and use of our products, and work hard to ensure that our products and services are used in accordance with their commercial purpose. To address the unknown risks that may arise from the widespread use of new technologies, Huawei has expanded its existing processes and governance programs, and we are committed to working with our suppliers, partners, and customers to manage any potential negative impact of technology development.

- **Protecting privacy:** Huawei attaches great importance to privacy protection, and we take our responsibilities seriously. We comply with all applicable privacy laws worldwide, including the EU General Data Protection Regulation (GDPR). Huawei has embedded privacy protection requirements into our corporate governance and every phase of our personal data processing lifecycle. We follow the principles of privacy and security by design and by default and conduct privacy impact assessments before the release of any product or service, especially when they involve sensitive personal data or sensitive usage. Huawei also requires our suppliers to comply with requirements for personal data protection. A total of 473 Huawei privacy professionals have been certified by the International Association of Privacy Experts (IAPP), placing Huawei among the top companies globally.

- **Safeguarding labor rights:** Huawei supports and protects the rights of its employees through detailed, equitable regulations that cover all stages of an employee's relationship with the company, including recruitment, employment, and exit. We are committed to providing equal opportunities for all employees. When it comes to employee recruitment, promotion, and compensation, we do not discriminate against anyone on the basis of race, religion, gender, sexual orientation, nationality, age, or disability. We prohibit the use of forced labor, whether overt or covert, and all use of child labor.
- **Maintaining a responsible supply chain:** Huawei works closely with our suppliers. We comply with our customers' sustainability requirements and any audit requests. In turn, we require that our suppliers respect the rights of their employees, build sustainability systems that conform to industry standards, and comply with legal requirements with regards to environmental protection, health and safety, privacy, and anti-bribery compliance. Huawei has a comprehensive qualification process for all new suppliers, and carries out annual audits on current suppliers. All suppliers are evaluated based on their sustainability performance, the results of onsite audits, and the completion of any corrective actions.

Respecting human rights has been a long-standing focus for Huawei. In compliance with all applicable laws, regulations, and standards, we actively communicate with international organizations, governments, and industry institutions to develop human rights standards and guidelines in the use of new technologies, especially those technologies that are likely to be widely adopted. At the same time, we will continue optimizing management mechanisms to promptly identify, manage, and mitigate any related vulnerabilities or impact within our organization.

## Appendix I: Sustainability Goals and Performance

● Achieved ○ On track ○ Not achieved

No.	Sustainability Strategy	Goals and Initiatives	Progress	Status
1	Digital Inclusion	Roll out TECH4ALL projects that benefit 60,000 teachers and students from over 200 schools around the world	Achieved	●
2		Use digital technologies to help 22 protected areas in 18 countries manage natural resources and protect biodiversity more efficiently	Achieved	●
3		Huawei ICT Academy collaborates with 1,500 universities worldwide	Achieved	●
4		Huawei smartphones provide 15 accessibility functions	Achieved	●
5	Security and Trustworthiness	100% success rate in supporting network stability during major incidents and disasters	Achieved	●
6		Rectify over 90% of incidents within an hour	Achieved Actual rate: 96%	●
7		Assess, track, and manage the cyber security risks of more than 4,000 suppliers worldwide	Achieved	●
8		Sign data processing agreements with more than 5,000 suppliers and perform extensive due diligence	Achieved	●
9		At least 55% of employees have valid cyber security competence and qualifications	Achieved Actual rate: 57%	●
10	Environmental Protection	Scope 1 & 2 GHG emissions: Reduce carbon emissions per million RMB of sales revenue by 30% compared to the base year (2012)	Achieved Actual decrease: 33.2%	●
11		Purchase at least 1.55 billion kWh of electricity that comes from clean energy sources	Achieved	●
12		Save 10 million kWh of energy in administrative services	Achieved Actual savings: More than 11 million kWh	●
13		Reduce landfill to 1.5% of ICT products or lower	Achieved Actual rate: 0.79%	●
14		Zero exhaust water/gas emissions in violation of regulations	Achieved	●
15		Encourage 60 of our top 100 suppliers to set a carbon emission reduction target	Achieved 93 of our top 100 suppliers have set a carbon emission reduction target	●
16	Healthy and Harmonious Ecosystem	Provide training on labor standards, covering all target personnel	Achieved	●
17		Roll out the Seeds for the Future program in more than 120 countries, reaching more than 1,200 students	Due to COVID-19, the program was moved online, covering more than 3,000 students from 102 countries	●
18		Create an online course for regional compliance managers	Achieved The MOOC course for regional compliance management was launched in December 2020	●
19		All selected suppliers pass customer audits	Achieved All of the five selected suppliers passed the audits conducted by three customers	●
20		Zero major safety accidents in manufacturing	Achieved	●
21	Sustainability management system	Close all outstanding tasks of the CSD Committee	Achieved	●
22		Release quarterly CSD newsletters to improve our employees' sustainability awareness and capabilities	Achieved	●
23		Develop a digital platform for sustainability management	On track	○

