Huawei Consumer Business

Sustainability Progress Report

(2020–2021)

2020–2021 Highlights

Information Accessibility

Using technology for the benefit of all

4.47M

Every month, more than 4.47 million visually impaired users are able to perceive the beauty of their world, with the help of Huawei's Screen Reader feature.

840,000

Every month, approximately 840,000 users are able to experience the world in a new way, thanks to Huawei's AI subtitle feature, enjoying the fun and convenience brought by this amazing technology.

5-star

The Huawei mobile phone model sent for testing received a 5-star rating from the Elderly-Friendliness Assessment for Intelligent Mobile Devices, which was conducted by the China Telecommunication Technology Labs (CTTL) under the China Academy of Information and Communications Technology (CAICT).

Education and Health

Using technology to empower change

160,000

As of June 2021, we had released more than 160,000 course sections on HUAWEI EduCenter, 29% of which are free.

40,000

We have held more than 100 HUAWEI Developer Day sessions in over 80 cities spread across 40+ countries and regions, with our offline sessions attracting more than 40,000 participants, and online sessions garnering more than 50 million views.

30,000

As of June 2021, we had launched 12 competitions on our DIGIX Competitions platform. The competitions had received over 30,000 registrations from more than 170 countries and regions and generated more than 5,000 innovations.

1M

We have made over 700 online courses available on the HUAWEI Developers Training platform. As of June 2021, more than 1 million attendees had enrolled in our courses.

2.72M

As of May 31, 2021, more than 2.72 million users had participated in heart health research studies, 8,534 of whom were identified as at high risk for atrial fibrillation.

5M

HUAWEI Research has consistently helped nurture the development of innovative technologies. It has worked with more than 60 partners and helped conduct research covering more than 5 million users.

Environmental Protection

Harnessing technology for a better planet

23,000

In 2020, Huawei's revenue from its consumer business grew by 3.3% YoY, while paper use in its product packaging reduced by 23,000 metric tons YoY, equivalent to saving 390,000 trees.

89%

Our new generation flagship P50 series uses less than 1% of plastic in its packaging, an 89% reduction in the use of plastic, compared with the P40 series.

12.6M

In 2020, the photovoltaic (PV) plants on Huawei campuses generated 12.6 million kWh of power.

7M

From 2020 to 2021, we helped keep 7 million devices in good working order, by sending faulty components, such as motherboards and screens, back to our high-level repair centers for repair.

100+

More than 100 device models have updated to HarmonyOS 2, including the Mate 9 series, which was launched way back in 2016. Thanks to constant updates, devices that are years old can still enjoy the benefit of cutting-edge technology.

100

From 2020 to 2021, we eliminated about 100 metric tons of plastic from our e-commerce logistics packaging, which is equivalent to 10 million medium-sized plastic shopping bags, each of which weighing about 10 g.

1,000

The loading rate of our intelligent logistics system has increased by 10% since 2019, which means that about 1,000 containers have been reduced, while shipments have grown.

114,000

In 2020, we reduced carbon emissions by more than 114,000 metric tons in our logistics and transportation operations, a per unit reduction in carbon emissions of 15%, equivalent to planting 65,000 trees.

Corporate Responsibility

Repaying trust with responsibility, through technology

62,439

In 2021, 62,439 Euphrates Poplar seedlings, the first batch of trees donated by Huawei and its consumers, began to take root in the desert of Jinta County, Gansu Province.

No. 1

We have helped a supplier complete the first Zero Waste to Landfill Management System Certification from TÜV Rheinland, a globally recognized third-party certification organization.

95,000

We have created about 95,000 jobs around the world.

25,000

In 2020, we provided more than 25,000 online courses and 1,000 in-person courses for our employees. The duration of these courses has exceeded 7.77 million hours, with a total of more than 200,000 individual enrollments.

4M

As of May 2021, 4 million developers around the world had already joined our HMS ecosystem.

Contents

Executive Letter

He Gang

Chief Operating Officer, Huawei Consumer Business Group
Sustainable Development Committee Director, Huawei Consumer Business Group

**Some people only see hardship when faced with joy,
whereas others see hope amidst the most difficult adversity.**

At Huawei, we have encountered a great many challenges over the past year, but yet we remain unfazed in our goals. We have actively addressed all of these challenges, while remaining more committed than ever to our mission, as well as our myriad of social and environmental responsibilities, with sustainable development as our chief long-term priority.

Faced with such unusual hardships, it is thanks to the support of our global suppliers and partners, the trust of our consumers, and the devotion of Huawei fans, that we have been able to make so much progress. Only by providing products, services, and experiences that blaze new trails, can we repay an extraordinary level of support that we have received.

Last year, we published our first-ever Consumer Business Sustainability Progress Report, which provided a complete look at our sustainability achievements over the past decade across four key fields: information accessibility, education and health, environmental protection, and corporate responsibility. We will continue our efforts in sustainable development, with regular progress reports released in the future.

We believe that technology should benefit all.

Last year, we joined the China Accessibility Product Alliance (CAPA) with the goal of boosting information accessibility, by working with like-minded partners. In 2020 we also launched a "teach parents to use smartphones" initiative during the Chinese Spring Festival, Mother's Day, and Father's Day holidays, to draw attention to the digital challenges faced by the elderly. Our AI subtitle feature, which supports speech-to-text conversion during phone calls and text-to-speech conversion, helps hearing impaired users communicate with remarkable ease.

We believe that technology empowers change.

We are committed to investing heavily in both education and health. We have made more than 160,000 course sections available via the HUAWEI EduCenter app, 29% of which are free. We have also held more than 100 HUAWEI Developer Day sessions in over 80 cities spread across 40+ countries and regions. Our HUAWEI Developers Training platform serves as a learning hub for Huawei HMS, HarmonyOS, and other leading industry technologies, providing one-stop developer services, encompassing learning, certification, career development, and innovation support. Thus far, we have launched 700+ online courses on the platform, which have been accessed by more than 1 million attendees.

We believe that technology can help heal our planet.

In 2020, Huawei's revenue from its consumer business grew by 3.3% YoY, while paper use in its product packaging was slashed by 23,000 metric tons YoY. We provide consumers with services that can help extend the lifespans of their devices, including battery and memory changes, and system upgrades. Our HarmonyOS 2 system, released earlier in 2021, is already available on more than 100 Huawei mobile phone models, notably including the Mate 9 series, which was released five years ago. We have also planted 62,439 Euphrates Poplar seedlings donated in part from our consumers, in Jinta County, Gansu Province. As the trees grow, they will form a new layer of protection for the vulnerable desert ecosystem. We are making great strides to reduce our resource consumption, minimize our environmental impact, and promote sustainable development across the board.

We believe in repaying trust with responsibility, through technology.

We have directly created more than 95,000 jobs around the world, and as of May 2021, our HMS ecosystem has attracted 4 million developers. We are also deeply committed to nurturing our employees' development. In 2020 alone, we provided over 25,000 online courses, 7.77 million hours of total learning time. We spare no effect to protect consumer privacy, by deploying state-of-the-art technologies, while regarding cyber security and privacy protection as our most sacred duties.

It's our hope that everyone can benefit from our products and services, and thus, we strive not just to promote technological progress, but also to ensure that technology is valuable for society at large. We look forward to working with public and private institutions, partners, and customers to build more inclusive technologies that are accessible to all. Through diligent work, we can make a major difference.

Information Accessibility

Using technology for the benefit of all

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Every month, approximately 840,000 users are able to experience the world in a new way, thanks to Huawei's AI subtitle feature, enjoying the fun and convenience brought by this amazing technology.

5-star

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The beauty of technology lies in its potential to benefit all. We care deeply about the accessibility features in our products being easy to use and enriching for users with disabilities.

Our AI subtitle feature converts voices during phone calls into text, allowing hearing impaired users to literally "see" the messages spoken by the other party. Conversely, it can also convert entered text into spoken messages, helping such users communicate more easily with the other party. When watching videos without subtitles, such as live streams, users can simply set the media sound as the source sound for the AI subtitle feature. The feature will then convert the sound into subtitles, and display the subtitles on the video. This is useful not just to the hearing impaired, but also to users who are trying to watch in a noisy or distracting environment.

In order to help visually impaired users perceive more of their surroundings, we have developed an AI Lens feature, which recognizes and broadcasts text on objects that are photographed by the user, helping the user better distinguish between the objects that they encounter.

Three years ago we published the Parent's Mobile Phone Instructions, which provides elderly users with hand-drawn illustrations for smartphone features. The Parent's Mobile Phone Instructions is now on its eighth edition. Our screen sharing and graffiti features also provide elderly users with tremendous convenience, as users encountering challenges can share their screen with just a touch, and immediately solicit help.

In addition to a dedicated accessibility hotline, we have also deployed full-time consultants at many of our service centers in China to provide a thorough level of service for our users, helping them address challenges related to both product usage and maintenance.

We believe that technology should leave no one behind, by serving the interests of everyone in society. We make good on this commitment by designing our features and services to be broadly accessible — sparing no effort to serve every single one of our users.

2020–2021 Accessibility Milestones

September 2020

- Officially joined the CAPA and embarked on the journey of information accessibility development with like-minded partners.

December 2020

- Attended a press conference with the MIIT on building an elderly-friendly information society and showcased our achievements.

January 2021

- Launched the "addressing digital challenges for the elderly" campaign along with guokr.com to call public attention to challenges encountered by older people in an increasingly digital world.
- Launched the "teach parents to use smartphones" initiative, encouraging young people to communicate more with their parents, spend more time them, and teach them how to use smartphones remotely when they are away, helping parents and the elderly better adapt to digital society.
- Published an updated version of the Parent's Mobile Phone Instructions, which was originally published three years ago, to help elderly users familiarize themselves with how to use smart devices. The Parent's Mobile Phone Instructions is now on its eighth edition.
- Worked with the Internet Society of China (ISC) to create and release the Web Information Accessibility General Design Specification, and added the Screen Reader and Feed Reader features to HUAWEI Browser to provide the visually impaired with unprecedented digital convenience.

February 2021

- Launched an Accessibility Zone on HUAWEI AppGallery and Huawei Club, dedicated to serving users with special needs.

April 2021

- Attended the 2021 World Summit of Information Society (WSIS) and delivered a keynote address explaining Huawei's commitments and practices in the fields of information accessibility and elderly-friendly design.

May 2021

- Launched an accessibility hotline and in-store accessibility services.
- Upgraded the AI subtitle feature to support speech-to-text and text-to-speech functions, helping hearing impaired users communicate with greater ease.
- Jointly launched the Intelligent Device Accessibility Initiative with 14 institutions, including the China Association of the Blind and the China Electronics Standardization Institute.
- "Technology leaves no one behind" program of Huawei Device Co., Ltd. named a "2021 excellent information accessibility case study — influential achievements".
- Participated in the formulation and release of the Technical Requirements for Mobile Terminal Suitability for the Elderly and the Test Methods for Mobile Terminal Suitability for the Elderly as a member of the Telecommunication Terminal Industry Forum Association (TAF) led by the CAICT.

July 2021

- Received a 5-star rating from the Elderly-Friendliness Assessment for Intelligent Mobile Devices, which was conducted by the CTTL under the CAICT.

Making Technology Accessible to All

Visibility Enhancements

The eyes are a major sense organ that give us invaluable insight on the world around us. Some people, however, are unable to rely on vision to access information, a common phenomenon in our digitizing society. There are many reasons for this, but regardless of what they are, we believe that the benefits and convenience offered by technology should be equally accessible to all, and this has enormous implications for the visually impaired.

In 2017, following a series of user studies and tests, we optimized the Huawei mobile phone user experience at the system level, providing users with the best accessibility experience implemented within an Android system at that time.

In 2018, the Technical Requirements for Accessible Mobile Communication Terminal was released, which was China's first mobile accessibility standard, for which Huawei was an active contributor. Since then, we have continued to optimize our accessibility features in accordance with the standard. Mate 20 was our first phone model to have been certified by CTTL as compliant with the standard.

In 2019 we launched EMUI 10, which includes a Screen Reader feature that was developed in collaboration with third parties. We managed to enhance overall satisfaction, response speeds, voice library support, software support, and Screen Reader capabilities, as well as support gesture tracking.

In 2020, we continued to optimize the Screen Reader experience in the following six ways:

Photography tips

The camera detects faces as well as their positions on the screen in real time, and provides voice feedback, assisting the user with taking photos with friends and family.

Biometric recognition

Voice prompts combined with vibration feedback and deviation correction prompts help the user record fingerprints with greater efficiency.

Quick payment

Allows the payment page to be opened by double-tapping the power button, or by fingerprint, facilitating quick payment completion within 30 seconds.

Smart translation

Phone camera-assisted smart translation recognizes and reads text on objects, for example, names and instructions for medicines, providing the user with newfound convenience.

Smart object identification

Phone camera-assisted supermarket item identification, to boost user confidence in unfamiliar environments.

Convenient travel

A compass reads the direction and degrees in real time, and works seamlessly with the map, which provides navigation assistance, to point out the correct route and direction.

In 2021, we released HarmonyOS 2, which works seamlessly with existing accessibility features, to ensure a consistent accessibility experience for our users. HarmonyOS has been built from the ground up, with accessibility as a key priority.

The new system version is designed so that the diverse array of original Android-based accessibility features, for example, accessibility labels, focus, and gestures, will continue to work without a hitch, sparing both users and developers a world of hassle.

HarmonyOS 2 also offers an accessibility framework and related APIs, which allow third-party developers to create an even greater number of accessibility features.

Information accessibility is a social project that requires the participation of developers. HarmonyOS opens up a vast number of capabilities and APIs, which developers can make use of to develop unprecedented accessibility features that offer unforeseen benefits.

We believe that information accessibility is not just an issue for people with disabilities. Any one of us could face a "moment of obstacle" at a time in our lives, for example, when we're unable to take out our keys because both of our hands are holding grocery bags, when we're injured or sick and unable to cook, or when tasked with caring for elderly parents. In an increasingly digital world, all of us should be able to share in the fruits of technology.

HarmonyOS is a next-generation operating system that runs on a wide range of smart devices, enabling each device type to "speak" the same language. The result is truly seamless use, with all-purpose communications, collaboration, and interactivity, designed to excel in every conceivable usage scenario. HarmonyOS is designed to connect all of the devices in our lives, from mobile phones and smart displays to tablets and automobile head units. By breaking down the barriers between devices at the bottom system layer, it facilitates the formation of super devices, providing users with unprecedented convenience.

We have considered the needs of visually impaired users when designing our services. In May 2021, we launched a dedicated accessibility hotline and on-site accessibility services in China. The hotline addresses issues on enabling and using accessibility features, while the on-site services, which are offered by full-time consultants at select service centers in China, help users resolve issues related to both mobile phone usage and maintenance.

Building technology-empowered accessibility products and services benefits not only people with disabilities, but society at large. We believe that it's the duty of technology to leave no one behind.

Stories

Technology doing what modern medicine can't

Wang Zhongwei, who is now a piano tuner, has been visually impaired since birth. However, he is remarkably sensitive to sound, and this talent, combined with his upbeat personality, drew him to piano tuning. By drawing his body close to the piano to feel its vibrations, touching the strings gently, recording the sound, and re-listening repeatedly, he fine-tuned every pitch to exact specifications.

