Huawei Investment & Holding Co., Ltd.
2022 Sustainability Report

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

HUAWEI

Corporate Profile

Founded in 1987, Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We have 207,000 employees and operate in over 170 countries and regions, serving more than three billion people around the world. We are committed to bringing digital to every person, home and organization for a fully connected, intelligent world.

(For more details, please check the Huawei 2022 Annual Report)

Report Profile

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 and makes Huawei more transparent.

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 2022 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, 2022 to December 31, 2022. 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 2022 Annual Report.

The report is prepared with reference to the Global Reporting Initiative (GRI) Standards. Huawei engaged SGS, 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 2023. (The report for 2021 was published in July 2022.) You can view the 2022 Sustainability Report at

https://www.huawei.com/en/sustainability

or by scanning the following QR code.

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

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Digital technology is reshaping the world, the economy, and the very nature of productivity. With computing power as a new driver of productivity, technologies like 5G and AI are becoming deeply integrated into all industries, promoting digital and intelligent transformation across the board. At Huawei, we are committed to working closely with our global partners to promote shared success. We will keep innovating together to build a more diversified computing industry and drive greater sustainability. Together, we can build a fully connected, intelligent world.

Liang Hua
Chairman of the Board

Powering Sustainable Development with Diversified Computing

As we enter an intelligent world at full speed, artificial intelligence (AI) is beginning to reshape the way we live and work. AI is already seeing broad adoption in a number of domains, including weather forecasting, smart city operations, quality inspections, autonomous driving, and voice and image recognition. None of these scenarios would be possible without a wealth of computing power. This is especially true for AI-generated content.

Computing power has become a core driver of productivity in the digital economy. And to lay the groundwork for more sustainable socioeconomic growth, it's critical that we work to build up the next generation of computing infrastructure and advance the future of more diversified computing power.

From computing power to digital productivity: Speeding up the digital and intelligent transformation of industries to advance the digital economy

Computing power has become a new source of productivity in the digital economy, a key driving force behind the rapid transformation towards digital and intelligent industries. According to the 2021–2022 Global Computing Power Index Assessment, one point of growth in the computing index translates to a 3.5‰ rise in the size of the digital economy and a 1.8‰ growth in national GDP. Investment in computing power is a huge boost to the economy, and it will inject fresh vitality into all industries while improving productivity and creating new social value.

Huawei is working hard to build the next generation of foundational software and hardware platforms and cultivate a robust computing ecosystem around its Kunpeng and Ascend processors. Our goal is to provide the world with a more diverse range of computing power by using Kunpeng for general-purpose computing and Ascend for AI computing. Through open hardware, open source software, and partner enablement, we are working to strengthen computing power as a new driver of digital productivity and give all industries a boost to their digital transformation journey.

In healthcare, Ascend's AI computing power enables doctors to quickly and accurately diagnose diseases with image recognition. In the past, expert diagnosis took an average of 15 minutes. With Ascend, doctors can reduce that time to 10 seconds while delivering greater diagnostic accuracy than ever before – an increase from 90% to 99%. This can buy more time for patients and is a prime example of how computing power can help save lives.

Another example of the benefits of computing power in everyday life is the Kunpeng Software and Hardware Platform, which now provides integrated and efficient computing power for the medical insurance system in China. This platform has helped many insurance services move online, such as those related to drug purchasing and settlement, diagnosis and treatment, hospitalization, and cross-provincial medical services. Now people don't have to run around to get the medical services they need. Instead, data does the walking for them, giving them much easier access to medical services.

In manufacturing, Ascend AI clusters with strong inference capabilities can automate entire processes. In the steel industry, for example, AI-powered production can be completely automated and monitored, from forging steel billets to steel turning and rolling. This has helped increase the accuracy of steel turning to 100%, revolutionizing the very nature of this once labor-intensive task. All in all, productivity is up, and the work environment is safer and more hospitable.

In energy, the Ascend Software and Hardware Platform and

AI inference algorithms are being used to analyze inspection images and videos along extremely long transmission lines. When anomalies are identified, the platform gives early warnings in real time and escalates issues to the right teams. Onsite inspection used to take 20 days, but it can now be completed in only two hours. That's an 80-fold increase in efficiency. With sufficient computing power in place, unmanned transmission line inspection has become a reality, making the work safer and far more efficient.

As diversified computing power continues to advance, it's necessary to have a unified operating system that allows applications to work together across different scenarios. This helps support flexible service deployment and greater synergy between devices, edge, and the cloud.

To this end, Huawei has been working closely with partners to develop two operating systems: HarmonyOS and openEuler. Together, we have built up open source ecosystems around both. HarmonyOS is primarily designed for smart devices, IoT devices, and industrial devices, while openEuler is for servers, edge computing, cloud, and embedded devices. Through OpenHarmony and openEuler, Huawei hopes to tighten collaboration in the industry to build open source operating systems for all scenarios and facilitate the flow of computing power and data. Ultimately, our goal is to promote the high-quality, sustainable development of the digital economy.

Affordable and accessible computing power: Enabling basic scientific research, innovation, and talent cultivation

In recent years, computing has played an increasingly important role in virtually every major scientific discovery and breakthrough. In life sciences, for example, it took 12 years to sequence the entire human genome back in the 1990s. Today, it only takes one day. This is made possible by a more than 1,000-fold increase in computing power. In meteorology, a 15-day weather forecast today is now as reliable as a single-day forecast 20 years ago. Behind this change is a 20,000-fold increase in computing power, which allows us to rapidly process massive amounts of meteorological data in parallel.

An abundance of computing power is crucial for the future of basic scientific research. To more effectively support basic scientific research and innovation, governments, universities, and industries need to work together to provide more readily accessible, flexible, and stable computing services.

In this space, Huawei is actively contributing to the long-term development of the AI industry. We work with universities and scientific research institutions to provide high-performance computing clusters for scientific research in domains like machine learning and molecular dynamics.

An example of this work is the Pengcheng Laboratory in Shenzhen, where researchers used Huawei's AI computing platform to train a large model called Pengcheng Pangu. It's the industry's first natural language processing model with hundreds of billions of parameters for generating and understanding Chinese. With this model, we aim to establish a set of common and easy-to-use AI language development workflows to overcome a variety of processing obstacles in different languages, and ultimately promote greater economic and cultural exchange around the world.

People with the right knowledge and skills are more important than ever as we work to drive progress in digital transformation and the digital economy. Recognizing this, countries around the world are actively exploring the best ways to cultivate digital talent and enhance digital literacy and skills. At Huawei, we are committed to supporting these efforts in every way we can.

Together with partners like UNESCO and Close the Gap, we aim to drive broader digital inclusion through our TECH4ALL initiative. This initiative is designed to help transfer digital skills, enhance digital literacy among teachers and students in remote areas, and promote the availability and accessibility of technology around the world. As of 2022, our TECH4ALL initiative had helped more than 220,000 people, including teachers and students from over 600 schools and also young people, learn new digital skills and improve their scientific and technological literacy.

Back in 2008, we launched a program called Seeds for the Future to support the cultivation of local digital talent in communities around the world. This initiative later branched out into other development programs, including technology competitions and digital skills training programs. To date, these programs have benefited more than 2.43 million people from over 150 countries.

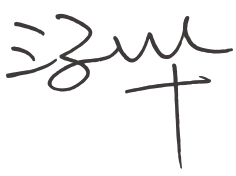
Moving forward, we hope more people and organizations will join our TECH4ALL initiative to support the inclusive development of digital talent around the world.

In addition to promoting digital inclusion, we're also doing our best to protect the planet. We are actively innovating to conserve energy, reduce environmental impacts, and build a greener, low-carbon, and fully connected world for future generations.

We embed sustainability into the entire lifecycle of our products, and will continue to invest heavily in areas like raw materials, production processes, algorithms, and cooling technologies that reduce the environmental impact of digital infrastructure. This will allow us to build more energy-efficient 5G networks, greener data centers and computing centers, and eco-friendly electronics.

Digital technology is reshaping the world, the economy, and the very nature of productivity. With computing power as a new driver of productivity, technologies like 5G and AI are becoming deeply integrated into all industries, promoting digital and intelligent transformation across the board.

At Huawei, we are committed to working closely with our global partners to promote shared success. We will keep innovating together to build a more diversified computing industry and drive greater sustainability. Together, we can build a fully connected, intelligent world.



> Since the dawn of time, people have always imagined what the future might hold. But with technology, we can actually get there. As a tech company, Huawei will continue innovating with customers and partners to overcome challenges ahead. Together, we will contribute to the achievement of the United Nations Sustainable Development Goals and forge a better life for all.

Tao Jingwen
Board Member and Chairman of the CSD Committee

Actions Speak Louder than Words: Promoting Sustainable Development with Innovation

Scientific exploration and technological innovation are key drivers of civilization and society. And now, digital technology is reshaping the world around us and accelerating our journey towards the intelligent world. Huawei has long been committed to leveraging technology to make the world a better place. We hope to help bring the benefits of technology to everyone and promote sustainable social development.

Over 30 years ago, we set out to connect every home with phones and enrich life through communication. Roughly 10 years ago, we began focusing on connecting every corner of the globe through networks to build a fully connected world. Today, we are committed to bringing digital to every person, home and organization for a fully connected, intelligent world.

To achieve this vision and mission, we have continued to innovate while focusing on four sustainability strategies: digital inclusion, security and trustworthiness, environmental protection, and a healthy and harmonious ecosystem.

Digital inclusion: Promoting a more inclusive and sustainable world with TECH4ALL

Through the TECH4ALL digital inclusion initiative, Huawei has taken concrete steps with partners to propel technological innovation in four areas of focus: education, environment, health, and development.

We believe these will bring positive changes to the world.

In education, TECH4ALL education programs had benefited over 600 schools and more than 220,000 people, including teachers and students, unemployed young people, and senior citizens, by the end of 2022.

In environment, our environmental protection programs, such as Nature Guardians and Tech4Nature, have been deployed in 46 protected areas around the world, including forests, wetlands, and oceans. These programs use ICT to enable more efficient and sustainable biodiversity conservation efforts and natural resource management.

In health, we have continued optimizing the accessibility features of our devices, giving a human touch to technology. In fact, our HarmonyOS 2 was the only five-star-rated OS according to the 2022 smartphone OS/UI elderly-friendliness ratings released by the China Telecom Research Institute.

In development, Huawei Mobile Money has benefited over 400 million people in more than 20 countries, advancing financial inclusion. It gives people in remote areas access to digital banking services like mobile wallets and mobile payments, boosting the digital economy of local communities.

These are just a few examples of how digital technology can contribute to a more inclusive and sustainable world.

Security and trustworthiness: Fostering a better life for all in the future digital world by offering secure and trustworthy products, solutions, and services

Huawei makes cyber security and privacy protection a top priority. We continue to develop secure and trustworthy products, solutions, and services that help customers mitigate risks and improve network resilience.

In 2022, Huawei obtained more than 30 internationally recognized cyber security certificates, including CC EAL4+, ISO 19790, and ISO 27034 certificates. These are a testament to the proven security of Huawei products. We actively engage and collaborate with global stakeholders

to build capabilities and share value together. In 2022, Huawei received awards such as the Thailand Cybersecurity Excellence Award from the Thai Prime Minister and the UAE's Fortress Cyber Security Award.

As an ICT infrastructure provider, it is our primary social responsibility and mission to maintain stable network operations and ensure smooth communications for users. In 2022, we supported stable communications during over 300 major events and emergencies. These are part of our long-term commitment to serving local communities.

Huawei has also established a mature business continuity management system to ensure supply continuity and timely delivery to customers. We will always pursue globalized supply and supply chain diversity for mutual development and shared success. Together with our global partners, we aim to create a secure, reliable, competitive, and healthy industry value chain, fostering a better life for all in the future digital world.

Environmental protection: Using tech for a better planet

Huawei has continued to fulfill its pledge of "Tech for a Better Planet". As part of that pledge, we use innovative green solutions to protect our shared home in three key areas: advancing energy conservation and emissions reduction, promoting renewable energy, and contributing to a circular economy. Our continuous efforts in environmental protection have been recognized by the environmental non-profit CDP which placed Huawei on its 2022 "Climate A List" and also awarded Huawei the "Excellent Environmental Leadership Award".

In 2022, we further increased our own usage of renewable and clean energy. Throughout the year, we used 390 million kWh of electricity from renewable energy sources and 1.8 billion kWh from clean energy sources, up 25% and 15% year on year, respectively. Our campuses in Shenzhen and Dongguan are now fully powered by clean energy. In addition, by the end of 2022, our digital power solutions had helped customers generate 695.1 billion kWh of green power, and 220 billion kWh of the power was generated in 2022 alone. This means that Huawei helped generate over 40 times more green power than the power we consumed ourselves in 2022.

Huawei is also following a business model that incorporates circular economy practices and a closed-loop value chain. With the help of specialist suppliers, only 0.63% of the e-waste from our ICT business ended up in landfills, and no e-waste from our consumer business went to landfills.

Healthy and harmonious ecosystem: Creating both social and business value to cultivate an ecosystem for technological innovation

We believe that sustainable development and business value are not at odds with each other. Instead, they are complementary and constitute an organic whole. Business activities must create social value, and social value presents new business opportunities. This positive cycle allows enterprises to continue to grow and prosper in a globalized world.

At Huawei, it is a corporate policy to care for our employees and always put their safety first. We continue inspiring dedication and improving the working and living environments for our employees. To this end, we invested over CNY17 billion in employee benefits in 2022.

Huawei continuously improves its compliance management system to ensure better compliance across multiple domains, including trade compliance, anti-bribery compliance, and intellectual property and trade secret protection. We work hard to conduct business with integrity and conform to business ethics standards.

Huawei actively conducts due diligence on suppliers to carefully manage the social and environmental impacts of our global procurement activities and supply chain. We assess the sustainability performance of our major suppliers which represent over 90% of our procurement spending every year, in order to encourage suppliers to make ongoing improvements.

Huawei also strives to create value for local communities where it operates. We now run over 270 social contribution programs worldwide that aim to develop skilled ICT professionals, support start-ups, and protect the environment and natural resources. We constantly give back and donate to local communities to drive their socioeconomic recovery and development.

Since the dawn of time, people have always imagined what the future might hold. But with technology, we can actually get there. As a tech company, Huawei will continue innovating with customers and partners to overcome challenges ahead. Together, we will contribute to the achievement of the United Nations Sustainable Development Goals and forge a better life for all.

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Sustainability Management

As a tech company, we believe that technology is a force for good. Sustainability is a key part of our corporate strategy, so under the guidance of our CSD Committee, we have continued to make progress on our four sustainability strategies: digital inclusion, security and trustworthiness, environmental protection, and a healthy and harmonious ecosystem. These efforts will contribute to achieving the United Nations Sustainable Development Goals.

2022 Sustainability Honors and Awards

Climate A List
CDP

Excellent Environmental Leadership Award
CDP

Best Practices for Achieving SDGs in 2021 (Protecting the Environment & Addressing Climate Change)
Global Compact Network China

Huawei Net Zero Carbon Intelligent Campus Solution: Champion of WSIS Prizes 2022
ITU

DigiTruck in Kenya: Global Mobile (GLOMO) Award for Outstanding Mobile Contribution to the UN SDGs
GSMA

Forerunner in Green Development
China Environmental United Certification Center Co., Ltd.

Prime Minister Awards – Thailand Cybersecurity Excellence Award 2022
Thai National Cyber Security Agency

Top Employer in Europe and Northern Africa
Top Employers Institute

Outstanding Achievement for Customer Centricity
European Foundation for Quality Management (EFQM)

The Leaders Award for digital transformation in Egypt
Alam Al-Mal, a national media outlet in Egypt

Best Employer in Côte d'Ivoire
Côte d'Ivoire's Ministry of Employment and Social Protection

ICT Industry and Talent Development Award issued by the Prime Minister of Tunisia
Tunisia's Ministry of Economy and Planning

Huawei International Pte. Ltd.: Data Protection Trustmark (DPTM) certification
Singapore's Infocomm Media Development Authority (IMDA)

Hong Kong Authorized Economic Operator Partnership Scheme Gold Award
Hong Kong Customs

Corporate Startup Star Award
Mind the Bridge and International Chamber of Commerce (ICC)

2022 ESG Innovator for New Growth in China
Harvard Business Review (Chinese Edition)

Sustainability Milestones in 2022

November 2022

During HUAWEI CONNECT 2022, Huawei held a cyber security and privacy compliance governance forum, where it released its first Huawei Privacy Protection Governance White Paper to share the company's privacy governance methods and practices with the industry.

November 2022

Huawei signed a global commitment to join the ITU's Partner2Connect digital alliance, which will bring connectivity to about 120 million people in remote areas in more than 80 countries by 2025.

October 2022

Huawei held a Women in Tech salon in Shanghai, where the company released its first white paper on diversification: Toward an Inclusive World – A White Paper on Huawei's Approach to Fairness, Equity & Opportunity and launched a diversification initiative, calling on enterprises to contribute more resources and efforts to equity and diversity.

September 2022

Huawei Digital Power released its first Sustainability Report and proposed the "ZERO" (zero-carbon enablement, empower with digitalization, responsible operations, and one-mind growth) sustainability strategy.

September 2022

The Network Carbon Intensity energy (NCIe) indicator, which is a standard for measuring network energy use proposed by ITU-T members including Huawei, was approved by ITU-T as Recommendation ITU-T L.1333.

May 2022

Huawei held the second Supplier Carbon Emissions Reduction Conference to clarify its strategies and requirements for supply chain emissions reduction and present awards to outstanding suppliers.

April 2022

Huawei's Chaspark website (www.chaspark.net) became publicly available and has already attracted more than 120,000 certificated academic users. Huawei posts challenges on the website to inspire progress in the science and technology fields.

April 2022

During the Huawei Global Analyst Summit 2022, Huawei held the "Green ICT Empowers Green Development" forum and released its Green Development 2030 report, which demonstrates how ICT enables green development.

March 2022

Huawei and Darwin's Circle launched the Vienna Tech for Green Initiative. Part of the initiative's remit is to develop a white paper exploring industry insights and best practices for building a green future.

January 2022

Huawei redesigned its sustainability website, which shows its sustainability philosophy, practices, and initiatives, to increase corporate transparency and allow stakeholders to better understand and interact with Huawei.

Sustainability Strategy and Progress

As a tech company, we believe that technology is a force for good. We continue to provide products and services with a human touch, and remain committed to bringing digital to every person, home and organization for a fully connected, intelligent world. Sustainability is a key part of our corporate strategy, so we have continued to make progress on our four sustainability strategies: digital inclusion, security and trustworthiness, environmental protection, and a healthy and harmonious ecosystem. These efforts will contribute to achieving the United Nations Sustainable Development Goals (UN SDGs).

Below is a summary of our progress on these four strategies in 2022:

Digital Inclusion

TECH4ALL: Since the launch of Huawei's TECH4ALL digital inclusion initiative in 2019, we have worked closely with our partners on projects that aim to foster a more inclusive, sustainable world using digital technology.

220,000

TECH4ALL's education programs have benefited over 600 schools and more than 220,000 people, including K–12 students and teachers, unemployed young people, and senior citizens

46

Huawei's digital technologies have helped conserve biodiversity efficiently and manage natural resources sustainably in 46 protected areas

12,000

More than 12,000 senior citizens in China attended online and offline digital skills training offered by Huawei and the Beijing Open University at community centers and nursing homes

400 million

Huawei Mobile Money has benefited over 400 million people in more than 20 countries, advancing financial inclusion

Security & Trustworthiness

Taking responsibility to build trust: Cyber security and privacy protection are a top priority at Huawei, 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.

30

Huawei was awarded over 30 cyber security certificates, giving our customers internationally recognized security assurances

25,000

Huawei handled over 25,000 requests from data subjects promptly and effectively as part of its efforts to respect and protect user privacy

50

Huawei passed over 50 certifications and audits, ensuring that its corporate privacy protection policies are well enforced

300

Huawei supported stable communications during over 300 major events and emergencies

Environmental Protection

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.

695.1 billion kWh

Huawei's digital power solutions have helped customers generate 695.1 billion kWh of green power and save 19.5 billion kWh of electricity

100%

Huawei's Shenzhen and Dongguan campuses are now 100% powered by clean energy

600,000

Nearly 600,000 used devices have been resold through Huawei's trade-in program

0.63%

Only 0.63% of the e-waste from Huawei's ICT business went to landfills, and none of the e-waste from our consumer business went to landfills

Healthy and Harmonious Ecosystem

Collaborating for the common good: We are committed to operating with integrity and complying 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. Our goal is to work with all industry partners to build a healthy and harmonious business ecosystem.

CNY17 billion

Huawei invested over CNY17 billion in employee benefits

CNY161.5 billion

Huawei's total R&D spending in 2022 was CNY161.5 billion, representing 25.1% of total revenue

1,600

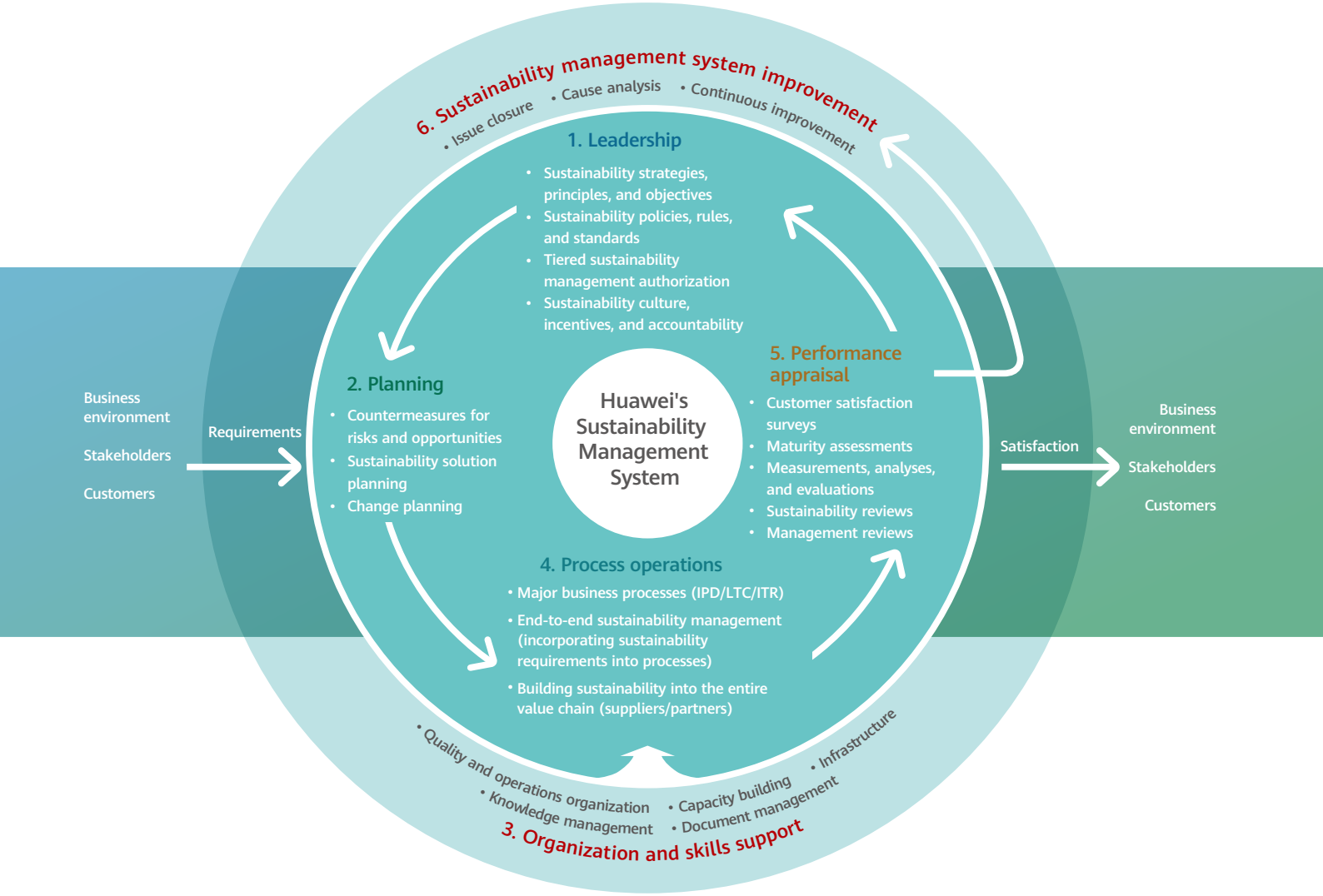
Huawei assessed the sustainability performance of over 1,600 major suppliers which represent over 90% of our procurement spending

270

Huawei operated over 270 social contribution programs worldwide

Sustainability Management System

Huawei has established a sustainability management system based on the PDCA (plan, do, check, act) cycle by considering both the internal and external business environments and referring to international standards such as ISO 26000 and the Responsible Business Alliance (RBA) Code of Conduct. This system focuses on six key areas: leadership, planning, organization and skills support, process operations, performance appraisal, and system improvement. Through this system, we aim to manage our sustainability strategies and goals in a closed loop, enhance digital operations, and increase stakeholder satisfaction.



Framework of Huawei's Sustainability Management System

Responsibilities and Operations of the CSD Committee

To build Huawei's competitiveness in sustainability, reduce operating risks, and improve stakeholder satisfaction, Huawei established a Corporate Sustainable Development (CSD) Committee more than a decade ago. The Committee guides business departments and the CSD sub-committees in different business domains and regional offices as they develop sustainability strategies and goals, and monitors their implementation. The Committee consists of more than 10 senior executives from various departments, including human resources (HR), manufacturing, logistics services, procurement, and research and development (R&D). Four committee members are board members. The CSD Committee is chaired by Tao Jingwen, a board member and President of the Quality, Business Process & IT Department.

The Committee meets each quarter and convenes special meetings as necessary to discuss sustainability issues. The major topics discussed at meetings in 2022 included energy conservation and emissions reduction, renewable energy, the circular economy, supplier management, digital inclusion, and health and safety. To support the efficient operations of the CSD Committee, we have appointed a working group, which is responsible for coordinating and completing everyday sustainability work and following up on the achievement of strategic goals related to sustainability. The CSD Committee has established monetary and non-monetary awards to provide timely incentives to teams and individuals that have displayed outstanding performance in sustainability. We have also established the Sustainability Report Editorial Board, with the chairman of the CSD Committee serving as the sponsor. The Editorial Board is responsible for preparing, reviewing, and releasing Huawei's sustainability reports.

The CSD Committee is supervised and guided by Huawei's Board of Directors (BOD) and reports to the BOD as necessary. Members of the BOD are elected by the Representatives' Commission of Huawei and then voted in by the Shareholders' Meeting. For details, see the "Corporate Governance Report" section of the 2022 Annual Report of Huawei Investment & Holding Co., Ltd.

Responsibilities 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 better identify and manage sustainability risks, Huawei has created work instructions on managing sustainability risks. These cover risk identification, risk assessment, target setting, risk control, risk monitoring, and risk governance. Sustainability risk management is ingrained in the company's business processes and is not separated from business operations.

We believe that proactively identifying and managing sustainability risks and opportunities can help enterprises reduce operating risks and seize new business opportunities. This will form a positive cycle that allows enterprises to grow sustainably in our globalized world.