## Appendix II: GRI Standards

Part 1: General Disclosures			
Organizational profile			
Disclosure	Indicators	Relevance to the UN SDGs	Page
102-1	Name of the organization		1-2
102-2	Activities, brands, products, and services		1-2
102-3	Location of headquarters		1-2
102-4	Location of operations		1-2
102-5	Ownership and legal form		1-2
102-6	Markets served		1-2
102-7	Scale of the organization		1-2
102-8	Information on employees and other workers		88-96
102-9	Supply chain		101-107
102-10	Significant changes to the organization and its supply chain		/
102-11	Precautionary Principle or approach		/
102-12	External initiatives		24
102-13	Membership of associations		24
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102-14	Statement from senior decision-maker		3-8
102-15	Key impacts, risks, and opportunities		18-20
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102-16	Values, principles, standards, and norms of behavior		97-100
102-17	Mechanisms for advice and concerns about ethics		97-100
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102-18	Governance structure		17-18
102-19	Delegating authority		17-18
102-20	Executive-level responsibility for economic, environmental, and social topics		17-18
102-21	Consulting stakeholders on economic, environmental, and social topics	SDG16	21-24
102-22	Composition of the highest governance body and its committees	SDG5, 16	18
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102-24	Nominating and selecting the highest governance body	SDG5, 16	18
102-25	Conflicts of interest		/
102-26	Role of highest governance body in setting purpose, values, and strategy		17-18
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102-28	Evaluating the highest governance body's performance		17-18



Part 1: General Disclosures			
102-29	Identifying and managing economic, environmental, and social impacts	SDG16	17-18
102-30	Effectiveness of risk management processes		18-20
102-31	Review of economic, environmental, and social topics		24
102-32	Highest governance body's role in sustainability reporting		17-18
102-33	Communicating critical concerns		24
102-34	Nature and total number of critical concerns		24
102-35	Remuneration policies		88-96
102-36	Process for determining remuneration	SDG16	88-96
102-37	Stakeholders' involvement in remuneration		88-96
102-38	Annual total compensation ratio		/
102-39	Percentage increase in annual total compensation ratio		/
Stakeholder engagement			
102-40	List of stakeholder groups		21-24
102-41	Collective bargaining agreements		21-24
102-42	Identifying and selecting stakeholders		21-24
102-43	Approach to stakeholder engagement		21-24
102-44	Key topics and concerns raised		21-24
Reporting practice			
102-45	Entities included in the consolidated financial statements		2
102-46	Defining report content and topic Boundaries		24
102-47	List of material topics		24
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102-49	Changes in reporting		2
102-50	Reporting period		2
102-51	Date of most recent report		2
102-52	Reporting cycle		2
102-53	Contact point for questions regarding the report		2
102-54	Claims of reporting in accordance with the GRI Standards		2
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Management Approach			
103-1	Explanation of the material topic and its Boundary		24
103-2	The management approach and its components		17-18
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Economic Performance			
Disclosure	Indicators	Relevance to the UN SDGs	Page
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201-2	Financial implications and other risks and opportunities due to climate change	SDG13	/
201-3	Defined benefit plan obligations and other retirement plans		2
201-4	Financial assistance received from government		/
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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 community	SDG8	88-96
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203-1	Infrastructure investments and services supported	SDG11, 2, 5, 7, 9	/
203-2	Significant indirect economic impacts	SDG1, 10, 17, 2, 3, 8	108-117
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204-1	Proportion of spending on local suppliers	SDG12	/
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205-1	Operations assessed for risks related to corruption	SDG16	98
205-2	Communication and training about anti-corruption policies and procedures	SDG16	98
205-3	Confirmed incidents of corruption and actions taken	SDG16	98
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206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	SDG16	/
Tax			
207-1	Approach to tax	SDG8	2
207-2	Tax governance, control, and risk management	SDG8	2
207-3	Stakeholder engagement and management of concerns related to tax	SDG8	2
207-4	Country-by-country reporting	SDG8	2
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301-1	Materials used by weight or volume	SDG12, 8	/
301-2	Recycled input materials used	SDG12, 8	77-81
301-3	Reclaimed products and their packaging materials	SDG12, 8	77-81
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302-1	Energy consumption within the organization	SDG12, 13, 7, 8	69-72
302-2	Energy consumption outside of the organization	SDG12, 13, 7, 8	69-72
302-3	Energy intensity	SDG12, 13, 7, 8	69-72
302-4	Reduction of energy consumption	SDG12, 13, 7, 8	59-84
302-5	Reductions in energy requirements of products and services	SDG12, 13, 7, 8	59-84