Wang spent nearly 10 years in learning Braille and being educated with the help of tools like magnifying glasses. He also has nearly a decade of experience using electronic products. In 2015, Wang got his first Huawei phone, P8 max, and started his accessibility journey.

Since then, the accessibility features offered by Huawei phones have become an "indispensable helper" in his life. With the Screen Reader feature, he can operate his phone anytime and anywhere, without requiring help from others, and freely access the myriad of learning and support resources at his disposal.

For instance, by using the Screen Reader feature, Wang can turn on the air conditioner at home via the AI Life app, and change the temperature and direction of the airflow. When friends come to visit, he can also set up guest Wi-Fi via the app, which is both secure and convenient.

An accessibility experience that covers all of the different facets of daily life is the most valuable kind. Wang loves Huawei's AI Life app, because in his words: "It helps me manage all the appliances and smart devices that I use. The way I interact with the appliances and devices would have been inconceivable for me in the past, when each device had its own remote control and lacked voice assistance. If I wanted to use a device, I had to depend on someone else to help me."

Wu Yiming was not born with any visual impairment, but in 2017 his glaucoma worsened, and soon after he lost his sight.

Seven years ago as a high school student, he had developed a passion for software, even teaching himself software development by reading books and watching video lessons on the Internet. Now, he is an information accessibility engineer.

"When medicine doesn't work, I seek help from technology." In 2018, Wu formally joined the Shenzhen Information Accessibility Research Association, and began helping developers identify accessibility bugs in their apps and UI design, and find solutions.

Wu often uses Huawei's Screen Reader feature and considers it as a must-have everyday tool. Screen Reader reads out messages on his phone accurately and clearly, making his life immeasurably more convenient. Wu participated in the HUAWEI Photo Gallery experience upgrade project, cementing his working relationship with Huawei. Now, visually impaired users can capture important life moments with the phone cameras and share them freely with loved ones via HUAWEI Photo Gallery, no different than anyone else.

It is the efforts of a group of empathetic engineers like Wu that has driven the enormous advancements in the accessibility experience and accessibility technologies. Wu plans to apply for more patents that will help visually impaired users enjoy the full range of benefits from smart technologies. As he noted: "I've gone from a consumer to a creator. In the future, I hope that others will join me to help make technology beneficial for all."

Hearing Enhancements

Spoken language is how most of us communicate, but according to the first World Report on Hearing released by the World Health Organization (WHO) in March 2021, over 1.5 billion people worldwide are effected by hearing loss, one in five of all people.

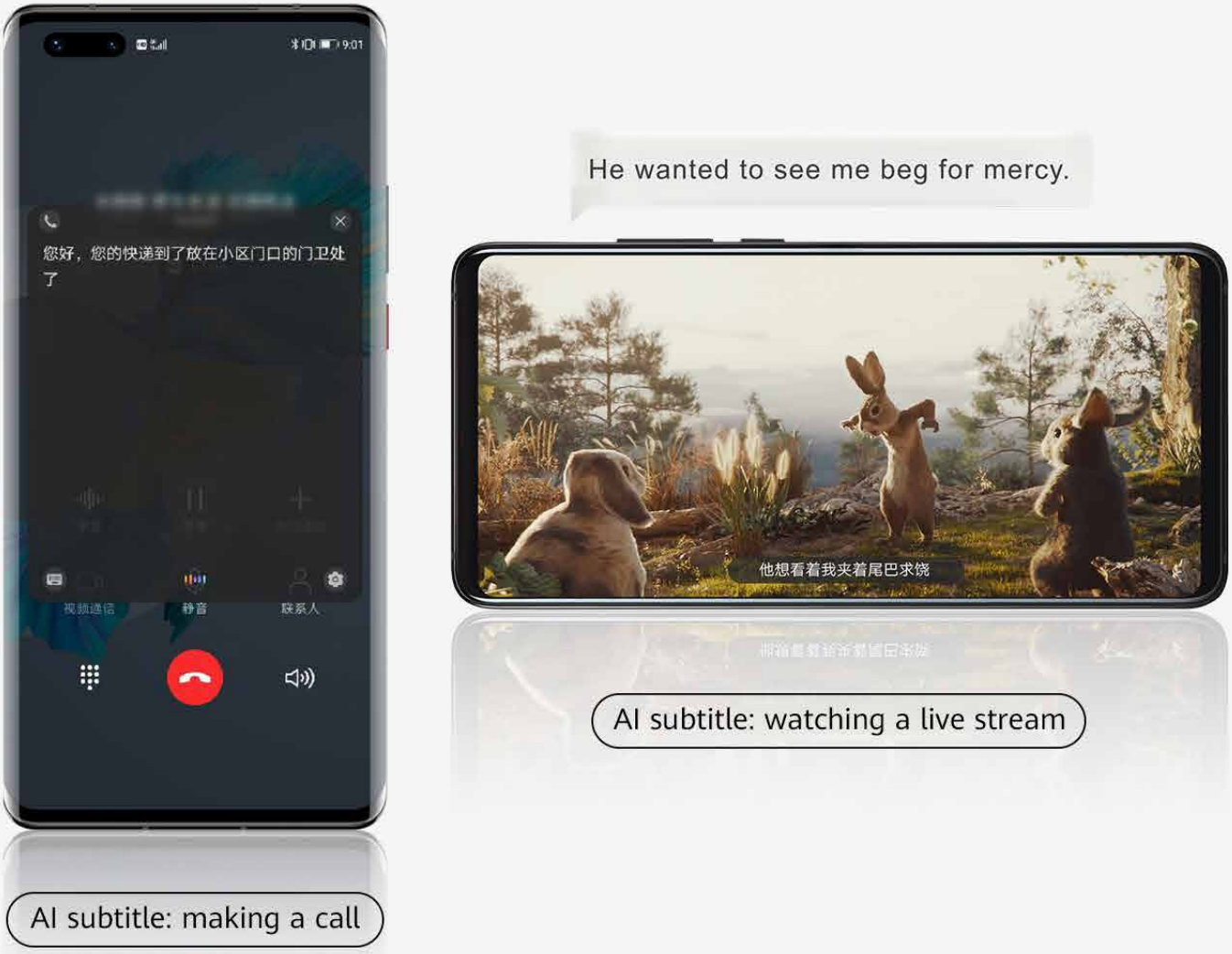
Technology can help us break down hearing-related barriers in the following two ways: Preventing hearing loss from occurring in the first place, and providing hearing impaired people with alternative modes of communication, for example, text-to-sign-language or speech-to-text assistance. Technology makes communication free and easy in unprecedented ways.

HUAWEI FreeBuds hearing protection — Listening with peace of mind

We have actively participated in the formulation of hearing protection standards, in order to promote the healthy use of electronic devices. In EMUI 11, we have launched a series of hearing protection safeguards for the HUAWEI FreeBuds series, for example, audio exposure monitoring and alerts, which display the earphone volume from the previous seven days, in a highly intuitive way, giving users key insight into their earphone listening habits, so that they can make any necessary adjustments.

Hearing protection can be enabled by going to the **Settings** page, and touching **Digital Balance** > **Hearing Protection** > **Enable**. Once hearing protection is enabled, the system will automatically detect the user's earphone volume and listening duration, compare them against WHO recommendations, and provide proactive hearing protection suggestions.

If the user runs the risk of doing damage to their hearing, based on their earphone usage, the phone will send out healthy listening alerts, reminding the user to lower the volume or take a break.



AI subtitle — Carefree communications

Imagine the following, a courier has just called to make a delivery, and an eagerly anticipated live event is set to start. For most of us there's no conflict, simply answer the call and continue to watch the event. But for those of us with hearing impairments, it's an entirely different story. Even minor issues that most of us take for granted can present a major challenge. But by harnessing the remarkable capabilities of cutting-edge AI, we can help the hearing impaired help themselves. In 2020, we launched an AI subtitle feature, and made it broadly accessible.

Now when a hearing impaired user answers a call, AI subtitle can convert the speech from the other person on the call into text, and display it on the phone screen. Meanwhile, it can also convert the text entered by the user and read it out to the other party. By using the AI subtitle feature, which also provides English-to-Chinese translation, or vice versa, for videos, hearing impaired users can immerse themselves in their favorite content with their family or friends.

StorySign — A reading app designed for hearing impaired children

According to the WHO, approximately 32 million children suffer from hearing loss. Since many are unable to match words with sounds, it can be difficult for them to develop a love of reading.

To help hearing impaired children read with greater ease, we have developed the StorySign app, in collaboration with the European Union of the Deaf and many other advocacy organizations. The app scans children's books and translates the text into sign language, nearly instantaneously. It is available for free download at HUAWEI AppGallery, Google Play, and App Store. As of the end of 2020, StorySign was already available for 71 children's books and in 15 sign languages, including British, American, Australian, Brazilian, Spanish, and French sign languages.

Technology for All Ages

Caring for the Elderly

The Internet and digitization have given the elderly access to a vast number of life-altering smart products and services. But even such a godsend can present its share of challenges. As sight, hearing, and tactile sense gradually get worse, elderly users require special needs, with regard to volume, font size, responsiveness, and interface simplicity.

We have spared no effort to address these challenges, from optimizing our product features, encouraging younger generations to take good care of their parents, to offering technological solutions to help the elderly overcome digital obstacles. We hope that our efforts will have an impact on society at large, and that no individual of any age will be left behind in the digital era.

Back in 2012, we introduced a simple model for enhancing the mobile phone usage experience of the elderly. In the years that followed, we have continued to fine-tune our approach. From EMUI 2.0 to EMUI 9.0, we developed a streamlined model interface to offer a superior audio and visual experience for our users. Then in EMUI 11, which was released in 2020, we further optimized the system font and adjusted the spacing between home screen icons, to ensure that elderly users can see everything clearly.

In 2021, we officially launched HarmonyOS 2, which builds elderly-friendly enhancements into basic services, based on commonly used frameworks, to further improve visual clarity and comfort. In addition, to help elderly users hear clearly during calls, we also set the default system volume to a high volume level. In July 2021, the phone model we sent for testing received a 5-star rating from the Elderly-Friendliness Assessment for Intelligent Mobile Devices, which was conducted by the CTTL under the CAICT.

We have also optimized a number of commonly used features, to ensure that they are easy for users of all ages to benefit from. In AI Voice, our voice assistant app, we have added a range of functions that elderly users are likely to need in daily life. For example, simply by saying "hail a car for me" to AI Voice, the app will immediately execute the command. We have also launched a MeeTime feature, which makes it easy for users to make HD video calls to family and friends on a diverse range of Huawei devices, including phones, tablets, and HUAWEI Vision. During a MeeTime conversation, the user can share their phone screen if they encounter an issue, and the other party can draw on the shared screen to help them troubleshoot.

In 2020, we set up a special project team that is dedicated to developing elderly-centric advice and learning resources for smart device users. By analyzing basic mobile phone operations, the project team identified the services that elderly people use most frequently, including safety, health, travel, and social, and developed tips for using smart devices and apps, including mobile phones, wearables, and smart home devices.

8

To help elderly users familiarize themselves with best smart device usage practices, we published the Parent's Mobile Phone Instructions three years ago, a comprehensive guide that is now on its eighth edition. The electronic copy can be accessed from the Tips official account in the Huawei Club app, the Member Center app, as well as the Huawei Device and Huawei Mobile Phone official accounts in WeChat. The print version can also be obtained free of charge at over 1,600 Huawei authorized service centers in China.

600,000

We have developed a diverse array of training courses to help teach the elderly how to use smart devices, and delivered these courses through the Discover HUAWEI program at over 4,000 authorized experience centers in China. Consumers can inquire and reserve courses at nearby experience centers. In 2020 alone, we delivered approximately 600,000 training sessions for elderly users. In addition, our regional Discover HUAWEI program organizers have worked with local communities, public service centers, institutes on aging, and property management companies, among others, to deliver training courses at the community level. We have conducted regular community training in more than 20 provinces across China.

10M

The video and article series that we published to teach elderly users to use smart devices, as well as our "teach parents to use smartphones" initiative, have encouraged tech-savvy young people to help their parents acquire new skills, with the help of the Tips, Member Center, Huawei Club, and My HUAWEI apps. This content garners over 10 million views on a monthly basis.

Stories

80-year-old grandpa teaches his peers

Song Maoxin is an 80-year-old retired researcher and lover of electronics, who has been nicknamed "gramps" by his fans, those close to him, and other technology enthusiasts, most of whom are much younger than him.

His recent article entitled On the Eve of Huawei HarmonyOS Launch — How Much Do You Know About the Development History of Huawei EMUI? went viral in the Huawei Club, garnering over 200,000 views. In the article, he mapped out the evolution of Huawei phone models and Huawei EMUI versions, from EMUI 1.0 to EMUI 11, and gave his expectations for Huawei HarmonyOS 2.

In addition to posting articles online, Song has been teaching many elderly people in his community about how to use their mobile phones for the past three years. Each week, he has two classes, with 2–6 students regularly showing. Although the size of his classes is small, Song never shortchanges his students. He carefully selects the features to be taught in each class, designs lesson plans and coursework, and rewards students with small gifts. His effort has paid off. Now, a 94-year-old student of his is confident sending out red packets, browsing WeChat group messages, and using phone memos.

"My students are used to writing things down in notebooks, but they don't always carry their notebooks with them and some even forget where they have stored their notebooks. So I teach them to use phone memos. If they don't recognize pinyin, I teach them to hand write. If they cannot write, I teach them to make voice memos. Once they have learned how to do so, they're always so grateful, telling me 'this is so easy to use!' Teaching them is actually not hard at all, but requires a lot of patience." Song continued, "to reinforce memory after class, I leave homework for my students. Those who finish their homework well will get a reward, for example, the Parent's Mobile Phone Instructions published by Huawei."