Examples of sustainability risks and opportunities

Risks and Opportunities	Measures	Sustainability Strategy
The COVID-19 pandemic deepened the crisis in education, causing severe disruptions in education systems worldwide. School closures have had alarming consequences on learning and well-being, particularly for girls and the disadvantaged, including children with disabilities, rural dwellers, and ethnic minorities. An estimated 147 million children have missed more than half of their in-person instruction over the past two years.	As part of our work to contribute to UN SDG 4 (Quality Education), Huawei is working with partners, including UNESCO and Close the Gap, to use innovative ICT solutions to enable equal access to high-quality education.	Digital Inclusion
Around 40,000 species are documented to be at risk of extinction over the coming decades, 10 million hectares of forest are being destroyed each year, and more than half of key biodiversity areas remain unprotected.	Huawei is working closely with global environmental protection organizations, customers, and partners on projects that leverage ICT to protect forests, wetlands, and oceans.	Digital Inclusion
According to World Health Organization (WHO), more than one billion people in the world are affected by some sort of disability, meaning that one in every seven people has accessibility needs.	Huawei is providing more accessibility features, giving users more confidence and freedom to enjoy the convenience of smart devices.	Digital Inclusion
In 2005, the United Nations called upon organizations around the world to improve financial inclusion and ensure that responsible and sustainable financial services are available for all, especially those in rural and other impoverished areas, who are often neglected by traditional financial services.	Huawei Mobile Money helps bridge the digital divide through mobile communications technologies and digital payment platforms. This solution aims to give unbanked people access to affordable and reliable financial services.	Digital Inclusion
The world is growing more interconnected, digital, and intelligent. As digital assets increase, attack surfaces are continuing to expand, security vulnerabilities are being exploited more frequently, and cyberspace as a whole is becoming increasingly unsecure. These are making cyber security assurance more important than ever.	Huawei has continued to make cyber security and privacy protection a top priority. We confront cyber security and privacy challenges and seizing related opportunities through management transformation, technological innovation, and open collaboration. We are committed to fostering a better life for all in the future digital world by offering secure and trustworthy products, solutions, and services.	Security and Trustworthiness
Cyber security and privacy protection are a shared responsibility, and all stakeholders need to tackle this global challenge together.	Adhering to our cyber security values of integrity, trustworthiness, capability, accountability, openness, and transparency, we welcome more communication and collaboration with key stakeholders to jointly improve cyber security capabilities. Together, we can promote standards development, conduct joint innovation, and share knowledge and best practices to improve cyber security.	Security and Trustworthiness
Natural disasters and emergencies, such as floods, earthquakes, volcanic eruptions, and conflicts, can damage network infrastructure and affect people's communication, work, and lives.	It is our mission and primary social responsibility to maintain stable network operations. We have robust mechanisms for responding to natural disasters and emergencies and are continuing to improve our capabilities in this regard. This has helped us to support network stability for customers and stable communications for users.	Security and Trustworthiness
In today's highly globalized and specialized world, Huawei's operations rely heavily on third parties, including vendors, specialist agencies, and partners. This makes business continuity management (BCM) critical.	Through years of sustained investment, Huawei has established a BCM system for domains such as R&D, procurement, manufacturing, logistics, and global technical services. This system covers our end-to-end processes, from suppliers to Huawei and to our customers.	Security and Trustworthiness

Risks and Opportunities	Measures	Sustainability Strategy
Green and low-carbon development is now a global priority. Stakeholders are increasingly expecting enterprises to move towards green and low-carbon development. Many regions, countries, and industry organizations have released environmental regulations and disclosure guidelines.	Huawei is proactively working to address climate and environmental challenges. We use innovative ICT solutions to protect our shared home by focusing on three areas: advancing energy conservation and emissions reduction, promoting renewable energy, and contributing to a circular economy.	Environmental Protection
As climate change becomes an increasingly pressing issue, it is more important than ever to reduce dependence on fossil fuels as a key to green development.	At Huawei, we prioritize the use of renewable energy in our own operations wherever possible. Our digital power subsidiary also aims to drive an energy revolution by focusing on clean power generation, mobility electrification, and green ICT power infrastructure.	Environmental Protection
Unsustainable patterns of consumption and production are among the root causes of the triple planetary crises of climate change, biodiversity loss, and pollution. Changing our relationship with nature is key to a sustainable future.	Huawei is committed to building a business model that incorporates circular economy practices and a closed-loop value chain. We are pursuing more eco-friendly materials, more durable products, greener packaging, and less waste throughout our product lifecycles so that all resources can be efficiently used, reused, and recycled.	Environmental Protection
Huawei operates in more than 170 countries and regions. As such, hiring and nurturing local staff is an important issue for our stakeholders.	Huawei has released the Resolutions on Strengthening Localization Efforts, which states that localization is part of Huawei's long-term strategy. According to the Resolutions, Huawei should deploy as many local staff as possible and help them fully unlock their potential, require those engaging in global business to pass English language certification, and provide better support and services to local staff.	Healthy and Harmonious Ecosystem
With the imminent risk of an economic downturn, many are expecting policies that spur production and lift trade restrictions. Discriminatory policies will only undermine free trade and global interests.	Huawei embraces free trade, open markets, and fair competition. We will continue to support equitable and non-discriminatory multilateral trade rules and place trade compliance above our own commercial interests.	Healthy and Harmonious Ecosystem
As due diligence management is changing from voluntary compliance to a mandatory obligation, enterprises must find ways to avoid and address adverse impacts on workers, human rights, and the environment that may be associated with operations, supply chains, and other business relationships.	Huawei has released the Global Procurement CSR Due Diligence Regulation to guide procurement departments at all levels to establish a risk-based, multi-layered supplier CSR supervision process. This regulation will help identify, prevent, mitigate, and explain the CSR risks that Huawei's global supply chains face.	Healthy and Harmonious Ecosystem
In 2022, as countries around the world buckle down for post-pandemic recovery, many have turned to digitalization and the digital economy to address socioeconomic challenges. Digital talent plays an instrumental role in driving digital transformation and unleashing digital productivity.	We are working hard to build digital skills in the countries and regions where we operate. Back in 2008, Huawei launched a program called Seeds for the Future to help universities foster the next generation of digital talent. Through this program, we are also helping upskill industry and public sector professionals and nurture new tech leadership, working with local communities to build basic digital skills, and inspiring people to tackle real-world challenges in tech competitions. To date, this program has benefited more than 2.43 million people from over 150 countries.	Healthy and Harmonious Ecosystem

Stakeholder Engagement

Stakeholders are individuals or groups with interests that are or could be affected by an organization's activities. Huawei's primary stakeholders include customers and consumers, employees, suppliers and partners, governments, non-governmental organizations (NGOs), industry organizations, specialist agencies, the media, and local communities.

To improve communication and collaboration with stakeholders, Huawei has established a variety of regular communication channels, including visits, consultations, exchanges, interviews, and projects. These channels help us promptly understand stakeholders' concerns and requirements. We take these into account to improve our sustainability management and performance.

In 2022, we identified the following major stakeholder concerns:

Stakeholders	Communication Channels and Frequency	Major Concerns
Customers and consumers	• Customer satisfaction surveys: Annual • Customer communication and visits: On-demand • Huawei Fan Club for consumers: Periodic • Customer audits, surveys, and joint projects: Periodic	• Cyber security and privacy protection • Supporting stable communications and business continuity • Circular economy • Energy conservation and emissions reduction • Use of renewable energy • Local talent cultivation
Employees	• Employee surveys (e.g., organizational climate surveys): Annual • Manager Feedback Program (MFP): Annual • Meetings with employee representatives: Periodic • Reflection sessions: Periodic • Hotlines and public email addresses for filing complaints, providing suggestions, reporting misconduct, and making an appeal: Periodic • Open Days with managers and experts: Periodic	• Employee care and communication • Employee health and benefits • Low-carbon and environmental protection initiatives • Participation in and contribution to local communities
Suppliers and partners	• Supplier sustainability audits: Periodic • Supplier sustainability conferences: Annual • Supplier training: Periodic • Joint sustainability programs: Periodic	• Due diligence management • Training and coaching • Energy conservation and emissions reduction • Compliance with business ethics
Governments	• Meetings on government policies: On-demand • Governmental public consultations: On-demand • Government and inter-government conferences: On-demand • Governmental sustainability programs: On-demand • Government surveys and interviews: On-demand	• Green and low-carbon development • Human rights and due diligence management • Reporting and transparency
NGOs, industry organizations, and specialist agencies	• Industry conferences, forums, and work groups: On-demand • Standards conferences: On-demand • Joint sustainability programs: On-demand • Academic research programs: On-demand	• Green and low-carbon development • Human rights and due diligence management • Industry standards development
Media	• Press conferences: On-demand • Exclusive interviews: On-demand • Inviting the media to our conferences and events: On-demand	• Technological innovation • Industry digitalization • Data security • Social and economic contributions • Local talent cultivation
Communities	• Local employment and procurement: Periodic • Participation in community projects: Periodic • Running social contribution programs: Periodic • Interaction through Huawei's websites and social media platforms: Periodic	• Biodiversity conservation • Information accessibility • Privacy protection • Supporting stable communications and business continuity • Respecting human rights • Compliance with business ethics

2022 Stakeholder Engagement

Achieving the UN SDGs requires the joint efforts of global stakeholders. As such, Huawei actively organizes and participates in a variety of sustainability programs, where we discuss and work together with our stakeholders on shared concerns (e.g., green and low-carbon development, digital inclusion, industry digitalization, and developing a talent ecosystem). Our goal is to leverage our creativity and innovation capabilities as well as those of our partners to drive sustainable development.

Huawei APAC Digital Innovation Congress: Innovation for a Digital Asia Pacific

The Huawei APAC Digital Innovation Congress, jointly held by Huawei and the ASEAN Foundation on May 19, 2022, attracted over 1,500 government officials, experts, researchers, partners, and analysts from more than 10 countries in the Asia-Pacific region. The congress explored the future of digital innovation and the digital economy. Topics included ongoing advancements in ICT, speeding up digital transformation across industries, as well as green and low-carbon development.

"The Asia-Pacific region is one of the most culturally and economically vibrant regions in the world," said Ken Hu, Huawei's Rotating Chairman, during his opening speech. "It has long played an important role in global economic growth, and now plays an equally important role in digital innovation." He cited the fact that many APAC countries have elevated digital transformation to the strategic policy level and are actively going green. He stated, "Huawei has deep roots in the APAC region. We have been serving our customers here for over 30 years, and we are proud to support digital development in the region."

Simon Lin, President of Huawei's Asia Pacific Region, gave a speech on the abundance of digital opportunities in the APAC region. He spoke about the company's commitment to becoming a major contributor to the regional digital economy, and working with its customers and partners to build a better green digital life as part of its "In Asia-Pacific, for Asia-Pacific" strategy.

Huawei and GeSI at EU Green Week 2022: Driving "Twin Transitions" in Europe

On May 31, 2022, Huawei's European Public Relations Department and its ecosystem partner, Global Enabling Sustainability Initiative (GeSI), jointly organized an event at the EU Green Week 2022, a sustainability initiative launched by the Directorate-General for Environment of the European Commission. The event brought together 26 senior officials from the EU and its member states, senior officials from UN agencies, and representatives from carriers and key industry partners. Attendees discussed the potential of digital technologies to accelerate green transformation, increase the use of renewable energy, and promote a circular economy.

Tony Jin, director of Huawei's European Public Relations Department, said, "At Huawei, we walk the talk. We strive to support the 'twin transitions' of green and digital innovation across Europe and use tech for a better planet. We primarily work on four key areas: reducing the carbon emissions of digital infrastructure, promoting renewable energy through innovation, contributing to a circular economy, and conserving nature with technology. These efforts will help Europe move towards carbon neutrality."

During the event, Huawei released its first European Green Paper, which collates Huawei's latest green development case studies and practices in Europe and demonstrates Huawei's contributions to green development in Europe.

Huawei European Innovation Day in Paris

Huawei hosted European Innovation Day 2022 on October 17, in Paris. Themed "Open Innovation for a Sustainable Europe", the event brought together innovators from around the world who are working on building a "Digital Europe" and exploring how digital technology can be used to protect the environment.

Dr. Basalisco, Director of Copenhagen Economics, shared the key findings in a study published that day. The study demonstrated Huawei's economic contributions to Europe in 2021, which are significant in value-add, jobs supported, and tax revenue. Huawei also contributed significantly to research and innovation, talent cultivation, sustainable development, and social and digital inclusion in Europe.

In his closing remarks for Innovation Day 2022, Huawei's Vice President of Corporate Communications, Karl Song, shared a few real-life examples of how Huawei is contributing to digital, intelligent, and green development both in Europe and around the world, and said that, "We will always be committed to the digital transformation of French and European SMEs and the creation of a more digital Europe."

Huawei at COP27: Calling for Network Evolution to Enable Green Development

On November 10, 2022, Philippe Wang, Huawei's Executive Vice President for Northern Africa, spoke at a session organized by the UN Climate Change Global Innovation Hub (UGIH) at the 27th Conference of the Parties, or COP27, in Sharm El-Sheikh, Egypt. The UGIH was hosted by the United Nations Framework Convention on Climate Change (UNFCCC).

Wang said that ICT is "making other industries greener" because "5G, artificial intelligence, data analytics, cloud computing – all these things will improve industrial processes in a way that cuts energy use and lowers carbon emissions."

Also speaking at the session, Luis Neves, CEO of the GeSI, stressed that digital should be at the core of the climate conversation. "If you bring a sustainability mindset together with digital, I think we can create a powerful machine to drive the sustainability agenda and accelerate the path for a world where 10 billion people can live a healthy life. And businesses should take both their carbon footprint and handprint into consideration," he said.

To this end, members of the ITU-T, including Huawei, have proposed a standard for measuring network energy use: the NCIe indicator. The standard was approved by ITU-T as Recommendation ITU-T L.1333.

Huawei Signs Global ITU Pledge to Help 120 Million People in Remote Areas Connect to the Digital World

Liang Hua, Chairman of Huawei, announced that the company had signed a commitment to join the ITU's Partner2Connect digital alliance at its 2022 Sustainability Forum held on November 23, 2022. Part of the commitment is to bring connectivity to about 120 million people in remote areas across more than 80 countries by 2025. The forum explored how ICT innovation could unleash the business and social value of connectivity and drive sustainability in the digital economy era. Speakers at the event included officials from the ITU and the United Nations; telecom ministers and regulators in Cambodia, Nigeria, Bangladesh, and Pakistan; and business leaders, researchers, partners, and customers from China, Germany, Belgium, and South Africa.

In Cambodia, the ITU's first P2C partner country, Huawei will work with government departments including the Ministry of Posts and Telecommunications and universities to provide 10,000 training opportunities for ICT professionals in the next five years.

Huawei is committed to inclusive development. Through its ongoing technological innovation, Huawei is contributing to a higher level of digitalization in remote regions, enabling everyone to enjoy the convenience of a digital life, and promoting the balanced development of the global digital economy.

Huawei's 2nd European Talent Summit: European Leaders Calling for an Open Talent Ecosystem and Deeper Intergenerational Knowledge Exchange

From December 7 to 9, 2022, Huawei held the 2nd European Talent Summit in Zappeion, Athens. Themed "Creating a Sustainable Future for European Talent Together", the event saw 80 outstanding students and 100 representatives from governments, international organizations, academia, and industry in Europe come together to explore solutions to the shortage of ICT professionals, and discuss how to bridge the digital divide and build an open and sustainable talent ecosystem.

In his keynote speech, Radoslaw Kedzia, Vice President of Huawei's CEE & Nordic Region, said, "Talent is essential for Europe to pursue its initiatives like digitalization and sustainable development. This is why we need to come together and build an open talent ecosystem for shared success. Huawei has always attached great importance to talent cultivation, and it has been one of our top priorities in Europe. Over the past decade, we have trained more than 30,000 ICT professionals in this region."

"There are obvious obstacles that hinder the opportunities of women to reach higher positions in their academic and professional careers," said Elissavet Vozemberg, Member of the European Parliament, Vice Chair of the Committee on Women's Rights and Gender Equality.

A white paper on intergenerational collaboration and digitalization was released during the summit.

Huawei's Membership in Sustainability Organizations

Focusing on Material Topics

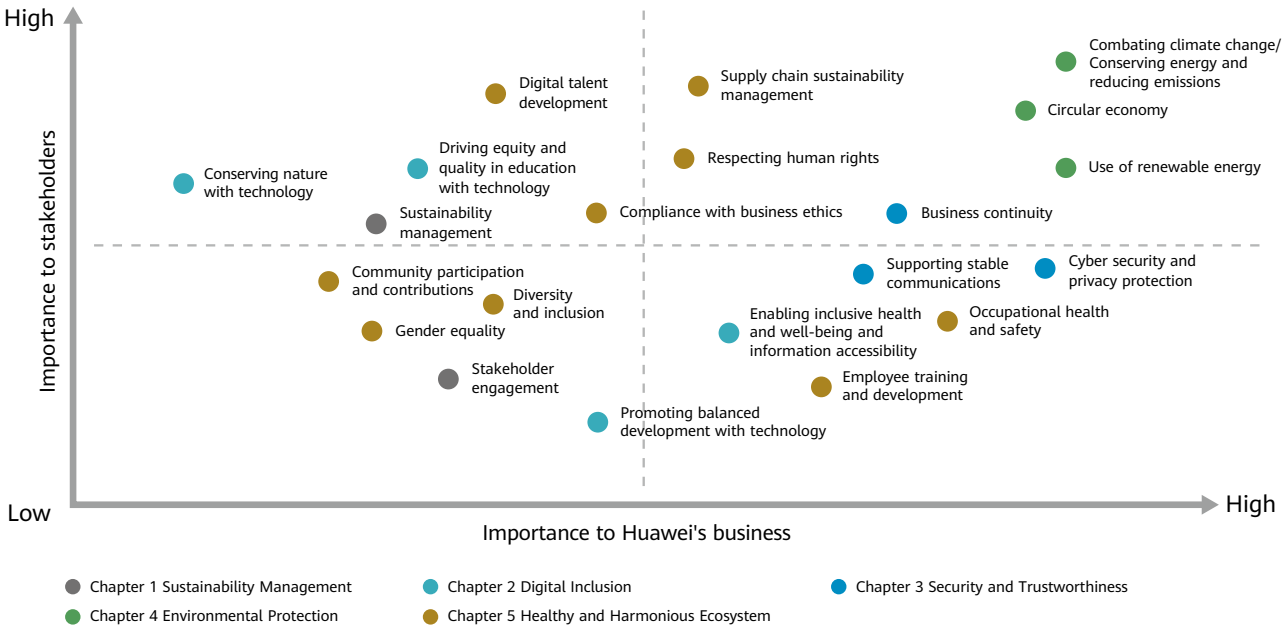
Material topics represent the most significant impacts of an organization on the economy, environment, and people. Managing material topics helps us identify and evaluate the impacts of Huawei's business operations and how they concern our stakeholders. This is an important reference for us as we continue to improve our sustainability governance and transparency.

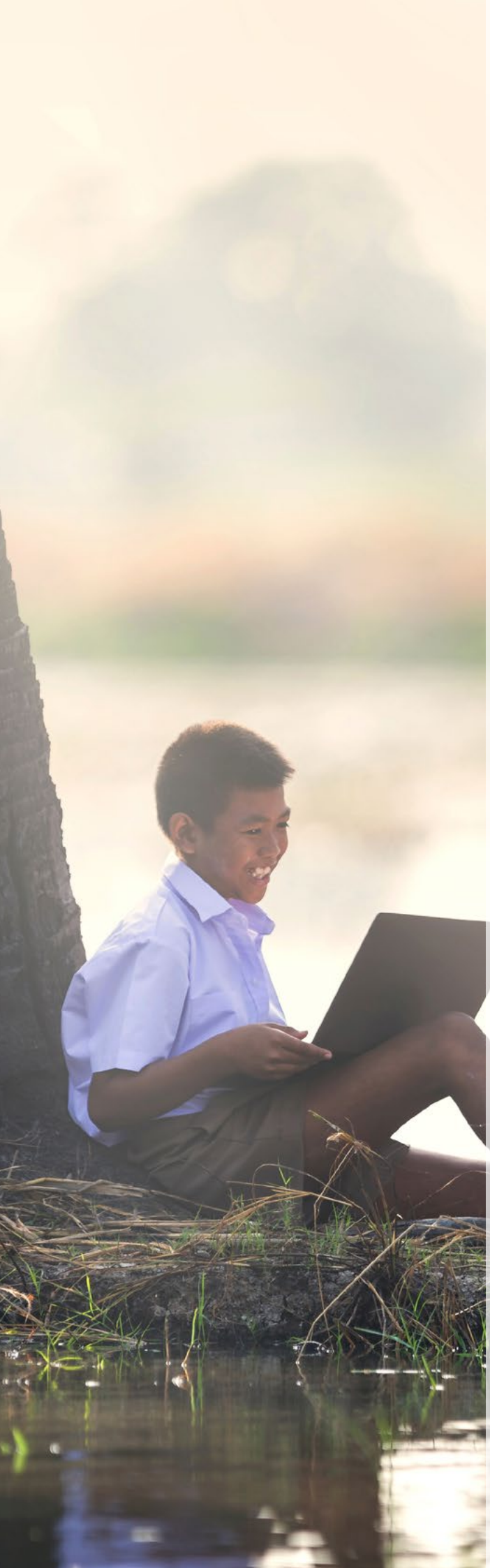
In 2022, after a comprehensive analysis and re-prioritization of our material topics, the following adjustments were made to our materiality matrix:

"Stakeholder engagement" was added to our matrix and "digital talent development", "employee training and development", and "supporting stable communications" were given higher priority.

Examples of how we identify material topics include:

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





02

Digital Inclusion

As the digital economy continues to develop rapidly, digital technologies like big data, IoT, and AI have been woven into every aspect of our lives. This makes digital inclusion critical in this new age. And so, Huawei launched the TECH4ALL initiative to promote digital inclusion, aiming to leave no one behind in the digital world.

In 2022, Huawei worked with more than 40 partners, including UNESCO and the International Union for Conservation of Nature (IUCN), and made substantial progress in TECH4ALL's four areas of focus: education, environment, health, and development. Our efforts continue to support the UN SDGs and are enabling an inclusive and sustainable digital world.

Contributing to UN SDGs:

Driving Equity and Quality in Education

UNESCO believes that education is a basic right for all throughout life and that access must be matched by quality. As part of our work to contribute to UN SDG 4 (Quality Education), Huawei is working with partners, including UNESCO and Close the Gap, to use innovative ICT solutions to enable equal access to high-quality education. We aim to harness the power of technology and increase network coverage and connections to help make high-quality educational resources more accessible. We want to empower more people with digital skills to improve education quality and drive their career development. We also support the development of science and technology courses to improve the scientific and technological literacy of teachers and students in remote areas. By the end of 2022, Huawei's TECH4ALL education programs had benefited over 600 schools and more than 220,000 people, including teachers and students, unemployed young people, and senior citizens.

Technology-enabled Open School Systems for All

The Open Schools project provides digital skills training to teachers in Ethiopia

300

300 Egyptian seed teachers have been trained through the Open Schools project

Meseret Tefera is an English teacher from Addis Ababa, capital of Ethiopia. Before the COVID-19 pandemic, she had never imagined she would one day stream lessons live to her students from her smartphone. But thanks to the Technology-enabled Open School Systems for All ("Open Schools") project jointly implemented by UNESCO, the ministries of education of Egypt, Ethiopia, and Ghana, and Huawei, she was able to continue teaching her students remotely during the pandemic. The project aims to promote the open school model by providing device access, network connectivity, and education cloud platforms. As part of this project, we build online learning platforms, provide digital skills training to teachers and students, and develop quality courses for pilot countries. Our goal is to ensure the continuity and quality of learning under both normal and crisis situations and provide inclusive and equitable quality education for all children.

In 2022, we visited pilot schools to assess their existing digital tools and provide digital skills training to seed teachers, and also released a policy framework. In Ghana and Ethiopia, we provided technical solutions and evaluation reports for 34 pilot schools to help them make better use of open learning resources. In Egypt, we launched a training program to help teachers in underserved communities improve their ICT and distance learning capabilities. So far, 300 Egyptian seed teachers have been trained through the program.

DigiSchool in China: Improving Scientific and Technological Literacy in K–12 Schools

To improve the scientific and technological literacy of teachers and students in rural schools, Huawei launched the DigiSchool project in China together with universities and other partners. Through this project, we developed a series of inquiry-based and multidisciplinary science and technology courses based on the STEAM (science, technology, engineering, arts, and mathematics) education approach, K–12 education curriculum guide, and cutting-edge ICT know-how and practices. The courses were delivered by university volunteers, retired Huawei employees, and teachers from local schools.

By the end of 2022, DigiSchool courses had been delivered in 20 rural elementary schools in Ningxia and Jiangxi provinces, benefiting more than 2,500 teachers and students. This project has improved rural teachers' digital literacy and inspired student curiosity into science and technology.

2,500

DigiSchool courses had been delivered in 20 rural elementary schools in Ningxia and Jiangxi provinces, benefiting more than 2,500 teachers and students

The DigiSchool at No. 18 Elementary School of Xixia District, Yinchuan, Ningxia, China

DigiTruck: Providing Digital Skills Training to Remote and Underserved Communities

As our world is increasingly driven by technology and digitalization, the lack of access to digital tools and skills has put many in a digital dilemma. To address this challenge, Huawei and its partners launched the DigiTruck program. A DigiTruck is a mobile, solar-powered classroom converted from a used shipping container or bus and equipped with smart devices like laptops, VR headsets, and routers. These DigiTrucks go to where they are needed most to provide digital skills and cyber security training to senior citizens, unemployed young people, and middle school students in remote and underserved communities. The aim of this program is to give trainees equal access to the digital world and help them grow sustainably. Over the past three years, DigiTrucks have toured 12 countries, including Kenya, France, Portugal, Spain, and Ethiopia.

Amar Boularasse, a retired French chef, once said that he felt like not knowing how to engage with the digital world was making him a social outcast. By participating in multiple DigiTruck training sessions in France, he learned how to use a computer to print out his favorite poetry from Boris Vian and even how to file his taxes online. Today, many people still face this dilemma like Amar used to. This gap has left them unable to benefit from digital connectivity and exacerbated socioeconomic inequality.

By the end of December 2022, DigiTrucks had visited 23 French cities and provided more than 1,900 hours of training to local communities, helping more than 3,600 people connect to the digital world.

DigiTrucks had also trained more than 2,700 unemployed young people in remote areas of Ethiopia and Kenya, equipping them with the digital skills they need to make a living. The training also taught villagers in remote areas how to sell chickens and rabbits on the Internet to increase their income.

A DigiTruck drives to underserved communities in France to provide basic digital skills training to senior citizens

Conserving Nature with Technology

Both our society and economy rely on healthy and functioning ecosystems, and sustainable development would not be possible without rich biodiversity. The 2022 UN Biodiversity Conference (COP15) ended with a landmark agreement that promises to put at least 30% of the world's land and oceans under protection by 2030. Under this agreement, signatories must take immediate action to not only jumpstart the implementation of the new Global Biodiversity Framework, but also to continue to accelerate and upscale the implementation of their National Biodiversity Strategies and Action Plans, as we work together towards realizing the shared vision of living in harmony with nature and securing a sustainable future for all. Huawei is working closely with global environmental protection organizations, customers, and partners on projects that explore the use of ICT to protect forests, wetlands, and oceans, and increase the efficiency of biodiversity and natural resource protection and management.

Nature Guardians

Huawei and Rainforest Connection (RFCx) are using the solar-powered Nature Guardian acoustic monitoring system, enabled by cloud and AI technologies, to help rangers identify the sounds of environmental threats in real time. This system also helps conservationists study and protect local biodiversity based on the collected acoustic data.

With the support of Huawei, Nature Guardians had been deployed in 37 protected areas around the world, covering forests, wetlands, and oceans, by the end of 2022.

In Austria's Neusiedler See-Seewinkel National Park, the acoustic data collected by the Nature Guardian system gives conservationists insights into changes in the wetland ecosystem and their effect on birds and amphibians in different seasons.

In Italy, Huawei and the World Wide Fund for Nature (WWF) have launched two projects. The first project aims to prevent illegal activities such as bird trapping, motocross, and firework displays in the three protected oases using the Nature Guardian system. So far, the system has sent over 2,000 real-time alerts on sounds potentially associated with illegal activities, prompted over 30 field checks, and automatically recognized 49 species. The second project selected eight farms between the Alps and Sicily, and deployed a cloud- and AI-powered monitoring system to help conservationists compare biodiversity in agricultural areas managed using organic methods with biodiversity in areas managed using conventional methods. The goal of this project is to develop inclusive, healthy, and sustainable agricultural practices.

Marco Osti, head of the WWF Valle dello Sporeggio Park in Italy, installs an AudioMoth acoustic device on an apple tree

In Sarawak, Malaysia, Huawei and its partner also provided technical training to local forest rangers who deployed Nature Guardians, allowing them to remotely monitor activities in the rainforest in real time during the COVID-19 pandemic. A total of 34 alerts were issued for illegal logging activities after the system detected the sounds of chainsaws.

Tech4Nature

Since 2020, Huawei and IUCN have jointly implemented multiple Tech4Nature projects around the world, including pilot projects in Switzerland, Spain, China, Mexico, and Mauritius. Tech4Nature aims to use digital technology to enable more efficient management and nature conservation in 300 protected areas worldwide.

In Mexico's Dzilam State Reserve, Huawei and a local partner deployed 20 infrared cameras and 60 acoustic monitoring devices to protect mangrove forest, tropical jungle, and tropical grassland ecosystems over an area of nearly 20 square kilometers. Nearly 20,000 images, 710 videos, and 170,000 audio recordings have since been collected in the area, helping conservationists identify 50 endemic species, including jaguars.

In China's Hainan Bawangling National Nature Reserve, a real-time monitoring solution consisting of acoustic monitoring devices, wireless connections, cloud services, and AI can accurately identify the calls of Hainan gibbons, which are listed as "critically endangered". The solution's current recognition accuracy has reached 89.2%. In the future, it will be possible to automatically identify and classify the vocalizations of Hainan gibbons, potentially creating a unique voiceprint for each gibbon.