Part 2: Specific Disclosures			
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303-1	Interactions with water as a shared resource	SDG6	69-73
303-2	Management of water discharge-related impacts	SDG6	69-73
303-3	Water withdrawal	SDG6	69-73
303-4	Water discharge	SDG6	69-73
303-5	Water consumption	SDG6	69-73
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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	34-36
304-2	Significant impacts of activities, products, and services on biodiversity	SDG14, 15	34-36
304-3	Habitats protected or restored	SDG14, 15, 6	34-36
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	SDG14, 15, 6	34-36
Emissions			
305-1	Direct (Scope 1) GHG emissions	SDG12, 13, 14, 15, 7	70
305-2	Energy indirect (Scope 2) GHG emissions	SDG12, 13, 14, 15, 7	70
305-3	Other indirect (Scope 3) GHG emissions	SDG12, 13, 14, 15, 7	73
305-4	GHG emissions intensity	SDG13, 14, 15, 7	70
305-5	Reduction of GHG emissions	SDG13, 14, 15, 7	70
305-6	Emissions of ozone-depleting substances (ODS)	SDG12, 3	None
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	72, 80-81
306-3	Significant spills	SDG12, 14, 15, 3, 6	None
306-4	Transport of hazardous waste	SDG12, 3	72
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	SDG12	73
308-2	Negative environmental impacts in the supply chain and actions taken	SDG12	73
Employment			
401-1	New employee hires and employee turnover	SDG5, 8	88-96
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	SDG5, 8	88-96
401-3	Parental leave	SDG5, 8	88-96

Part 2: Specific Disclosures			
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402-1	Minimum notice periods regarding operational changes		/
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403-1	Occupational health and safety management system	SDG3, 8	88-96
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403-3	Occupational health services	SDG3, 8	88-96
403-4	Worker participation, consultation, and communication on occupational health and safety	SDG3, 8	88-96
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403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	SDG3, 8	88-96
403-8	Workers covered by an occupational health and safety management system	SDG3, 8	88-96
403-9	Work-related injuries	SDG3, 8	88-96
403-10	Work-related ill health	SDG3, 8	88-96
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404-1	Average hours of training per year per employee	SDG4, 5, 8	92
404-2	Programs for upgrading employee skills and transition assistance programs	SDG4, 5, 8	92-93
404-3	Percentage of employees receiving regular performance and career development reviews	SDG5, 8	100%
Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	SDG5, 8	94-96
405-2	Ratio of basic salary and remuneration of women to men	SDG10, 5, 8	94-96
Non-discrimination			
406-1	Incidents of discrimination and corrective actions taken	SDG16, 5, 8	94-96
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	94-96
Child Labor			
408-1	Operations and suppliers at significant risk for incidents of child labor	SDG16, 8	95, 101-102, 116-117
Forced or Compulsory Labor			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	SDG8	95, 101-102, 116-117
Security Practices			
410-1	Security personnel trained in human rights policies or procedures	SDG16	100%
Rights of Indigenous Peoples			
411-1	Incidents of violations involving rights of indigenous peoples	SDG10	/



Part 2: Specific Disclosures			
Human Rights Assessment			
412-1	Operations that have been subject to human rights reviews or impact assessments	SDG16	116-117
412-2	Employee training on human rights policies or procedures	SDG16	116-117
413-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	SDG16	116-117
Local Communities			
413-1	Operations with local community engagement, impact assessments, and development programs	SDG12, 17	108-117
413-2	Operations with significant actual and potential negative impacts on local communities	SDG12, 17	/
Supplier Social Assessment			
414-1	New suppliers that were screened using social criteria	SDG12, 17	101-107
414-2	Negative social impacts in the supply chain and actions taken	SDG12, 17	101-107
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	SDG12, 16	77-78
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	SDG12, 16	/
Marketing and Labeling			
417-1	Requirements for product and service information and labeling	SDG12, 16	99
417-2	Incidents of non-compliance concerning product and service information and labeling	SDG12, 16	/
417-3	Incidents of non-compliance concerning marketing communications	SDG12, 16	/
Customer Privacy			
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	SDG12, 16	/
Socioeconomic Compliance			
419-1	Non-compliance with laws and regulations in the social and economic area	SDG12, 16	/