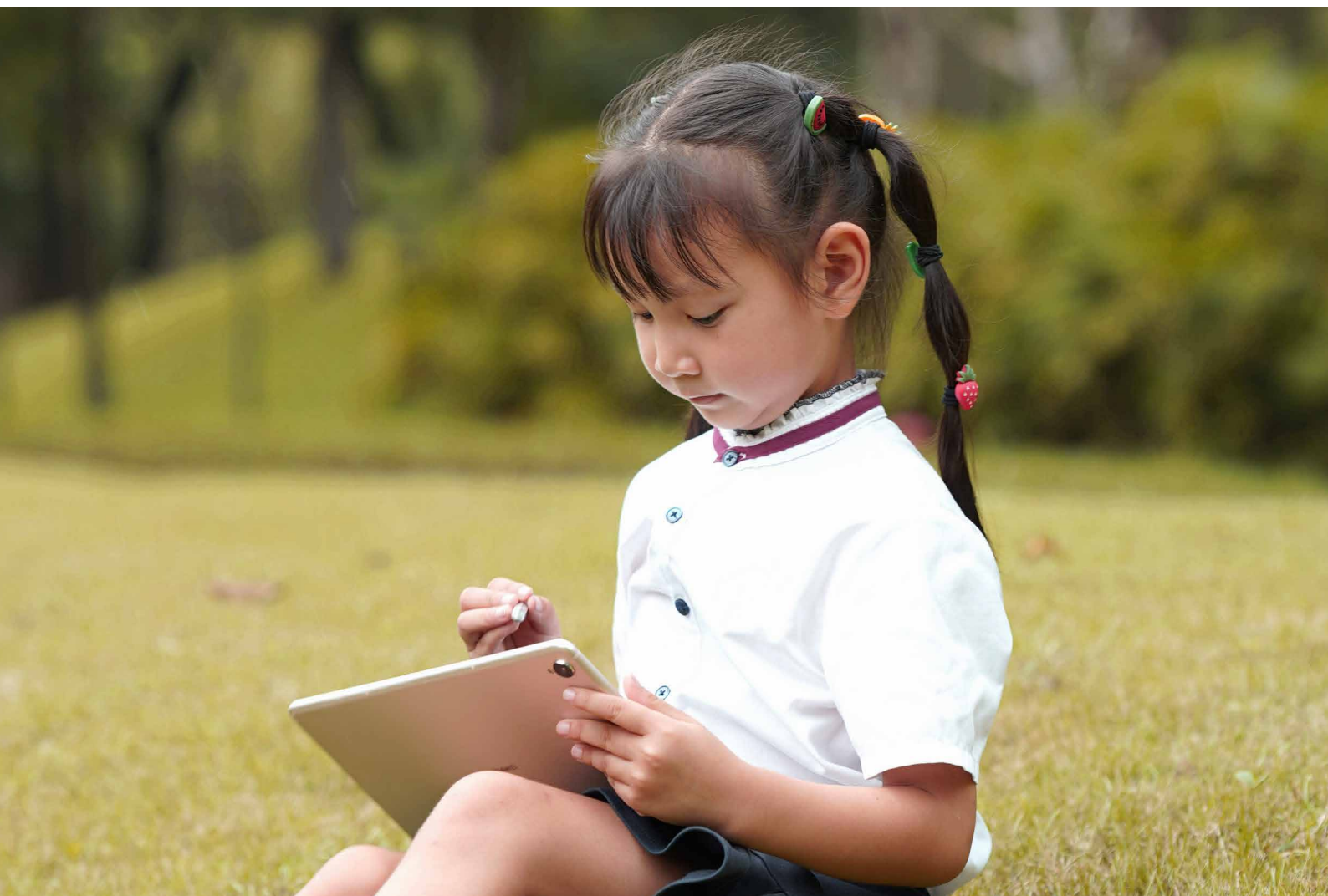
The Parent's Mobile Phone Instructions is just one example of Huawei's efforts to facilitate digital inclusion. To help the elderly assimilate into an increasingly digital world, we need young people to mentor the elderly, in just the same way that their parents and grandparents taught them key life skills. This "gramps" is a shining example of how elderly users can adapt seamlessly to digital society, and blaze a trail for others.

Nurturing Healthy Childhood Development

Today's children have grown up immersed in a world full of smart devices. One of Huawei's major priorities has been to develop devices and features that are tailored to children's needs, as a new generation of parents have had to rely on online learning solutions and are now demanding more enriching, interactive, and accessible content to better nurture their children.

The COVID-19 pandemic has caused major upheaval in people's lives, keeping children housebound, and dependent on smart device-centric remote learning solutions.

However, most of the smart devices on the market are designed to meet the needs of adults, rather than those of children. This disparity has led many parents to keep smart devices out of the reach of children, which is actually not an effective solution. Instead, the key lies in teaching and supervising children with regard to how to best use such devices. Only by doing so, can we pass on the fruits of technology to the next generation.



Sukhomlynsky is an earnest advocate of the notion that education is all about caring for children, which is also Huawei's guiding principle when it comes to designing children products which are secure and healthy for them to use. Huawei aims for its children's products to serve as learning companions for children and assistants for parents.

We believe that children-friendly smart devices should:

Use healthy and eco-friendly materials

We guarantee that all devices used by children are composed of healthy and eco-friendly materials. HUAWEI KidWatch 4X has passed the TÜV Wearable Device Secure Usage Certification in 2020, with regard to its environmental-friendliness, security, overall performance, and waterproof performance, for optimally comfortable wearing and ultra-secure usage.

Protect personal data

The HUAWEI Children CLOUD has been developed based on the EU's General Data Protection Regulations (GDPR) cyber security standards, and provides three levels of data security assurance, including HTTPS transmission encryption, data storage encryption, and two-way access authentication, to safeguard children's data from end to end.

Promote healthy living practices

We have utilized the existing Digital Balance function to alert children to poor posture habits. We also use light, distance, gravity, and other sensors on smart devices to detect face-screen distance and phone motion. Alert will be given once children are watching the screen too closely or while walking, to protect their eyesight and prevent humpback. HUAWEI MatePad Kids Edition uses advanced blue light filtering technology to provide multiple eye protections for children, and the e-book mode adjusts the color of the display to render a reading experience on a par with reading a real book.

Provide abundant and healthy learning content

The HUAWEI Audiobooks app on HUAWEI Watch provides abundant audio resources, and parents can select audio books for their children from the HUAWEI FamCare app. Other apps like BaiCiZhan, Shanbay Word, and Xinhua Dictionary cultivate a passion for learning among children. The Kids Corner feature on HUAWEI MatePad Kids Edition continually adds new content to help children learn in fun and immersive ways.

Facilitate parent supervision

Children have an innate curiosity about their world, but can often lack self-discipline. That's why parents need smart devices that offer adequate supervision. The Parental Control function on HUAWEI MatePad is designed for that. Using this function, parents can restrict the time their children spend on the device, as well as the apps and content accessible to them. Kids Archive records children's tablet usage time in current and previous weeks by app, helping parents track and intervene if they believe that there are unhealthy usage habits.

Moving Forward Together

Product features grounded in real world experiences

Huawei highly values the accessibility of its products, and has worked closely with developers to build accessibility features that harness its vast ecosystem and are grounded in everyday experience. This requires involving a wide range of different users, including the visually and hearing impaired, in the product testing process.

To accomplish this, our accessibility team tests the products with experts and everyday users. Starting with EMUI 5.1 in 2017, we established a testing framework in collaboration with the Shenzhen Accessibility Research Institute, to provide professional and systematic accessibility solutions including full user research, testing, and consulting.

Meanwhile, we have taken an active role in information accessibility advocacy campaigns, to raise awareness of the challenges faced by the visually impaired, hearing impaired, elderly, and children in a digital world.

Education and Health

Using technology to empower change

160,000

As of June 2021, we had released more than 160,000 course sections on HUAWEI EduCenter, 29% of which are free.

40,000

We have held more than 100 HUAWEI Developer Day sessions in over 80 cities spread across 40+ countries and regions, with our offline sessions attracting more than 40,000 participants, and online sessions garnering more than 50 million views.

30,000

As of June 2021, we had launched 12 competitions on our DIGIX Competitions platform. The competitions had received over 30,000 registrations from more than 170 countries and regions and generated more than 5,000 innovations.

1M

We have made over 700 online courses available on the HUAWEI Developers Training platform. As of June 2021, more than 1 million attendees had enrolled in our courses.

2.72M

As of May 31, 2021, more than 2.72 million users had participated in heart health research studies, 8,534 of whom were identified as at high risk for atrial fibrillation.

5M

HUAWEI Research has consistently helped nurture the development of innovative technologies. It has worked with more than 60 partners and helped conduct research covering more than 5 million users.

Education: Nurturing Creativity

Learning Resources at Your Fingertips

As the famous German philosopher Karl Theodor Jaspers wrote in his book What is Education: "The essence of education means that one tree shakes another tree, one cloud pushes another cloud, and one soul awakens another soul." Education has the power to mold individuals, families, and organizations, and these forces in turn help shape society at large. Governments, schools, teachers, social organizations, and technology companies all have a role to play in building an education that's designed to excel in our digital world.

The UN Sustainable Development Goals (SDGs) 2030 has placed education and access to education as key priorities for human well-being and sustainable development.

At the second Modern Education Empowered by Technology (MEET) — EdTech Innovation Summit held by Tencent Education, the representative of the UNESCO's International Center for Higher Education Innovation noted that facilitating multilateral cooperation between schools, enterprises, and governments to promote public resource sharing is the key to building a more inclusive and sustainable future for education in a post-pandemic world.

Expanding access to education in the wake of the pandemic

Everyone deserves the right to an education and all of the opportunities it brings. Every school should have Internet access, so that remote and destitute communities can benefit from global connectivity, and children around the world can enjoy a brighter future.

Huawei has worked tirelessly toward that goal, notably through Link Now, its online education and collaborative office platform. Link Now provides wide-ranging solutions for instantaneous communication, team collaboration, and remote education, serving tens of millions of users across 170+ countries and regions. It is accessible in even the most remote locations. With the growth of the HMS ecosystem, Link Now promises to serve and connect more people.

Bridging technological divides, to bolster learning

Link Now aims to facilitate seamless communication between teachers, students, schools, and homes, to build personalized learning environments that harness each student's full potential. Link Now provides teachers with numerous interactive tools that make classes fun and engaging for students. Parents' needs are built into the class design, as they can get a first-hand sense of their children's progress. Link Now's streamlined, easy-to-use interface allows students to design personalized study plans that meet their needs.

Apart from the student-centric Seeds for the Future program, Link Now also offers platforms for teachers and adult education. For example, we provide ICT online training and resources to help developers work more efficiently.

Link Now makes it easy for phone, tablet, PC, and smart display users of all walks of life to study and learn from each other.

Stories

Link Now supports remote education in Senegal

Huawei has provided education materials, platforms, and content to developing countries, with the goal of making education broadly accessible at a challenging time.

As was the case in many other countries, Senegal's schools were forced to shut down due to the pandemic. In an effort to make education more accessible, UNESCO established the Global Education Alliance in March 2020. Huawei has made important contributions toward this goal, by partnering with Senegal's Ministry of Education, UNESCO's West Africa Office, and local carrier Sonatel to launch the DigiSchool project in August 2020. The project used the Link Now distance education platform to train local teachers to teach remotely.

As of December 2020, more than 200 teachers in Senegal had received distance education training, benefiting more than 15,000 students in over 60 schools.

200+

The DigiSchool project has provided 200+ teachers with hardware (such as Huawei tablets), software tools (such as Link Now), and the digital skills training required for effective distance education.

15,000+

15,000+ students have benefited from the DigiSchool project.

HUAWEI EduCenter

Enriching education solutions

Since its launch in April 2020, HUAWEI EduCenter has explored innovative ways to marry education with technology, and provide smart learning experiences for students of all ages. Thanks to groundbreaking technology and software-hardware collaboration, HUAWEI EduCenter has been able to heighten children's focus and learning efficiency, while freeing parents from the burden of needing to constantly tutor their children.

Learning Desk: We have designed an immersive Learning Desk on Huawei tablets, with the Parental Control function through which parents can manage their children's study time, as well as apps accessible to their children, to ensure that children cultivate good learning habits. In addition, the parental control password can prevent children from modifying the settings made by their parents, or exiting HUAWEI EduCenter before the study task is completed.

Learning plans: Users can add courses to their own personalized learning timeline, and set a study plan that fits their needs. Courses not completed can be resumed the next time, and courses are automatically removed from the learning plan once they are completed. HUAWEI EduCenter allows users to tailor study plans based on their own attributes and requirements, to fully harness their potential and boost their learning efficiency.

By working with premium education partners in China, we have access to high-quality online educational content, spanning all age groups and learning needs. By doing so, we aspire to establish a smart education ecosystem that transcends borders.

Building an all-scenario smart education platform

Huawei's HMS ecosystem and all-scenario framework have inspired the creation of smart education experiences that incorporate both software and hardware solutions. HUAWEI EduCenter now supports synchronized learning experiences that work on mobile phones, tablets, and smart displays.

HUAWEI EduCenter will continue to pioneer groundbreaking innovation in education and deliver smart, cross-device experiences that serve our diverse user base, making learning engaging, accessible, and a lifelong pursuit.

Stories

By integrating HMS, BabyBus brings joy to kids

"BabyBus!" shouts two cute pandas at the beginning of every BabyBus video. This early childhood education app has achieved worldwide popularity among kids, with a total of around 100 million downloads on AppGallery. Multiple BabyBus apps have been selected for Huawei's Shining Star Program and distributed to users around the world via AppGallery.

There is a touching story behind the creation of BabyBus. The app company's CEO, Tang Guangyu, had just celebrated the second birthday of his first child in 2010 when he discovered that his baby could not distinguish colors. This spurred him to think of ways to help his child. After discussing with Lu Xueming and other founding members of his company, they decided to develop an app that can help children recognize colors by letting them color in different scenes. This became BabyBus's first product, and three months later, Tang Guangyu's two-year-old child was able to identify different colors.

A thank-you letter Lu Xueming received from an American user describes how BabyBus helps her child come out of his shell: "My 3-year-old baby has been diagnosed with autism. He didn't play with other kids and was not comfortable in school. Then things magically took a change after I bought a US$39 device with BabyBus installed. He's really into it and can even talk with some of the cartoon characters in the app. Now he can express himself like other kids. I am so grateful for that. Thank you!" The makers of BabyBus are committed to and will continue to provide free educational content for young children.

Lu Xueming expressed that BabyBus's development strategy is to utilize the unique features and advantages of HMS to expand the scope of its software and services, and to design and develop better products that cater uniquely to children. They are also expecting to deepen cooperation with Huawei in fields such as data cloud storage and programs such as HUAWEI Vision in Campus.

Fostering Growth by Providing Support

Personal development requires platform support. To that end, we have established the HUAWEI Developers platform with the goal of providing an open and innovative ecosystem for the benefit of technical personnel around the world. Relying on its channel advantages, global platform services, and industry chain resources, HUAWEI Developers helps developers innovate in areas such as development, testing, promotion, and monetization.

HUAWEI Developers has now been deployed in over 170 countries and regions around the world, fully supporting developer operations through six large regional centers, four sites, and 15 data centers.

Offline event

HUAWEI Developer Day

A platform for in-depth exchange between developers, bringing them the latest industry news, trends, and practices through discussions, analysis of hot technologies, and case sharing by industry leaders.

100

Held 100+ HUAWEI Developer Day activities in 80+ cities of 40+ countries and regions worldwide, bringing in 40,000+ offline participants and 50M+ online viewers.

Online competition

DIGIX Competitions

An innovative app competition platform encouraging development based on cutting-edge open capabilities and services. It offers technical support, innovative app promotions, and global resource support.

5,000

Launched 12 competitions covering 170+ countries and regions with 30,000+ participants and 5,000+ innovative works as of June 2021.

Community operations

HUAWEI Developers Forum

We provide a space for developers to share information, know-how, and technical expertise, as well as obtain the latest service bulletins and industry news.

12,000

35,000+ developer discussions and 12,000+ solved problems as of June 2021.

Ecosystem support

US$1 billion Shining Star Program

Encouraging developers to innovate in AR/VR, AI, and IoT, and providing resources and capital for training, development support, and marketing assistance.

10,000

10,000+ innovative apps have received financial incentives so far.

US$1 billion Shining Star Program — Comprehensive incentives for global developers

Huawei's Shining Star Program provides comprehensive support for talent cultivation, development, innovation, marketing, and cloud infrastructure, among others, in fields such as AI, AR/VR, IoT, and instant access, to help build an innovative ecosystem and accelerate the deployment of innovative apps.

The US$1 billion incentive pool provides multiple-level funding for app development, innovation, user growth, and marketing and jointly forms an incentive group for global developers together with incentive plans of other platforms in the industry.