In a natural park in Barcelona, we also deployed an alarm detection system consisting of cameras, GPS receivers, and a cloud platform, to help park managers improve tourism management while reducing human disturbance in the breeding areas of the Bonelli's eagle.

In Switzerland and Mauritius, Huawei and its partners ran pilot projects to improve accounting on carbon sinks in a protected forest area and monitor and restore a coral reef ecosystem, respectively, using technologies like blockchain, wireless networks, and cloud.

300

Tech4Nature aims to use digital technology to enable more efficient management and nature conservation in 300 protected areas worldwide

Jaguar pawprints identified in the Dzilam State Reserve, Yucatán, Mexico

Intelligent Filtering System: Protecting Atlantic Salmon from Invasive Species

Atlantic salmon are an important pillar of Norway's culture and economy, but the species' survival is threatened by Pacific salmon, an invasive species. Since the 1980s, the population of wild Atlantic salmon has dropped by 50%, as the invasive species out-competes the native species for food and spawning grounds.

Since 2021, Huawei has worked with Berlevåg Jeger-og Fiskerforening (BJFF), an association of hunters and anglers in Norway, to use digital technology to prevent invasive species.

Together, we have developed an AI-powered filtering system. The system can automatically identify invasive Pacific salmon and divert them to a holding tank, while wild Atlantic salmon and other native fish can proceed upstream through the gate to complete their migratory spawning process.

After being deployed in the Storelva River in Berlevåg in June 2022, the system has successfully blocked and diverted invasive Pacific salmon. This is the world's first intelligent filtering system for salmon deployed in natural rivers, providing an effective solution for preventing invasive species and conserving Norwegian river ecosystems.

Huawei and its partner install an intelligent filtering system for salmon in the Storelva River in Norway

Enabling Inclusive Health and Well-being

According to World Health Organization, more than one billion people in the world are affected by some sort of disability, meaning that nearly one in every seven people has accessibility needs. Huawei believes that no one should be left behind in the digital world, and that everyone should have equal access to technology and the wonderful experiences that it can bring to their lives. As the world's population ages faster, we need to pay more attention to senior citizens who are struggling to integrate into the digital world. This is also an important area of focus of Huawei's TECH4ALL initiative.

Digital Literacy Training for Senior Citizens: Helping Them Navigate Digital Life

The theme of the 2022 World Telecommunication and Information Society Day was "Digital Technologies for Older Persons and Healthy Ageing". ICT companies around the world have taken on the task to improve digital inclusion and fulfill their social responsibilities by helping senior citizens integrate into and benefit from the digital world.

Leveraging its own expertise in ICT and devices, Huawei joined an initiative launched by the Beijing Open University to jointly provide digital literacy training to senior citizens. Over the past two years, Huawei has developed 10 tailored courses that address the needs of senior citizens, and collaborated with partners and volunteers to provide training and coaching in communities, nursing homes, Beijing Open University, Xi'an Open University, and more. During the COVID-19 pandemic, the training also offered live lectures through WeLink supported by Huawei Cloud. These online and offline courses teach senior citizens how to use basic smartphone functions and how to navigate their digital life in 10 common scenarios, including online shopping and online fraud prevention, helping bridge the digital divide.

This training program is an extension of Huawei's efforts to develop elderly-friendly devices. The training is open to all senior citizens, not just the consumers of Huawei devices, and the knowledge and application scenarios explained in the lectures are not limited to Huawei products. This is part of Huawei's commitment to leave no one behind in the digital world.

By the end of 2022, 135 training sessions had been provided, benefiting more than 12,000 senior citizens. In December 2022, the program was named an "Excellent" smart device training program for senior citizens by China's Ministry of Education.

A lecturer teaches photography techniques to a senior citizen

12,000

135 training sessions had been provided, benefiting more than 12,000 senior citizens

Providing More Thoughtful Accessibility Features

Huawei has ramped up R&D investment into accessibility to develop more thoughtful accessibility features, such as AI subtitles, image recognition, and large font sizes. They are targeted at giving people with disabilities more access to the new rights and conveniences of the information age. These features have won wide recognition from the industry: The HarmonyOS-powered HUAWEI P50 Pro ranked top in China Telecom's smartphone accessibility assessment in 2022. HarmonyOS 2 was the only five-star-rated OS according to the 2022 smartphone OS/UI elderly-friendliness ratings released by the China Telecom Research Institute.

HarmonyOS 3 comes with an upgraded image recognition feature to help visually impaired users more easily engage with the world around them. Users can use their phone cameras to identify objects and text, and their phones can relay the features and locations of people or objects around them. For example, the phone might announce, "A man wearing a T-shirt is sitting in front of the desk, and there is a computer on the desk." The AI subtitle feature helps hearing impaired users convert voice into text. In addition, phones powered by HarmonyOS 3 can quickly connect to hearing aids such as cochlear implants, allowing audio from videos or phone calls to be transmitted directly through hearing aids. The OS's Senior mode makes it easier and more convenient for elderly users to use smartphones. Features like Simple mode and Magnification gestures perfectly meet elderly users' needs for volume, font size, responsiveness, and more.

Huawei is working to provide more accessibility features for users with visual, hearing, physical, and cognitive impairments to help them more easily use smart devices and enjoy more convenient lives.

Driving Inclusive Digital Development

Traditional banking and financial services are expensive and require in-person support, making them out of reach for more than 1.7 billion adults across the globe. In 2005, the United Nations called upon organizations around the world to improve financial inclusion and ensure that responsible and sustainable financial services are available for all, especially those in rural and impoverished areas who are often neglected by traditional financial services.

Huawei Mobile Money Solution: Advancing Financial Inclusion for All

Huawei is committed to working with its global partners to promote financial inclusion and improve lives by bringing equal, effective, comprehensive, and convenient digital financial products and services to every person and organization.

Huawei Mobile Money is part of our efforts to bridge the digital divide through mobile communications technologies and digital payment platforms. This solution aims to give unbanked people access to affordable and reliable financial services such as deposits and withdrawals, utility payments, remittances, mobile payments, loans, insurance, and savings management. These services are particularly impactful for low-income and remote communities that lack access to traditional financial services. Huawei Mobile Money is also geared towards empowering micro-, small-, and medium-sized enterprises.

By the end of 2022, Huawei Mobile Money had benefited more than 400 million people in over 20 developing countries, such as Kenya, Ethiopia, Bangladesh, Pakistan, and Tanzania, advancing financial inclusion.

Ethiopia was listed as one of Africa's "sleeping giants" in GSMA's 2018 State of the Industry Report on Mobile Money, because at that time, it was one of the few African countries where there was no mobile money service.

In 2021, Huawei and Ethio Telecom jointly launched TeleBirr, a financial inclusion service, in Ethiopia. By December 2022,

For more details about TECH4ALL, please visit:
https://www.huawei.com/en/tech4all

Kenyans are using mobile payment services

TeleBirr had attracted 101 super-agents, 97,000 agents, and 24,000 merchants, directly and indirectly creating more than 180,000 jobs in Ethiopia. Over 30% of these agents and merchants are women, highlighting how the service can promote gender equality in employment and help improve women's status in the country.

TeleBirr also partners with a number of multinational remittance companies to reduce the cost of international remittances. This has made cross-border remittances from Ethiopians living overseas to their family members and friends in Ethiopia more convenient and affordable.

TeleBirr is now an official e-government payment channel in Ethiopia. It provides simplified processes for the local government to grant subsidies to eligible users, so that users can receive the subsidies quickly.

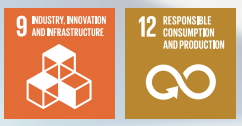
03

Security and Trustworthiness

As the world grows more interconnected, digital, and intelligent, cyberspace is becoming an integral part of life, business, and the economy. While digital technologies like cloud computing, big data, AI, and 5G are creating unprecedented new value for society, the world is also growing increasingly vulnerable. As digital assets increase, attack surfaces are continuing to expand, security vulnerabilities are being exploited more frequently, and cyberspace as a whole is becoming increasingly unsecure. These are making cyber security assurance more important than ever.

We must continuously improve cyber security and network stability to safeguard the development of our digital economy, which entails both challenges and opportunities. That means building digital trust and making critical infrastructure both more secure and more resilient. That means guiding enterprises through the digital transformation process. That means implementing management and technical measures to control risks, ensuring compliance, and protecting both networks and data. That also means giving people access to stable ICT services during major incidents like natural disasters and pandemics.

Contributing to UN SDGs:



Cyber Security and Privacy Protection

Over the past 30-plus years, we have worked with carriers to build over 1,500 networks and have helped millions of enterprises go digital. During this time, we have connected over three billion people around the world and maintained a solid track record in security throughout. As digital transformation picks up speed, we are acutely aware that cyber security and privacy protection will become key to business success in the future digital world.

With this in mind, we have continued to make cyber security and privacy protection a top priority. We strive to confront cyber security and privacy challenges and seize related opportunities through management transformation, technological innovation, and open collaboration. We are committed to fostering a better life for all in the future digital world where personal data is lawfully used and always protected by offering secure and trustworthy products, solutions, and services.

Internally, we are continuously optimizing our end-to-end cyber security and privacy protection assurance system and embedding related requirements into our business processes. This ensures that all cyber security and privacy protection requirements are consolidated and up-to-date in each of our business domains. Externally, we work hard to combat cyberattacks for our customers, to help them mitigate risks and improve their cyber resilience. These efforts include:

Specifying governance principles and the general policy framework

We have developed cyber security governance principles and a general policy, referencing applicable laws, regulations, and industry standards, as well as Huawei's years of experience. They are intended to guide the development of cyber security organizations and capabilities within our various business domains so we can ensure that risks are effectively managed and that our products, solutions, services, and operations comply with relevant laws and regulations while remaining competitive in terms of security.

Deepening trustworthiness transformation and helping customers mitigate security risks on live networks

In 2022, we analyzed security risks, designed solutions, and aligned with customers in typical scenarios like lifecycle management, vulnerability management, digital certificate management, integrity protection, and security configuration. We also continued to keep customers apprised of potential risks, including those related to end of service and support, certificate expiration on live networks, and high-risk vulnerabilities, such as Log4j2, in order to help them manage these risks. We consistently monitored vulnerability information, quickly and accurately traced affected versions based on full software information, and took remedial measures to help affected customers mitigate risks and improve cyber resilience.

Consolidating privacy governance to respect and protect user privacy

We have continued to refine our global privacy compliance framework and guide business units through privacy compliance work by incorporating privacy protection requirements into everything we do, including R&D, services, and operations. We have also continued to invest in privacy compliance IT tools and platforms that improve the efficacy and maturity of compliance management in complex scenarios such as cross-border personal data transfers.

In 2022, we released the Huawei Privacy Governance White Paper and shared Huawei's privacy governance methods and practices with the industry. We have also endeavored to protect the rights of data subjects by handling more than 25,000 requests promptly and effectively. Moreover, we have passed over 50 industry-recognized certifications and audits across different countries and business domains, ensuring that our corporate privacy protection policies are well enforced.

Helping customers manage risks through technological innovation

We continue to build intrinsic security capabilities in product design. Take 5G base stations, for example. Based on the mobile communications service model, we constantly perform security detection and identity assessment to ensure a quick response. We deploy functions such as minimum system and continuous security assessment to equip network elements with more effective protection capabilities, helping customers build secure and resilient mobile networks. In addition, we have introduced technologies such as security configuration checks, targeted vulnerability blocking, collaborative anti-ransomware, and high-performance multi-party computing to ICT products to enhance security and resilience.

To address customer pain points in security operations, we launched the next-generation cloud security operations platform "Cloud Security Brain". The platform's unified cloud security architecture allows our customers to greatly improve the efficiency of security operations by quickly managing security events throughout the lifecycle, including alarm discovery, collaborative handling, and event backtracking.

For the HarmonyOS 3 operating system that powers devices, we have upgraded the Privacy Center and Security Center to make the security status of phones visible to users and help users manage their privacy more effectively. Furthermore, we have introduced an application control center to control risky applications appropriately. We provide an enhanced protection function to create a cleaner and more secure environment for the elderly and children. This effectively prevents malicious intrusions and better protects personal privacy and data security.

Continuously enhancing secure and trustworthy delivery and service operations

Over the past year, we have continued to enhance our rules, processes, and IT capabilities regarding trustworthy operations to ensure transparent and traceable network operations. As part of our commitment to developing the security ecosystem, we organized cyber security training and certification for our partners and contractors to continuously improve their cyber security awareness and capabilities. Moreover, we actively communicated with industry stakeholders to jointly build cyber security capabilities in response to mounting cyber security challenges.

In addition, we have continued to optimize the presence of our global service centers to ensure more flexible service delivery. Meanwhile, we organized the Network Safety Day campaign with customers to identify and mitigate risks on live networks, strengthen cyber security awareness, enhance cyber resilience, and support secure and stable network operations.

Strengthening cyber security risk management and capability building within our supply chain

In 2022, we assessed and managed the cyber security risks of more than 4,000 suppliers worldwide, signed data processing or protection agreements with more than 5,000 suppliers, and managed cross-border data transfers of suppliers to ensure security and privacy compliance. We have stepped up efforts to equip our core suppliers with the skills they need in security design specifications and vulnerability management. We have continued to enhance our end-to-end security system, including incoming material checks, processing, manufacturing, and product delivery, optimize our supply chain tracing system, and establish linkages with hundreds of billions of data records. By doing so, we are able to track software and hardware within hours throughout the entire chain from incoming materials to customers, effectively supporting rapid issue rectification and risk mitigation.

Steadily boosting awareness and professional capabilities among all employees

In 2022, we held our Cyber Security and Privacy Protection Awareness Month campaign, which featured guidance from top-level management, expert lectures, knowledge quizzes, and a technology conference that attracted extensive employee participation. We continued to encourage employees to pursue external professional certification programs and, to date, more than 2,000 employees have obtained industry-recognized certifications such as Certified Information Systems Security Professional (CISSP), Certificate of Cloud Security Knowledge (CCSK), and Certified Information Privacy Manager (CIPM). We have also planned and developed new cyber security enablement courses and exams. So far, we have launched over 140 Massive Open Online Courses (MOOCs), which have already had more than 200,000 enrollments.

Increasing investment in independent third-party verification

We continued our cooperation with industry-recognized certification bodies to test the cyber security capabilities of Huawei products against international standards and best practices, providing customers with internationally recognized security assurance. In 2022, we obtained more than 30 internationally recognized cyber security certificates, a testament to the proven security of Huawei products:

- World's first GSMA Network Equipment Security Assurance Scheme (NESAS) 2.2 audit: 5G base stations
- Common Criteria (CC) EAL4+: 5G core network product Unified Distributed Gateway (UDG), Reliable Telecomm Operating System (RTOS), GaussDB Kernel, and CE series switches
- ISO 19790 certification from the British Standards Institution (BSI): iTrustee and HSSD, the core modules of HarmonyOS
- ISO 27034: ICT product R&D process

Huawei CloudEngine Data Center Switches Earn Internationally Renowned Common Criteria EAL4+ Certification

In March 2022, Huawei's CloudEngine 16800, 8800, and 6800 series data center switches passed the security evaluation by the European independent security evaluation lab SGS Brightsight, and earned Common Criteria (CC) Evaluation Assurance Level 4 Augmented (EAL4+) from third-party certification body TÜV Rheinland. CC EAL4+ is the highest level of assurance for network products. These series of switches are the industry's first switch models to achieve the CC certification with identical security functionality claims of the Network Device Collaborative Protection Profile (NDcPP).

CC provides assurance that information technology (IT) products and solutions meet certain levels of security, reliability, and privacy protection. It is the most recognized and trusted IT product security certification in the world and serves as an important basis for product security evaluation in enterprise IT solution construction.


Certificate

Standard: Common Criteria for Information Technology Security Evaluation (CC) Version 3.1 Revision 5 Parts 1, 2 & 3 (ISO/IEC 15408-1, ISO/IEC 15408-2 & ISO/IEC 15408-3)

Certificate number: CC-22-0351836

TÜV Rheinland Nederland B.V. certifies

Certificate holder and developer: Huawei Technologies Co., Ltd.
Administration Building
Huawei Industrial Base,
Bantian, Longgang,
Shenzhen 518129
People's Republic of China

Product and assurance level: Huawei CE16800&CE8800&CE6800 Series Switches running VRP software V300R021C00SPC200
Assurance Package:
- EAL4+ augmented with ALC_FLR.2

Project number: 0351836

Evaluation facility: SGS Brightsight located in Delft, the Netherlands

Applying the Common Methodology for Information Technology Security Evaluation (CEM), Version 3.1 Revision 5 (ISO/IEC 18045)

Validity: Date of 1st issue: 14-03-2022
Certificate expiry: 14-03-2027

TÜV Rheinland Nederland B.V.
Westervoortsedijk 73, 6827 AV Arnhem
P.O. Box 2220, NL-6802 CE Arnhem
The Netherlands

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Huawei CloudEngine data center switches earn CC EAL4+ certification

As digitalization ramps up, new ICT infrastructure – the foundation of the digital economy – is gradually transforming into a data center-centric architecture. This in turn creates significant challenges in security and reliability for data center networks. Data center networks need to strengthen their security systems. At the same time, they need to be ready for increasingly diverse attacks.

Huawei CloudEngine data center switches ensure product security and trustworthiness at the following layers:

- Architecture security: The security framework focuses on access security and operation security, building the layer-by-layer defense capabilities of switches along possible attack paths.
- Environment security: A secure product development environment is built through mechanisms such as network isolation, security authentication, and permission minimization.
- Release and deployment security: End-to-end delivery integrity protection is realized through defense against tampering, source tracing, trusted sources, and malicious download protection.

In addition, Huawei ensures security and trustworthiness by using an independent security test platform for its products.

Huawei will continue to innovate in data center network products, laying a solid foundation for data center infrastructure connections and building secure and reliable next-generation data centers.

Openness and Transparency

Cyber security and privacy protection are a common challenge, one that all stakeholders – including governments, industry and standards organizations, enterprises, technology suppliers, and consumers – have a shared responsibility to confront. Adhering to our cyber security values of integrity, trustworthiness, capability, accountability, openness, and transparency, we welcome more communication and collaboration with key stakeholders to jointly improve cyber security capabilities and address cyber security and privacy challenges. Together, we can promote standards development, conduct joint innovation, and share knowledge and best practices. We always strive to improve cyber security and protect personal privacy so that everyone can enjoy the benefits of technological advances.

In 2022, we made the following key achievements in external collaboration:

- In terms of standards, we contributed nearly 300 cyber security proposals to the international standards organizations 3GPP and GSMA, maintaining our longstanding position as a leader in the industry. We also submitted proposals on general security technical requirements on optical networks and equipment, router security requirements, AI model protection, critical information infrastructure protection, and confidential computing for server security to standards organizations like ETSI, IETF, ITU-T, China Communications Standards Association (CCSA), and the National Information Security Standardisation Technical Committee of China (TC260). These are just a few examples of our many ongoing contributions to the development of industry security standards.
- We deepened joint innovation with China Mobile on 5G application security. We continued our collaboration with China Mobile Zhejiang to foster new 5G network security solutions, such as security configuration checks for 5G equipment and intrusion detection for core network elements, based on the 5G Application Security Innovation Promotion Center (Zhejiang) of China's Ministry of Industry and Information Technology. These solutions effectively meet customer requirements for configuration management and security hardening in network deployment and help mitigate risks on live networks.

  In addition, we engaged in more extensive joint innovation with carriers in Chinese provinces at the forefront of 5G application, such as Guangdong and Jiangsu. Together, we continued to develop and enhance 5G network security capabilities, including device access control, network transmission encryption, slice isolation, and cyber security situation awareness, enriching the supply of security capabilities and satisfying the security requirements of sectors including manufacturing, energy, government, and connected vehicles. Notably, the all-round defense system for "vehicle, road, network, cloud, and data", jointly designed by Huawei and China Mobile Jiangsu for China's 5G-powered smart transportation infrastructure project, won first prize in the national final of the 5th Blossom Cup 5G Application Contest.
- At the Information Security Forum (ISF) World Congress, we supported China Telecom and Omantel in sharing the achievements of the GSMA 5G Cybersecurity Knowledge Base. Carriers can reference the knowledge base to mitigate security risks on live networks and improve cyber security and resilience. We built the security capabilities of network equipment and supported carriers in implementing the knowledge base.
- In 2022, we actively worked with governments worldwide to contribute to local talent cultivation and ecosystem development.
  - In Thailand, we worked with the National Cyber Security Agency (NCSA) on activities like Thailand Cyber Security Week and various cyber security competitions that help identify local talent and improve cyber security awareness. We also delivered in-depth training on cyber security technologies and standards for a wide array of local organizations and talent through e-lab, a dedicated online learning platform. As a result, Huawei was awarded the Thailand Cybersecurity Excellence Award by Thai Prime Minister H.E. General Prayut Chan-o-cha.

Huawei receives the Thailand Cybersecurity Excellence Award from Thai Prime Minister H.E. General Prayut Chan-o-cha

- In the UAE, we deepened our cooperation with the Cyber Security Council (CSC), actively contributed to the construction of the local cyber security ecosystem, and co-built a cyber security think tank and center of excellence for knowledge sharing and talent cultivation, helping enhance cyber security capabilities and awareness within the region. Huawei received the Fortress Cyber Security Award from the CSC.

Huawei receives the Fortress Cyber Security Award from the CSC of the UAE

- In Singapore, we partnered with the Cyber Security Agency and actively participated in its SG Cyber Safe Partnership Programme to further boost the cyber security capabilities and awareness of local businesses and organizations. In 2022, we also obtained the Data Protection Trustmark certification from the Infocomm Media Development Authority (IMDA) in recognition of our privacy protection efforts.
- In Indonesia, we collaborated with multiple government ministries, including the National Cyber and Crypto Agency (BSSN), to cultivate cyber security talent and improve cyber security awareness through training, workshops, and other activities. In 2022, Huawei won the BSSN's Talent Development Contribution Award.
- In Tunisia, we ramped up cooperation with the National Agency for Computer Security, and made active contributions to knowledge sharing, talent cultivation, and ecosystem development. In 2022, Huawei won the ICT Industry and Talent Development Award issued by the Prime Minister of Tunisia.
- In Ghana, we continued our partnership with the Ministry of Communication and Digitalisation, National Cyber Security Agency, and Ministry of Education to help local students and civil servants improve their cyber security skills through training, promote their career development, and encourage more women to enter the field of cyber security.

- We intensified cooperation with regional and industry organizations to help improve cyber security capabilities and awareness in different regions.
  - As a commercial member of the Organisation of the Islamic Cooperation-Computer Emergency Response Team (OIC-CERT), we participated in the development of the OIC-CERT 5G Security Framework, aiming to help member states systematically understand and respond to 5G cyber security threats, and more securely deploy and operate 5G networks and services.
  - We worked with the Global Digital Foundation on hosting the AI Foundation Forum, bringing together experts in policy, standards, AI, and cyber security from across Europe to discuss AI and data governance.
  - Together with the European Institute of Innovation & Technology and the Global Digital Foundation, we released the Q&A Guide for Promoting Cybersecurity for SMEs in Europe, providing cyber security suggestions for SMEs.

Cyber security and privacy protection are a shared responsibility, and all stakeholders need to tackle this global challenge together. We are committed to strengthening communication and collaboration with all stakeholders and promoting common security standards, technological innovation, security governance, testing, and verification. We look forward to ongoing collaboration with all stakeholders to build cyber security and privacy protection capabilities, share value, and embrace both challenges and opportunities to foster a better life for all in the future digital world.

Supporting Stable Communications

In the information age, communications technologies do more than just enrich our day-to-day lives. They have proven vital in times of need, supporting all sorts of important occasions like disaster relief, pandemic responses, and major events. As an ICT infrastructure provider, Huawei's primary responsibility is to support stable operations and services of customer networks, giving people access to ICT services anytime, anywhere.

In 2022, more than 5,000 of our professional engineers worked side by side with customers around the clock to safeguard global communications networks and provide support during over 300 major events and emergencies.

Network Support During the FIFA World Cup Qatar 2022

During the 22nd FIFA World Cup held in Qatar, Huawei partnered with local carriers to support wireless communications in all eight stadiums and deployed end-to-end solutions at seven. This high-profile event lasted 28 days, included 64 matches, and attracted more than 1.4 million tourists. Ensuring every corner of Doha had 5G coverage and building the world's first 8K live broadcast system was a massive undertaking.

To ensure stable network operations with zero interruptions, zero accidents, and superior user experience, Huawei's project team spent over 400 days preparing for the event. Advanced technologies such as AR-assisted operations and maintenance and large digital screens were used to help our partners deliver a superior experience for the nearly three million cumulative visitors in the stadiums and the billions of streamers around the world watching the matches live. During the event, network throughput rose by more than 80%, with a single game generating network traffic up to three times that of the previous World Cup. The number of roaming subscribers watching the event also grew by 40%. All of these numbers were record highs. Together with our partners, we delivered a superior network experience for audiences all over the world.

A Huawei engineer tests the signal in a stadium during the FIFA World Cup Qatar

Note: Huawei was not a supplier or sponsor of the FIFA World Cup Qatar 2022.

Restoring Communications Services During the 2022 Pakistan Floods

In August 2022, Pakistan was rocked by record-breaking floods, with the government declaring a state of emergency on August 25.

In response to this life-or-death crisis, Huawei Pakistan immediately set up an emergency support team to minimize losses caused by network interruptions. Before the floods, we had already prepared 32 contingency plans and significant stockpiles of spare parts for possible disasters. So, our team was able to get key spare parts to affected sites within 12 hours and help our customers restore backbone networks within 36 hours. They stayed at the customer's network management center and core equipment room around the clock for three consecutive weeks to provide support. Our team, alongside our customers, recovered 99% of network services. No secondary network accidents were caused by optic-fiber transmission interruptions or network signaling storms.

Members of Huawei's emergency support team take a boat to a disaster-affected area to restore communications services

Emergency Repair of Communications Networks Following an Earthquake in Luding, Sichuan, China

Huawei's emergency assurance room in Luding, Sichuan

At 12:52 on September 5, 2022, a magnitude 6.8 earthquake struck Luding County in the province of Sichuan, affecting more than 110,000 people and wreaking havoc on houses, roads, communications networks, electricity and water facilities, and other essential infrastructure. Many wireless base stations were disrupted, cutting villagers off from communications services. Making things worse, secondary disasters like landslides, collapses, and landslide dams created tremendous risks and complicated post-earthquake rescue efforts.

Recovering communications in the wake of a natural disaster is a matter of life and death. Immediately after the earthquake, Huawei's Sichuan Representative Office initiated an emergency response and dispatched an expert team to Luding for communications repairs and assurance, alongside local carriers. Four hours after the earthquake, the first batch of personnel arrived with relief supplies in the epicenter of the earthquake, braving aftershocks and following a 350-kilometer journey. Within 24 hours, the joint taskforce surmounted many obstacles and was able to restore essential communications in Hailuogou, the very heart of the epicenter. Within 72 hours, network performance in the affected areas returned to 80% of pre-quake levels, thanks to the emergency contingency plan that was enacted. Five days after the earthquake, all communications were restored to pre-quake levels.

During the disaster relief process, Huawei engineers demonstrated incredible courage and an unremitting sense of responsibility as they worked against all odds to rapidly restore communications and facilitate relief efforts.