## Appendix III: Acronyms and Abbreviations


Acronym/Abbreviation	Full Name
3GPP	3rd Generation Partnership Project
5G	The 5th Generation Mobile Communication Technology
AED	Automated External Defibrillator
AEO	Authorized Economic Operator
AI	Artificial Intelligence
APM	Advanced Power Management
App	Application
BCGs	Business Conduct Guidelines
BCM	Business Continuity Management
BCP	Business Continuity Plan
BRICS WBA	BRICS Women's Business Alliance
CEC	Committee of Ethics and Compliance
CEO	Chief Executive Officer
CISSP	Certified Information Systems Security Professional
CITI	Corporate Information Transparency Index
CQC	China Quality Certification Center
CRCPE	Check, Root Cause Analysis, Correct, Prevent, and Evaluate
CSD	Corporate Sustainable Development
CSR	Corporate Social Responsibility
DDOS	Distributed Denial of Service
EAR	Export Administration Regulations
EHS	Environment, Occupational Health and Safety
EMS	Electronics Manufacturing Services
ERT	Emergency Response Team
FLDP	First-Line Manager Development Program
Gbps	Gigabits per Second
GeSI	Global Enabling Sustainability Initiative
GHG	Greenhouse Gas
GLOMO	Global Mobile Awards
GPU	Graphics Processing Unit
GRI	Global Reporting Initiative

Acronym/Abbreviation	Full Name
GSMA	Global System for Mobile Communications Association
GTAC	Global Technical Assistance Center
HCIE	Huawei Certified ICT Expert
IAPP	International Association of Privacy Professionals
ICT	Information and Communications Technology
ILO	International Labour Organization
IMP	Incident Management Plan
IoT	Internet of Things
IPD	Integrated Product Development
IPE	Institute of Public and Environmental Affairs
IPv6	Internet Protocol version 6
ISO	International Organization for Standardization
IT	Information Technology
ITR	Issue to Resolution
ITU	International Telecommunication Union
IUCN	International Union for Conservation of Nature
JAC	Joint Audit Committee
KOL	Key Opinion Leader
KPI	Key Performance Indicator
LCA	Life Cycle Assessment
LED	Light Emitting Diode
LTC	Lead to Cash
LTE	Long-Term Evolution
MAE	Mobile Automation Engine
MFP	Manager Feedback Program
MOOC	Massive Open Online Course
NEO	New Employee Orientation
NESAS	Network Equipment Security Assurance Scheme
NGO	Non-Governmental Organization
OECD	The Organisation for Economic Co-operation and Development
OXC	Optical Cross-Connect

Acronym/Abbreviation	Full Name
PDCA	Plan, Do, Check, Act
PUE	Power Usage Effectiveness
POL	Passive Optical LAN
RAT	Radio Access Technology
RBA	Responsible Business Alliance
RCI	Responsible Cobalt Initiative
RGC	Risk, Governance, Control
RMI	Responsible Minerals Initiative
RRU	Remote Radio Unit
RTAC	Regional Technical Assistance Center
SCAS	Security Assurance Specifications
SCTI	Supply Chain Climate Transparency Index
SME	Small and Medium-sized Enterprise
STEM	Science, Technology, Engineering and Mathematics
TD-LTE	Time Division Long Term Evolution
UDG	Unified Distributed Gateway
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO IITE	UNESCO Institute for Information Technologies in Education
UNESCO ICHEI	International Centre for Higher Education Innovation under the auspices of UNESCO
UNGC	United Nations Global Compact
UNGP	United Nations Guiding Principles on Business and Human Rights
UN SDGs	United Nations Sustainable Development Goals
UPS	Uninterruptible Power Supply
VR	Virtual Reality
VTS	Vessel Traffic Service
WEF	World Economic Forum
WHO	World Health Organization
Wi-Fi	Wireless Fidelity



## 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 2020 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 2020.1.1 to 2020.12.31**;
- 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, Bureau Veritas did not visit its other stakeholders.

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

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

**Methodology**

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

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



BUREAU VERITAS

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## BUREAU VERITAS Certification



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 ISAE3000, 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 disclosed 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, Healthy and Harmonious Ecosystem, it also discloses the company's sustainable development management, community development issues etc. which stakeholders concerned. The report is in accordance with GRI standards "Core" option.

### **Materiality**

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

### **Responsiveness**

Focused on issues stakeholders concerned, the report discloses and responds particularly to key sustainability issues such as Climate change/carbon reduction, Circular economy, Cyber security and privacy protection, Respecting human rights and Supply chain sustainability and so on. So the report is responsive.



BUREAU VERITAS

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**BUREAU VERITAS**  
Certification**Statement of independence, impartiality and competence**

Bureau Veritas is an independent professional services company that specialises in Quality, Health, Safety, Social responsibility and Environmental management with 193 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**  
**2021-05-31**

**Sean Pan**  
**Assurance Team Leader**  
**Bureau Veritas Certification**  
**2021-05-31**







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## HUAWEI INVESTMENT & HOLDING CO., LTD.

Huawei Industrial Base  
Shenzhen 518129, P. R. China  
Tel: +86-755-28780808  
[www.huawei.com](http://www.huawei.com)

Download:



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