Shining Star · Pioneering Program

Encouraging and supporting innovative partners in China to integrate HMS and accelerate the process of globalization. Before the pioneering program, Huawei has proposed the Shining Star Program, a US$1 billion incentive scheme, to encourage global developers to join the HMS ecosystem for innovation. The program has thus far rewarded developers of more than 10,000 innovative apps worldwide.

Shining Star · Spark Program

This is a special incentive program that provides exclusive HUAWEI EduCenter traffic and AppGallery traffic coupons to encourage partners to cooperate with HUAWEI EduCenter in terms of technology and content, thereby enriching Huawei's educational content and services, as well as meeting users' diversified learning requirements. 41 top education partners in China have participated in the Spark Program and worked with HUAWEI EduCenter to provide better education resources for users.

Shining Star · Campus Innovation Incentives

This program aims to empower young campus developers to make innovations and participate in building an HMS ecosystem via various contests and activities including DIGIX competitions, training, campus activities, AI internship, and campus ambassadors.

Stories

Creating a fantasy world of words for children using HUAWEI AR Engine

"Hi, I'm Andy the Ant and welcome to the magical world of words." These are the opening words of the app Magic ABC. Whenever Eva, Yang Xiangyong's five-year-old daughter, hears these words, she will excitedly follow along with the narrator and spell words in English, write letters, and even imitate the characters in the app.

Yang Xiangyong is one of the 4 million Huawei developers around the world, and is the independent creator of the AR English learning app Magic ABC. The app has been released on AppGallery and has been awarded by Huawei through the Huawei AR/VR App Innovation Contest as well as the Shining Star Program.

The app was developed during the peak of the COVID-19 outbreak in Wuhan, China in February 2020. Stuck at home during quarantine, Yang had the chance to spend more time with Eva, and he thought it was a good opportunity to help Eva get ahead on her English studies at an early age. He decided to develop an English-learning app designed specifically for young children, so that they could learn English at home. And so, Magic ABC came to be.

Yang has developed some basic tool apps before, but performing AR technology integration and UI design independently would be difficult and time-consuming, and the first attempt may not be satisfactory. Fortunately, after communicating with the Huawei technical support team, he successfully integrated the HMS Core AR Engine in less than one week, enabling his app to quickly identify the AR plane and accurately track user movement. In this way, even if a mobile phone or tablet is in the hands of a restless child, Magic ABC can still implement its AR functions and display its virtual characters, such as Andy and Cece, interacting convincingly with the real world.

Thanks to Huawei's AR capabilities, Yang could devote more time to fine-tuning app content and user experience, helping ensure a fun and efficient learning experience for children. His daughter, Eva, also supplied him with many useful ideas, such as displaying letters in different colors, to make the app more appealing to children. To Yang, Magic ABC is a co-creation between him and his daughter.

Based on Eva's and other users' suggestions, Yang plans to integrate HMS Core capabilities for speech recognition, speech evaluation, and machine learning, among others, to further upgrade the app in the future. As a father and a developer, Yang believes that we need to develop more and better apps for the next generation to empower them with innovation and technology.

HUAWEI HMS App Innovation Contest — Developing a technological future together with developers

The first HUAWEI HMS App Innovation Contest was launched on June 30, 2020. The contest invites global developers to provide innovative app experiences for users by integrating Huawei's unique "chip-device-cloud" HMS Core capabilities. Huawei set a US$1 million innovation incentive bonus for this contest. The event was launched in China, Asia Pacific, Europe, Latin America, and Middle East & Africa, and awards, such as Best App, Best Game, Best Social Impact App, Most Popular App, and Honorable Mention, were given to participants in each of the five competition areas. The 2020 contest attracted 3,000+ teams from 170+ countries and regions, and included innovative apps integrated with HMS open capabilities across a wide range of fields, including fitness & health, education, agricultural development, environmental protection, transportation, and public security. The contest adheres to the concept of TECH4ALL and includes an award for App with Best Social Impact to encourage developers to create innovations that can benefit the general public.

The second HUAWEI HMS App Innovation Contest held in 2021 also helped global developers innovate with TECH4ALL at its core. We look forward to more developers joining the HMS ecosystem and helping create services that benefit all societies.

HUAWEI Women Developers — Helping female developers fully participate in technological innovation

On March 8, 2021, Huawei officially launched its HUAWEI Women Developers Program (HWD). This program aims to empower female developers to create apps and tools, provide opportunities and platforms for their career and professionalism development, and encourage more women to take part in technological innovation. Female developers around the world can apply for this program through the official website of HUAWEI Developers.

Huawei believes that in the digital era, empowering women through education and training, providing them with more opportunities and support, and improving their competitiveness in the digital economy is vital to promoting social integration and development, and to building an inclusive and diverse industry.

HWD provides training courses related to technological innovation and career development for female developers around the world by inviting experts from various fields to share cutting-edge technologies and insights, and offering scenario-based hands-on experiments and exercises for female developers. We will also build a female developers community on the HUAWEI Developers platform and organize various online and offline activities.

Huawei Shining Star Program will also provide exclusive incentives for female developers to support and encourage their innovation and entrepreneurship. In addition, female developers of promising and premium apps will have the opportunity to receive app promotion support and participate in Huawei's official promotion activities. HWD is committed to empowering women's career and professional development by providing courses, training, technical talks, and practices; establishing an influential women developers community through various online and offline activities; and building a leading platform that enables women to share with and support each other.

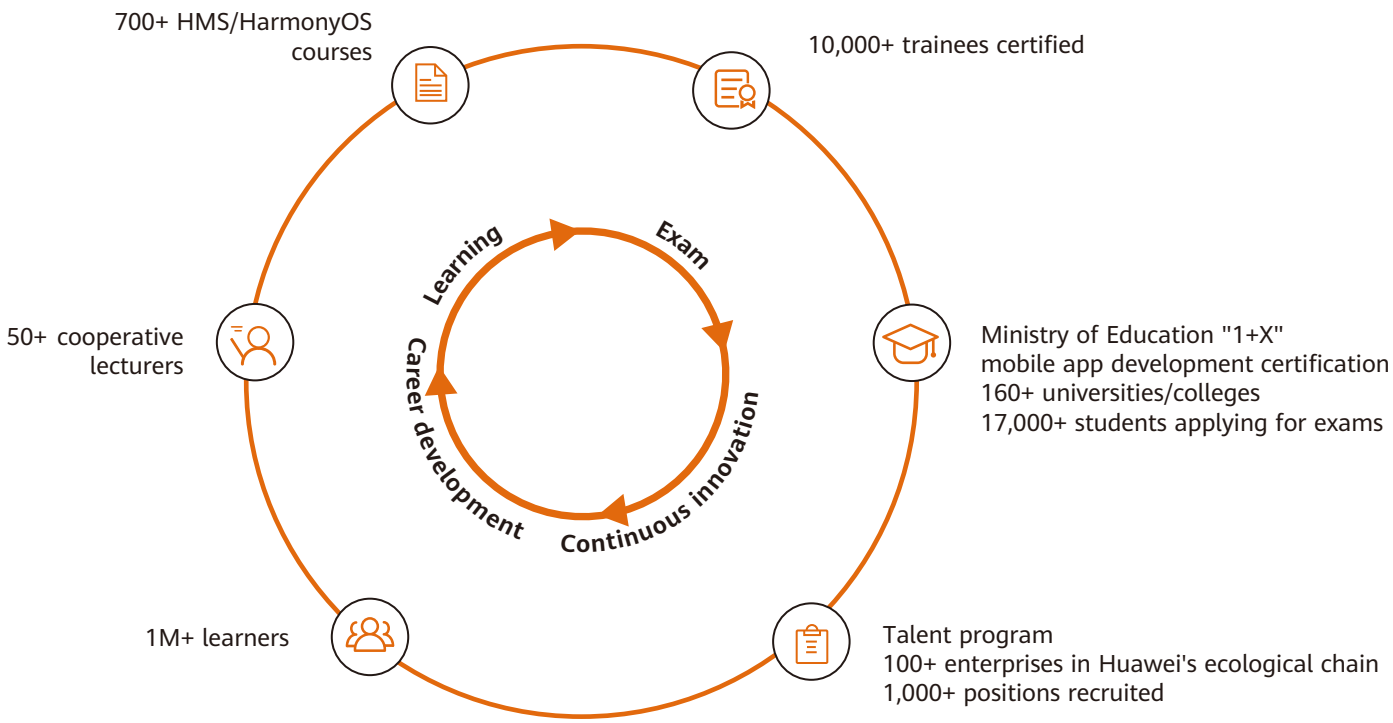
"We believe in women's power to change the world, and we hope that through HWD, more women in the world can bring their intelligence and value into full play, and take the lead in making this world a better place."

— Chen Lifang, Senior Vice President of Huawei

HUAWEI Developers Training

With the Huawei device ecosystem at its core, the HMS ecosystem aims to build a one-stop hardware, software, and service transaction platform, covering HarmonyOS, apps, service market, enterprise apps, hardware market, and industry solutions, and helps partners in the ecosystem achieve full-lifecycle business success.

HUAWEI Developers Training integrates a large number of Huawei device HMS, HarmonyOS, and other cutting-edge technology courses in various forms and levels, including MOOC, micro-lectures, and training camps in entry, basic, and advanced levels; provides one-stop services for developers, including self-improvement, certification, career development, and innovation. To date, 700+ courses have been released, with more than 1 million attendees in total. We also provide custom talent development solutions for enterprises, reducing their employee development costs and promoting developer ecosystem development.



Stories

Monitoring heart health using AI

"Breathing is one of the vital signs of our body. By recording these signals, we can better understand our health and changes in our bodies," said Zhang Shuo. The 25-year-old is a doctoral student studying medical signal processing and analysis at Southeast University. Zhang Shuo has passionately pursued life sciences since childhood, and it's only natural that he embarked on the journey to study AI-powered smart healthcare.

He is currently developing two apps, which are HeartGuard and Futeyes. They both use AI technologies to monitor body features in real time.

"For an app to evolve from theory into reality, there are a number of challenges waiting there for you to crack. I was very lucky to meet Huawei," said Zhang Shuo. Zhang participated in the 2018 DIGIX GLOBAL AI CHALLENGE, and even won an award, which resulted in him becoming a developer for Huawei HMS ecosystem. "I was working on my own project, and the biggest challenge during the pandemic was that I had no access to the hardware that I needed due to quarantine restrictions. Huawei offered me great support. They let me use their HUAWEI CLOUD Elastic Cloud Server (ECS) to carry out development and testing, and arranged a technical engineer to help me solve problems. Without them, things wouldn't have gone so smoothly," said Zhang.

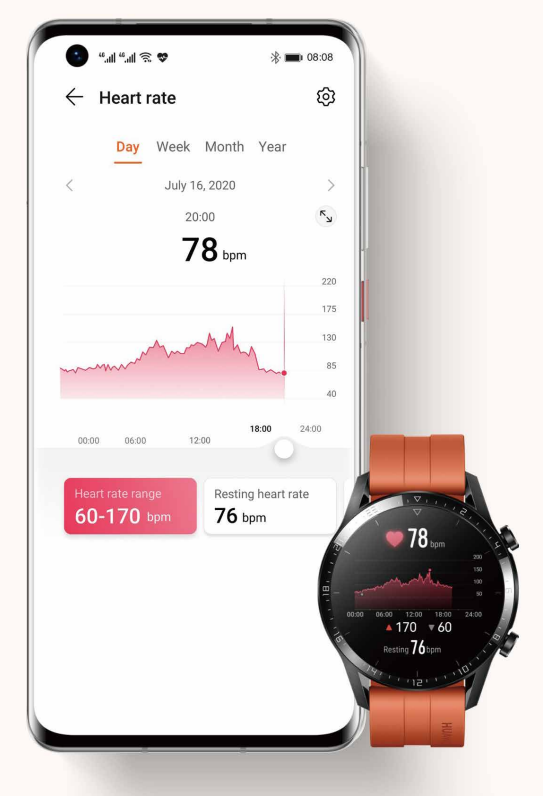
HeartGuard is connected to the HUAWEI HiAI Foundation and leverages the neural network processor (NPU) to accelerate algorithms. The NPU provides superior real time algorithm performance and delivers greater operation compared with the CPU operator and engine.

This year, Mr. Zhang was invited to the HUAWEI Developer Experts (HDE) program and became a certified lecturer at the HUAWEI Developers Training. He also participated in Huawei's developer contest to compete and exchange with other developers. "I hope to realize interactions across dimensions using code and interpret the pulse of a biosystem using data."

Health: Technological Innovation Boosts Active Health

HUAWEI Active Health — Building a Unique Experience for Fitness and Health Scenarios

Digital active health has become a new trend, which allows users to self-monitor their health through an array of data, and take steps to improve their health. Huawei proposed the concept of active health back in 2018, and with that in mind, we hope to leverage our innovative technologies and smart wearables to bring a better fitness and health experience, and active health management into our customers' daily lives. We are exploring a full-cycle active health management mode, which involves establishing a complete personal health record to enable smooth, convenient, and constructive interaction between patients and doctors.



We want to ensure the diversity and accuracy of health data by leveraging the technical advantages of our software and hardware at the bottom layer. Our innovative wearables can monitor heart rate, sleep quality, and blood oxygen saturation 24/7, helping consumers manage their health effectively. We are working with developers and industry partners to transfer our technologies in wearables, fitness and health, and our platform capabilities of HUAWEI Health into practical health benefits for ordinary people. This allows us to provide full-cycle fitness and health management solutions for individuals and families, helping tackle chronic diseases, and innovating study and research in active health.

The HUAWEI WATCH 3 Pro works with the HUAWEI Health app to monitor users' physical fitness data around the clock and provide exercise suggestions. Users can also view health data of their family members in the Health community.

User-centric

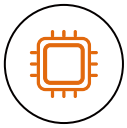
Smart device–based

Data-driven

Powered by intelligence

Temperature monitoring

The built-in temperature sensor can accurately detect skin and body temperature and provides full-day temperature monitoring, allowing users to carefully monitor their body temperature and make adjustments accordingly.



More power-conserving and accurate TruSeen™ 4.5+

The six-in-one heart rate monitoring chip uses multiple optical paths to boost light utilization, realizing all-weather intelligent monitoring and generating more accurate data.

Real-time blood sugar management

With the unobtrusive sensor, users can monitor their blood sugar level in real time through the medical-level blood sugar monitoring software on their HUAWEI Watch. The watch will vibrate if blood sugar becomes abnormal.

Fall detection and emergency help

The HUAWEI WATCH 3 Pro comes with a built-in acceleration sensor and gyroscope, which can detect when a person falls. If the watch detects that the user has fallen and cannot move, it will automatically dial the emergency number. Five consecutive presses on the watch crown can also trigger an emergency request.

Blood oxygen saturation monitoring

Oxygen saturation refers to the concentration of oxygen in the blood. Low blood oxygen saturation can cause fatigue, sleepiness, and memory decline. Long-term insufficient blood oxygen will cause damage to the brain, heart, and other organs. The new TruSeen™ 4.5+ heart rate monitoring technology can intelligently monitor oxygen saturation around the clock to safeguard users' heart health.