Network Support Following the 2022 Tonga Volcano Eruption

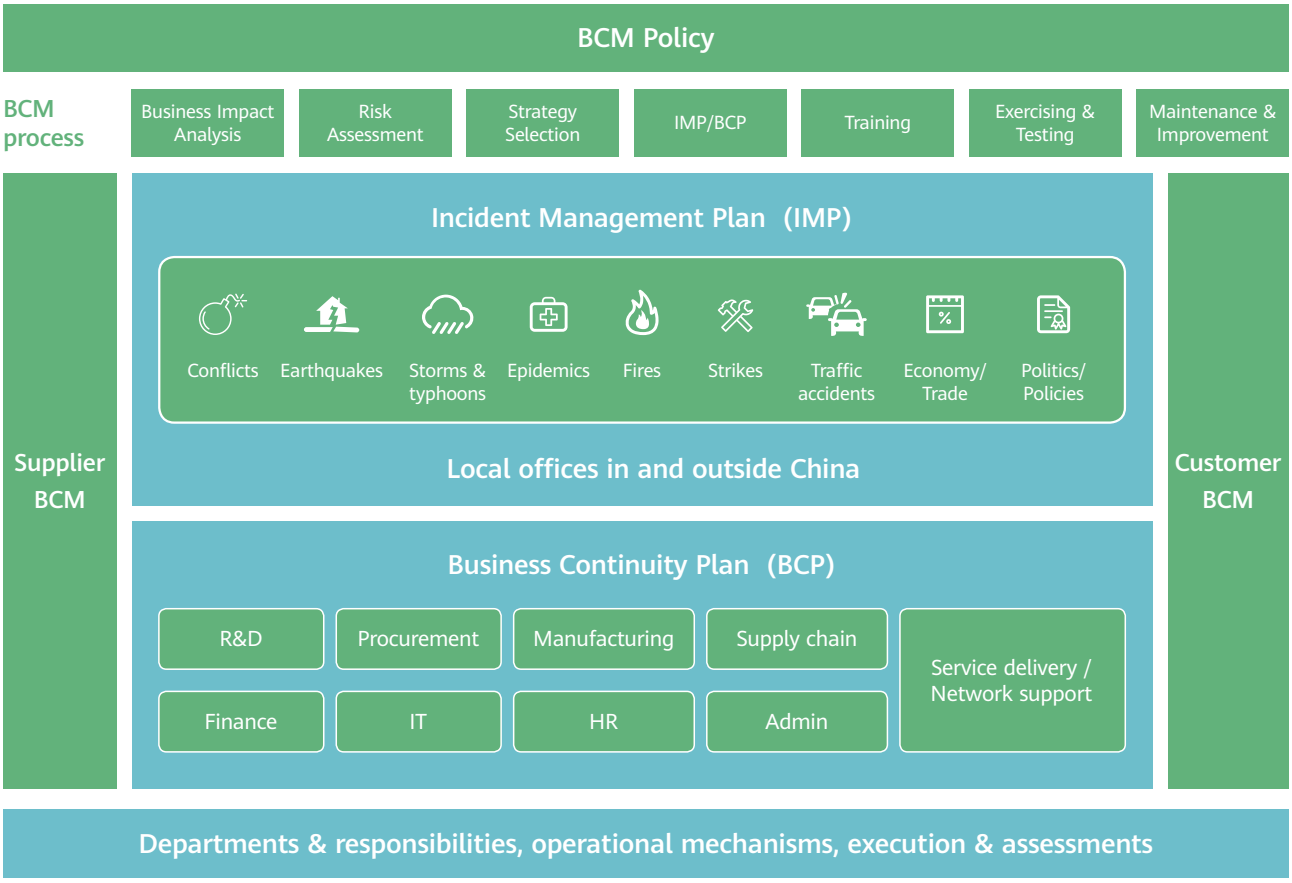
On January 15, 2022, the underwater volcano Hunga Tonga-Hunga Ha'apai erupted violently in the Tongan archipelago in the southern Pacific Ocean, destroying submarine cables. In the immediate aftermath of the disaster, Huawei initiated an emergency response, sending a dedicated disaster relief team to recover affected networks in the shortest time possible.

Local data services were completely unavailable due to damage to the submarine cables. International calls could only be made using satellites. Bandwidth was extremely limited and was reserved only for emergency use. The Huawei team worked alongside carrier engineers on emergency repairs and satellite capacity expansion, and implemented measures such as providing emergency supplies, service commissioning, and disaster recovery switchovers. While following up on how the customer team was progressing with network recovery, the Huawei team closely monitored the movement of supplies and people to Tonga to ensure that technicians and spare parts could arrive in the country as soon as possible.

On January 20, it became critical for the people of Tonga to be able to make and receive international calls. Huawei's technical team used what little information was at hand to formulate a feasible solution. The team drew from past experience and case studies from around the world to formulate a voice codec optimization solution. This solution was then applied on the network equipment of carriers in the region to reduce the bandwidth consumption of each user call. This significantly improved the success rates of international calls, connecting more disaster-affected people in need of urgent rescue.

Business Continuity

In today's highly globalized and highly specialized world, Huawei's operations rely heavily on third parties, including vendors, specialist agencies, and partners. This makes business continuity management (BCM) critical. Through years of sustained investment, Huawei has established a BCM system for domains such as R&D, procurement, manufacturing, logistics, and global technical services. This system covers our end-to-end processes, from suppliers to Huawei and to our customers. As part of this system, we have developed and established effective measures to drive BCM and emergency response upskilling across organizations, allowing them to manage risks that arise during their daily work. Specifically, we have built up management organizations, processes, and IT platforms, embedded key BCM elements into our product development and supply management, prepared business continuity plans and emergency management plans, and organized BCM training and drills for employees.



Huawei Business Continuity Management System

Key BCM Initiatives in R&D and Supply Chain

- **Supply chain diversity:** Huawei will always pursue globalized supply and supply chain diversity. When designing a product, we strive to source raw materials, boards, and products from more than one supplier, actively expand the pool of supply resources, and prioritize the supply diversity of raw materials. We prefer suppliers that have multiple manufacturing sites and avoid relying on any single supplier or region to safeguard supply availability.

- **Scenario-specific stockpiles:** During mass production, we identify and manage risks by preparing safety stocks of raw materials, semi-finished products, and finished products. This allows us to better address customer requirements and uncertainties from various sources, including supply availability, trade conflicts, natural disasters, and the pandemic.

- **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 receive timely demand information and have adequate supply.

Key BCM Initiatives in Manufacturing, Logistics, and Spare Parts Supply

- **Manufacturing and supply resource backups:** Huawei considers in-house manufacturing and outsourcing capabilities to be of equal importance. We have established long-term 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 we always have a backup. We have also established supply centers in Shenzhen, Europe, Latin America, and Dubai, which serve as integrated equipment backups for each other.

- **Logistics network resilience:** We work with logistics partners to develop and verify independent and manageable logistics solutions, and use deterministic solutions to address uncertainties in supply chain security and availability, making global logistics networks more resilient.

- **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 a product reaches its EOL, we reserve enough spare parts to cover the full lifecycle of all remaining products. This prevents any impact on the operational continuity of live customer networks.

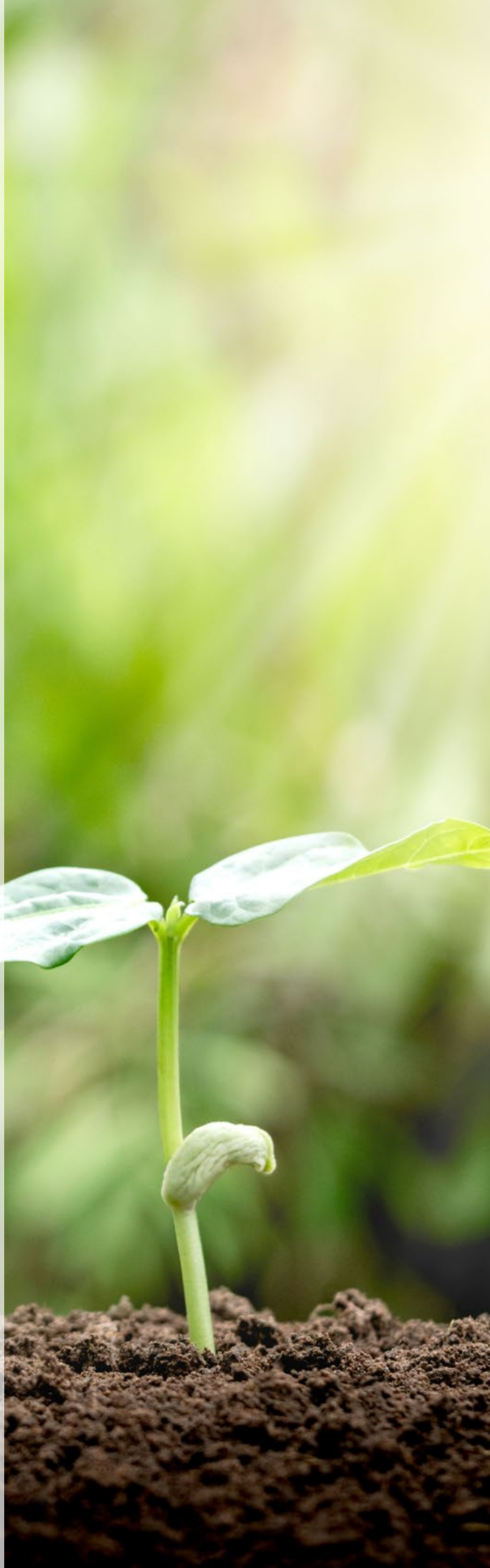
Over the past decade, we have weathered many crises, from natural disasters to political, economic, trade, and armed conflicts. Despite these crises, Huawei has continued to ensure supply continuity and timely delivery to our customers. This shows that Huawei's BCM system – as part of our overall management system – is functioning as intended. Huawei is a global company that works in the domains of network infrastructure, digital power infrastructure, cloud services, smart devices, and intelligent automotive solutions. We have worked with over 10,000 suppliers and partners, and fostered long-term, mutually beneficial partnerships with them.

As a staunch advocate of globalization, we will continue to pursue supply chain diversity. We aim to develop sustainable and stable supply capabilities to prevent dependency on any single supplier, country, or region. Based on the principles of collaboration for shared success and mutual development, Huawei is confident in its ability to work with partners around the world to forge a secure, reliable, competitive, and healthy value chain. We will continue to deliver quality products, solutions, and services to our customers worldwide.

04

Environmental Protection

Green and low-carbon development is rapidly becoming a global priority. Huawei believes that digital technology will be a key enabler of nature conservation, green development, and response to environmental challenges. Digitalization and decarbonization build upon each other and can together promote green development.



Contributing to UN SDGs:

For years, Huawei has followed its pledge of "Tech for a Better Planet" to proactively address climate and environmental challenges. We use innovative ICT solutions to protect our shared home by focusing on three areas: advancing energy conservation and emissions reduction, promoting renewable energy, and contributing to a circular economy.

Advancing energy conservation and emissions reduction

We continue to engage in green innovation and practice and take managerial and technical measures to reduce the carbon footprint of our operations and products. We also engage with upstream and downstream partners to reduce environmental impacts and work together to build a greener supply chain. Our innovative ICT solutions can help other industries reduce their carbon emissions, and we take every responsible step that we can to minimize carbon emissions.

Promoting renewable energy

We use technologies like photovoltaics and AI to improve the efficiency of generating and utilizing electricity from renewable energy, drive the transition to renewable energy, and provide green power for the intelligent world.

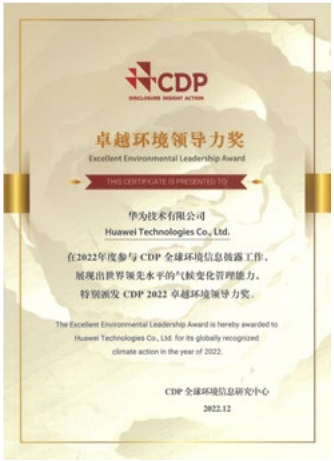
Contributing to a circular economy

We are moving to a less resource-intensive and more sustainable mode of development. Our actions include selecting more eco-friendly materials, reducing the use of raw materials and single-use plastics, making products more durable and easier to disassemble, and improving our product recycling system.

While actively pursuing green development during its own operations, Huawei has also envisioned green development trends for key industries by 2030 (for details, see the Green Development 2030 report). Through these efforts, we hope to work with our industry partners to create greater business value for our customers, continuously use our innovative digital technologies to help other industries conserve energy and reduce emissions, and ultimately, contribute to global sustainable development.

Huawei is also actively working with industry stakeholders to develop indicators for green networks. In 2022, Huawei participated in the development of the Network Carbon Intensity Energy (NCIe) indicator, which was approved by ITU-T as Recommendation ITU-T L.1333. With this indicator, the industry can more accurately evaluate the energy performance of network services.

In fact, Huawei's continuous efforts in environmental protection have been recognized by the environmental non-profit CDP, which placed Huawei on its 2022 "Climate A List" and also awarded our company the "Excellent Environmental Leadership Award".



Advancing Energy Conservation and Emissions Reduction

For years, Huawei has improved its products, operations, and supply chain management to support green and low-carbon development. Every department of our organization has incorporated green development into their strategic plans, product and business designs, and processes. To mitigate climate impacts, we minimize carbon emissions at the very source. We carefully manage our logistics carbon emissions through a visualization platform. We also use a systematic supplier management mechanism to encourage all of our top 100 and energy-intensive suppliers to collect statistics on carbon emissions and implement emissions reduction projects. In addition, we work closely with our partners in transportation, energy, campus, and other industries to explore how digital technology can be used to accelerate the shift toward green and low-carbon development.

Green Products: Enabling Industrial Energy Savings and Emissions Reductions with Digital Technology

Huawei is dedicated to reducing the carbon footprints of its products throughout their lifecycles. We have integrated green development into our product planning, design, R&D, manufacturing, delivery, and services. Through constant technological innovation, we use less resources for our products and solutions, provide customers with leading, eco-friendly products and solutions, and enable energy conservation and emissions reduction across other industries. Through our ongoing efforts, the average energy efficiency of our main products in 2022 increased 2.1 times compared with 2019.

2.1

The average energy efficiency of our main products in 2022 increased 2.1 times compared with 2019

Green Target Network: Working Together to Build More Energy-efficient Wireless Networks with Innovative Technologies

As wireless network traffic continues to grow at a rapid pace, mobile carriers are struggling to achieve energy conservation and emissions reduction while guaranteeing an optimal user experience. Working with carriers, Huawei's wireless team has implemented a Green Target Network program that includes key measures such as promoting industry cooperation, driving industry standards development, and innovating in energy saving technologies. The aim is to help carriers achieve exponential network traffic growth without increasing energy consumption.

For energy conservation, Huawei has applied three advanced solutions:

- Super Deep Dormancy: Active antenna units (AAUs) with the Super Deep Dormancy feature can cut energy consumption by 99%. Dormant AAUs can be automatically woken up and activated when loads increase so that user experience remains unaffected.
- GreenSite: This solution uses intelligent energy saving technologies to adjust auxiliary site equipment based on service changes in real time, thereby maximizing energy efficiency of sites.
- iPowerStar: iPowerStar is an intelligent energy saving solution for networks. It features the industry's only millisecond-level carrier and channel shutdown capabilities and can reduce energy consumption in wireless networks by 30%. This solution can achieve both optimal user experience and optimal energy efficiency even during peak traffic hours.

In 2022, Huawei and European carriers jointly implemented the Green Target Network program at more than 10,000 sites of live networks, saving carriers 4.1 million kWh of electricity.

Huawei Cluster Liquid-cooling Data Center Solution: Enabling a Green and Low-carbon AI Computing Cluster in Xi'an, China

Xi'an Future Artificial Intelligence Computing Center, the first large-scale AI computing cluster in Northwest China, uses Huawei's full liquid-cooling cabinets in its data center equipment rooms. Inside these cabinets, the heat given off by components with high power consumption is quickly dissipated through board-level liquid cooling. Components with lower power consumption dissipate heat by exchanging heat in the liquid cooling system. This ensures all heat within the cabinet is expelled by liquid, eliminating the need for air conditioners in data center equipment rooms. This solution effectively meets the requirements for building green and low-carbon data centers.

Huawei High-quality Ethernet Campus Network Solution: Reducing Cabling and Power Consumption During Campus Construction

As digitalization gains momentum, campus equipment and network traffic are increasing every day. This means massive amounts of cabling and huge spikes in power consumption, which is where Huawei's High-quality Ethernet Campus Network Solution can help. The solution simplifies the traditional three-layer network architecture into just two layers and uses innovative optical-electrical hybrid cables and power over Ethernet (PoE) technologies to supply power over a distance of up to 2,000 meters. This ensures that users do not find themselves cut off from the network, even when a power outage occurs. It also eliminates the need to add power supply facilities when new equipment is deployed.

The solution also provides users with plug-and-play remote modules for quick capacity expansion, greatly reducing the need for cabling in buildings. The power consumption of a single port on remote modules is less than 1 watt, reducing total power consumption by 30% compared with traditional switches.

For example, in a five-story office building containing 2,000 people, the solution reduces the number of extra-low voltage rooms from five to one and the amount of cabling required from about 200,000 meters to 50,000 meters – a reduction of more than 70%, saving more than 10,000 kWh of electricity every year.

Huawei High-quality Ethernet Campus Network Solution

All-optical City Cluster Networks for a Green Guangdong-Hong Kong-Macao Greater Bay Area: 10 Million kWh of Electricity Saved Per Year

Huawei has teamed up with China Mobile Guangdong to build all-optical city cluster communications networks in the Guangdong-Hong Kong-Macao Greater Bay Area. The Greater Bay Area is one of the most economically vibrant and cosmopolitan regions of China. As part of this project, innovative optical transport network (OTN) equipment was introduced to retire more than 5,000 sets of power-intensive and inefficient synchronous digital hierarchy (SDH) equipment. Huawei's pioneering optical cross-connect (OXC) technology was also introduced to build a green all-optical switching hub.

Currently, the all-optical city cluster networks serve more than 110 million people, 18 million households, and 2 million enterprises, helping local communications networks save more than 10 million kWh of electricity every year. These networks have already supported the digital transformation of 17,000 industrial enterprises and helped 550,000 micro-, small-, and medium-sized enterprises migrate to cloud, improving speeds, quality, and efficiency at lower cost.

10 million kWh

The all-optical city cluster networks serve more than 110 million people, 18 million households, and 2 million enterprises, helping local communications networks save more than 10 million kWh of electricity every year

Huawei Net Zero Carbon Intelligent Campus Solution: Enabling the Yancheng Low-carbon and Smart-energy Innovation Park to Increase the Share of Clean Energy to 85%

Located in Jiangsu, China, Yancheng Low-carbon and Smart-energy Innovation Park aims to become a national demo site for energy transition by developing into a near-zero-carbon smart park that fully accommodates renewable energy (e.g., solar, wind, and geothermal) and eliminates fossil fuels (e.g., coal, oil, and gas).

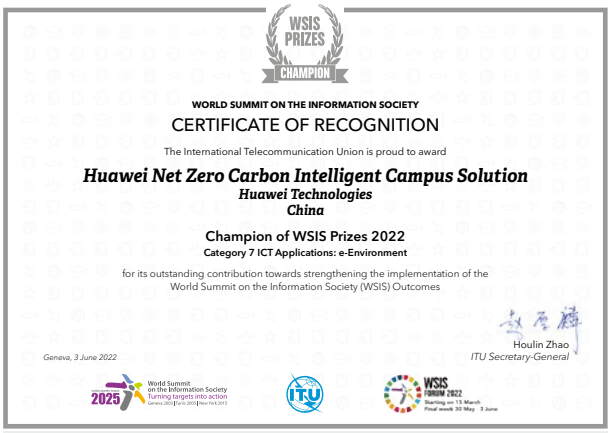
The Yancheng Low-carbon and Smart-energy Innovation Park in Jiangsu

2.9751 million kWh

Since project completion, clean energy has accounted for 85% of all power consumed by the park, while all of the park's smart devices run entirely on electricity. The park saved 2.9751 million kWh of electricity and reduced carbon dioxide emissions by 5,600 tons in 2022

To support these goals, Huawei, the customer, and partners explored applications for three major scenarios: smart energy management, smart zero-carbon management, and smart campus management. This project has led to a series of smart functions, including the real-time monitoring of energy equipment, carbon emissions management based on a panoramic view, smart and convenient access, and intelligent and coordinated microgrid controls. These realize multi-energy complementarity on the energy supply side and integrated linkage of source and load on the energy consumption side.

Since project completion in 2022, clean energy has accounted for 85% of all power consumed by the park, while all of the park's smart devices run entirely on electricity. Thanks to a combination of measures, such as using geothermal, PV, and battery energy storage systems (BESSs) for cooling and heating, and precisely adjusting energy-intensive equipment such as air conditioners and elevators, the park saved 2.9751 million kWh of electricity and reduced carbon dioxide emissions by 5,600 tons[1] in 2022.


WSIS PRIZES
CHAMPION
WORLD SUMMIT ON THE INFORMATION SOCIETY
CERTIFICATE OF RECOGNITION
The International Telecommunication Union is proud to award
Huawei Net Zero Carbon Intelligent Campus Solution
Huawei Technologies
China
Champion of WSIS Prizes 2022
Category 7 ICT Applications: e-Environment
for its outstanding contribution towards strengthening the implementation of the World Summit on the Information Society (WSIS) Outcomes
Houlin Zhao
ITU Secretary-General
Geneva, 3 June 2022
2025 World Summit on the Information Society Turning targets into action
WSIS FORUM 2022

The Huawei Net Zero Carbon Intelligent Campus Solution applied at the Yancheng Low-carbon and Smart-energy Innovation Park is named a Champion of WSIS Prizes 2022

Green Operations: Constantly Innovating in Improving Energy Efficiency and Resource Conservation

Huawei prioritizes low consumption, low pollution, and high efficiency throughout its own operations, striving to build resource-efficient and eco-friendly company campuses. We do everything we can to avoid energy consumption and carbon emissions at the source, use renewable and clean energy wherever we can, improve energy efficiency through both technical and managerial measures, properly dispose of hazardous waste, and comply with environmental requirements. These efforts have enabled us to achieve more efficient, sustainable, and low-carbon campus operations.

Huawei's GHG emissions in 2022 [2]

GHG	Scope 1	Scope 2	Scope 3
Emissions (t-CO_2e)	76,627	2,300,924	3,706,646
% of total emissions	1.26%	37.82%	60.92%

Scope 1 covers direct GHG emissions from sources owned or controlled by Huawei.

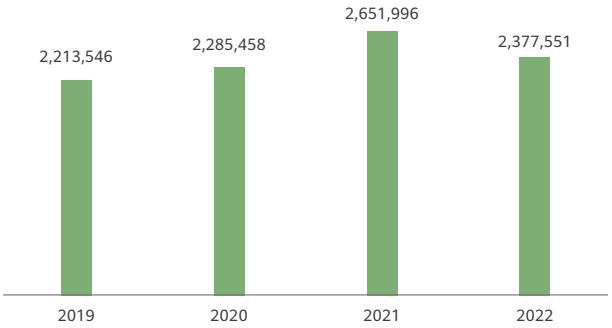
Scope 2 covers indirect GHG emissions from the generation of purchased electricity or heat.

Scope 3 covers all other indirect GHG emissions that occur within Huawei's value chain. While ensuring the reliability, completeness, and accuracy of the data inputs, Huawei expanded the verification of its Scope 3 emissions in 2022, covering purchased goods and services, fuel and energy related activities, upstream and downstream transportation and distribution, waste generated in operations, business travel, and employee commuting. Each year, we identify and assess the importance of various sources of emissions along our value chain. This means we can identify relevant categories and continue to improve the calculation and management of GHGs to better assess emissions reduction opportunities and the environmental impact of our activities.

1 By average grid emission factors in China

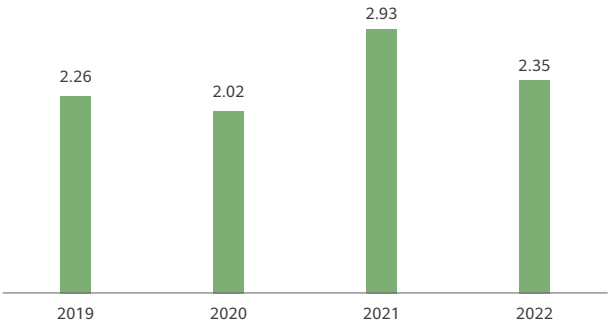
2 Huawei compiles an inventory of and verifies GHG emissions sources within its organizational boundaries using the Operational Control Approach according to the scope, category, and calculation methods defined in the ISO14064-1:2018, GHG Protocol, and IPCC Guidelines for National Greenhouse Gas Inventories.

Unit: tons



Huawei's total GHG emissions 2019–2022 (Scope 1 & Scope 2)

Unit: tons/million RMB of revenue



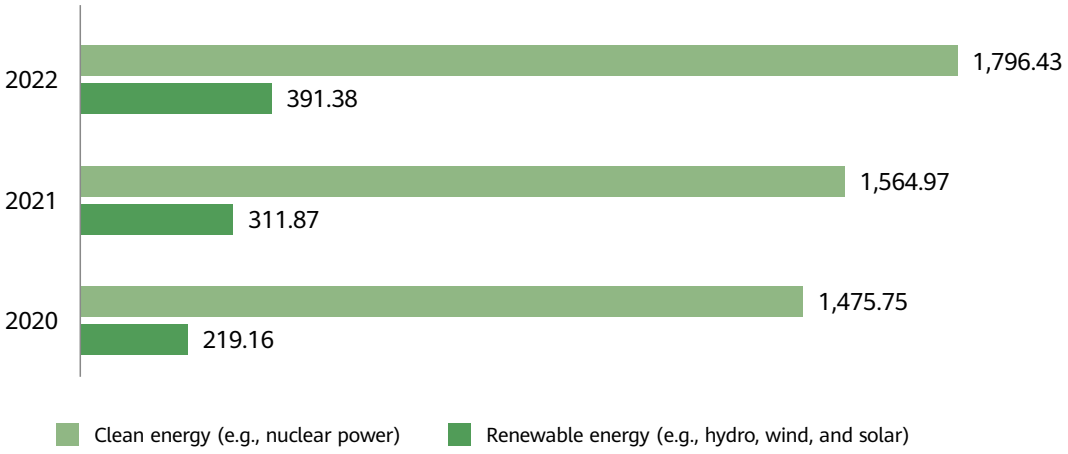
Huawei's GHG emissions intensity 2019–2022 (Scope 1 & Scope 2)[1]

Huawei's total energy consumption (2020–2022):

Energy Type	Unit	2020	2021	2022
Natural gas	million m^3	15.36	9.92	12.30
Gasoline	tons	608	800	865
Diesel	tons	107.7	402	1,037
Electricity	million kWh	3,601.70	4,228.95	4,911.09 [2]
Steam	tons	22,694	28,861	25,855

Electricity generated from renewable and clean energy used by Huawei in the China Region:

Unit: million kWh



1 GHG emissions intensity = Total GHG emissions / Sales revenue. Given the continuous growth and uniqueness of Huawei Cloud (operations-oriented), its performance regarding environmental protection is measured and disclosed separately. Therefore, Huawei Cloud is not covered by Huawei's GHG emissions intensity targets or progress.

2 About 97% of the electricity is consumed by Huawei facilities in the China Region and the remaining 3% is consumed by Huawei facilities outside China.

» Upgrading Technologies for Less Energy Use in Daily Operations

Huawei has continued to upgrade the technologies used in equipment at our own facilities, take technological and managerial measures to maximize energy savings, and formulate reasonable operation strategies. Our goal is to cut energy consumption during the daily operations of our campuses, reduce operations, maintenance, and management costs, and achieve optimal costs throughout campus lifecycles.

Examples of energy-saving and emissions reduction projects on Huawei campuses in 2022

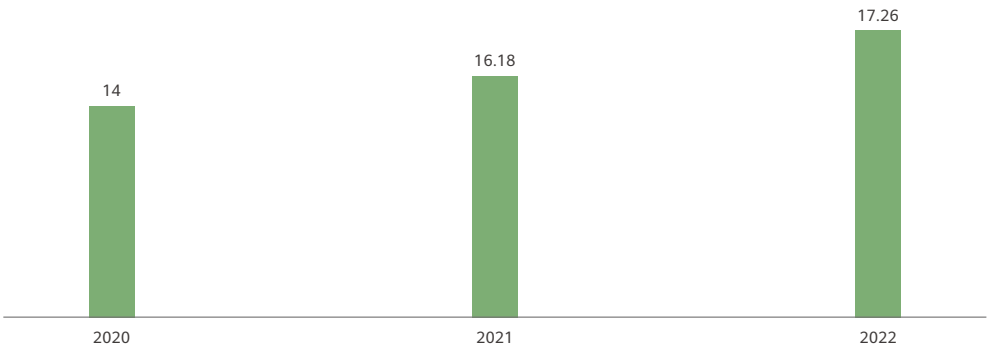
No.	Category	Project	Solution/Measure	Power Savings & Emissions Reduction*
1	Campus operations	Synchronizing the startup/shutdown of air compressors and related post-processing equipment	Synchronizing the startup/shutdown of air compressors and related post-processing equipment to prevent equipment power consumption when in standby mode	Annual power savings: 210,000 kWh CO_2e avoided: 120 tons
		Upgrading to water pumps and water towers with variable speed drives (VSDs) at chiller factories	Upgrading to water pumps with VSDs at chiller factories to reduce the frequency of water pumps when operating at low loads and cut electricity usage; upgrading the fans used at water towers to those with VSDs at chiller factories to reduce the frequency of fans and cut electricity usage when the temperature of cooling water is low	Annual power savings: 4.4 million kWh CO_2e avoided: 2,509 tons
		Upgrading to more energy-efficient boilers	Replacing the energy-inefficient atmospheric gas boilers used on the Chengdu, Beijing, and Hangzhou campuses with energy-efficient and environmentally friendly vacuum gas boilers	Gas savings in 2022: 135,000 m^3 CO_2e avoided: 267 tons
2	Labs	Energy saving in labs	Powering off idle systems during holidays, retiring old and energy-intensive equipment, upgrading to systems with VSDs, and providing precise air supply	Power savings in 2022: 22 million kWh CO_2e avoided: 12,547 tons
3	Data centers	Making intelligent improvements for more energy-efficient operations of data centers	• Making intelligent optimizations to reduce the amount of energy used for cooling • Promoting the use of free cooling and using free cooling for longer periods • Making coordinated optimizations in both L1 and L2 of data centers to reduce the power consumption of servers and cooling systems • Diagnosing the energy consumption distribution of digital operations to quickly detect and rectify abnormal energy consumption	Power savings in 2022: 30 million kWh CO_2e avoided: 17,109 tons
4	Manufacturing	Manufacturing department's reuse of wastewater	Saving water by reusing wastewater	Water saved in 2022: 11,076 tons
		Low-carbon designs and low-carbon manufacturing and factories	• Energy saving of common facilities at factories: Reducing the speed of fan filter units (FFUs) in clean rooms; staggering electricity usage of ice thermal storage systems; and adjusting air conditioning power supply systems • Energy saving of lighting systems: Centralized production scheduling, onsite illuminance monitoring, light turn-off on power-off, voice-activated lighting systems, scheduled power-on/power-off, upgrading to LED lights, and natural lighting on factory rooftops • Energy saving of production equipment: Adopting low-carbon product designs; digitalizing temperature cycling parameters, designing appropriate intervals, and dynamically adjusting the periods for subjecting parts to high/low temperatures for simplified and green temperature cycling	Power savings in 2022: 19.67 million kWh/year CO_2e avoided: 11,218 tons

*By average grid emission factors in China

» Making Full Use of Resources to Build a Green Workplace

The majority of the water we consume on our campuses is used for campus green spaces, canteens, data centers, and air-conditioning. In 2022, Huawei used 17.26 million tons of water in China, up 6.7% year-on-year. This increase was largely attributable to the increase of employees and construction of new facilities. Another reason was the extreme drought in many parts of China. The precipitation in China in 2022 dropped to a level not seen since 2012, which meant more water was required for maintaining our campus ecosystem.