All-weather health monitoring

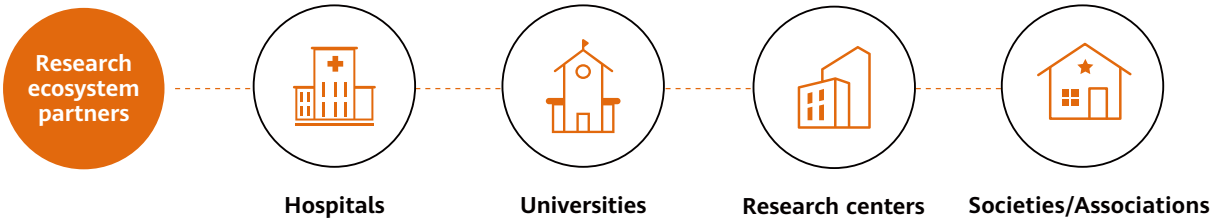
Accurately identifies six major sleep issues and provides more than 200 suggestions for improving sleep quality, while also regulating breathing and relieving stress. It monitors user activities around the clock and displays up to a week's worth of exercise data, including the exercise time of moderate to high intensity activities.

HUAWEI Research: Focusing on Public Health and Accelerate Innovation

In 2016, China gradually started promoting a "focus transition from treatment to public health" as an important strategy for overall health development, advocating that everyone maintains a healthy lifestyle and actively manages their health. In the mobile internet and digital age, telemedicine, data connection, and outpatient health management are bringing digital health to more daily lives, delivering extended health services and education to the home for autonomous, timely, real-time, and interactive services. By actively monitoring their health, people can enjoy a better life.

HUAWEI Research works with industry partners to innovate public digital health solutions and provide more active and portable health services to consumers, while protecting their privacy. Huawei currently cooperates with dozens of research institutions, including 301 Hospital, China Health Care International Exchange and Promotion Association, and Medical Group of Division of Infectious Diseases in Shulan Hospital, in fields covering cardiovascular health, sleep, liver health, and others, to drive breakthroughs in active health research.

HUAWEI Research has consistently helped nurture the development of innovative technologies. It has worked with more than 60 partners and helped conduct research covering more than 5 million users. As more and more partners join us, we are getting closer to achieving the day-to-day benefits of research into digital health, one step at a time. We also passionately seek to integrate industries, schools, research centers, and hospitals to accelerate research and innovation in the fields of circulation, respiration, exercise, endocrine, digestion, reproduction, nerves, and others, to provide full-lifecycle health promotion and chronic disease risk prevention and control services.



Heart health

301 Hospital — heart health research

301 Hospital has developed a Heart Health Research app based on the HUAWEI Research platform. This app can work with Huawei smart wearables to handle missed diagnosis of early arrhythmia and other diagnosis dilemmas, as well as predicting atrial fibrillation risks, to aid early prevention and maintain good health.

Vascular health

China Health Care International Exchange and Promotion Association — vascular health research

The Vascular Health Research app is developed based on the HUAWEI Research platform and can work with the HUAWEI WATCH GT 2 Pro ECG to provide vascular health risk detection and professional health guidance services for users, helping them manage their vascular health and lead a healthier life.

Respiratory health

Tongji Hospital Affiliated to Huazhong University of Science and Technology — respiratory health research

The Respiratory Health Research app is developed based on HUAWEI Research platform and can work with HUAWEI WATCH 3 to cross-monitor multiple parameters, including body temperature, respiratory rate, blood oxygen, and heart rate, as well as detect early respiratory infections, and warn users about respiratory risks.

Mental health

Institute of Psychology, Chinese Academy of Sciences — emotion recognition research

The Emotion Research app is developed based on the HUAWEI Research platform and can work with Huawei wearables to obtain users' heart rate R-R interval (RRI), in addition to exercise data, and sleep data, helping users understand how their body feels. This can help users recognize areas that they need to address to maintain a healthy state of mind.

Liver health

Medical Group of Division of Infectious Diseases in Shulan Hospital — liver fat research

Using big data verification and AI technologies, the liver fat research app is developed based on the HUAWEI Research platform and can work with HUAWEI Smart Scale to detect liver fat levels, and provide professional advice to prevent and handle any issues at an early stage.

HUAWEI Health Lab: Helping Consumers in Scientific Active Health Management

The HUAWEI Health Lab in Xi'an, China was set up on December 10, 2020. It is a place where Huawei researchers, engineers, and developers work together to explore the innovation and application of sports and health technologies, and bring more scientific and convenient sports and health experiences to global consumers.

The 20+ professional research devices in the lab's testing area allow researchers to simulate multiple exercise scenarios and collect fitness and health data, thereby optimizing Huawei's fitness and health data algorithm to deliver accurate data to consumers with different health conditions.

Huawei's smart wearables have become the number one choice for global consumers. Keeping our word, we will continue to invest and innovate, and deliver outstanding products and features for our consumers.

We launched seven smart wearable products to the market in 2020, among which HUAWEI WATCH GT 2, GT 2 Pro, and HUAWEI WATCH FIT have received highly favorable reviews from global consumers for their professional functions and experiences.

"Although small in size, smart wearables boast boundless technology for scientific sports and a healthy life."

— Yu Chengdong, CEO of Huawei Consumer Business Group

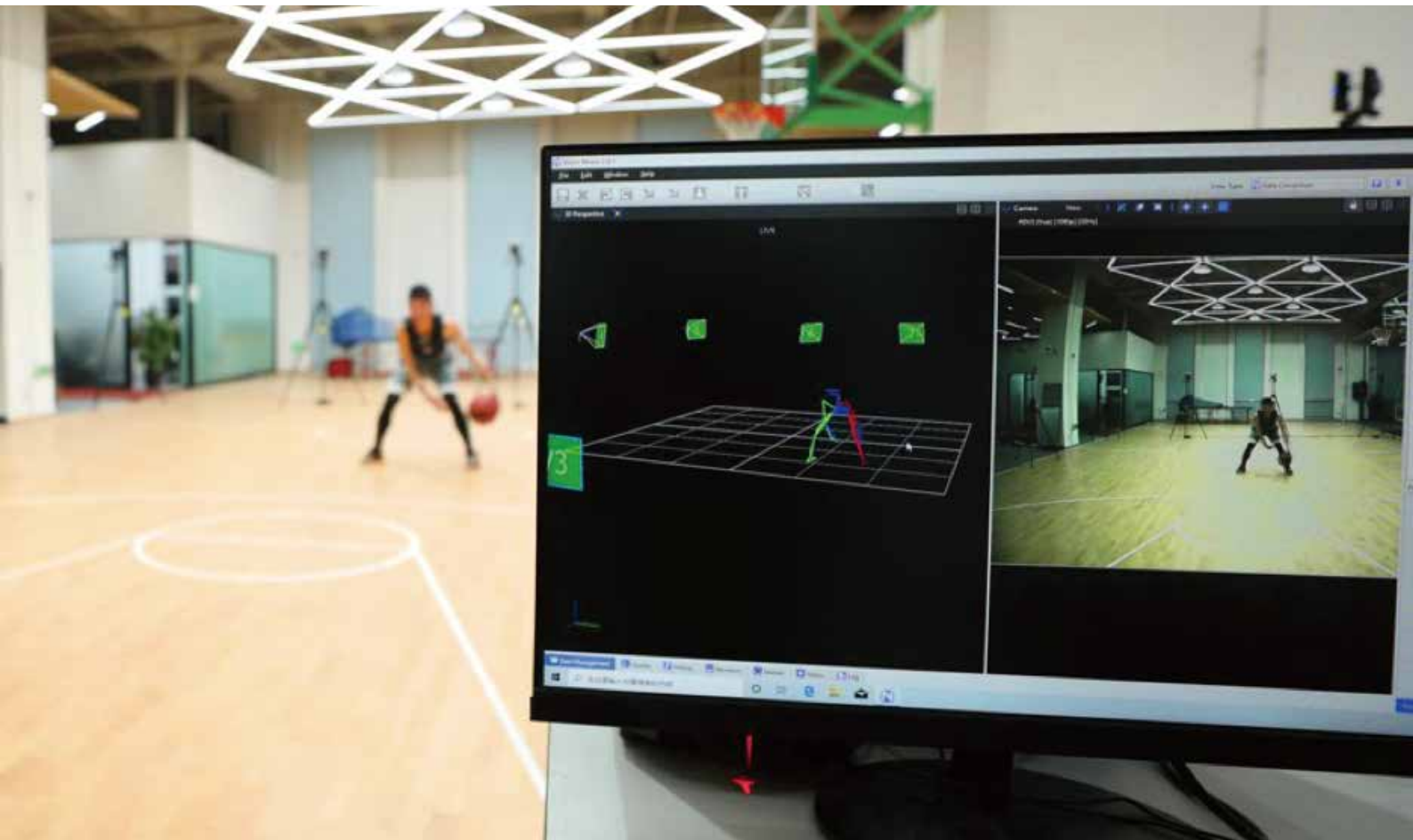
To provide more advanced smart wearables and ultimate fitness and health experiences for our consumers, we mobilized R&D teams to integrate existing R&D resources and introduced a batch of new research equipment for establishing a new Health Lab. After nine months of work, plus careful site selection and planning, the new lab was established, scaling our innovation capabilities to new heights.

Many of the sports experiments for Huawei smart wearables were performed in this new lab. More than 40 researchers work here, carrying out a range of complex engineering experiments and tests, to explore ways to bring a simpler, better fitness and health experience to our consumers.

In order to make Huawei watches and wristbands more ergonomic and easy to wear while playing sports, researchers built an advanced running test system with a foot pressure running deck, cardiopulmonary metabolometer, heart rate belt, professional wide running deck, and optical motion capture system. They use this system to collect key exercise data such as running posture, maximum oxygen uptake, heart rate, and calorie consumption while running.

These researchers come from diverse professional backgrounds, including computer software, engineering, physics, mathematics, sports, and medicine. This diversity allows them to inspire each other and come up with innovative ideas for a healthy lifestyle where Huawei smart wearables form a core part, acting as a personal sports coach and active health manager.

Looking into the future, we will continue to invest and innovate in the fitness and health field. We have more than 10 research centers across the globe, forming a collaborative and comprehensive research platform for our innovative, leading, and open Huawei fitness and health ecosystem. Bringing more simplistic and professional products for consumers has been and will always be our priority.



How Technology Is Transforming Disaster Relief

The 5.1-magnitude earthquake in Chengdu's Qingbaijiang District on February 3, 2020, brought back traumatic memories of earthquakes for Luo Xiangyu. "Many of my friends in Chengdu felt the tremors of the earthquake in Qingbaijiang," he noted. "I was struck with the sudden panic that I remembered from 2008 Sichuan earthquake, when I was a college student, as well as in 2017 during the Jiuzhaigou earthquake. It occurred to me that we need an app to help with earthquake preparedness, so that we can better protect ourselves when faced with such a disaster." However, after searching extensively for earthquake-related apps, Luo found that the apps available only supported limited range of features, and hadn't been updated in a while. This inspired Luo and his team to develop the app Earthquake Assistant, which could serve as a literal lifesaver.

The app provides users with essential earthquake-related knowledge, so that they will be prepared if disaster strikes. If the user is trapped after an earthquake, the app can provide them with lifesaving tips, such as methods of escape. Following an earthquake, effective information transmission is crucial. Luo explained: "The real-time message arrival rate for Earthquake Assistant increased five-fold after integrating HUAWEI Push Kit, which has made the app a much more reliable option." The Earthquake Assistant also supports key features like emergency shelter querying, compass, offline GPS positioning, and a flashlight to help users shelter themselves in the event of an earthquake.

Since the epidemic in China has bounced back during the 2021 Spring Festival, obtaining accurate and reliable information in real time has never been more important. To make it easier for users to query pandemic-related information, Huawei has launched a dedicated epidemic prevention tab in Assistant•TODAY. Users can simply swipe right on the home screen to view the latest information, including real time data, a personal health code, nucleic acid test results, travel policies, and risk levels for different regions.

Environmental Protection

Harnessing technology for a better planet

23,000

In 2020, Huawei's revenue from its consumer business grew by 3.3% YoY, while paper use in its product packaging reduced by 23,000 metric tons YoY, equivalent to saving 390,000 trees.

12.6M

In 2020, the PV plants on Huawei campuses generated 12.6 million kWh of power.

100+

More than 100 device models have updated to HarmonyOS 2, including the Mate 9 series, which was launched way back in 2016. Thanks to constant updates, devices that are years old can still enjoy the benefit of cutting-edge technology.

1,000

The loading rate of our intelligent logistics system has increased by 10% since 2019, which means that about 1,000 containers have been reduced, while shipments have grown.

89%

Our new generation flagship P50 series uses less than 1% of plastic in its packaging, an 89% reduction in the use of plastic, compared with the P40 series.

7M

From 2020 to 2021, we helped keep 7 million devices in good working order, by sending faulty components, such as motherboards and screens, back to our high-level repair centers for repair.

100

From 2020 to 2021, we eliminated about 100 metric tons of plastic from our e-commerce logistics packaging, which is equivalent to 10 million medium-sized plastic shopping bags, each of which weighing about 10 g.

114,000

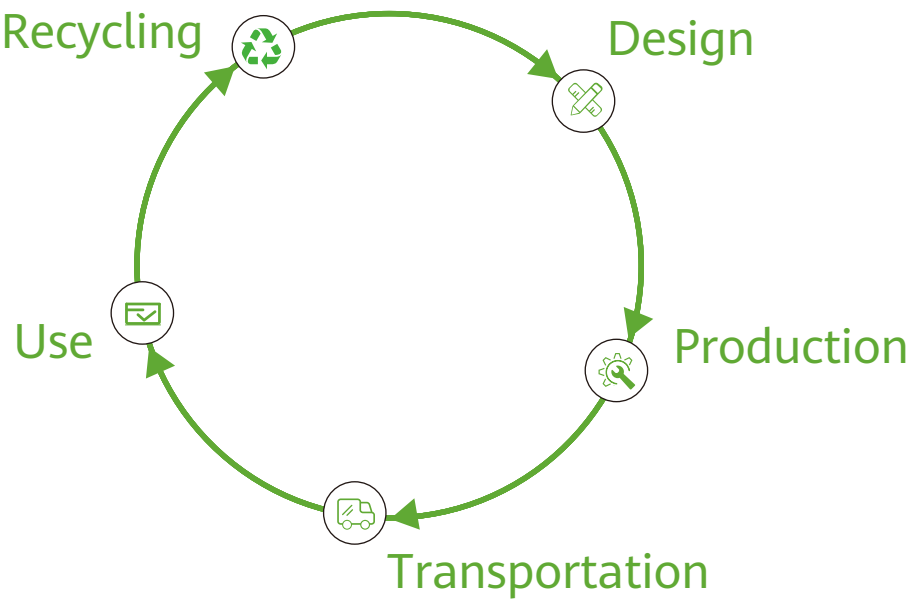
In 2020, we reduced carbon emissions by more than 114,000 metric tons in our logistics and transportation operations, a per unit reduction in carbon emissions of 15%, equivalent to planting 65,000 trees.

For decades, Huawei has adhered to the pledge of "Tech for a Better Planet", and been committed to protecting the environment through technological innovation, with a particular focus on carbon emissions reduction, renewable energy, and circular economy.

Reducing carbon emissions: Continually innovating our practices in every facet, from management to technology to beyond, to minimize the carbon footprint from Huawei products. Working with upstream and downstream partners to boost energy efficiency and reduce emissions, and create an end-to-end green supply chain. Leveraging innovative ICT technologies to promote carbon emissions reduction in diverse industries.

Promoting renewable energy: Applying technologies like PV and AI to further bolster the efficiency of renewable energy. Creating smarter and greener world, by promoting renewable energy within industry.

Contributing to a circular economy: Using eco-friendly materials and reducing our raw material consumption, improving product durability, designing products to facilitate easy disassembly, and optimizing the product recycling system, to help make sustainable development a viable reality.



Green Product Design

Use of Eco-friendly Materials

More secure materials

Since 2016, we have implemented hazardous substance controls for our phones that are even stricter than those required by laws and regulations. By designing our products to minimize dependence on hazardous substances, we have made great strides to protect our planet. In addition to complying with hazardous substance management laws and regulations in China and around the world, such as the China Restriction of Hazardous Substances (RoHS), as well as the RoHS Directive, and Registration, Evaluation and Authorization of Chemicals (REACH) from the EU, we have proactively eliminated substances that may cause harm to the environment and human health when being recycled (for example, releasing dioxins), such as brominated flame retardants (BFRs), chlorinated flame retardants (CFRs), polyvinyl chloride (PVC), phthalate esters (PAEs), antimony trioxide, and beryllium and its compounds. Since 2016, we have eliminated the use of over 13,000 metric tons of high-risk hazardous substances during phone production.

In addition to chemical management for products, we also attach importance to manufacturing across the entire supply chain. In 2020, we began controlling the arsenic in glass, to prevent suppliers of LCD glass and glass rear covers from using it during the manufacturing process, as arsenic may cause harm to the environment and human health.

In order to improve our environmental health tests and analysis capabilities for substances, we have built a state-of-the-art environmental protection lab, covering 500 square meters and complete with cutting-edge equipment encompassing chromatography, spectrum, and mass spectrometry. This lab has achieved industry-leading environmental protection test and analysis capabilities, and since been accredited by the China National Accreditation Service for Conformity Assessment (CNAS).

Renewable materials

One important measure that we have taken to protect the environment and promote the circular economy, is in using premium eco-friendly renewable materials, which reduce our dependence on direct mineral sources.

The production of electronic products involves dozens of different materials, and it is simply not possible given current constraints, to find high-quality renewable alternatives for each type of material. We pledge to work diligently with our suppliers to gain a deeper understanding of and improve the supply chain for renewable materials, which will allow us to incorporate more high-quality renewable materials into product manufacturing.

We currently use 10 different types of renewable materials, including paper, gold, aluminum, cobalt, and tin, in our products. We are also working closely with our suppliers to explore even more potential applications for high-quality renewable materials.

Eco-friendly plastics

Plastics are the hardest materials from electronic products to reuse. Therefore, it is essential to choose plastics that have the least possible impact on the environment. Since 2013, we have used bioplastics widely during phone production, substantially mitigating the negative environment impact associated with the manufacturing of petroleum-based plastics. Over 30% of the bioplastics that we use come from castor oil, which reduces carbon dioxide emissions by 62.6%, when compared with traditional plastics.

Eco-friendly Product Packaging

Our green packaging design solutions also reflect our commitment to making Huawei products suitable for sustainable development. The use of small and lightweight packaging can reduce raw material consumption, such as paper, protecting forests in the process. Lighter packaging also minimizes energy consumption and carbon emissions during transportation.

We strive to reduce the use of packaging materials and utilize reusable and eco-friendly materials, while ensuring that our products are adequately protected. In 2020, Huawei's revenue from its consumer business grew by 3.3% YoY, while paper use in its product packaging reduced by 23,000 metric tons YoY, equivalent to saving around 390,000 trees.

23,000

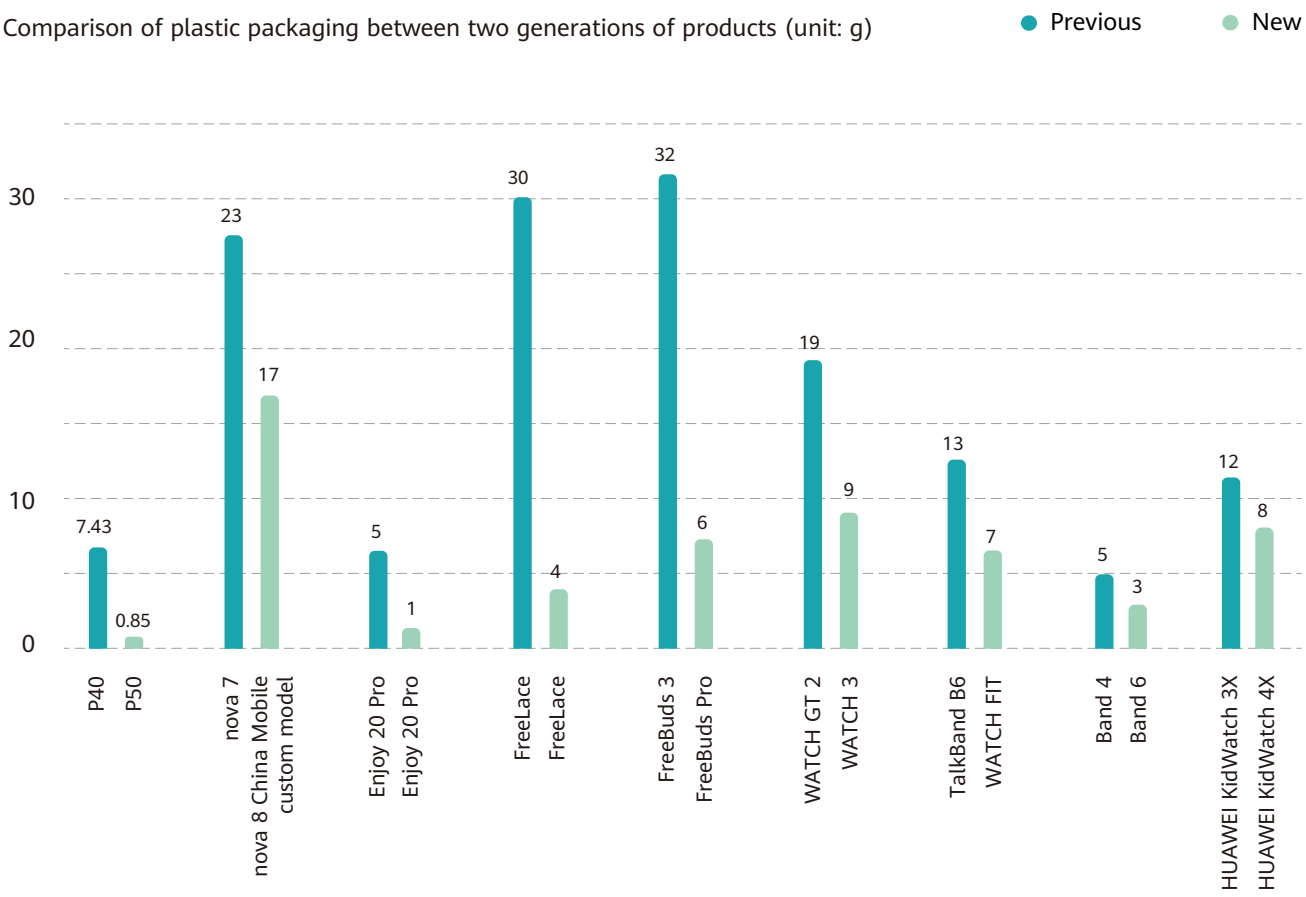
In 2020, Huawei's revenue from its consumer business grew by 3.3% YoY, while paper use in its product packaging reduced by 23,000 metric tons YoY, equivalent to saving 390,000 trees.

Less plastic packaging

In 2021, we have stepped up our efforts to reduce plastic packaging, even for the plastics that consumers may not notice. For example, the surface of a packing box is usually covered with a layer of plastic film to protect the text and patterns from being scratched. Our packaging designers developed a special oil to replace the plastic film, which has been applied to the packaging of the HUAWEI Enjoy 20 Pro and nova 7 SE (5G) models, and will be used in the packaging of more future products. Plastic film may seem insignificant on its own, but the toll it takes on the environment adds up. This optimization alone is expected to reduce the use of disposable packaging plastics by approximately 46.3 metric tons for every 10 million phones.

The proportion of plastic inside the gift boxes of P50 series phones decreased by an impressive 89% compared with that for P40 series phones. Currently, the proportion of plastic packaging of the P50 series phones is lower than 1%, an industry-leading figure. We have applied these plastic reduction measures to earphones, watches, bands, and many other products as well.

Comparison of plastic packaging between two generations of products (unit: g)

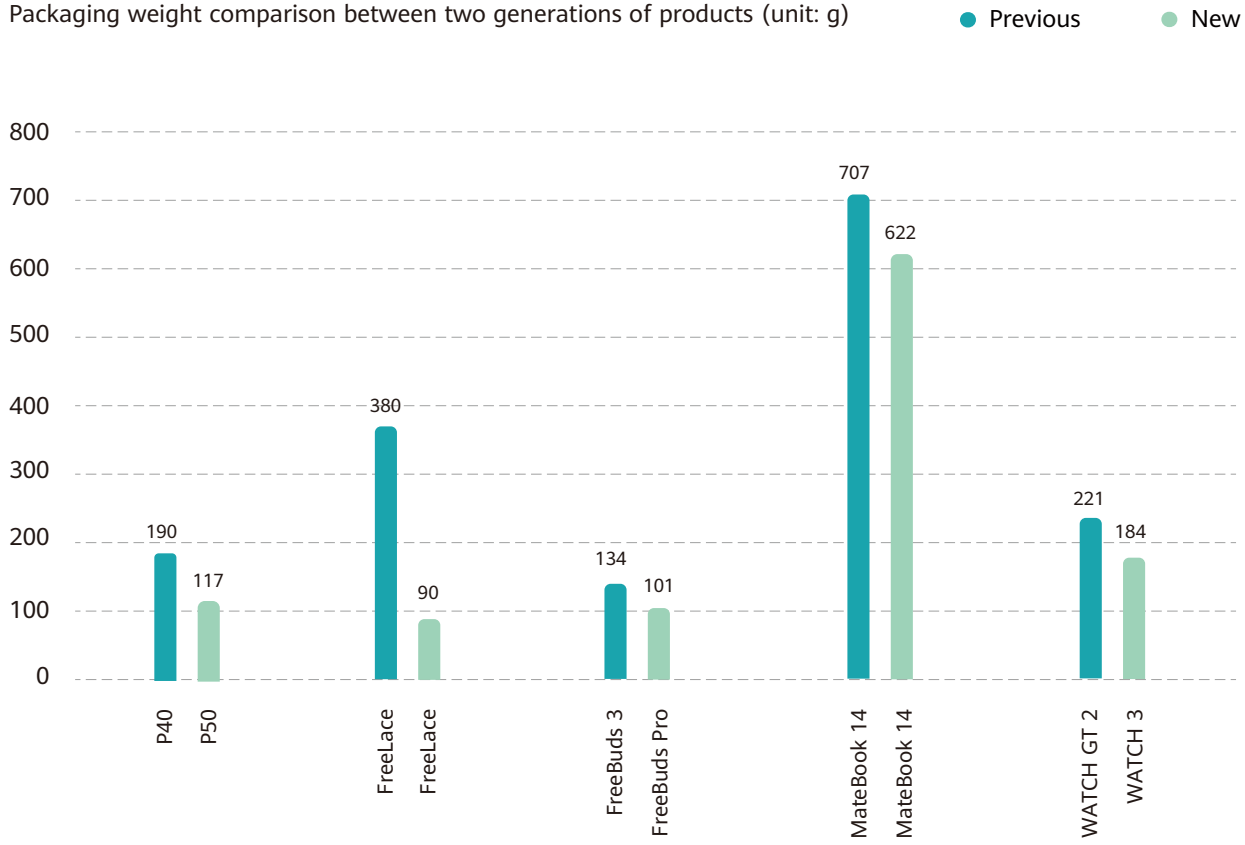


Lighter packaging

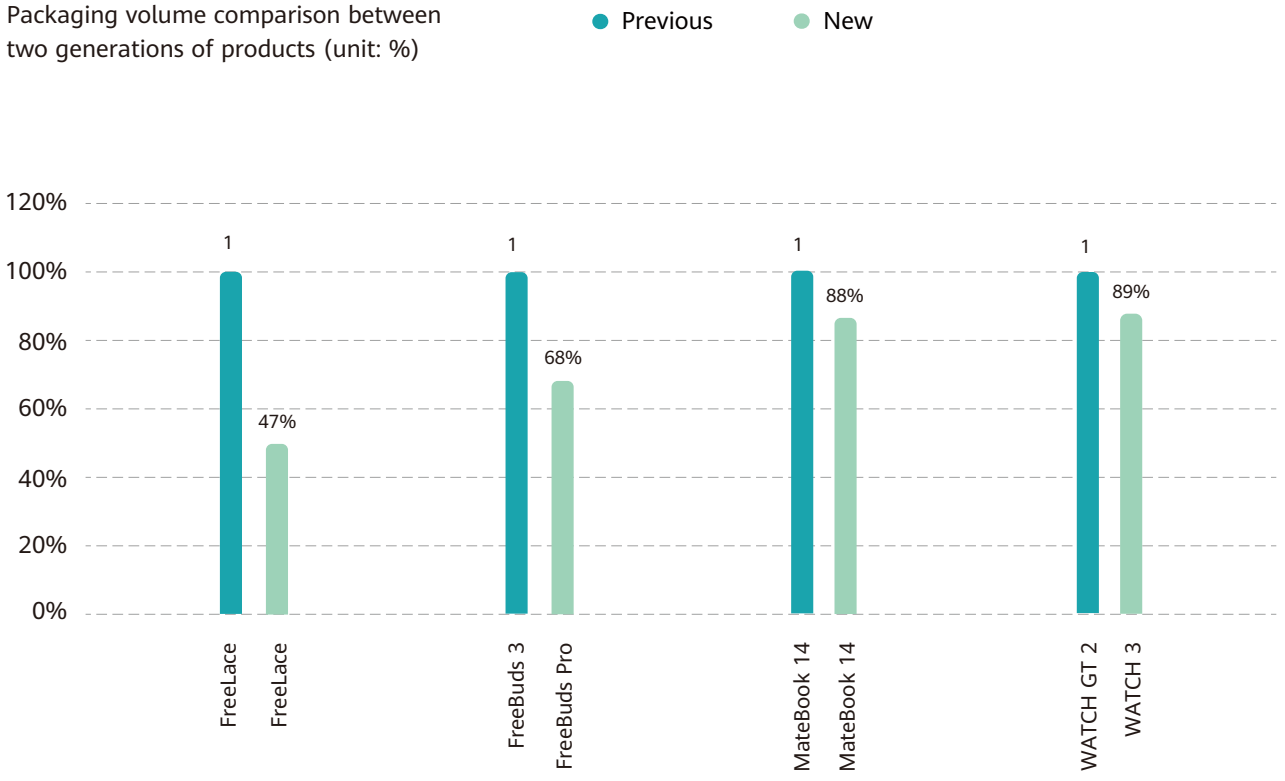
We strive to protect our products to the utmost, while using the least possible materials. Over the past year, Huawei has made significant progress with regard to lightweight packaging for numerous product categories, including earphones, PCs, and wearables. This has been achieved through packaging structure design and accessory assembly optimization. For example, compared with the previous generation of products, the latest FreeLace generation packaging is 53% smaller and 78% lighter, saving 290 g for every product. This means that 2,900 metric tons of paper (equivalent to 49,300 trees) are saved for every 10 million FreeLace units.