Unit: million tons



Huawei's water usage in China (2020–2022)

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 as required and divert waste away from landfill. In 2022, over 99% of our solid waste was recycled or underwent resource recovery (e.g., incineration for energy generation).

Waste Classification		Example	Disposal
Solid waste	Non-recyclable waste	Domestic waste	Designated suppliers regularly sort and remove waste. Healthcare waste, such as masks, is transported to designated incineration areas for harmless disposal.
	Canteen waste	Leftovers and waste cooking oil and fats	Designated certified suppliers dispose of the waste in a harmless way.
	Recyclable waste	Packaging boxes and metal parts	Designated suppliers regularly sort and remove waste. The scrapping process applies for scrapped equipment and parts.
	Hazardous waste	Chemical containers	Centrally stored in a designated area and then processed by certified companies
	Construction waste (generated by construction companies)	Waste from refurbishments	Construction companies stack construction waste in a designated area, and later transport it to the municipal solid waste landfill.
Wastewater	Canteen wastewater	Oily wastewater from canteens	After oil is removed through an oil separation tank, wastewater is discharged into the septic tank and then discharged into the municipal sewers if it meets the required standards.
	Other domestic wastewater	Wastewater from bathrooms, office pantries, and sanitation	Discharged directly into the septic tank and then discharged into the municipal sewers if it meets the required standards.
	Industrial wastewater	Wastewater generated from the production process	Disposed of by an industrial wastewater treatment facility and discharged once it meets the required standards. 60% of wastewater is recycled for production.
Waste gases	Kitchen waste gases	Cooking fumes from hobs	The gases are first purified by fume hood, and then by electrostatic purifiers. Once they meet the discharge standard, they are discharged at a steady rate.
	Industrial waste gases	Waste gases generated from the production process	The gases are centrally disposed of by the industrial waste gas treatment facility on the roof of the building in which the waste gases are produced and discharged once they meet the required standards.

Huawei Switzerland's Go Green Initiative: Building a Green Workplace

Huawei's administrative department is taking every opportunity to drive a low-carbon transition in employee catering, travel, and work, and offers incentives to encourage employees to reuse resources.

To adapt to the highly eco-conscious culture in Switzerland, protect the local environment, and maximize energy savings, Huawei Switzerland has taken measures such as reducing purchases of plastic bottled water by half and halting the use of single-use plastic cups in offices. This has helped reduce plastic pollution at the very source.

In May 2022, Huawei Switzerland designed the Go Green cup that integrates both Swiss and green elements, and prepared stickers with different letters for employees to mark their own cups. This was the beginning of the subsidiary's Go Green initiative, which aims to encourage the use of eco-friendly products in both offices and conference rooms.

To further foster employees' eco-consciousness and create a greener workplace, Huawei Switzerland also designed a poster for the Go Green initiative, which can be seen on the walls of meeting rooms and the corners of offices. This aims to encourage more employees to act to protect our environment.

Green Supply Chain: Decarbonization and Digitalization Empowering a Green Supply Chain

Huawei's supply chain activities span raw material sourcing, manufacturing, transportation, and delivery of our products to customers. As a leading global provider of ICT infrastructure and smart devices, Huawei understands the critical importance of sustainable development within the global supply chain. We work closely with our partners to reduce the environmental impact of their production and operation activities and facilitate the shift within our supply chain toward green and low-carbon development. We also use digital technologies to continuously improve carbon emissions management. Our ultimate goal is to build a competitive, green supply chain.

» Green Procurement

In line with customer requirements and industry best practices, Huawei has incorporated environmental requirements into our "quality-first" procurement strategy and processes. Environmental factors are considered during supplier qualification, selection, audits, performance management, and material sourcing to ensure that suppliers comply with all applicable environmental laws and regulations. We also offer incentives to encourage suppliers to make ongoing improvements.

Since 2011, Huawei has participated in the Green Choice initiative, which was launched by the Institute of Public and Environmental Affairs (IPE). We continue to use the IPE's Blue Map environmental data search during supplier audits and supplier self-checks, encourage suppliers to better manage themselves, and require suppliers to rectify all discovered problems within a required period, so as to ensure that suppliers maintain environmental compliance. In 2022, we carried out regular checks on the environmental records of more than 900 key suppliers and urged five suppliers to rectify problems.

Huawei Supplier Carbon Emissions Reduction Conference: Building a Green Supply Chain

In May 2022, Huawei held its second Supplier Carbon Emissions Reduction Conference to pass on our supply chain strategies and requirements for carbon emissions reduction to suppliers. At the conference, we also updated our suppliers on the status of global carbon emissions reduction, our initiatives and requirements for them, and presented awards to suppliers who had performed admirably in this regard over the last year. We invited these suppliers to share their best practices and discuss how we could further reduce emissions. All suppliers attending the conference expressed their full understanding of Huawei's emissions reduction requirements and their commitment to action.

By the end of 2022, all of Huawei's top 100 and energy-intensive suppliers had collected statistics on their carbon emissions and implemented emissions reduction projects. Of the top 100 suppliers, 67% already use renewable energy and clean energy, 13% have set science-based targets, and some have made commitments to achieve carbon neutrality ahead of 2050 – a target set by the UN. These efforts have led to a noticeable decline in the emissions intensity of Huawei's supply chain over the past few years.

Huawei shares its carbon emissions reduction strategies and requirements with suppliers and presents awards at the 2022 Huawei Supplier Carbon Emissions Reduction Conference

» Green Manufacturing

Huawei's manufacturing department oversees the company's process from receiving and processing incoming materials to the delivery of high-quality products to customers. While working to produce secure, stable, and high-quality products, we prioritize green development within our manufacturing process. To this end, we are taking various measures, including using a digital energy monitoring system to transparently manage the energy consumption of electrical equipment on our production lines; balancing the energy use of production lines during peak and off-peak periods to maximize energy savings; and upgrading to more energy-efficient production equipment. These measures resulted in energy savings of 19.67 million kWh throughout 2022, equivalent to reducing carbon emissions by 11,218 tons*. Huawei also promotes lightweight packaging for our products, minimizes the use of plastics, and reuses packaging materials across the manufacturing department.

Phasing out the Energy-intensive Wave Soldering Process to Conserve Energy and Reduce Emissions

Wave soldering machines are used to solder plug-in components to printed circuit boards (PCBs). These machines consist of a conveyer, solder flux coating device, preheater, tin furnace, and cooling fan. They are incredibly energy-intensive, consuming the same amount of electricity each day as an average three-member family uses each month. Through the adoption of a simplified manufacturing design, our product lines, such as data communications, storage, and optical, have successfully addressed the bottleneck that previously existed in key process techniques. Over 70% of new data communications, storage, and optical products can now be produced without the need for wave soldering. In 2022, we phased out 21% of our soldering lines, saving about one million kWh of electricity over the course of the year, equivalent to reducing carbon emissions by more than 700 tons.

Adopting Simplified and Green Temperature Cycling Design to Increase the Utilization of Temperature Chambers

To assess the performance and reliability of products at different ambient temperatures, temperature cycling tests are required as part of the manufacturing process. We have taken various measures for our ICT and intelligent automotive solutions, including standardizing and unifying temperature cycling parameters, so that different products can be tested simultaneously, even at different temperatures. This has hugely increased the utilization efficiency of our temperature chambers. In 2022, we improved the productivity of temperature chambers by 34%, reducing carbon emissions by more than 2,000 tons.

*By average grid emission factors in China

» Green Logistics

Huawei's global logistics network covers four global supply centers, more than 170 countries, and over 300 logistics and warehousing nodes. It also utilizes multiple forms of transport, including sea, air, rail, road, and express delivery. This global transportation network allows us to ship from origins that are close to the destinations.

In 2022, the pandemic continued to cripple the availability of global logistics services, leading to rising costs. Despite this, Huawei remained committed to digital, green, and low-carbon logistics management. We continued to optimize our logistics routes using digital technologies to save mileage and combined different lower-carbon modes of transport, like sea, rail, and road, as much as possible. These efforts reduced the proportion of air freight we used by 1.3% compared with the previous year. We also improved our transportation resources and used less-than-container load shipping for orders in smaller volumes, which increased our container utilization rate and reduced carbon emissions.

We measure our carbon emissions from global transportation and warehousing in line with the ISO 14064 standard and based on the methodologies set out in the GHG Protocol and IPCC Guidelines for National Greenhouse Gas Inventories. Our carbon emissions from logistics activities are also managed through a visualization platform.

Managing Logistics Carbon Emissions Through a Visualization Platform

To build a green supply chain, Huawei developed a supply chain carbon calculation architecture in 2022 based on international carbon calculation standards and the logic behind its global supply network. This architecture makes our carbon emissions measurable and visible throughout the global logistics and warehousing cycle. We employ a logistics carbon emissions visualization platform that supports multi-dimensional carbon emissions calculation by country, customer, and project. This platform also helps our business departments dynamically predict the effects of different measures on our carbon emissions, and also helps us better measure our emissions, evaluate our carbon reduction efforts, and trace our carbon footprints.

Management model of Huawei's logistics carbon emissions visualization platform

Promoting Renewable Energy

340 million tons

Our digital power solutions had helped customers generate 695.1 billion kWh of green power and save 19.5 billion kWh of electricity, which is equivalent to avoiding 340 million tons of CO_2 emissions*

Major economies around the world are increasingly focused on energy development strategies that reduce their dependence on fossil fuels. These strategies are also a key part of green development in the energy sector. At Huawei, we prioritize the use of renewable energy in our own operations wherever possible. In 2022, we used 390 million kWh of electricity from renewable energy sources and about 1.8 billion kWh from clean energy sources, up 25% and 15% year on year, respectively. Our campuses in Shenzhen and Dongguan are now fully powered by clean energy. In addition, our digital power subsidiary aims to drive an energy revolution by focusing on clean power generation, mobility electrification, and green ICT power infrastructure. By the end of 2022, our digital power solutions had helped customers generate 695.1 billion kWh of green power and save 19.5 billion kWh of electricity, which is equivalent to avoiding 340 million tons of CO_2 emissions*.

Huawei's Smart PV Solution Turns a Desert into a Horse-shaped Power Station in Inner Mongolia, China

In the Kubuqi Desert of Inner Mongolia, the State Power Investment Corporation used Huawei's smart PV solution to build a 300 MW solar power station. The power station located in Dalad Banner, an administrative region in Inner Mongolia, boasts 196,000 solar panels that were installed in the pattern of a galloping horse. By the end of 2022, the power station had produced 2.566 billion kWh of green electricity, equivalent to saving 1.027 million tons of coal equivalent and reducing CO_2 by 2.56 million tons. The project has also fixed more than 1,000 hectares of sand.

The solar panels do far more than just generate electricity. Local residents have been able to plant herbs and shrubs under the panels and cash crops like desert false indigo and Mongolian milk vetch between the arrays. This prevents further erosion of the land between the panel arrays and contributes to wind and sand fixation and ecosystem restoration.

This power station serves as a perfect example of how PV can support desertification control, and plans to replicate this success are being made in other desert lands of western China.

A horse-shaped power station in Inner Mongolia that has generated 2.566 billion kWh of green power using Huawei's smart PV solution

* By International Energy Agency emission factors

Huawei and Datang Help Make Hainan a Clean Energy Island

Huawei helped Datang Hainan build a large project using its smart PV and energy storage solution in Wenchang City, Hainan, China. This project has an agricultural PV system and a 25 MW / 50 MWh energy storage system, providing the largest single-unit capacity of its kind in the province.

The project is intended to help protect and preserve the lush mountains and lucid waters in the region. The solar panels do far more than just generate electricity, as they provide shade and cover for local residents who want to plant crops like daikon and sweet potatoes. The project can generate more than 174 million kWh of clean power for Wenchang City and Hainan Power Grid each year, facilitating clean energy development, environmental protection, and rural revitalization in Hainan.

Huawei helps Datang Hainan build a large project comprising an agricultural PV system and an energy storage system in Wenchang City, Hainan

Contributing to a Circular Economy

Huawei is committed to building a business model that incorporates circular economy practices and a closed-loop value chain. We are pursuing more eco-friendly materials, more durable products, greener packaging, and less waste throughout our product lifecycles so that all resources can be efficiently used, reused, and recycled, and in turn reduce the demand for natural resources and the pressure on ecosystems.

More Eco-friendly Materials

Huawei is committed to using more eco-friendly raw materials and packaging materials to minimize our impact on the environment. We are continuing to replace plastics with eco-friendly, recyclable materials. We are also moving away from paper printing to lower-carbon methods that save materials, such as screen printing and ink-jet printing.

Safer and More Eco-friendly Materials for Reduced Environmental Impact

Since 2016, the hazardous substance controls Huawei uses for its phones have been stricter than those required by laws and regulations. By adopting product designs that minimize dependence on hazardous substances, we have made great strides to protect our planet.

We are committed to complying with hazardous substance management laws and regulations in and outside China. These regulations include the China Restriction of Hazardous Substances (RoHS), and the EU's RoHS Directive and Registration, Evaluation and Authorization of Chemicals (REACH). We have also proactively eliminated substances that may cause harm to the environment and human health when being recycled (e.g., substances that release dioxins), such as brominated flame retardants (BFRs), chlorinated flame retardants (CFRs), polyvinyl chloride (PVC), phthalic acid esters (PAEs), antimony trioxide, and beryllium and its compounds.

We are also carefully managing all manufacturing links in our supply chain. In 2020, we began transitioning to arsenic-free glass for all our products. This includes refusing glass for our LCDs and rear covers from suppliers that use arsenic in their manufacturing processes. Arsenic can harm both the environment and people exposed to it. We have also built a 500-m^2 environmental protection lab that uses cutting-edge equipment for chromatography, spectrum, and mass spectrometry to run industry-leading tests and analyses of substance impacts on the environment and human health. This lab has already received accreditation from the China National Accreditation Service for Conformity Assessment (CNAS).

In 2022, Huawei continued to build up its environmental protection testing capabilities and actively aligned its testing technologies with leading labs. Our environmental protection lab is now well-equipped to help our R&D teams conduct diagnostic environmental protection tests in the early stages and identify materials that may cause environmental risks. We also urge suppliers to rectify and address all risks that our lab identifies. These measures have helped us ensure zero violations in environmental protection spot checks.

Hazardous substance detection equipment at Huawei's environmental protection lab

Greener Packaging

Huawei adopts a green packaging strategy known as "6R1D": Right Packaging, Reduce, Returnable, Reuse, Recovery, Recycle, and Degradable. We aim to design packaging that provides sufficient protection for our products and has a minimal impact on the environment. We use innovative designs to reduce our use of plastics, and are continuing to explore lightweight, recyclable, degradable, and reliable green solutions to ensure less is needed for packaging. We are also using more eco-friendly packaging materials, and recycling and reusing them as much as possible.

Right & Reduce

Developing better and more efficient packaging designs to reduce the use of packaging materials 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

From Design to Processes: Greater Synergies Mean Greener Packaging

The United Nations Environment Programme estimates that about 36% of all plastics produced are used in packaging. To make packaging greener, Huawei has continued to pursue innovative designs and packaging processes. We use eco-friendly packaging materials, reduce packaging waste, and recycle packaging materials as much as possible.

- Mechanical Simulations Enable Minimalist All-paper Packaging Designs for Antennas

In the past, packaging designs were primarily based on personal experiences. Empty space in packaging has traditionally been used to protect products against possible damage in complex transportation scenarios. Instead, Huawei decided to use advanced mechanical simulations to determine exactly what packaging would be needed to protect products during transportation. By simulating the actual conditions of different modes of transportation, we gathered quantifiable data to support more effective designs for the cushioning used in our packaging.

Mechanical simulations have been extensively used to evaluate our packaging designs. Take our passive antenna products as an example. After the simulations, we replaced all of the plastic foam with all-paper packaging, making the packaging materials more degradable. We also introduced a major change to our design approach to customize packaging that prioritizes protecting key parts, instead of all parts, of our products, in order to avoid overpackaging. In 2022, this approach helped reduce packaging waste for passive antenna products by about 55 tons.

- Reducing Plastic Packaging with Innovative All-in-one EPP Foam

Huawei is exploring lightweight packaging solutions to minimize the use of packaging materials, especially plastics. In 2022, Huawei began using an innovative all-in-one expanded polypropylene (EPP) packaging process. Brand information and packaging function labels can be directly imprinted into EPP foam, eliminating the need for cartons and reducing the amount of plastics used in the packaging.

Currently, this technology is used for products like boards and power products. For example, the packaging used for our 5G BBU boards is 33% less by volume and uses 65% less materials compared with traditional packaging, all while providing the same level of protection.

- **Unique Symbols for More Effective Resource Recycling**

As cities continue to expand and grow, urban solid waste is becoming an increasingly pressing problem. Packaging waste is one of the main sources of urban solid waste. The identification and classification of materials has always been a key obstacle to recycling. Huawei is committed to making recycling easier by managing packaging waste at the source. In 2022, we began working to ensure recycling symbols were printed on every single piece of packaging material used for our components. Currently, we have printed recycling symbols on all packaging used for our main ICT products. The small triangle logo gives packaging materials a second life, driving the circularity of materials.

More Durable Products

At Huawei, we put quality first. Our aim is to succeed through quality. We provide customers and consumers with quality durable products and convenient and affordable repair services. These practices have helped slash product costs over their lifecycle, and reduce our consumption of natural resources.

Upgrading HarmonyOS to Improve Product Durability

The longer a product's lifecycle, the smaller its impact on the environment. Huawei is committed to making our products as durable as possible by providing a smooth operating system (OS) experience and easy OS upgrades over the long term.

The average consumer possesses a growing number of smart devices. The fragmentation of device OSs makes it difficult for consumers to use or connect their devices, which undermines user experience across devices. Huawei addresses this issue with HarmonyOS 3. Released in July 2022, this OS provides a unified language that enables different devices to work together intelligently and securely, delivering a smooth, consistent experience across all scenarios.

To bring this experience to more consumers, Huawei has upgraded or will soon upgrade more than 100 types of Huawei devices to HarmonyOS 3, including the Mate 40 series, Mate 30 series, P40 series, Mate X2, nova 8 series, and MatePad Pro series.

By the end of 2022, HarmonyOS powered more than 330 million Huawei devices. The OS makes it possible for users to revive old models from many years ago.

Huawei provides HarmonyOS upgrade services for more than 100 types of devices

Less Waste

One of the most effective ways to reduce the environmental impact of electronic products is to reuse e-waste and recoup its value. Through our global recycling system, we work with scrap service providers to recycle the raw materials of e-waste in more than 170 countries and regions worldwide. In 2022, we disposed of 13,404 tons of ICT e-waste, only 0.63% of which was landfilled, and recycled and disposed of 2,884 tons of smart device e-waste, none of which was landfilled.

Recycling Discarded Devices to Reduce e-Waste

When scrapping discarded devices, we extract most of the raw materials for recycling, and also consider resource reuse during device repairs. For example, we refurbish used screens and resell them after they have passed strict tests at nearly half the price of a new one. In 2022, we added smart watch screens to our refurbished offering program at a discounted price. These initiatives provide financial incentives to consumers while cutting down waste. So far, more than 600,000 used devices have been re-sold through our trade-in program.

We also extract and reuse raw materials from discarded devices and parts. This involves 23 processes, including deforming, scanning, sorting, magnetizing, unsoldering, tin stripping, shredding, and heavy metal extraction. By partnering with specialized suppliers, we are committed to mitigating the negative impact that used mobile phones have on the environment. This has enabled us to reuse certain plastics and metals like aluminum, copper, and steel which would otherwise end up at landfills.

600,000

So far, more than 600,000 used devices have been re-sold through our trade-in program

Environmental Certifications

In 2022, Huawei obtained multiple environmental certifications, including:

ISO 50001 Certified Energy Management System

The ISO 50001 certified energy management system focuses 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 2022, Huawei Technologies Co., Ltd. passed a third-party audit based on ISO 50001.

ENERGY MANAGEMENT SYSTEM CERTIFICATE

Certificate No.: 00122En20394R2L/4403

We hereby certify that

Huawei Technologies Co., Ltd.

Huawei Headquarters Office Building, Bantian Street, Long Gang District, Shenzhen City, Guangdong Province, P.R.China.

by reason of its

Energy Management System

has been awarded this certificate for compliance with the standard

GB/T 23331-2020 / ISO 50001:2018

RB/T107-2013;

The Energy Management System Applies in the following area:

Laboratory and Official Business and Related Energy Management Activities

Certified since: January 25, 2017 Valid from: November 23, 2022 Valid until: January 24, 2026

CHINA QUALITY CERTIFICATION CENTRE

Section 9, No.188, Nansihuan(the South Fourth Ring Road) Xilu(West Road), Beijing 100070, China

http://www.cqc.com.cn

B 0000848

ISO 14001 Certified Environmental Management System

ISO 14001 environmental management certification indicates that an organization has reached the international standard in environmental management and can effectively control various pollutants in its processes, products, and activities.

In 2022, Huawei Technologies Co., Ltd. passed the ISO 14001 surveillance audit, which covers design, development, manufacturing, procurement, supply chain management, sales, and services in ICT, smart devices, cloud computing, intelligent automotive solutions, digital power, and other related domains.

Certificate

Standard: GB/T 24001-2016/ISO 14001:2015 Environmental Management System

Certificate Registr. No.: 17 104 1933213

Certificate Holder: Huawei Technologies Co., Ltd.
Unified Social Credit Code: 914403001922038216
Registration Address: Huawei Headquarters, Bantian, Longgang District, Shenzhen, 518129 Guangdong, P. R. China
Operation Address: Refer to the "Operation Address List"
including locations and information according to annex

Scope: Design, Manufacturing, Procurement, Supply Chain Management, Sales, and Services (including Installation Management, Network Engineering Services, Network Field Maintenance, Repair, Customer Support and Training Services) of Semiconductors and Components (including Network and Device Chips, Consumer Chips, and Optical Components), Fixed Access Products, Radio Access Products, Core Network Products, Transport Network Products (including Wavelength Division Multiplexing (WDM) Equipment), Data Communication Products, Synchronization Network Products, Antenna System and Radio Frequency Products, Copper and Optical Distribution Network Products (ODN and Distribution Product), Business Support System Products, Network Management System and Tool Products, Data Service Products, Enterprise Service Products, Intelligent Vision Products, Intelligent Collaboration Products, Infrastructure Network and Security Products, Cloud Computing Products and O&M Management Services of Huawei Cloud Data Centers, Data Storage Products, Computing Products (including General-Purpose Servers & Computing Components, and AI Servers & Computing Components), Hybrid Video Products, Digital Entertainment Products, Telecommunication Terminal Products (including Mobile Phone), Computer and Accessories, Automotive Components and Smart Systems (including Smart Driving Solution, Mobile Data Center, Intelligent Sensor, Lidar, Radar, Camera, Smart Logistics Vehicles, Maps, Navigation, Automatic Driving Data Service, Smart Logistic and Travel Service, Robotic, Smart Cockpit, Vehicle Cloud Service, Vehicle Control, Thermal Management System, Vehicle Gateway, Communication System and Assembly, Multimedia Information System), Digital Power Products (including Site Power Facility (including Telecom Power, Hybrid Power, Intelligent Lithium, Intelligent Charging, Intelligent Site), Smart PV (including Inverter, Energy Storage System, Transformer and Power Distribution Equipment), Embedded Power (including Box-shaped Power, Board Mounted Power, Consumer Fast Charging Module), Data Center Energys (including UPS, Intelligent Lithium, Data Center Infrastructure (including Modular Data Center, Precision Air Conditioners in the Equipment Room)), Digital Power Cloud, Intelligent Electric Mobility (including on-Board Charger and Auxiliary Power Supply, Motor Control System, Battery Management System, Powertrain), Digital Power Controlling System).
Note1: ODN and Distribution Product: ODF (Optical Distribution Frame), FDT (Fiber Distribution Terminal), SPL (Splitter), FAT (Fiber Access Terminal), SSC (Splitting and Splicing Closure), Indoor Cable, iODF (Intelligent Optical Distribution Frame), iFDT (Intelligent Fiber Distribution Terminal), iFAT (Intelligent Fiber Access Terminal), Intelligent Patch Cord, iSPL (Intelligent Electric ID).
Note 2: Cloud Computing Products including: Compute, Storage, Networking, Containers, Content Delivery & Edge Computing, Databases, Security & Compliance, Business Applications, Blockchain, Middleware, Management & Governance, Developer Services, Migration, Media Services, Internet of Things, Dedicated Cloud, Artificial Intelligence, and Analytics.
Note3: Supply Chain Management include Storage, Logistic and Delivery Management.

Proof has been furnished by means of an audit that the requirements of GB/T 24001-2016/ISO 14001:2015 are met.

Validity: The certificate is valid from 2022-06-24 until 2024-05-18.
It remains valid subject to satisfactory surveillance audits.
This certificate information can be searched on CNCA official website http://www.cnca.gov.cn

2022-06-25

TUV Rheinland (China) Ltd.
Room 301, 3F and Room 1203, 12F, Building 4, No.15, Ronghua South Road, Beijing Economic-Technological Development Area, Beijing (Yizhuang group in high-end industrial area of Beijing Pilot Free Trade Zone), 100176, P. R. China

www.tuv.com

TÜVRheinland® Precisely Right.

TÜV, TUEV and TUV are registered trademarks. Utilisation and application requires prior approval.

ISO 14064 Greenhouse Gas Verification Statement

The ISO 14064 Greenhouse Gas Verification Program provides clear standards for companies to monitor, quantify, report, and verify greenhouse gas emissions in accordance with international standards. This program helps identify key emitters, assess emissions reduction targets, and develop emissions reduction plans.

In 2022, Huawei Technologies Co., Ltd. obtained ISO 14064 certification, with the verification covering Huawei's R&D centers, manufacturing facilities, office buildings, data centers, canteens, and leased premises. The company began to include greenhouse gas emissions from upstream and downstream transportation and distribution into its verification.

SGS

Statement of Conformity CN23/00003536

Greenhouse Gas Verification Statement

The inventory of Greenhouse Gas emissions in 1 Jan. 2022 to 31 Dec. 2022 of

Huawei Technologies Co., Ltd.