We plan to develop lighter packaging structure and apply more eco-friendly techniques and materials for all product types. In recent years, our carton reuse scheme has been enormously successful. We will continue to explore more packaging reuse solutions to reduce our resource consumption to an absolute minimum.

Packaging weight comparison between two generations of products (unit: g)



Packaging volume comparison between two generations of products (unit: %)



Lighter user manuals

In the design of lighter user manuals, we strive to save paper while still protecting the legitimate rights and interests of users, and further improve user experience.

Designing lighter user manuals saves paper, and also reduces energy consumption and carbon emissions when the product is shipped. Although the content in user manuals has been reduced, Huawei provides a richer array of information through the pre-installed app Tips on Huawei devices, improving consumer experience.

In 2020, a wide range of Huawei products, including phones, tablets, and PCs, began featuring much lighter user manuals. The number of pages in user manuals has been reduced by 87% on average, saving 426 metric tons of paper and eliminating 12,080 metric tons of carbon emissions in the process. In 2021, this work will be applied to all Huawei devices.

Dimension	2019	2020	2021 (estimated)
Products	Phones	Phones, tablets, PCs, wearables, and earphones	All Huawei devices
User manual pages reduced	27%	87%	5%
Paper saved (metric ton)	89	426	468
Carbon emissions reduced (metric ton)	2,537	12,080	13,288

More eco-friendly packaging materials

Huawei has been committed to using more eco-friendly packaging materials to minimize any potential environmental harm. That's why we prefer recycled paper, and paper materials from Forest Stewardship Council (FSC) certified forests, which uphold rigorous sustainable development standards. Our latest eco-friendly materials have been certified as compostable by DIN CERTCO, meaning that they are biodegradable as part of industrial composting.

The printing ink on packaging can determine how degradable it is. Huawei uses 100% biodegradable soy ink made from soybean oil, which is both safe and eco-friendly, and produces better printing effects, when compared with traditional petroleum-based inks.

Green Production to Reduce Our Environmental Impact

A significant portion of carbon emissions from electronic products occurs during the manufacturing process. To minimize environmental harm and facilitate climate change governance by implementing the ecological circulation system, we push the adoption of energy-efficient techniques as well as clean and renewable energy in manufacturing process.

Carbon emissions reduction in our operations

We build PV plants on our campuses and continuously employ more renewable energy for our operations. In 2020, the annual electricity generated by our PV plants soared to 12.6 million kWh, and we used 1.55 billion kWh of clean electricity as total, which helped reduce carbon emissions by more than 620,000 metric tons. We are integrating ICT with PV technologies to ensure that solar power can be generated more efficiently. We are aslo working to extract more electricity out of every joule of sunlight, making green power easily accessible to more households. In addition, our smart PV plants for agriculture and fisheries, among others, are models of sustainable mixed land use, opening up new possibilities for integrating energy systems into local environments, industries, and economies.

12.6M

In 2020, the annual electricity generated by our PV plants soared to 12.6 million kWh, and we used 1.55 billion kWh of clean electricity as total.

620,000

In 2020, we reduced carbon emissions on our campuses by more than 620,000 metric tons, through the use of clean electricity.

Carbon emissions reduction across the supply chain

As a company committed to sustainable development, Huawei has worked relentlessly to reduce carbon emissions across its supply chain.

As an active response to the carbon emissions reduction targets proposed in the 14th Five-Year Plan of the People's Republic of China, we held the Supplier Conference on Carbon Emissions Reduction in May 2021, with the goal of informing suppliers of environmental policy changes, and implementing new measures and technologies. At the conference, we proposed the following carbon emissions reduction initiatives for Huawei's supply chain:

1. Increase investment in energy conservation and emission reduction as a response to the low-carbon requirements of governments, industry organizations, and customers.

2. Develop and implement ambitious carbon emissions reduction targets and corresponding actions.

3. Increase our use of clean energy to support Huawei's long-term goal of environmental protection and low carbon emissions.

In response to this sustainability strategy, our procurement departments have incorporated environmental protection into the end-to-end procurement process, as an important component of corporate social responsibility (CSR) for suppliers.

Suppliers' participation in carbon emissions reduction has achieved remarkable results. In 2020, a supplier implemented three carbon emissions reduction projects, including a rooftop PV plant on its campus, reducing carbon emissions by 3,930 metric tons and saving CNY2.67 million in energy costs. These projects helped reduce carbon emissions, while also helping the supplier cut unnecessary costs.

Carbon Emissions Reduction Through Green Warehousing and Transportation

Greener and Faster Warehousing Solution

With the rapid development of e-commerce, consumers have come to expect faster deliveries. To meet these expectations, companies have tended to increase their number of warehousing sites for broader geographic coverage, which has also led to the following issue: how to best select warehouse locations and build eco-friendly warehouses, while maintaining such broad coverage.

Huawei is committed to green warehousing and the sustainable use of resources. We have continuously improved our capabilities in green logistics parks, streamlined logistics packaging, resource recycling, and logistics technology, among other key fields.

Green logistics parks

We have optimized warehouse layouts and carefully selected warehouse locations to cut down on the distance that products need to be transported. By seamlessly connecting logistics platforms with vehicles, we have slashed warehouse energy consumption as well.

Streamlined logistics packaging

By employing optimal boxes for logistics, we have eliminated excessive packaging and padding. We have also removed custom package seals based on trustworthiness, in order to reduce the use of packaging materials.

Logistics technology

We have improved our warehouse space utilization rate and increased warehouse automation, even building partially unmanned warehouses.

Resource recycling

We have reduced the consumption of cartons by reusing customized containers. Packaging material consumption is also slashed thanks to robust recycling policies.

Safer and Greener E-Commerce Solution

An online Huawei store may ship tens of millions of products every year to consumers, and each package reflects our commitment to both customer satisfaction and environment protection. Since 2020, we have made enormous strides on environmental issues, such as packaging waste generated during delivery, through the design of smaller and lighter packages, reduced use of plastics, and a myriad of other initiatives.

Optimizing mailer box design to maximize the package space utilization rate

Since 2020, we have optimized the design of mailer boxes based on the size of gift boxes; as a result, the average volume of a single mailer box is now approximately 30% smaller. With wearables, for instance, by matching the size of the mailer box with the wearable, we have increased the package space utilization rate from 35% to 49%. With this optimization alone, we eliminated approximately 1,080 metric tons of packaging materials, which are equivalent to 5.4 million mailer boxes, each weighing 200 g.

1,080

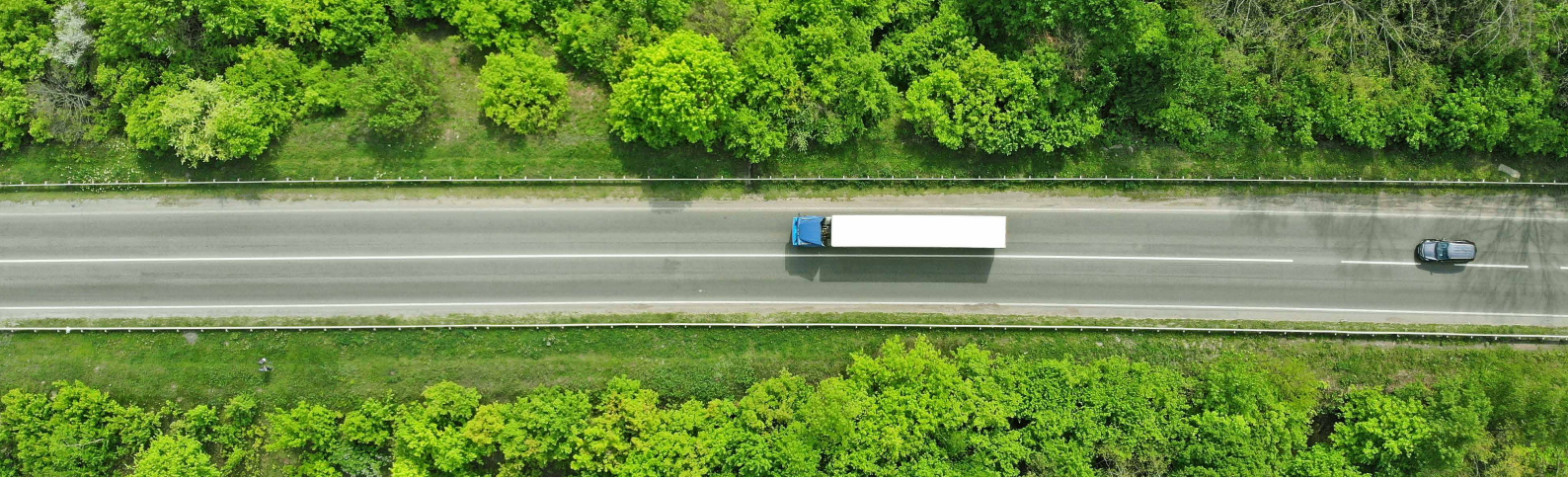
Through the design of smaller and lighter packages, we eliminated about 1,080 metric tons of packaging materials in 2020 alone.

Reducing disposable plastics use by employing alternatives to plastic padding

As most of our products are sophisticated electronic products, we generally need to add a buffer layer outside of gift boxes to prevent damage, and ensure customer satisfaction. From 2020 to 2021, we have employed a range of different packaging methods tailored for specific product categories, including air column bags, bubble wraps, and bubble mailers, to reduce our use of plastics by approximately 100 metric tons, which is equivalent to 10 million medium-sized plastic shopping bags, each of which weighing about 10 g.

100

From 2020 to 2021, we have employed a range of different packaging methods tailored for specific product categories, including air column bags, bubble wraps, and bubble mailers, to reduce our use of plastics by approximately 100 metric tons.



Green and Efficient Logistics: Protecting Our Environment

According to the Global Energy Review 2020: The impacts of the Covid-19 crisis on global energy demand and CO_2 emissions published by the International Energy Agency, the entire transport sector accounted for about 21% of global carbon dioxide emissions in 2020. To minimize our carbon footprint, we have continued to optimize logistics and transportation solutions, using data and consumer needs as our foundation.

Logistics service provider selection phase

Through our green partnership program, we've made a major effort to select eco-conscious partners, and assist them with utilizing clean energy or installing desulfurization towers, to ensure that they meet industry-wide emissions standards. Thus far, more than 10 logistics service providers have already made a commitment to use clean fuel or install desulfurization towers.

Transportation mode selection phase

We meticulously track and compare the carbon emissions from air and sea transportation, and apply a thorough framework for managing the transportation of different categories of products. As long as the delivery deadline can be met, we always give priority to sea transportation and rail transportation, both of which result in substantially fewer carbon emissions. In 2020 and 2021, our green transportation capabilities have ramped up substantially, with 45% — a historical high — of our goods now transported via low-carbon methods, such as by ship or rail.

Shipment tactical phase

Big data analytics enable us to forecast customer demand, plan shipment batches, and combine potential shipment orders whenever possible. When big data analytics are used with our loading simulation tool, we're able to maximize the loading rate of each container. Our intelligent logistics system has optimized goods, transportation vehicle, and route synergy across the board, boosting the overall loading rate by 10% since 2019. As a result, we've been able to reduce our use of containers by approximately 1,000, while still maintaining shipment growth.

Transportation route planning phase

We have built an intelligent logistics system — TMS — to help scientifically deploy thousands of warehouses and transportation networks. With the tens of thousands of pieces of data it receives every day, the TMS engine is able to recommend optimal transportation routes that bolster efficiency and reduce energy consumption to an absolute minimum.

Transportation management phase

We have encouraged our logistics service providers to enhance their transportation facilities and leverage smart, connected, and sharable tools, with the goal of making transportation as safe and eco-friendly as possible. To implement green transportation solutions, we have also developed an end-to-end framework that makes the logistics process visible, and aligns all related information to ensure efficient and effective communications.

Since September 2020, we have thoroughly optimized our logistics packaging for products shipped from China to Europe, Middle East & Africa, Russia, etc., by eliminating our use of pallet wrappers. Each such paper wrapper can be as heavy as 8 kg. This measure alone is expected to reduce carbon emissions by 500,000 metric tons per year.

By implementing in-depth green transportation measures, we have managed to reduce carbon emissions generated during product transportation to a remarkable degree. In 2020, we reduced carbon emissions by more than 114,000 metric tons in our logistics and transportation operations, a per unit reduction in carbon emissions of 15%, equivalent to planting 65,000 trees.

Longer Product Lifespans to Reduce Strain on Resources

Product Durability

One of the most effective ways to protect resources is to manufacture durable products that don't need to be constantly replaced. That's why we conduct strict durability tests on our products before they're made available, and provide continual system updates with convenient, affordable repair services, to extend their lifespans.

Bolstering phone durability

We spare no effort to extend our product lifespans, starting from the design phase. We select premium materials to manufacture ultra-reliable hardware, and have built state-of-the-art testing labs around the world. To comply stringent international standards, we have conducted in-depth reliability tests to ensure that each product can withstand and adapt to extreme conditions, including drops, impacts, and changes in temperature and moisture, so that products are more than equipped to handle everyday wear and tear.

Dropping

You risk accidentally dropping your phone every day, when you walk, run, or reach for it. We subject our phones to dozens of drops in the lab to simulate the typical height of falls onto hard surfaces. To pass those tests, phones must finish with an intact screen, and continue to function normally. We also conduct hundreds of rolling tests, during which phones tumble freely in a rotating cylinder. This lets us quickly spot and address a phone's weak points.

Extreme temperatures

Environmental factors cause approximately 52% of operational failures in electronic products. Of those, around 40% are caused by temperature. Our labs simulate conditions in diverse global environments, and test mechanical and electrical performance of our phones during alternating high and low temperature fluctuations, which are typical during shipment and storage.

Splashing

Phones are often exposed to rain and spilled beverages. That's why we have designed robust splashing tests. Many of our flagship models have a water and splash resistance rating of IP68, enabling them to withstand a sudden downpour or accidental splashes and spills.

Scratching

Devices naturally pick up scratches on their surface over time. We have equipped our phones to be scratch-resistant, through coating hardness, artificial sweat resistance, alcohol resistance, and tape-peeling tests. This means that there's no cause for concern, even when your phone rubs against other objects in your bag.

Button pressing

The next time you press the volume button on your device and it works as expected, you can thank those responsible for button durability testing. We test durability of phone buttons by simulating actual phone use and subjecting each model to up to hundreds of thousands of button presses.

Item	P7	P8	P9	P10	P20 Pro	P30 Pro	P40 Pro	P50 Pro
Water resistance	IPX2	IPX2	IPX2	IPX2	IPX7	IPX8	IPX8	IPX8
Dust resistance	IP5X	IP5X	IP5X	IP5X	IP6X	IP6X	IP6X	IP6X
Splash resistance	Water-sprinkling	Water-sprinkling	Water-sprinkling	Water-sprinkling	Water-sprinkling	Water-sprinkling	Water-sprinkling	Water-sprinkling

PC quality assurance

Huawei's flagship laptops are durable at their core, and further protected with easily-accessible service center repair services.

Laptop lid opening and closing

A laptop shaft experiences wear and tear each time that the lid is opened or closed. We simulate actual laptop use and conduct a thorough battery of tests, such as lid opening/closing strength and endurance tests, to ensure that our laptops meet user expectations.