Business address: Huawei Headquarters, Bantian, Longgang District, Shenzhen, Guangdong, P.R. China

Organization boundary: Detail organization boundary information has been listed in Annex, for multi-site statement

has been verified in accordance with ISO 14064-3:2019 as meeting the requirements of

ISO 14064-1:2018

Direct Emissions [Category 1]
73,906.68 tonnes of CO2e
Indirect Emissions from Imported Energy [Category 2]
2,247,093.13 tonnes of CO2e
Indirect Emissions from Transportation [Category 3]
337,918.49 tonnes of CO2e
Indirect Emissions from Products Used by An Organization [Category 4]
3,326,094.99 tonnes of CO2e
Indirect Emissions Associated with The Use of Products from The Organization [Category 5]
[be determined as non-significant indirect emissions and not quantified]
Indirect Emissions from Other Sources [Category 6]
[be determined as non-significant indirect emissions and not quantified]
Total Emissions Quantified
5,984,914.30 tonnes of CO2e

Authorized by

BSI's Global First Carbon Footprint Verification for Inverters

In June 2022, Huawei received the British Standards Institution's global first Carbon Footprint Verification (CFV) for its converter products.

This CFV demonstrates Huawei's capability to evaluate the carbon footprint of products throughout their lifecycle. It recognizes Huawei's efforts to advance energy conservation and emissions reduction, promote renewable energy, and contribute to a circular economy. Huawei's commitment to green, low-carbon, and sustainable development is realized throughout the lifecycle of its inverters, resulting in BSI accreditation. Huawei's practices can serve as an important reference for establishing and developing a carbon footprint management system in the PV industry.

bsi.

Opinion Statement

Product Carbon Footprint
Verification Opinion Statement

This is to certify that: Huawei Technologies Co., Ltd.
Huawei Headquarters, Bantian
Longgang District
Shenzhen
Guangdong
518129
China

Holds Statement No: PCFV 771975-0

As a result of carrying out the verification of product life cycle greenhouse gas emissions, it is the opinion of BSI with reasonable assurance that:

- The product carbon footprint with the functional unit of one model of SUN2000-215KTL-H0, the service life of 25 years, rated power of 200KW three-phase series photovoltaic grid-connected inverter is 10331.6 kg of CO_2 equivalent.
- No material misstatements in this product life cycle greenhouse gas emission statement were revealed.
- The product life cycle GHG data quality was verified to be acceptable against the requirements of ISO 14067:2018.

This statement shall be valid for a maximum period of two years after the latest issue date on this certificate. Should there be a change in the life cycle of the product whose GHG emissions are being assessed, the validity of this opinion statement will cease.

For and on behalf of BSI:

Frank ZHANG, Managing Director, BSI (China)

Original Registration Date: 2022-06-17
Latest Revision Date: 2022-06-17

Effective Date: 2022-06-17
Expiry Date: 2024-06-16

...making excellence a habit.

Page: 1 of 2

Smart Green Medal

The Smart Green Medal is granted by SGS's senior expert team who assessed products in multiple areas against the certification standards, including materials, durability, energy saving, security, and user experience, as well as the related organization's production and operations.

In 2022, Huawei's P50 series, nova 9 series, nova 10 series, FreeBuds 4, and other products earned the Smart Green Medal (Level 1 Certification) from SGS, which is its highest level for rating green products.

Certificate of Compliance

HUAWEI Mate40 Series

Smart Green Medal

Certification Level:1ST

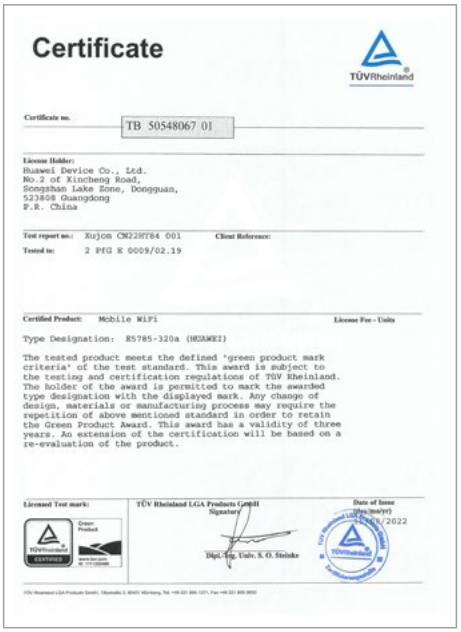
Manufacturer	Product Name	Model Number
Huawei Device Co.,Ltd	Mobile Phone	OCE-AN90,OCE-AN10, NOH-AN00,NOH-N39,NOP-AN00
Evaluation Rules/Technique Requirements	Certificate Period	Certificate Number
Green Product Evaluation Criteria for Mobile Phones	15/09/2020-14/09/2023	SZES20090058343PF

Authorized by:

SGS SGS-CSTC Standards Technical Services Co., Ltd.

Green Product Mark from TÜV Rheinland

The Green Product Mark issued by Germany-based TÜV Rheinland represents a product's global leadership in hazardous substance management, energy efficiency, use of renewable materials, lifecycle assessment (LCA), and more. HUAWEI Mobile WiFi has been certified with the Green Product Mark in recognition of this green product and Huawei's eco-friendly philosophy.



Certificate

TÜVRheinland

Certificate no. TB 50548067 01

License Holder:
Huawei Device Co., Ltd.
No.2 of Xincheng Road,
Songshan Lake Zone, Dongguan,
523808 Guangdong
P.R. China

Test report no.: Xujon CN22HT84 001 Client Reference:
Tested to: 2 PIG E 0009/02.19

Certified Product: Mobile WiFi License Fee - Units

Type Designation: E5785-320a (HUAWEI)

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

Licensed Test mark: TÜV Rheinland LGA Products GmbH Signature: Date of Issue (day/month) 2022

Dipl.-Ing. Univ. S. O. Steinke

05

Healthy and Harmonious Ecosystem

The purpose of a company is to engage all its stakeholders in shared and sustained value creation. As a responsible enterprise, Huawei remains committed to openness and collaboration for shared success. We aim to bring in outstanding global talent while also unleashing the potential of our existing teams. In addition, we work with our industry and ecosystem partners to build a healthy and harmonious business ecosystem, and ultimately bring digital to every person, home and organization for a fully connected, intelligent world.

Contributing to UN SDGs:

Caring for Employees

Our dedicated employees are the company's most important asset, as it is only through them that we can create value. Huawei endeavors to take a positive, open, and diverse approach to human resources. There are no fixed rules for identifying or deploying talent at Huawei. We encourage our employees to explore uncertainties, develop a skilled localized workforce, and guide employees to keep learning through competency and qualification assessments. We are also working relentlessly to improve the working and living environments of our employees. To achieve this, we provide high-quality office, catering, leisure, and fitness services for employees, and organize different team building activities to inject vitality into the organization and improve employees' physical and mental health.

Employee Health and Safety

At Huawei, it is a company policy to care for our employees and always put their safety first. We are committed to creating a safe and comfortable workplace, in line with ISO 45001 occupational health and safety management system. We also work with our suppliers to ensure that they take necessary measures and adopt scientific management approaches to safeguard the health and safety of their employees.

Huawei has established a hierarchical environment, occupational health and safety (EHS) management system. Each business domain is required to determine the scope of their own EHS management system and create their own system using the PDCA (plan, do, check, act) cycle. This process considers factors specific to each business domain (e.g., internal and external environments), local laws and regulations, and the requirements of stakeholders including governments, customers, and employees. Our EHS management system covers all our business domains, meeting and even exceeding all applicable legal and regulatory requirements.

Establishing a Safety Ownership System to Prevent Serious Safety Accidents on Manufacturing Campuses

Huawei's manufacturing campuses are scattered across many locations and engage in a wide variety of business activities. To ensure safety responsibilities are fulfilled at all levels, we have established a safety ownership system where campus directors take direct responsibility for workplace safety. Each campus also has its own dedicated safety management team, which is part of our efforts to reinforce our safety organizations. In 2022, none of our manufacturing campuses experienced any serious safety accidents. This is attributable to the numerous actions we took last year. We further improved our manufacturing department's safety management system, released multiple safety management standards and specifications, and developed a smart digital safety platform. We also organized activities that promote proactive safety management and a culture of safety.

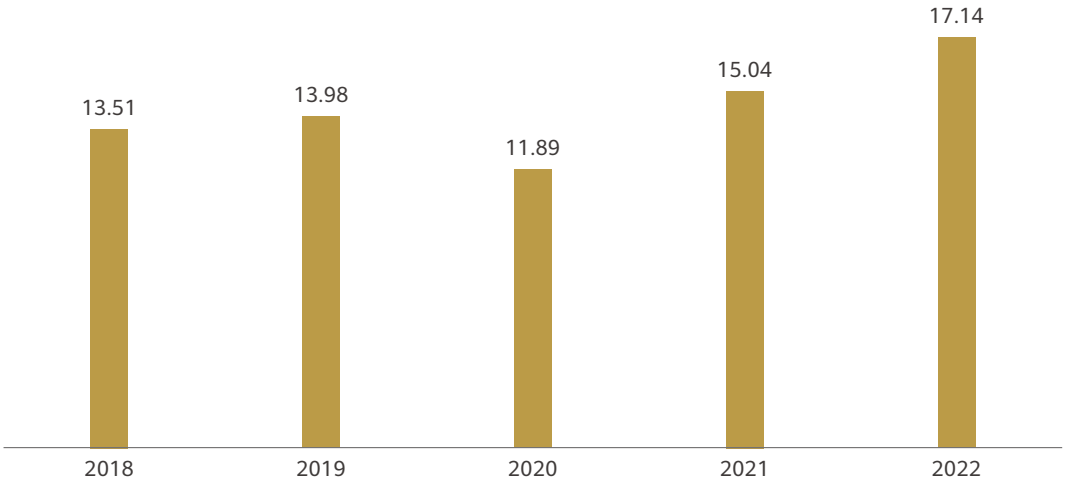
- **Safety management system:** Our R&D team and equipment manufacturers were tasked with meeting design for safety (DFS) requirements, and received targeted training to ensure intrinsic safety from the source. We also established a process system for managing the safety of manufacturing facilities, and released standards, guides, and checklists for design, construction, acceptance, and O&M.
- **Smart digital safety platform:** We developed a smart digital safety platform that is currently being trialed in multiple campuses, including our Songshan Lake Manufacturing Center and Tuanbowa campus. This platform connects directly to production systems, so that it can intelligently detect safety risks in manufacturing areas, monitor sources of safety risks in real time, and launch rapid emergency responses.
- **Proactive safety management:** We established dedicated safety management teams for each campus to help campus directors implement campus safety management requirements. We also released several safety management regulations, and organized fire extinguisher operation training and emergency evacuation drills.

- **Culture of safety:** We created a safety knowledge map covering all scenarios and objects of our business, and provided training for and certified 137 safety "golden seeds" who will continue promoting safety within their organizations. We held more than 40 training sessions where presenters shared their experience and insights in safety, and our Work Safety Month initiative had more than 100,000 enrollments. In addition, we provided timely incentive awards for individuals and teams that performed performed exceptionally well in manufacturing safety, contributing to a culture of safety.

2022 Work Safety Month activity organized by the manufacturing department

Huawei prioritizes the health of its employees and encourages everyone to care for their own health. To provide better health and safety services for employees, we have stepped up efforts to strengthen our system of health and safety assurance resources. We are also working to create a positive and lively atmosphere, where employees are encouraged to take care of themselves and others. To this end, we continue to invest heavily into practical measures that safeguard employee health.

In addition to comprehensive social insurance, Huawei also offers competitive commercial insurance plans, including accident insurance, life insurance, critical illness insurance, overseas business travel insurance, and family insurance. We are also working to make insurance claims easier and give a human touch to insurance services. In 2022, we invested more than CNY17 billion in these employee benefits.



Spending on employee benefits (CNY billion, 2018–2022)

Huawei runs a 24/7 global emergency response system to better safeguard employee health by providing an ever-expanding pool of insurance resources. The system provides employees with comprehensive health and safety services, including emergency medical rescue, remote video medical consultations, personal safety emergency responses, and a mental health hotline.

We also provide guidance to employees on how to optimize their individual and family insurance plans and introduce diversified commercial insurance resources to give them more options.

Promoting Health with Better Health and Safety Services

In 2022, Huawei continued to strengthen its on-campus health assurance resources. Our 28 health centers and over 100 onsite medical workers around the world provide health guidance and emergency response services for our employees. We arrange annual health check-ups for employees, and about 92.3% of employees participated in this program in 2022.

We also provide first-aid training around the world to tens of thousands of employees every year, and thousands of employees have become first-aid volunteers. We have also set up multiple medical stations, emergency response teams, and emergency call centers, and organize hundreds of emergency drills each year. These efforts ensure our emergency response mechanism is strong and resilient.

92.3%

About 92.3% of employees participated in the health check program in 2022

First-aid training

We also work with multiple third-party organizations to provide medical support services for employees on international business trips and their accompanying family members. Our health assurance support team operates 24/7 and provides many auxiliary medical services such as local medical resource qualifications, rapid medical treatment, medical companion services, and the interpretation and translation of medical reports. In addition to providing targeted, high-quality medical resources around the world, we also offer emergency medical rescue and escort services for employees, so that they can get quality and timely medical care, even far from home.

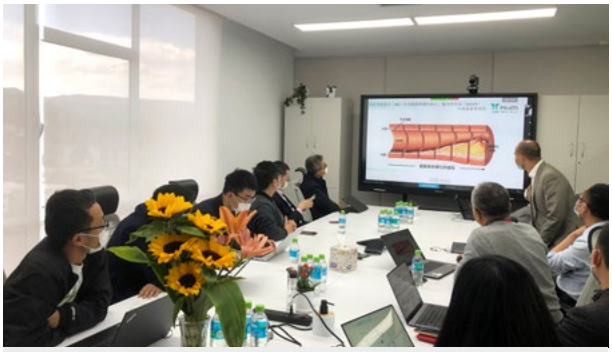
"Thank you so much for your efforts. You've created a miracle of life. You urgently coordinated medical resources at home and abroad to provide professional treatment for my son. You helped find blood donors and kept around-the-clock vigil at his bedside. You have given my son a second chance to life."

— A note from the father of an employee who fell seriously ill on an international assignment

We have also introduced the Internet hospital model, where employees can make appointments online and access video consultation services from specialist hospitals for routine checks and chronic conditions. This is how we make medical services more easily accessible.

In seven hardship regions outside of China, we have set up health centers staffed by onsite medical consultants to ensure that all employees have access to quality healthcare.

The health center on a Huawei campus



Huawei employees at a health seminar

We have also brought in multiple third-party health resources to lead health seminars, provide health consultations, and offer psychological counseling and assessments. These activities are intended to empower employees to take charge of their own physical and mental health. In 2022, employees received over 5,000 hours of counseling. Health lectures and promotional materials were also made available to employees to increase awareness and create a positive organizational atmosphere surrounding mental health.

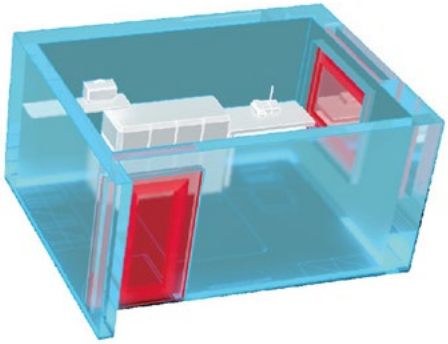
Improving the Global Safety Operation and Emergency Management System to Safeguard Employee Safety

In a complex and ever-changing global environment, Huawei puts employee safety first and is committed to providing safe working and living environments for employees. Over the years, we have continuously improved our global safety operation and emergency management system. In particular, we have set up five regional safety centers for high-risk countries, proactively managed safety risks, and created a global safety assurance network. In 2022, we implemented a number of safety management initiatives around the world, including:

- Organizing safety awareness training in more than 50 countries for over 3,000 employees.
- Dynamically identifying high-risk countries, publishing safety management requirements, developing customized contingency plans, and organizing onsite safety drills for these countries.
- Releasing 160 reports on risk early warnings and assessments, including the Monthly Regional Risk Reports and Key Safety Event Tracking and Analysis Reports.
- Enhancing safety facilities, including safe rooms and sanctuaries in nine high-risk countries.
- Strengthening a three-tier (country, region, and HQ) emergency response mechanism to quickly respond to and properly handle local emergencies.
- Bringing in third-party safety organizations to conduct safety management audits and continuously improve safety assurance.

In 2022, there were zero employee casualties caused by non-personal factors. That is a testament to Huawei's effective measures to safeguarded employee lives.

Safety training and emergency drill in Angola

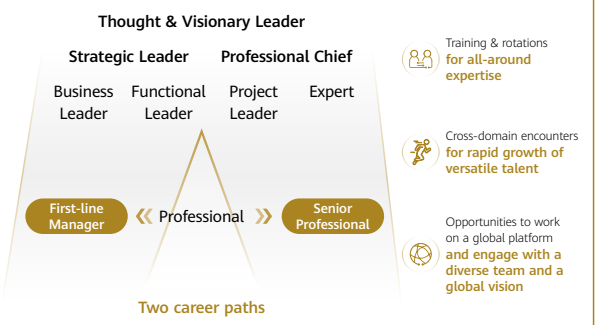


Safe rooms in high-risk countries that can be used in many crises

Employee Training and Development

Huawei offers two distinct career paths for employees: the manager path and expert path. Employees can advance while switching between these two paths. All employees receive regular performance and career development reviews, and are given plenty of training and mobility opportunities during career development. We have implemented a mechanism for department-initiated talent transfers and an internal talent market for free mobility. Both are intended to drive employee mobility and help our employees become more versatile in multiple disciplines. Talented people are not confined to one domain and are instead given the opportunity to work in a variety of different professions and domains. This helps them reskill and upskill, giving more room for growth. Working in a variety of different locations is also important, as it helps broaden employees' horizons. At Huawei, we offer employees a global platform, exposing them to many new experiences and new insights that will help them grow quickly.

Flexible career paths with no limits

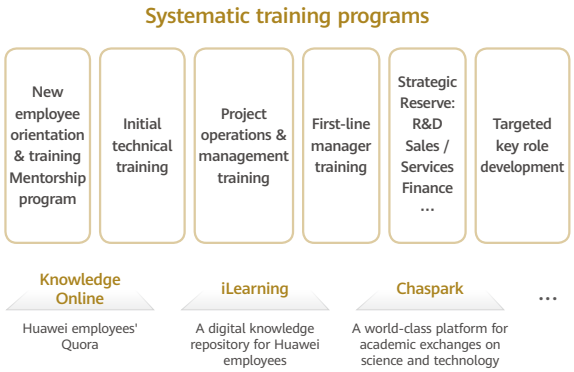


To support these two career development paths, Huawei provides comprehensive, systematic training resources and platforms to empower our employees at different stages of their careers. For new employees, we run new employee training & orientations and position-specific training. These programs help new employees better understand the company and learn the skills they need for their first job in the company. We also have mentorship programs that help employees quickly adapt to their new roles and fit into their teams. As they work their way up the corporate ladder, there are programs to help them hone their expertise and management development programs that improve their management skills.

We have continuously optimized our digital platform – iLearning – which offers more than 30,000 learning resources. Within the company, there are over 10,000 online "knowledge communities", where employees can find many resources, at any time and from anywhere. At Huawei, we often talk about "absorbing the energy of the universe over a cup of coffee". This means we encourage everyone to engage in discussions and exchanges, so that better ideas can emerge. We have launched Chaspark, a world-class scientific and technological communication platform that is open to both internal and external stakeholders. This platform aims to inspire people and unleash their full potential.

In 2022, we offered a wide range of training activities for employees. Employees across the company spent an average of 66 hours in training sessions, and a total of 21,856 Huawei employees served as part-time trainers and lecturers, contributing to other employees' upskilling.

Diverse resources for career development



66

Employees across the company spent an average of 66 hours in training sessions in 2022

Strengthening Localization Efforts and Training to Fully Unlock the Potential of Local Hires

Huawei provides specialized training to locally hired first-line managers, key employees, and centrally assigned managers on international assignments. We have also explored innovative approaches for course design and delivery. These efforts are intended to empower locally hired managers and help local talent fully unlock their potential.

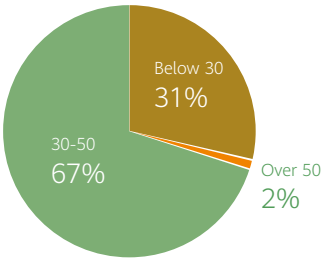
- **Customized learning solutions to ensure smooth transition of first-line managers receiving their first managerial appointment:** We have customized training materials that explain cross-cultural differences for locally hired first-line managers. These materials are provided in the language familiar to these managers, delivering better training outcomes.

- **Improved cross-cultural management courses to help build diverse, trust-based teams:** Huawei has employees from all over the world. And so we have provided a number of courses and case studies to help employees adapt to cultural differences. The courses include Cross-cultural Team Management, Cross-cultural Adaptation, and Case Studies on Cross-cultural Management. By focusing on real-world scenarios, these courses and case studies aim to help managers and employees at all levels improve their cultural competence. By the end of 2022, more than 24,000 participants, including managers and employees, had taken these cross-cultural courses. This has raised their cross-cultural awareness and laid a solid foundation on which they can build diverse, trust-based teams.

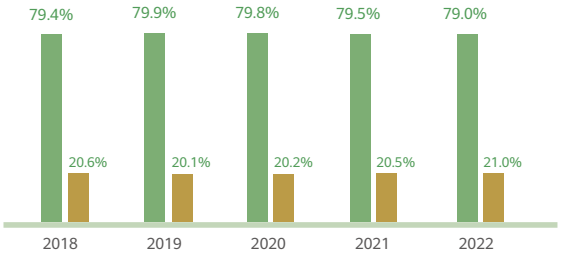
- **High-quality courses to improve the leadership of centrally assigned managers on international assignments:** We have developed a mandatory first-line leadership course for managers sent to regions outside China. This course has remained very popular since its launch, delivering better training outcomes than expected.

A Diverse and Inclusive Workforce

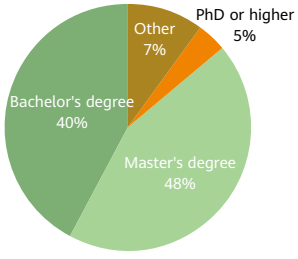
As a global company, Huawei values diversity in its workforce and is committed to creating an inclusive workplace where all employees enjoy equal opportunities. By the end of 2022, Huawei had about 207,000 employees from 162 different countries and regions. We also attach great importance to developing local teams. In 2022, we hired more than 4,000 local people at our offices outside of China, where 63.8% of our workforce was hired locally.



Employee age (2022)



Male and female employees (2018–2022)



Level of education in 2022

We respect the lifestyles of all of our employees and aim to create an environment that makes it easy for anyone to practice their beliefs and customs. For example, we have opened prayer rooms on our campuses. And for nursing mothers, we provide lactation rooms. We also operate facilities like canteens, cafes, gyms, and libraries. All of these facilities help us provide quality services that meet the diverse needs of our employees. We organize a wide range of team activities (such as Family Day, engineer culture festival, and talent shows) around the world to foster mutual understanding and trust between employees from different cultural backgrounds and create a positive organizational climate. We also encourage employees with shared hobbies to form recreational communities, which include music clubs, dance clubs, reading clubs, running clubs, and photography clubs.

Huawei has long been an advocate of a healthy work-life balance, and is working hard to improve work and living environments for employees

Huawei is committed to complying with the Universal Declaration of Human Rights, and our Caring for Employees Policy lays out the principles and requirements we believe that a good employer must meet to ensure employee care. These principles and requirements cover child labor, forced or involuntary labor, health and safety, diversity, discrimination, humane treatment, working hours, compensation and benefits, freedom of association, privacy protection, and learning and development. Huawei's subsidiaries have also released their own employee care policies based on local laws and regulations. We have put in place processes, systems, and baselines to ensure our employee care policies are effectively implemented.

When it comes to recruitment, promotion, and compensation, we do not discriminate against anyone based on race, religion, gender, sexual orientation, nationality, age, pregnancy, or disability. We prohibit the use of child labor and forced labor (including bonded or indentured labor), and have effective measures in place to prevent the recruitment and use of such labor. Not a single instance of child or forced labor has been found at Huawei and we hold all our suppliers to this same standard, regularly conducting audits to ensure their compliance.

We have also established effective mechanisms to ensure that our employees' voices are heard and respond actively to their inquiries, as part of our greater efforts to create an open, inclusive workplace that encourages mutual respect and diversity. For example, we gather our employees' opinions and suggestions through our Manager Feedback Program (MFP), the organizational climate survey, the manager open day program, and more. Employees can also report violations, file complaints, and seek assistance through multiple channels such as the dedicated complaint mailbox of our Committee of Ethics and Compliance (CEC) and our internal service hotline. Huawei keeps all reporters' information strictly confidential and prohibits any attempts to threaten or retaliate against reporters.

Huawei Releases the First Diversity White Paper, Contributing to an Inclusive World

At its Women in Tech salon held in Shanghai on Programmer's Day, October 24, 2022, Huawei released its first diversity white paper and launched a new diversity initiative, calling on enterprises to contribute more to social equity and diversity.

ICT is reshaping the world around us, bringing about more positive changes in society. At Huawei, we believe that better, more equal workplace environments need more than just internal initiatives from individual companies, and that the opportunities emerging from advancements in ICT should be accessible to everyone. Companies need to take concrete action to ensure equity in the workplace, and push this concept to their partners, customers, suppliers, governments, and related NGOs. We need this goal to touch the hearts of everyone around the world. Huawei believes that we need more innovative concepts that reach a wider audience and thus effectively promote social equity.

For example, Huawei believes that more diversity in tech means more possibilities for all and gives a more human touch to technology. Huawei is committed to helping more women engage in tech and providing opportunities and platforms for women to unleash their potential.

At the Women in Tech salon, a panel of women – each with over 20 years of experience in ICT – were invited to share their expertise and wisdom with female employees and STEM students to help the next generation of women in tech grow.

Zhou Yan, Chief Research Expert of the Software Department of Huawei Consumer Business Group, and Pallavi Malhotra, Director for Huawei Talent Alliance (online), share their experiences as women in tech

Business Ethics

Huawei works hard to conduct its business with integrity and conform to business ethics standards and all applicable laws and regulations. This key principle is upheld by our highest levels of management. We have worked for years to build a compliance management system that aligns with industry best practices and embed compliance management into every aspect of our business activities and processes, and these efforts continue to this day. Huawei emphasizes a culture of integrity and invests heavily to make it a reality.

Our Business Conduct Guidelines (BCGs) set out the legal and ethical requirements that every employee must follow while conducting business activities. The BCGs require every employee to not only comply with all applicable laws and regulations, but act in a socially responsible manner. In 2022, 100% of Huawei employees signed the BCGs. Anyone who violates the BCGs is subject to disciplinary action, which can range from termination of employment to legal liability.

- Our Chief Compliance Officer manages the company's operational compliance, and reports to the Board of Directors. Every one of our company's business departments and subsidiaries has also established its own compliance team, taking responsibility for the management of its own operational compliance.

- We identify and assess risk according to applicable laws and regulations and business scenarios. In addition, we have formulated control measures that have been incorporated into our business activities and processes. We also continuously optimize our management system through root cause analysis and targeted corrective action.

- We attach great importance to and continuously enhance the compliance awareness of our managers and employees. Through publicity, training, exams, disciplinary action, and other related actions, we push all our employees to fully understand their own obligations as well as the company's.

100%

In 2022, 100% of Huawei employees signed the BCGs

- With an open mind, we proactively engage and work with customers, partners, regulators, and other stakeholders on compliance, to constantly enhance mutual understanding and trust.

Huawei is dedicated to ensuring better compliance across multiple domains, including but not limited to trade compliance, financial compliance, anti-bribery compliance, intellectual property (IP) and trade secret protection, cyber security and privacy protection, and fair competition. These compliance requirements are embedded into our policies, systems, and business processes.

Anti-Corruption and Anti-Bribery Compliance

Huawei has a zero-tolerance policy towards corruption and bribery. In every country where 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.

- Our anti-bribery compliance (ABC) management is designed specifically for our diversified business portfolio, and we continuously develop the ABC management system and capabilities at both the group and subsidiary levels. We constantly identify and monitor risks, drive the optimization of relevant business rules and processes, and monitor their implementation.

- Huawei works hard to create a culture of integrity and enhance its compliance capabilities.

  Internally, we embed compliance requirements into business processes, ensure all employee conduct is above board, and raise employees' compliance awareness by requiring them to study and comply with Huawei's BCGs and anti-corruption policies. On top of this, we provide general training for all employees and targeted training for staff in key process positions, and run campaigns that help the compliance team hone their expertise. The training content is distributed in many ways to facilitate policy understanding, from videos and forums to dedicated online training channels.

  Externally, we carefully manage our relationships with third parties to ensure compliance. We continuously communicate with stakeholders (e.g., industry peers, consultants, partners, and NGOs) about compliance to clarify our position and views on anti-bribery and anti-corruption. Such communication ensures stakeholders understand our compliance management policies. 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 required to comply with all applicable laws and regulations, industry ethical standards, and Huawei's Anti-corruption Policy for Partners, Supplier Social Responsibility Code of Conduct, Code of Conduct for Partners, and Honesty and Integrity Commitment. The combination of these efforts allows us to control ABC risks across the company.

- 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 person lodging the complaint from any form of threat or retaliation by keeping their identity secret.

For details about Huawei's statements and policies on anti-corruption and anti-bribery, please visit the "Policies" section at: https://www.huawei.com/en/sustainability/sustainability-report

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, holding more than 120,000 active patents by the end of 2022. We believe that respecting and protecting IP is the bedrock of innovation. As a follower, practitioner, and contributor of IP rules, as well as an innovator, Huawei invests heavily into IP protection and respects the IP of others. We have reached cross-license agreements with major ICT companies around the world, and work tirelessly to cultivate an industry environment that protects innovation and IP across countries and regions.

We explicitly prohibit our employees from improperly acquiring, disclosing, using, or disposing of the trade secrets of others. The key measures Huawei has taken to protect the trade secrets of others include:

- Issuing our Regulations on Respecting and Protecting Third Party Trade Secrets, which set out clear rules that employees must follow to respect and protect the 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 fully aware of their obligations and responsibilities regarding trade secret protection compliance
- Conducting supervision, including checks and audits, to examine efforts aimed at protecting the trade secrets of others and thus ensure effective implementation of our 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 for any trade secret violations

Huawei has one of the world's largest patent portfolios

By the end of 2022, Huawei held a total of **120,000+** active patents.

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

In 2022, our total R&D spending was **CNY161.5 billion**, representing **25.1%** of total revenue.

Total R&D investment over the last decade now exceeds **CNY977.3 billion**.

At the end of 2022, **114,000+** employees, or **55.4%** of our workforce, worked in R&D.

Huawei is an industry leader in patents in multiple mainstream standards fields, including mobile communications, short-distance communications, and video codecs. **Hundreds of companies** use our patented technologies through agreements or patent pools.

Huawei's patents are broadly recognized across the industry

In 2022, **29 companies** from China, the US, Europe, Japan, South Korea, and a number of other countries and regions entered into new licensing agreements with Huawei to pay for the use of the company's patented technologies.

Trade Compliance

Huawei has always endeavored to comply with applicable laws and regulations of the countries and regions in which it operates. These include the applicable export control and sanction laws and regulations of the UN, China, the US, and the EU. We are committed to fulfilling our responsibilities and obligations related to export controls. We have invested immense effort over the years to establish a mature and sustainable internal system for trade compliance that aligns with industry standard practices, and worked tirelessly to constantly improve this system.

We have also established an integrated trade compliance management organization within the company. This organization manages trade compliance across both group functions and field offices. In addition, we have established specialist teams in our global offices that monitor changes to local laws and regulations; formulate and refine our trade compliance policies, systems, and processes; drive the implementation of these requirements in applicable business domains and group functions; and manage and oversee trade compliance in each link of our business operations, ranging from procurement, R&D, and sales, to supply and services.

Huawei continuously pushes employees to further their own trade compliance awareness. Employees must sign Huawei's BCGs each year, which include commitments to observing applicable export control laws and regulations. Huawei provides various training sessions on trade compliance to managers and employees across the company. These efforts, combined with targeted training for specific business scenarios, ensure employees fully understand their own responsibilities and obligations, as well as those of the company, regarding export controls.

For details about Huawei's Statement of Compliance with Export Control Regulations, please visit the "Policies" section at: https://www.huawei.com/en/sustainability/sustainability-report

Fair Competition and Trade

Huawei has long placed fair trade as a priority for operational compliance, and has established organizations, processes, regulations, and rules to ensure competition compliance.

- In every country where Huawei operates, we have appointed a compliance board director tasked with managing and supervising the operational compliance of their local subsidiaries. Guided by the tone at the top of our company, compliance board directors formulate subsidiary compliance management policies and rules in accordance with applicable local laws and regulations. These policies and rules include guidelines and implementation rules on compliance with competition laws, manager and employee statements on compliance, partner letters of commitment to compliance, and related training materials.

- Huawei has embedded competition compliance rules and regulations into its management systems and business processes. We customize policies for each country based on local competition laws. We update compliance objectives every year, and oversee the achievement of these objectives. We also provide dedicated training for compliance officers to ensure that related rules and guidelines are fully implemented.

- Huawei constantly optimizes its business processes and establishes long-term mechanisms to ensure competition compliance comprehensively. These processes and mechanisms include independent sales consultant management, due diligence on third-party suppliers, and the optimization of competition law compliance baselines for sales contracts.

Huawei is actively contributing to a fair market environment by raising employee awareness and fully adhering to the fair competition principle in our business operations.

Supply Chain Responsibilities

Huawei endorses the United Nations' Guiding Principles on Business and Human Rights and is serious about the societal and environmental impact of our global procurement and supply chains. We have teamed up with customers and suppliers to further the sustainable development of our global supply chains. In addition to incorporating CSR into activities across all of our value chains, we are constantly seeking new and innovative CSR practices. This helps us build our differentiated competitiveness and cost leadership. We consider CSR to be a key element of our Broad Quality principle and an integral part of our Quality First strategy. We offer premium prices to suppliers with better quality, and hope to inspire all suppliers to enhance their CSR performance. We have also built CSR into our global procurement process, from material and supplier qualification, selection, and appraisal to performance management and procurement fulfillment.

Procurement CSR Management System

Huawei has established its procurement CSR management system based on the OECD's Due Diligence Guidance for Responsible Business Conduct and the IPC-1401 Corporate Social Responsibility Management System Standard, and incorporated CSR requirements into our procurement strategy and business processes. We require all of our suppliers to comply with all applicable laws and regulations, and encourage them to promote diversity and improve their own CSR management by adopting globally recognized industry standards. Our Supplier CSR Agreement is prepared according to the Responsible Business Alliance (RBA) Code of Conduct and the Joint Audit Cooperation (JAC) Supply Chain Sustainability Guidelines. This agreement covers labor standards, health and safety, environmental protection, business ethics, and management systems. Huawei requires that all suppliers abide by the Supplier CSR Agreement and convey the same requirements to their own suppliers. We see the use of child labor or forced labor as red-line issues, and we have zero tolerance for violations of CSR red lines.

Huawei's CSR red lines in procurement

1. Use of child labor.
2. Use of prison labor (including using prisons as suppliers or subcontractors) or forced labor (including restricting personal freedom or detaining personal identity documents.)
3. Violence, physical punishment, sexual harassment, illegal body searches, cross-gender body searches, and other similar behavior.
4. Salary payments below the local minimum wage.
5. Negligence that leads to major fires or explosions.
6. Working conditions that seriously endanger personal health and safety or lead to fatal field incidents.
7. Illegal emissions of any hazardous or toxic wastes, including waste water, gas, and residue.
8. Negligence that leads to media crises or serious mass disturbances, such as collective labor disputes, mass brawls, mass poisoning, unnatural deaths, or other incidents causing casualties.
9. Unsafe and unhealthy working environments that lack effective measures to prevent potential health and safety accidents, or diseases that may be caused due to exposure in workplaces (e.g., collective infections).
10. Corruption or dishonest acts that violate the requirements of "no bribery, no gifts, no conflicts of interest, no falsification, no cutting corners, no fraud, and keeping promises".

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In 2022, zero supplier violations of CSR red lines were found

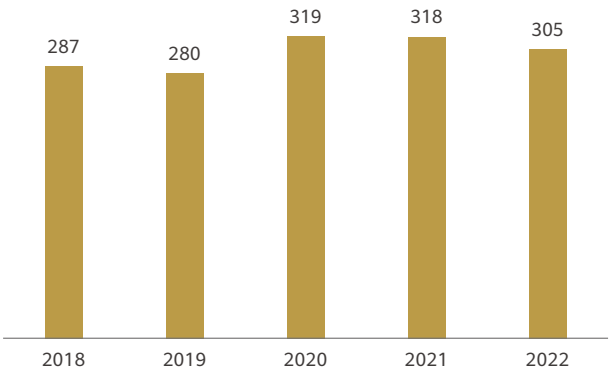
To support the strategic goal of sustainable procurement, we regularly deliver CSR training to all procurement staff. This training covers supplier CSR agreements, red lines, processes, and audit practices related to CSR in procurement. CSR requirements are incorporated into the performance indicators of all teams in our procurement department. In 2022, zero supplier violations of CSR red lines were found and no subcontractors suffered any fatal EHS liability incidents.

Supplier Risk Rating and Auditing

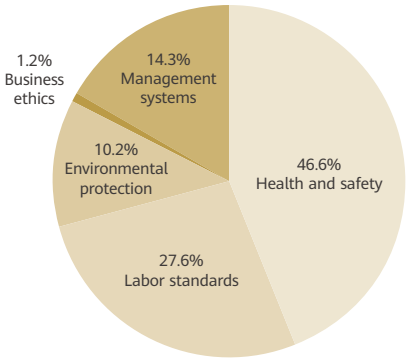
Huawei's approach to supply chain management is defined by risk-based due diligence. We work with suppliers to identify and clarify CSR opportunities, and take actions to prevent and mitigate CSR risks. Every year, we assess all major suppliers, which represent 90% or more of our procurement spending. 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 location, CSR performance score, and previous audit records. We develop an annual sustainability audit plan to deal with suppliers that are assessed as posing medium or high risk. In addition, we perform onsite assessments on all potential suppliers to examine their sustainability systems. No company that fails the assessment is eligible for consideration to become a Huawei supplier.

In 2022, we updated our Supplier CSR Audit Checklist in accordance with industry best practices to better meet customer requirements. This updated checklist raises the bar for energy conservation and emissions reduction, and includes requirements for a Cobalt Reporting Template (CRT) and annual sustainability reports. In 2022, we conducted supplier CSR audits using internationally recognized methods such as onsite inspections, employee interviews, management interviews, documentation reviews, and online searches. We also used the Blue Map database developed by the Institute of Public and Environmental Affairs (IPE) to assess supplier compliance with environmental requirements, and urged five suppliers to resolve the identified issues within a specified timeframe.

In 2022, we assigned CSR risk ratings to more than 1,600 major suppliers and conducted 305 onsite CSR audits on new suppliers, medium- and high-risk suppliers, and suppliers with EHS risks.



Number of suppliers on which Huawei conducted CSR audits onsite (2018–2022)



Supplier CSR risks identified in 2022 audits

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

1 Check	2 Root cause analysis	3 Correct	4 Prevent	5 Evaluate
Conduct comprehensive checks, identify the gaps between issues and requirements, and categorize the identified issues.	Analyze the root causes of issues by asking the five Whys to identify management system failures in terms of five Ms (man, machine, material, method, and environment).	Develop SMART (specific, measurable, attainable, relevant, and time-based) measures that address the identified issues, and retain quantitative evidence.	Resolve the identified root causes and optimize the management system based on the PDCA approach to prevent the issues from recurring.	Evaluate the effectiveness of correction and prevention efforts. Go back to Step 1 if necessary.

Supplier Performance Management

Every year, Huawei appraises suppliers' sustainability performance as part of their overall performance appraisals. During this process, we also consider how they manage the sustainability of their own suppliers. Suppliers are classified into four grades (A, B, C, or D) based on their sustainability performance. In 2022, we appraised the sustainability performance of more than 1,600 major suppliers.

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 suppliers are equally matched in other factors, those that perform better in sustainability are given priority for share of business or 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. Alternatively, we may reduce their share of business or offer them fewer business opportunities. We may even terminate our business relationships with those that display exceptionally poor sustainability performance.

Supplier Capability Improvement

As part of our efforts to help suppliers perform more sustainably, we regularly provide them with sustainability training and coaching. We also encourage our suppliers to adopt industry best practices and embed sustainability requirements into their business strategies to reduce operating risk and boost efficiency.

We encourage our suppliers to learn from each other and grow together through benchmarking. Our Learning by Benchmarking model for suppliers has four main 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.

In 2022, we engaged professional third-party organizations to host seven training sessions and workshops that addressed the shared sustainability concerns of our suppliers, including production safety, hazardous chemicals, fire safety, environmental protection, and sustainability system management. About 1,000 participants from 200 suppliers took part in these training sessions and workshops.

CSR training for suppliers

Harnessing Digital Innovation to Boost Engineering Suppliers' EHS Management Capabilities and Efficiency

Huawei requires its suppliers to make EHS management part of their day-to-day operations. We also help suppliers enhance their EHS management capabilities and efficiency. Instead of using manual checklists and conducting safety checks based on photos and smartphone apps, we are constantly exploring new digital approaches and tools for EHS management, including structured online checklists, video-based checks, smart helmets, and AI-powered risk identification.

A supplier's safety supervisor wearing a smart helmet conducts a safety check onsite

In 2022, Huawei adopted the Field Work Command Center (FWCC) structure to help manage onsite EHS for engineering suppliers. Our smart helmets connect to the FWCC, allowing safety supervisors to carry out safety checks through video. Safety supervisors can simultaneously conduct checks on workers' qualifications and personal protective equipment (PPE), including whether they are wearing safety helmets properly. The smart helmet makes it possible to gather information about onsite environments and conditions, assess how well safety supervisors are fulfilling their duties, and identify onsite hazards and emergencies. This is how we help standardize the operations of construction workers and ensure their safety.

Stakeholder Engagement and Cooperation

Huawei is proactive about engaging and cooperating with industry stakeholders. Together with the upstream and downstream players in our supply chains, we drive CSR standardization, perform CSR-related due diligence, and make continued efforts to improve CSR management and supply resilience. We want to work hand-in-hand with our stakeholders to build responsible supply chains.

In 2022, Huawei communicated with more than 40 customers to discuss CSR requirements and measures related to supply chain traceability, forced labor, and due diligence. Huawei also recommended three suppliers for joint audits organized by the telecom carrier association JAC. On top of this, we launched more than 100 joint improvement programs with suppliers, helping them enhance product quality and supply capabilities, cultivate talent, and contribute to more resilient supply chains.

Launching Joint Improvement Programs with Suppliers to Create More Resilient Supply Chains

Huawei's supply chain resilience and business continuity rely on the product quality and supply capabilities of both itself and its suppliers. We provide routine training for suppliers and deploy teams to offer them onsite support. Together with suppliers, we roll out joint improvement programs that employ Top N, Lean Six Sigma, Quality Control Circle (QCC), and other methodologies for continuous improvement. Under these programs, we provide coaching on how suppliers can optimize their internal processes to enhance quality, reduce costs, and save resources by minimizing resource loss and waste.

In 2022, Huawei worked with suppliers to implement 75 Six Sigma improvement programs, 86 QCC improvement programs, and two Top N improvement programs. These programs are an opportunity for both Huawei and suppliers to improve systematic thinking and leverage quality tools and methodologies for issue analysis and resolution. These programs benefited both Huawei and our suppliers, further cementing our close relationships and helping suppliers nurture quality personnel with ICT expertise.

Awards for outstanding supplier coaching projects and individuals at the 2022 Continuous Improvement and Innovation Conference of Huawei Global Procurement

Responsible Management of Minerals

Huawei is committed to responsible procurement of mineral raw materials used in our products, including tin, tantalum, tungsten, gold (3TG), and cobalt. Responsible management of minerals is an integral part of our procurement CSR management system, including supplier qualification, supervision, and auditing processes. As a downstream company in the mineral supply chain, Huawei does not directly purchase any minerals, and there are at least seven tiers between Huawei and mining companies. Huawei requires that our suppliers do not purchase conflict minerals to ensure that their products never directly or indirectly fund armed conflicts or any other inhumane act. Huawei also actively works with global industry peers through industry initiatives like the Responsible Minerals Initiative (RMI) and the Responsible Cobalt Initiative (RCI). Together with partners both up and down the supply chain, we conduct supply chain surveys, create a complete list of all related smelters, and push these smelters to apply for or maintain the Responsible Minerals Assurance Process (RMAP) certification.

Huawei has established a risk-based system for the responsible management of minerals in accordance with the OECD's Due Diligence Guidance for Responsible Supply Chains of Minerals. Each year, through this system, we identify suppliers of five conflict minerals: tin, tantalum, tungsten, gold, and cobalt. Using the Conflict Minerals Reporting Template (CMRT) and the Cobalt Reporting Template (CRT), we urge suppliers to identify and investigate all smelters within their supply chain. We also require that all identified smelters do not purchase minerals from conflict-affected and high-risk areas (CAHRAs), and urge smelters that have not obtained the RMAP certification to get the certification within a specified timeframe when necessary.

Community Responsibilities

Huawei is committed to creating value for the communities where we operate. We believe communications networks have a critical role to play in connecting the unconnected and providing access to information across all boundaries. Achieving these goals will have a huge impact on socioeconomic development. As more countries and regions become increasingly interconnected, we have been working more closely with governments, customers, companies, and non-profit organizations to roll out social contribution programs. These programs aim to protect the environment, provide education opportunities, and develop skilled ICT workforces. In addition, we are committed to giving back and donating to the countries and regions in which we operate so that we grow hand in hand with local communities and drive local socioeconomic recovery.

In Vietnam, Huawei deploys digital power solutions to support the construction of kindergartens in remote areas. We also leverage digital technology to improve the quality of education and infrastructure in primary schools. These efforts won Huawei a certificate of recognition for its social contribution at the Saigon Times CSR 2022 Merit Ceremony.

In Morocco, Huawei implements a series of activities to build innovation and startup ecosystems, such as digital ecosystem summits, talent development programs, and startup competitions. These activities inspire ICT startups and promote the development of the local digital industry.

Stronger Industry-Academia Collaboration for Global ICT Talent Cultivation

In the digital economy era, digital skills and literacy are crucial for the digital economy. Therefore, countries are racing to cultivate digital talent as part of their greater efforts to advance digital transformation and the digital economy. Huawei is committed to providing high-quality education resources and industry innovation platforms to help cultivate digital talent in local communities. We have launched projects like Seeds for the Future to build a global network for ICT talent cultivation, encourage local ICT innovation, and inject new vitality into the digital economy. As we cultivate digital talent, we maintain a strong focus on gender equality and women's development. Since 2018, we have been working to ensure that at least one third of the Seeds for the Future program participants are women as part of our ongoing efforts to give a wider audience the opportunity to access digital technology.

Offline Seeds for the Future Activities Return, with Tech4Good Competition Showcasing the Innovation of Global Youth

Launched in 2008, Huawei's Seeds for the Future program takes many different forms, including intensive, short-term training, alumni reunion events that foster long-term exchanges, and the annual Tech4Good Global Competition. These projects aim to help outstanding students better understand ICT and digitalization. Seeds for the Future participants can then apply what they learn in the program to build local digital communities, while also building connections with other outstanding digital talent and future leaders from around the world to accelerate local digital transformation.

As cross-border exchanges became possible again in 2022, we brought back many offline activities for Seeds for the Future outside China. In Thailand, where the Seeds for the Future program was first launched, students from 16 Asian countries enjoyed a nine-day cross-cultural digital journey. At our Accelerator Camp in Singapore, we provided one-week advanced mentorship to the winning teams of Huawei Asia Pacific Seeds for the Future Tech4Good Competition on how to translate ideas into market-ready offerings. In Spain, European Seeds for the Future alumni spoke at the UNESCO World Higher Education Conference. In Tunisia, Seeds for the Future alumni from 20 countries attended the Alumni Reunion event, where they took part in activities like digital leadership workshops, sustainable development roundtables and cross-cultural communication. In Mexico and Greece, we held the Latin America and the Caribbean ICT Talent Summit and European Talent Summit, respectively, offering Seeds for the Future alumni a broader communication platform.

In 2022, more students participated in the second Tech4Good Global Competition and proposed innovative digital solutions that had great commercial and social value. The first, second, and third prizes were respectively awarded to the Irish team for the "Roll On" system that helps wheelchair users independently board trains, the Algerian team for their rust detection system "FarmAI", and the Italian team for "AlarmDeck", a system that tackles the alarm fatigue of healthcare staff. This competition showcases the innovation of global youth to the world.

Since the Seeds for the Future program started in 2008, Huawei has launched various education programs, including scholarships and technology competitions. In July 2021, Huawei integrated these education programs and officially launched the Seeds for the Future 2.0 program. This program aims to help professionals working in different industries, including the public sector, improve their digital skills and nurture leadership. It also organizes competitions to motivate university students. As part of the program, Huawei provides training on basic digital skills to local communities. By the end of 2022, the program reached more than 150 countries and benefited more than 2.43 million people.

Huawei's flagship CSR program Seeds for the Future is dedicated to cultivating digital talent and promoting digital transformation of local communities

2.43 million

By the end of 2022, the Seeds for the Future 2.0 program reached more than 150 countries and benefited more than 2.43 million people

Investing Heavily in a Comprehensive Talent Ecosystem

Huawei works to build talent ecosystems for teachers and students, lifelong learners, and industry practitioners by establishing talent alliances, contributing to talent standards, improving talent capabilities, and communicating the value of talent in order to improve digital skills throughout society.

The Huawei ICT Academy program is a partnership between Huawei and universities that aims to share Huawei's cutting-edge ICT technologies with universities worldwide and cultivate new ICT talent. By the end of 2022, we had established Huawei ICT Academies with more than 2,200 universities across the globe. Through this program, we train an average of more than 200,000 students each year. Furthermore, the Huawei ICT Competition provides an international platform through which university students from around the world can compete and share ideas with each other.

The sixth Huawei ICT Competition, held in 2022, attracted 150,000 university students from 85 countries and regions. The Regional Final of the Huawei ICT Competition 2022 Middle East & Central Asia alone gained the attention and support of 11 countries in the region and their corresponding ministries. During the regional competition, the Omani government announced that it would offer US$450,000 worth of scholarships to incentivize students who obtained Huawei certifications in the next five years. At the same time, Huawei launched the Eagle Talent Program and shared its talent cultivation approach and employee career paths with university students. Huawei also sent offer letters for interns to the regional finalists and assigned outstanding Huawei employees to be their mentors. Those who passed the final internship presentation were given the chance to directly join Huawei.

Huawei ICT Competition 2021–2022 Global Final Closing & Awards Ceremony

This competition was the first time that we had used the Public-Private Partnership (PPP) model in a talent ecosystem project, and it further encouraged governments and investors to invest in and collaborate on talent cultivation projects and other flagship activities.

Huawei continuously optimizes its certification system, which covers both career certifications and specialist certifications. By the end of 2022, we had presented over 750,000 certifications worldwide, including more than 21,000 Huawei Certified ICT Expert (HCIE) certifications. Engineers who hold our certifications are valuable resources for industry digitalization worldwide.

200,000

By the end of 2022, we had established Huawei ICT Academies with more than 2,200 universities across the globe. Through this program, we train an average of more than 200,000 students each year

The Huawei ICT Competition 2022 Middle East & Central Asia encourages intergovernmental cooperation across the region, contributing to a stronger local ICT talent ecosystem

Chaspark: An Academic Exchange Platform for Global Top STEM Talent

Chaspark is a world-class platform for academic exchanges on science and technology. The platform attracts and connects outstanding talent from different disciplines, colleges, and regions, and aims to drive scientific and technological advances. The platform, which focuses on the ICT industry, provides access to insightful papers, real-world challenges, and technical contests, and organizes technical exchange activities and discussions on trending academic topics. This helps domain experts, scholars, and researchers from both academia and industry discuss and explore the latest technical challenges together.

World-class challenges help cultivate world-class talent, and open innovation lights the way forward for the industry. Since November 2022, Huawei has been publishing real-world challenges on Chaspark that have both commercial and scientific value. We have promoted cooperation between schools and enterprises to quickly and accurately align academic research with industry requirements. This has encouraged researchers to make progress in theoretical research, helped them better understand the cutting-edge technology challenges facing the industry, and inspired schools to develop talent which will meet future needs of the industry. Chaspark has also posted top technology competitions organized by Huawei around the world, enabling young talent from universities, scientific research institutes, and other institutions to quickly and easily learn about industry needs in real-world scenarios and identify research directions.

Chaspark remains committed to providing an open, cutting-edge, and innovative exchange and learning community for academic and talent development. We hope that STEM talent from around the world will spark inspiration and generate new ideas on this platform.

Chaspark website:

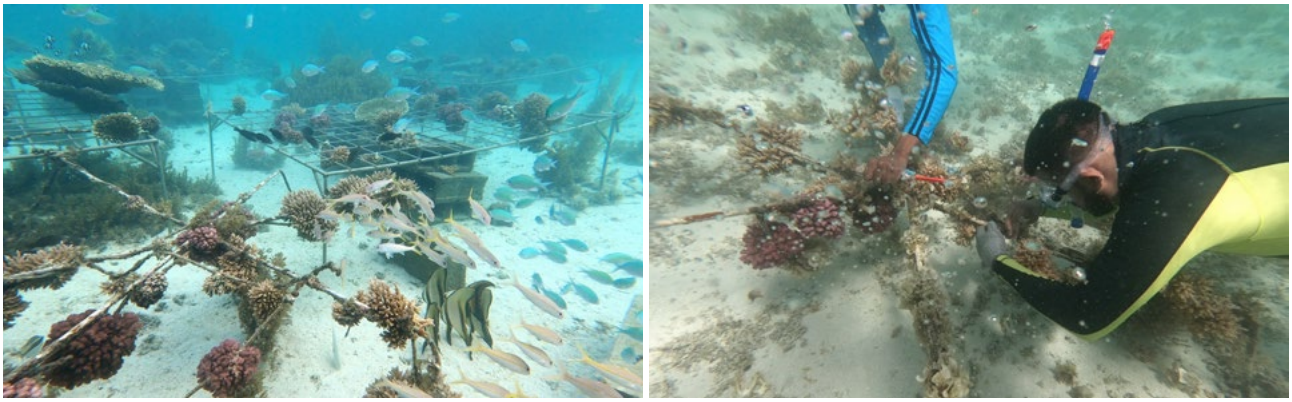
https://www.chaspark.com/#/home?lang=en

Chaspark offers a variety of activities for researchers to inspire innovation and promote industry-academia collaboration

Conserving Nature with Digital Technology

Nature is incredibly important for human beings. As environmental problems have become a major concern around the world, Huawei stands ready to leverage innovative digital technology to improve nature conservation and ecosystem restoration.

Protecting Rare Coral Reefs in Mauritius with Digital Technology



Huawei and its partners use digital technology to monitor and analyze the growth of coral reefs to better protect them

Mauritius is surrounded by rare coral reefs, making it a world-renowned tourist destination. However, due to climate change and human activities in recent years, the coral reefs in the region have declined to less than 25% of their former levels, causing widespread concern in Mauritius.

In 2020, Huawei launched a coral reef conservation project in Mauritius with International Union for Conservation of Nature (IUCN) and local partners. The project team has used underwater cameras to monitor the growth of coral fragments in coral nurseries, and transmitted the data captured to Huawei Cloud for modeling and analysis using digital technology.

By the end of 2022, the project team had transplanted more than 17,000 coral fragments into degraded coral reefs, including more than 2,000 fragments in Pointe aux Feuilles located off the Mauritius coast. As a result of consistent efforts and dedication, the degraded coral reef system in Pointe aux Feuilles is now a coral reserve listed on the IUCN Green List of Protected and Conserved Areas.

In the future, Huawei will continue to work alongside partners to roll out coral reef conservation projects and transplant more coral fragments. We will also develop applications to help the public better understand the importance of coral conservation. These are part of our efforts to use comprehensive ICT solutions to better conserve rare natural resources and nature as a whole.

17,000

By the end of 2022, the project team had transplanted more than 17,000 coral fragments into degraded coral reefs, including more than 2,000 fragments in Pointe aux Feuilles located off the Mauritius coast

Detecting Early Signs of Forest Fires with Drone-based Solutions in Greece

Greece has a Mediterranean climate characterized by a hot and dry summer and it is a mountainous country with many forests. These geographical features mean that forest fires are the most devastating natural disasters in Greece. To reduce the damage caused by forest fires and protect the lives and property of local people, Huawei collaborated with local partners to pilot an early forest fire detection solution that has integrated cutting-edge technologies such as 5G, AI, and drones in Syggrou Forest in Greece.

The solution connects carbon dioxide and temperature sensors on the ground with drones hovering over the forest, and uses AI to monitor images captured by the drones in real time to identify the location of possible forest fires. This allows local command and control centers to detect and quickly locate early signs of forest fires and take the best measures to put out the fires and evacuate personnel, reducing the damage that the fires might otherwise have caused.

The solution has generated extensive media coverage in Greece. Greek government officials, including the Minister of Investment and Development and the Minister of Rural Development and Food, have welcomed and praised Huawei's efforts to address local environmental problems using technology.

In the future, Huawei will upgrade the solution together with more ministries and partners. The upgraded solution will not only be able to quickly detect early signs of forest fires and give fire alerts and warnings, it will also immediately intervene as soon as it detects the fire in a remote area by instructing drones to deploy fire extinguishing balls and guide citizens to evacuate.

Huawei and its partners deploy the drone-based early forest fire detection solution in Greece to protect local forests and reduce damage

Advancing Local Industry with Better ICT Infrastructure and Innovative Applications

Huawei is an active, productive member of the communities in which it operates. We pay close attention to ICT infrastructure construction and innovative applications within local communities. In 2022, we continued to participate in building network infrastructure and made efforts to improve the basic capabilities of local networks. We also promoted the adoption of the latest ICT solutions to drive local industry forward and unleash digital connectivity.

Bringing Digital to Nigerians with the RuralStar Solution

Nigeria has the highest GDP in Africa. However, more than 20 million Nigerians have been unable to benefit from development opportunities and enjoy the benefits of connectivity due to a lack of network access. For years, Huawei has been exploring and innovating with partners to improve network connectivity in Nigeria, particularly in remote areas.

With deep insight into the local situation in rural areas, Huawei has developed a low-cost RuralStar solution that is easy to deploy in these areas. In 2022, we installed more than 300 RuralStar sites in Nigeria, bringing the total to more than 600. These sites serve over seven million Nigerians in remote areas, connecting them to the digital world. In the village of Oranla, where a new RuralStar site was recently deployed, we organized a live streaming event to demonstrate how network connectivity has improved the lives of the local community.

Huawei has long been committed to connecting the unconnected and bringing network and digital technology to every corner of the world. We hope that more people will soon be able to access and enjoy the benefits of the digital world.

Huawei builds RuralStar sites across Nigeria to bring digital to local communities

5G Smart Farming in Austria: Supporting Green and Efficient Agriculture

In 2022, Huawei launched the innovative 5G smart farming project in Austria, which leverages technologies such as drones, 5G, and sensors to monitor crop growth in real time. This project has not only helped farms greatly reduce their use of pesticides and improve agricultural management efficiency, but also promoted local rural network infrastructure construction. It represents our ongoing efforts to contribute to green and efficient agriculture.

The 5G smart farming project promotes innovative applications and network coverage in rural areas. The farm has won support from the Austrian Ministry of Agriculture, Fisheries, and Forestry, and received wide acclaim from government officials including the Deputy Federal Minister for Agriculture, Fisheries, and Forestry, the Secretary of State for Communications, and municipal councilors. To share the innovative experience of 5G smart farms with more people and create greater social value, Huawei organized Green In-Sites tours outside China. More than 90 journalists and opinion leaders from over 10 European countries participated in the first tour. They also joined local experts in exploring how to digitalize agriculture in the future.

The 5G smart farming tour demonstrates how 5G drones are used in farmland monitoring and analysis and facilitates expert discussions about the digitalization of agriculture in the future

Cultivating Female Leadership and Promoting Gender Equality

According to the latest facts on gender equality in education released by the United Nations Educational, Scientific and Cultural Organization (UNESCO), women are under-represented at all levels in the technology sector. This is particularly so in leadership positions, where they represent only 24% of professionals. Since 2020, with the philosophy of "Tech for Her, Tech by Her, Tech with Her", Huawei has prioritized women's wellbeing and development, and has used its technology and platforms to empower more women to enter the tech industry and cultivate female leadership.

Tech for Her

Huawei is committed to empowering female entrepreneurs around the world with its technology products and services. According to the Global Entrepreneurship Monitor (GEM) 2011/22 Women's Entrepreneurship Report, the average startup rate for women was 10.4%. The growing proportion of female entrepreneurs indicates that more women are working hard to achieve their full potential.

The Huawei Cloud Global Startup Ecosystem offers female entrepreneurs the support they need in different areas to start their business. For example, Huawei Cloud's AI development pipeline, ModelArts, can help Intella, an Arabic voice-to-text transcription service company founded by Nour Altaher in Egypt, improve its transcription accuracy. We also provided coupons for Intella cloud services to support its development. With Huawei Cloud's global digital infrastructure, technical capabilities, and ecosystem resources, our agile cloud migration solutions can help startups reduce costs, improve innovation efficiency, and ultimately help them achieve their entrepreneurial dreams.

In September 2022, Huawei Cloud CEO Zhang Ping'an pledged to invest more resources to support 10,000 high-potential startups worldwide and benefit more female entrepreneurs over the next three years. So far, Huawei Cloud services have supported more than 2,000 startups in over 170 countries and regions around the world, and the founding teams of nearly half of these enterprises have women members onboard.

Tech by Her

Huawei believes that outstanding female role models can inspire and encourage more women to enter the tech industry and take on leadership roles.

Since the launch of the Women in Tech initiative, Huawei has been partnering with women around the world. In 2022, we launched the "Tech by Her: Leadership" project. The project interviewed seven notable female leaders from different backgrounds, including a world-renowned painter, the head of an R&D team at the Barcelona Supercomputing Center, the former UNESCO Director-General, the ITU Regional Director for Asia and the Pacific, Secretary-General for the Indonesian Ministry of Communications and Informatics, the General Manager of CAMTEL, and a Brazilian medical opinion leader. These female leaders shared their experiences and insights. We sincerely hope that their advice can reach and empower more women.

In 2022, Huawei European Leadership Academy organized two editions of the Schools for Female Leadership in the Digital Age, and a groundbreaking edition of the Women's Academy for Rural Innovation, all of which focused on enhancing women's leadership and strengthening their digital skills. For each of the schools, Huawei provided full scholarships to 29 outstanding young women, representing 27 EU member states and two EU candidate countries. We also gave them a week-long MBA-style education covering technology and leadership, as well as other core skills, such as public speaking, negotiation in a global context, and sustainability.

The European Leadership Academy provides quality digital education and skill training for women

In addition, Huawei hosted the Summer Camp 4 Her in Portugal, where 15 local female students received leadership and ICT training to improve their skills.

Female Portuguese students at the Summer Camp 4 Her

Tech with Her

Huawei is working to improve access to technology training both online and offline for women around the world. As part of this goal, we have organized a wide range of projects in Europe, Latin America, and Asia-Pacific.

In February, we partnered with the SDA Bocconi Business School of Management in Italy to provide digital skill training for hundreds of local female students, SME employees, and public administration officials.

Professors of the SDA Bocconi Business School of Management provide training for SME female employees

In August, we worked alongside the Rebecca Foundation and Ghanaian government agencies, including the Ministry of Communications and the Ministry of Education, to offer ICT skill training for 100,000 local female students and women in the business world. These training sessions covered how to use computers and the Internet at work and in production activities, and also provided courses on AI, privacy protection, cyber security, and other topics. This training can make these women more competitive in the job market.

The Women in Tech initiative in Ghana inspires more women to enter the ICT industry and achieve their career goals

In December, we worked with Thailand's National Cyber Security Agency to organize an innovative cyber security technology competition. This competition attracted more than 130 local female students. Local government officials spoke highly of the competition, saying that it offered a platform for more women to enter the local cyber security sector.

For more details, please visit:
https://www.huawei.com/en/sustainability/women

Respecting Human Rights

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 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.

Huawei is committed to adhering to all applicable international conventions and national laws and policies, and respects all basic human rights as promoted by the Universal Declaration of Human Rights. We develop products and services in compliance with international standards and certifications. We strive to ensure that our business activities will not cause or contribute to any adverse impacts on human rights. Huawei has been a member of the United Nations Global Compact (UNGC) since 2004, and a member of the Responsible Business Alliance (RBA) since 2018. In addition, Huawei is committed to the UN's Guiding Principles

on Business and Human Rights and standards released by the International Labour Organization.

Key Areas

Huawei's Corporate Sustainable Development Committee is responsible for overseeing any human rights risks that may exist within our business activities or supply chain, and strengthening our management of key areas that may have an impact on human rights.

- **Ensuring that technology is used to benefit humanity:** Technology should be used to enhance human, social, and environmental well-being. Huawei firmly opposes the misuse of technology that has an adverse impact on human rights. We carefully evaluate the long-term and potential impact of our new technologies on society based on widely recognized industry standards 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 intended 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 adverse impact of technology development.

- **Protecting privacy:** Huawei attaches great importance to privacy protection, and we take our responsibilities seriously. We are committed to complying with all applicable privacy laws worldwide, including China's Personal Information Protection Law and the EU's 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, paying careful attention to sensitive personal data or sensitive usage. Huawei also requires its suppliers to comply with requirements for personal data protection. In addition, Huawei requires all of its employees to receive privacy training to enhance their understanding of the domain, and we encourage our employees to participate in professional privacy certification programs. More than 480 Huawei employees have been certified by the International Association of Privacy Professionals, placing Huawei among the top companies globally in this regard.

- **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 has established a CSR management system in procurement in accordance with the UN's Guiding Principles on Business and Human Rights and the OECD's Due Diligence Guidance for Responsible Business Conduct. Our CSR agreements signed with suppliers are prepared according to internationally recognized industry standards such as the Responsible Business Alliance Code of Conduct, the Joint Audit Cooperation Supply Chain Sustainability Guidelines, and IPC-1401 Corporate Social Responsibility Management System Standard. During this process, Huawei also works closely with its supply chain, both upstream and downstream. In addition, we comply with our customers' sustainability requirements and conduct joint audits with them. We also require our direct suppliers to cascade our requirements to their sub-tier suppliers, asking them to respect the rights of their employees and comply with all legal requirements regarding environmental protection, health and safety, privacy, and anti-bribery compliance. Together, our goal is to create a responsible supply chain. Huawei has a comprehensive qualification process for all new suppliers, and carries out risk-informed annual audits on current suppliers. All suppliers are evaluated based on their sustainability performance, the results of audits, and the completion of any corrective actions. Huawei has a zero-tolerance policy towards the use of forced labor. If a supplier is found to have violated this policy, we will take disciplinary action against them like terminating our business relationship. To date, no use of forced labor has been discovered among our suppliers.

Respecting human rights has been a long-standing focus for Huawei. While remaining committed to observing 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. At the same time, we will continue to optimize management mechanisms and work with our suppliers, partners, and customers to promptly identify, manage, and mitigate any human rights risks or adverse impacts.

Appendix I: Sustainability Goals and Performance

● Achieved ◎ On track ○ Not achieved

No.	CSD Strategy	Goals and Initiatives	2022 Progress	Status
1	Digital Inclusion	TECH4ALL's education programs benefit more than 220,000 people	Achieved. See pages 29–31 of this report.	●
2		TECH4ALL's environmental protection programs help conserve biodiversity more efficiently in 46 protected areas	Achieved. See pages 32–34 of this report.	●
3	Security and Trustworthiness	Zero level-1 cyber security incidents	Achieved.	●
4		Zero level-1 personal data leaks	Achieved.	●
5		At least 90% of incidents are fixed within one hour	Achieved. Actual value: 99.4%.	●
6		Problem report fix response time: 98%	Achieved. Actual value: 99.5%.	●
7	Environmental Protection	Reduce the carbon emissions (Scope 1 and Scope 2 GHG emissions) per unit of sales revenue by 16% by 2025 compared with 2019	On track. See pages 54–55 of this report.	◎
8		Increase the average energy efficiency of our main products by 2.7 times by 2025 compared with 2019	On track. See pages 51–54 of this report.	◎
9		Ensure all of Huawei's top 100 suppliers (by procurement spending) will have set carbon emissions reduction targets by 2025	Achieved. See pages 58–59 of this report.	●
10		Less than 1.5% of e-waste from Huawei's ICT business is landfilled	Achieved. See page 67 of this report.	●
11		No e-waste from Huawei's smart devices is landfilled	Achieved. See page 67 of this report.	●
12		Use 20% more electricity from renewable energy sources in 2022 over 2021 on Huawei campuses in the China Region	Achieved. See page 55 of this report.	●
13	Healthy and Harmonious Ecosystem	Huawei employees receive over 60 hours of training on average	Achieved. See page 76 of this report.	●
14		Every year, Huawei invests over 10% of its sales revenue into R&D	Achieved. See page 82 of this report.	●
15		100% of Huawei employees sign the Huawei Business Conduct Guidelines	Achieved. See page 80 of this report.	●
16		Zero supplier violations of CSR red lines	Achieved. See page 84 of this report.	●
17		Zero fatal subcontractor EHS liability incidents	Achieved. See pages 85–87 of this report.	●
18	Sustainability Management System	CDP ratings for climate action: Leadership (A/A-)	Achieved. See page 50 of this report.	●
19		Zero outstanding CSD Committee tasks	Achieved. All 10 outstanding tasks for 2022, including 7 related to the sustainability management system and 3 related to environmental protection, were closed.	●

Appendix II: GRI Content Index – Reporting with Reference to the GRI Standards

Statement of use: Huawei Investment & Holding Co., Ltd. has reported the information cited in this GRI content index for the period from January 1, 2022 to December 31, 2022 with reference to the GRI Standards.

Part I: General Disclosures 2021			
1. The organization and its reporting practices			
Disclosure	**Indicator**	**Page(s)**	**Notes**
2-1	Organizational details	8	About Huawei
2-2	Entities included in the organization's sustainability reporting	8	About Huawei
2-3	Reporting period, frequency and contact point	8	About Huawei
2-4	Restatements of information	Not applicable	Restatements of information are not applicable
2-5	External assurance	102	Appendix IV
2. Activities and workers			
2-6	Activities, value chain and other business relationships	8	About Huawei
2-7	Employees	72–79	Caring for Employees
2-8	Workers who are not employees	Information incomplete	Data of subsidiaries outside China is unavailable
3. Governance			
2-9	Governance structure and composition	20	Sustainability Management System
2-10	Nomination and selection of the highest governance body	20	Sustainability Management System
2-11	Chair of the highest governance body	20	Sustainability Management System
2-12	Role of the highest governance body in overseeing the management of impacts	20	Sustainability Management System
2-13	Delegation of responsibility for managing impacts	20	Sustainability Management System
2-14	Role of the highest governance body in sustainability reporting	20	Sustainability Management System
2-15	Conflicts of interest	20	Sustainability Management System
2-16	Communication of critical concerns	20	Sustainability Management System
2-17	Collective knowledge of the highest governance body	20	Sustainability Management System
2-18	Evaluation of the performance of the highest governance body	20	Sustainability Management System
2-19	Remuneration policies	79	Caring for Employees
2-20	Process to determine remuneration	Confidentiality constraints	Private organizational information
2-21	Annual total compensation ratio	Confidentiality constraints	Private organizational information

4. Strategies, policies and practices			
Disclosure	**Indicator**	**Page(s)**	**Notes**
2-22	Statement on sustainable development strategy	17–18	Sustainability Management System
2-23	Policy commitments	19, 91–92	Sustainability Management System, Respecting Human Rights
2-24	Embedding policy commitments	19–20	Sustainability Management System
2-25	Processes to remediate negative impacts	19–20	Sustainability Management System
2-26	Mechanisms for seeking advice and raising concerns	19–20	Sustainability Management System
2-27	Compliance with laws and regulations	80–83	Business Ethics
2-28	Membership associations	27	Sustainability Management System
5. Stakeholder engagement			
2-29	Approach to stakeholder engagement	24–27	Sustainability Management System
2-30	Collective bargaining agreements		Caring for Employees
Part II: Material Topics 2021			
Disclosure	**Indicator**	**Page(s)**	**Notes**
3-1	Process to determine material topics	27	Sustainability Management System
3-2	List of material topics	27	Sustainability Management System
3-3	Management of material topics	27	Sustainability Management System
Part III: Topic Disclosures			
Economic Performance 2016			
Disclosure	**Indicator**	**Page(s)**	**Notes**
201-1	Direct economic value generated and distributed	8	For details, please see the Huawei Investment & Holding Co., Ltd. 2022 Annual Report
201-2	Financial implications and other risks and Opportunities due to climate change	8	
201-3	Defined benefit plan obligations and other retirement plans	8	
201-4	Financial assistance received from government	8	
Market Presence 2016			
202-2	Proportion of senior management hired from the local community	77–79	Caring for Employees

Indirect Economic Impacts 2016			
Disclosure	**Indicator**	**Page(s)**	**Notes**
203-1	Infrastructure investments and services supported	90–99	Community Responsibilities
203-2	Significant indirect economic impacts	90–99	Community Responsibilities
Anti-corruption 2016			
205-1	Operations assessed for risks related to corruption	81	Business Ethics
205-2	Communication and training about anti-corruption policies and procedures	81	Business Ethics
Anti-competitive Behavior 2016			
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	83	Business Ethics
Tax 2019			
207-1	Approach to tax	8	For details, please see the Huawei Investment & Holding Co., Ltd. 2022 Annual Report
207-2	Tax governance, control, and risk management	8	
207-3	Stakeholder engagement and management of concerns related to tax	8	
207-4	Country-by-country report	8	
Materials 2016			
301-1	Materials used by weight or volume	49–70	Environmental Protection
301-2	Recycled input materials used	49–70	Environmental Protection
301-3	Reclaimed products and their packaging materials	49–70	Environmental Protection
Energy 2016			
302-1	Energy consumption within the organization	47-48	Environmental Protection
302-2	Energy consumption outside of the organization	47-48	Environmental Protection
302-3	Energy intensity	55	Environmental Protection
302-4	Reduction of energy consumption	55	Environmental Protection
302-5	Reductions in energy requirements of products and services	43-63	Environmental Protection
Water and Effluents 2018			
303-1	Interactions with water as a shared resource	56–58	Environmental Protection
303-2	Management of water discharge-related impacts	56–58	Environmental Protection
303-3	Water withdrawal	56–58	Environmental Protection
303-4	Drainage	56–58	Environmental Protection
303-5	Water discharge	56–58	Environmental Protection

Biodiversity 2016			
Disclosure	**Indicator**	**Page(s)**	**Notes**
304-2	Significant impacts of activities, products and services on biodiversity	32–34, 94–95	Digital Inclusion, Community Responsibilities
304-3	Habitats protected or restored	32–34, 94–95	Digital Inclusion, Community Responsibilities
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	32–34, 94–95	Digital Inclusion, Community Responsibilities
Emissions 2016			
305-1	Direct (Scope 1) GHG emissions	54–55	Environmental Protection
305-2	Energy indirect (Scope 2) GHG emissions	54–55	Environmental Protection
305-3	Other indirect (Scope 3) GHG emissions	54–55	Environmental Protection
305-4	GHG emissions intensity	54–55	Environmental Protection
305-5	Reduction of GHG emissions	54–55	Environmental Protection
Waste 2020			
306-1	Waste generation and significant waste-related impacts	57, 67	Environmental Protection
306-2	Management of significant waste-related impacts	57, 67	Environmental Protection
306-3	Waste generated	57, 67	Environmental Protection
306-4	Waste diverted from disposal	57, 67	Environmental Protection
306-5	Waste directed to disposal	57, 67	Environmental Protection
Supplier Environment Assessment 2016			
308-1	New suppliers that were screened using environmental criteria	58–59	Environmental Protection
308-2	Negative environmental impacts in the supply chain and actions taken	58–59	Environmental Protection
Employment 2016			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	72–79	Caring for Employees
Occupational Health and Safety 2018			
403-1	Occupational health and safety management system	72–76	Caring for Employees
403-2	Hazard identification, risk assessment, and incident investigation	72–76	Caring for Employees
403-3	Occupational health services	72–76	Caring for Employees
403-4	Worker participation, consultation, and communication on occupational health and safety	72–76	Caring for Employees
403-5	Worker training on occupational health and safety	72–76	Caring for Employees
403-6	Promotion of worker health	72–76	Caring for Employees

Disclosure	Indicator	Page(s)	Notes
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	72–76	Caring for Employees
403-8	Workers covered by an occupational health and safety management system	72–76	Caring for Employees
403-9	Work-related injuries	72–76	Caring for Employees
403-10	Work-related ill health	72–76	Caring for Employees
Training and Education 2016			
404-1	Average hours of training per year per employee	76–77	Caring for Employees
404-2	Programs for upgrading employee skills and transition assistance programs	76–77	Caring for Employees
404-3	Percentage of employees receiving regular performance and career development reviews	76–77	Caring for Employees
Diversity and Equal Opportunity 2016			
405-1	Diversity of governance bodies and employees	77–79	Caring for Employees
Child Labor 2016			
408-1	Operations and suppliers at significant risk for incidents of child labor	79, 98–99	Supply Chain Responsibilities
Forced or Compulsory Labor 2016			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	79, 98–99	Supply Chain Responsibilities
Security Practices 2016			
410-1	Security personnel trained in human rights policies or procedures	84	Supply Chain Responsibilities
Local Communities 2016			
413-1	Operations with local community engagement, impact assessments, and development programs	90–99	Community Responsibilities
Supplier Social Assessment 2016			
414-1	New suppliers that were screened using social criteria	84–89	Supply Chain Responsibilities
414-2	Negative social impacts in the supply chain and actions taken	84–89	Supply Chain Responsibilities
Customer Health and Safety 2016			
416-1	Assessment of the health and safety impacts of product and service categories	64–70	Environmental Protection

Appendix III Acronyms and Abbreviations

Acronym/Abbreviation	Full Name
3GPP	3rd Generation Partnership Project
3TG	Tin, Tantalum, Tungsten, Gold
5G	The 5th Generation Mobile Communication Technology
AAU	Active Antenna Unit
AI	Artificial Intelligence
APAC	Asia Pacific
AR	Augmented Reality
ASEAN	Association of Southeast Asian Nations
BCG	Business Conduct Guidelines
BCM	Business Continuity Management
BCP	Business Continuity Plan
BOD	Board of Directors
CC	Common Criteria
CEE	Central and Eastern Europe
CEO	Chief Executive Officer
CMRT	Conflict Minerals Reporting Template
COP	Conference of the Parties
CRCPE	Check, Root Cause Analysis, Correct, Prevent, and Evaluate
CRT	Cobalt Reporting Template
CSD	Corporate Sustainable Development
CSR	Corporate Social Responsibility
EAL	Evaluation Assurance Level
EFQM	European Foundation for Quality Management
EHS	Environment, Health and Safety
EMS	Electronics Manufacturing Service
EOL	End of Life
ESG	Environmental, Social, and Governance
ETSI	European Telecommunications Standards Institute
EU	European Union
FIFA	International Association Football Federation
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GEM	Global Entrepreneurship Monitor
GeSI	Global Enabling Sustainability Initiative
GHG	Greenhouse Gas
GLOMO	Global Mobile Awards

Acronym/Abbreviation	Full Name
GPS	Global Positioning System
GRI	Global Reporting Initiative
GSMA	Global System for Mobile Communications Association
HCIE	Huawei Certified ICT Expert
HR	Human Resources
ICC	International Chamber of Commerce
ICT	Information and Communications Technology
IETF	Internet Engineering Task Force
IoT	Internet of Things
IP	Internet Protocol
IPCC	Intergovernmental Panel on Climate Change
IPD	Integrated Product Development
IPE	Institute of Public and Environmental Affairs
ISC	Integrated Supply Chain
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 Cooperation
LED	Light Emitting Diode
MBA	Master of Business Administration
MFP	Manager Feedback Program
MOOC	Massive Open Online Course
NCIe	Network Carbon Intensity Energy
NESAS	Network Equipment Security Assurance Scheme
NGO	Non-Governmental Organization
O&M	Operations and Maintenance
OECD	Organisation for Economic Co-operation and Development
OFPV	Offshore Floating Photovoltaic
OS	Operating System
P2C	Partner2Connect
PCB	Printed Circuit Board
PDCA	Plan, Do, Check, Act
PPE	Personal Protective Equipment
PPP	Public-Private Partnership
PSIRT	Product Security Incident Response Team
PUE	Power Usage Effectiveness

Acronym/Abbreviation	Full Name
PV	Photovoltaics
QCC	Quality Control Circle
R&D	Research and Development
RBA	Responsible Business Alliance
RBC	Responsible Business Conduct
RFCx	Rainforest Connection
RMAP	Responsible Minerals Assurance Process
RMI	Responsible Minerals Initiative
SDG	Sustainable Development Goal
SDH	Synchronous Digital Hierarchy
SME	Small and Medium-sized Enterprise
STEAM	Science, Technology, Engineering, Arts, and Mathematics
STEM	Science, Technology, Engineering and Mathematics
UI	User Interface
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
UNGC	United Nations Global Compact
VR	Virtual Reality
WHO	World Health Organization
Wi-Fi	Wireless Fidelity
WSIS	World Summit on the Information Society
WTO	World Trade Organization
WWF	World Wide Fund for Nature

Appendix IV External Assurance Statement

ASSURANCE STATEMENT

SGS-CSTC'S REPORT ON SUSTAINABILITY ACTIVITIES IN HUAWEI INVESTMENT & HOLDING CO., LTD.'S 2022 SUSTAINABILITY REPORT

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. (hereinafter referred to as SGS) was commissioned by HUAWEI INVESTMENT & HOLDING CO., LTD. (hereinafter referred to as HUAWEI) to conduct an independent assurance of the Chinese version of HUAWEI's Sustainability Report for 2022 (hereinafter referred to as the Report).

INTENDED USERS OF THIS ASSURANCE STATEMENT

This Assurance Statement is provided with the intention to inform all HUAWEI's stakeholders.

RESPONSIBILITIES

The information in the Report and its presentation are the responsibility of the management and relevant functional departments of HUAWEI. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification, with the intention to inform all HUAWEI's stakeholders.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE

The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally-recognized assurance guidance and standards including the principles of reporting process contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) GRI 1: Foundation 2021 for report quality, GRI 2 General Disclosure 2021 for an organization's reporting practices and other organizational detail, GRI 3 2021 for an organization's processes for determining material topics, its list of material topics and how it manages each topic, and guidance on levels of assurance contained within the AA1000 series of standards.

The assurance of this report has been conducted according to the following Assurance Standards: SGS ESG & SRA Assurance Protocols (based on GRI Principles and guidance in AA1000)

Assurance has been conducted at a moderate level of scrutiny.

SCOPE OF ASSURANCE AND REPORTING CRITERIA

The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below, and evaluation of adherence to the following reporting criteria: GRI Standards 2021 (Reference)

ASSURANCE METHODOLOGY

The assurance comprised a combination of pre-assurance research, interviews with relevant employees onsite at Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, Guangdong, P.R. China; and online review and validation of documentation and records with relevant personnel of its affiliates where relevant.

LIMITATIONS AND MITIGATION
Financial data drawn directly from independently-audited financial accounts has not been traced back to source as part of this assurance process.

Data tracing conducted at headquarter level, not including original data of all subsidiaries.
The assurance process only involved interviews with the heads of relevant departments and certain employees of headquarters, and consultation with relevant documents. No external stakeholder involved.

STATEMENT OF INDEPENDENCE AND COMPETENCE
The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing a range of services including management systems and service certification; quality, environmental, social and ethical auditing and training; and environmental, social and sustainability report assurance. SGS affirms our independence from HUAWEI, being free from bias and conflicts of interest regarding the organization, its subsidiaries, and its stakeholders.

The assurance team for this assignment was assembled based on their knowledge, experience, and qualifications.

FINDINGS AND CONCLUSIONS

ASSURANCE/VERIFICATION OPINION
On the basis of the methodology described and the verification work performed, the specified performance information included in the scope of assurance is accurate, reliable, and has been fairly stated.

The assurance team believes that the Report is with reference to the GRI Standards 2021.

Principles

Accuracy
HUAWEI's information in the report was accurate and included both qualitative and quantitative information on multiple indicators for stakeholders.

Balance
The Report followed the balance principle and truthfully made sustainability disclosures as expected by stakeholders.

Clarity
The Report was presented in different formats, including text, figures, graphics and pictures, and contained case studies to make it easily understandable for stakeholders.

Comparability
HUAWEI disclosed performance indicators in 2022, including historical data for some indicators. Such data allows stakeholders to develop an intuitive and comparative understanding of Huawei's sustainability performance year by year.

Completeness
The Report covered the identified material topics and boundaries that reflect significant economic, environmental, and social impacts to enable stakeholders to assess the organization's performance during the reporting period.

Sustainability Context
HUAWEI presented its sustainability efforts related to economic, environmental, and social aspects and demonstrated its overall performance in the broader sustainability context.

Timeliness
Assurance showed that the reported data and information was timely and effective. HUAWEI has disclosed its sustainability report annually from 2008, which indicates good timeliness.

Verifiability
The data and information can be traced and verified.

Management Approach
The Report disclosed the management approach of identified material topics.

General Disclosures
The Report disclosed information on some indicators in accordance with GRI 2: General Disclosures 2021.

Topic-Specific Disclosures
HUAWEI's topic-specific disclosures related to the material topics in economic, environmental, and social areas were made in accordance with GRI Standards 2021.

Findings and Recommendations
Good practices and recommendations for the sustainability report and management process were described in the internal management report which has been submitted to HUAWEI management for continuous improvement.

Signed:

For and on behalf of SGS-CSTC

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