Key pressing

We test the lifetime of laptop keys by simulating actual laptop use and subjecting each model to up to millions of key presses.

Touch controls

A smooth, pleasant-to-feel touchpad is critical to the laptop user experience. All of the tests that we conduct on our laptops, including surface friction coefficient, water drop contact angle, abrasion, and elastic curve tests, aim to provide that perfect sense of springiness and sleekness.

Scratching

Today's consumers expect the laptops that they purchase to last for years and years. That's why we pay special attention to the wear resistance of the laptop surface, which is critical to building durable laptops. We design our laptops to be scratch-resistance by conducting robust coating hardness, artificial sweat resistance, alcohol resistance, and tape-peeling tests. This means that there's no cause for concern, even when your laptop rubs against other objects in your bag.

Extreme temperatures

Environmental factors cause approximately 52% of operational failures in electronic products. Of those, around 40% are caused by temperature. Our labs simulate conditions in diverse global environments, and test mechanical and electrical performance of our laptops during alternating high and low temperature fluctuations, which are typical during shipment and storage.

Dust

Dust is everywhere: floating particles in the air, pollen, bedding dust, cigarette smoke particles, and biscuit crumbs. Most of the time it causes no serious harm to our devices, unless it accumulates in the same place over a long period of time. Our laptops have passed professional dust tests, demonstrating that their mechanical and electrical performance does not deteriorate as a result of dust accumulation.

Parts repairable at a service center

	MateBook X 2018	MateBook X Pro 2019	MateBook X Pro 2020
Display	✓	✓	✓
Battery	✓	✓	✓
Speaker	✓	✓	✓
Keyboard	✓	✓	✓
Touchpad	✓	✓	✓
Camera	✓	✓	✓

HUAWEI Vision quality assurance

To provide consumers with a better and more secure experience, we conduct more than 300 hardware reliability tests on each HUAWEI Vision model.

High temperature and humidity test	In-vehicle device reliability tests to ensure that boards enjoy an ultra-lengthy service life.
Temperature shock test	In-vehicle device reliability tests in extreme environments.
Device tests in alternating high and low temperature environments	Reliability assurance for home products in extreme usage environments.
Salt mist test	Corrosion resistance assurance for devices. For example, even devices used in coastal areas will not erode easily.
Load test	Device reliability assurance, and deformation-resistance.
Key durability test	Key lifetime assurance: 15+ years, when each key is pressed six times per day.
Connector insertion and removal durability test	Connector lifetime assurance: nine years, when removed and inserted three times per day.
Packaging drop test	Packaging and structural integrity assurance.

Wearable quality assurance

We are constantly striving to make the best possible wearables.

To ensure that our wearables will continue to function normally in diverse usage environments, we have conducted a series of comprehensive reliability tests to cover the myriad of different scenarios in daily life, including water resistance for swimming, sweat simulation, strap pulling and torsion, surface abrasion, and collision simulation tests.

Water resistance (swimproof) test

To ensure effective water resistance performance during swims, we have gone far beyond simply performing static water resistance tests on our wearables — and even invented an instrument for dynamic water resistance tests, which simulates swimming factors, such as water temperature and the speed at which a swimmer's arms come into contact with the water. We have also conducted custom underwater button endurance simulation tests, which complement integrated water resistance tests that cover temperature, humidity, drop, and other factors, to ensure reliable water resistance performance in common daily wearing and swimming scenarios.

Sweat simulation test

Since wearables are in close contact with the user's skin, and often exposed to sweat, we conduct sweat infiltration and wrapping tests on wearable straps and bodies via an artificial sweat solution created in the lab. Such tests, along with high temperature and humidity tests, ensure that consumers can use our wearables without having to worry about sweat.

Surface abrasion test

To enhance the wear resistance of the surface on wearables, we conduct in-lab alcohol resistance, rubber abrasion, dry and wet abrasion, steel velvet abrasion, and spike abrasion tests to simulate a broad array of wear-and-tear scenarios.

Collision simulation test

Considering the bumps and collisions that wearables inevitably encounter, we conduct in labs steel ball impact tests at different positions of the product surface.

Strap torsion test

We conduct strap tensile, tensile durability, and pull and torsion durability tests to ensure that the straps on our wearables remain reliable across diverse usage environments, including daily wear, removal, and accidental pull and torsion.

Quality assurance for other products

To ensure the durability of 5G CPE — a special router product — in extreme work environments such as coal mines, Huawei technical personnel went to mines and collected first-hand stress data as input into product reliability tests.

To access a broad array of data about in-vehicle vibration, reliability test personnel, with assistance from mine personnel, tracked the working stress of intelligent transportation vehicles, boring machines, and coal mining machines deployed with 5G CPE.

Product Updatability

The longer a product of ours is used, the more it saves for our customers, and the better it is for our planet.
We strive to provide an ultra-smooth system experience and convenient system updates, to ensure that even the products from years ago remain in good working order.

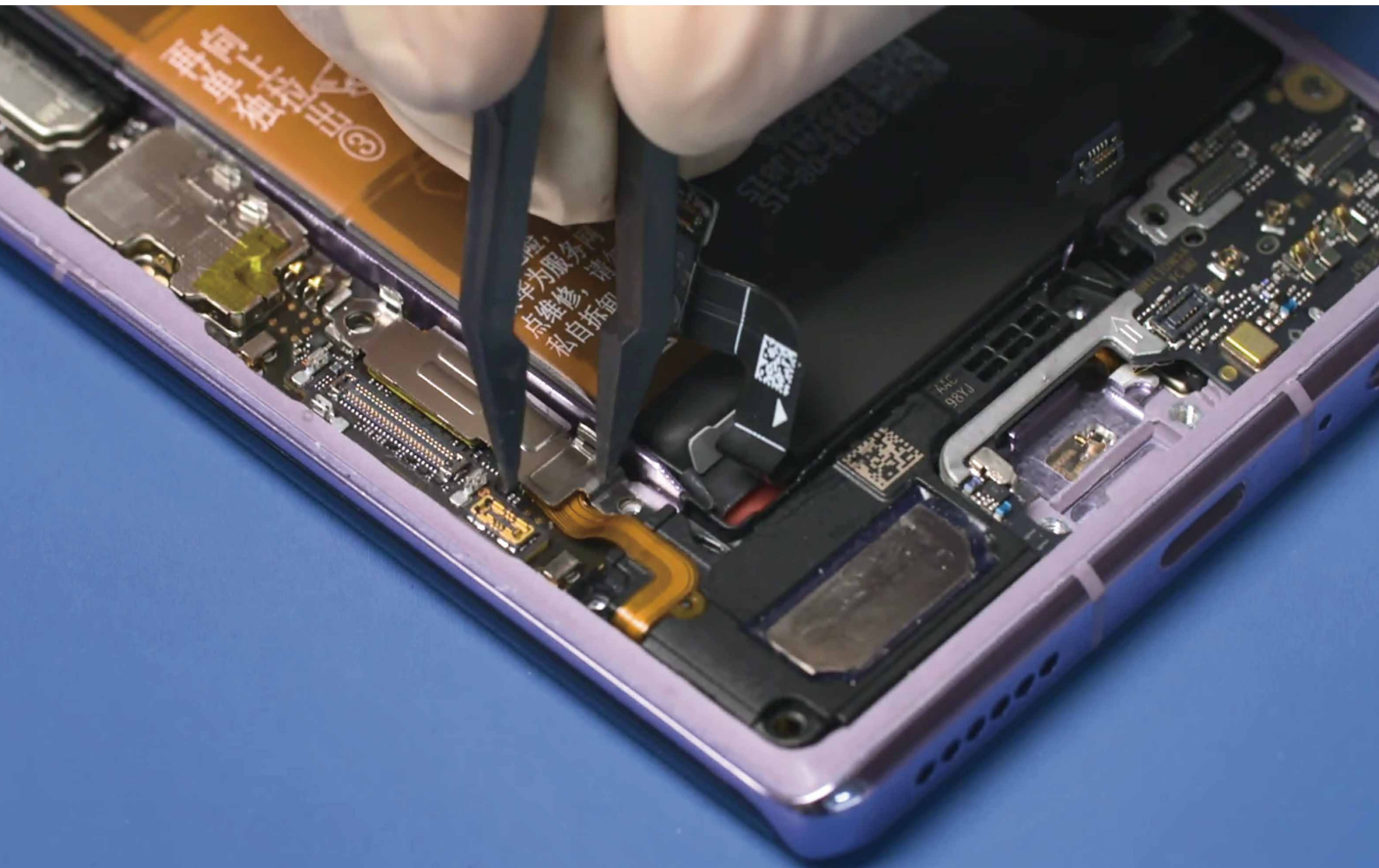
We offer consistent feature updates and security patches to phone systems to increase phone lifespans, extracting even more value for customers. This also slashes resource consumption, by reducing the frequency of phone purchases.

Today's consumers are immersed in the world of smart devices. However, since device operating systems vary, device connections and operations are needlessly complex, resulting in a disjointed user experience. On June 2, 2021, Huawei released HarmonyOS 2, which provides a shared language to facilitate pooled intelligence, interconnectivity, and seamless synergy of different devices. HarmonyOS 2 is a commercial version, based on the open-source project OpenHarmony 2.0, initiated by Huawei with the goal of providing a smart cross-device experience for all usage scenarios. HarmonyOS 2 provides a brand-new experience in terms of UX design, all-scenario functionality, performance, and security.

To provide more consumers with access to convenient, smooth, and secure all-scenario interactions powered by HarmonyOS, Huawei has supported updates to HarmonyOS 2 on more than 100 device models, including the HUAWEI Mate 40 series, Mate 30 series, P40 series, Mate X2, nova 8 series, MatePad Pro series, and even the Mate 9 series, which was launched way back in 2016. Thanks to constant updates, devices that are years old can still enjoy the benefit of cutting-edge technology.

Product Repairability

Access to reliable and affordable repair services increases the lifespan of each phone, and reduces unnecessary resource consumption. We have established a worldwide network of service centers to provide accessible and affordable repair services, supplemented by high-level repair centers, which offer more specialized repair services. We have done our utmost to extend the lifetime of all of our products. Since 2020, we have provided after-sales repair service in customer service centers and high-level repair centers for more than 50 million phone users. The services provided by our high-level repair centers for repairing motherboards, screens, and other parts have helped extend the life of more than 7 million devices.



A more convenient repair network

Our repair service network spans the globe, which means that wherever you are, there's sure to be a nearby repair center. We also offer door-to-door and postal repair service options. Devices bought through official channels in the Chinese mainland can be sent and received by mail for repair, with no mailing fees required.

To provide consumers with a faster and better level of service, we have adopted a three-tier repair system and deployed country-level repair stations, service centers, as well as regional repair centers. First, we provide users with self-service solutions, so that most common software problems can be troubleshot at home. Second, we have established a vast network of service centers around the world to provide on-site one-hour repair services. In 2020 and 2021, Huawei service centers provided on-site services, including consultation, device replacement, and board replacement, for more than 25 million devices. Devices that can't be repaired on-site are sent to Huawei's high-level repair centers.

More affordable repair plans

Our diverse range of affordable repair services make it much more likely that customers will choose to have a device repaired, reducing the frequency of phone purchases and maximizing resource efficiency.

- We continue to offer a flat rate battery replacement program across the globe, which covers more than 110 different models, and is supported in online stores and over 2,000 brick and mortar service centers. Each month, this program provides over 250,000 consumers with quality and convenient battery replacements.
- We have also continued to offer a discounted flat rate for repairs, while guaranteeing a top level of service.
- In 2020, we launched a refurbished motherboard campaign for phone models sold in the Chinese mainland: If the motherboard of a device experiences a fault not covered by the warranty, its user will enjoy access to a Huawei-manufactured motherboard at a discount up to 70%.
- We have also established a system for circulating screens that have aged out of their warranty, which has been broadly promoted in China and across many other countries and regions.
- In 2021, we initiated a memory upgrade plan for old phone models.

More reliable repair methods

To ensure a good user experience, we have developed repair policies for our full product portfolio, built up a global repair centers network, and provided repair solutions to meet all user needs. In 2020 and 2021, our one-hour repair rate reached a remarkable 98%.

We employ a highly skilled team of professional repair technicians to quickly identify and address any issues with our devices, extending the lifespans of our products. Our user manuals also walk consumers through simple and direct solutions to minor everyday usage issues. We provide compliant and openly available user guidance and warranties for each of our different products.

Unreliable repair work can result in scratched screens or damaged components. To prevent this, we have deployed a platform that automatically disassembles Huawei devices, in addition to training our repair personnel to an expert level. The platform guarantees the accuracy of disassembly and reduces raw materials waste, making repair work safer and more eco-friendly.

98%

In 2020 and 2021, our one-hour repair rate soared to an astonishing 98%.

In 2020 and 2021, we continued to bolster our repair capabilities. In addition to phones, we also provide users with repair services for HUAWEI Vision, smart speakers, watches, bands, wireless earphones, smart glasses, and routers, among many other types of products. Taking smart watches as an example: Although it has become common industry practice to scrap and replace smart watches out of use, we have invested in developing our smart watch repair capabilities, thus successfully preventing many broken watches from becoming unnecessary e-waste.

Recycling and Reuse

Huawei is committed to recycling, and we regard your e-waste to be a high-treasured resource.

We recycle, scrap, and dismantle e-waste and reuse the materials from it, to maximize efficiency.
All you need to do is simply leave your old devices with us.

Recycling and Trade-in

Reusing e-waste extracts additional value from it, and reduces its impact on the environment. In 2020, we expanded the eligibility for our device trade-in plan. We also distributed cash coupons to the consumers who brought in old devices to be recycled. These coupons can be used toward the purchase of new Huawei products.

To facilitate the recycling of e-waste, we have ramped up our efforts by continuing to improve our global recycling system for devices. This system recycles discarded devices in a compliant way, including phones, tablets, laptops, wireless routers, and set-top boxes and their accessories, and then processes them using eco-friendly methods. In newly opened Huawei service centers, you'll find newly redesigned recycling bins, which are more standardized and professional. In 2020 alone, we collected and processed over 4,500 metric tons of e-waste through the Huawei recycling system.

Resource Reuse and Closed Loop Production

E-waste actually contains abundant resources. We encourage our consumers to return the devices that they no longer use to us. We work closely with environmental technology companies to dismantle and scrap such devices.

We reacquire and reuse raw materials from discarded devices and parts. This involves 23 processing steps in total, including deforming, scanning codes, sorting, magnetizing, unsoldering, stripping away tin, shredding, and extracting heavy metals from such electronics. This substantially mitigates the negative impact that e-waste might have on the environment, and enables us to reuse metals (e.g. aluminum, copper, and steel) and plastics, which might otherwise be landfilled.

Story

A new home for used Huawei phones

Throwing away a used phone will pollute the environment. However, with recycling and advanced processing, these phones will become profitable and be disposed in a green manner.

Circuit boards, housing, batteries, and screens of used Huawei phones can be converted into raw materials, such as gold bullion, copper powder, resin powder, and plastic components. Hazardous substances will also be detoxified to achieve complete mobile phone recycling.

It takes only 30 seconds or less for a worker in an environmental disassembling workshop at TES-AMM (Shanghai) to disassemble a phone into four parts (circuit board, housing, battery, and screen). These parts can then be classified and sent on to other workshops for further processing.

TES-AMM is one of the major service chain enterprises of Huawei that scraps and recycles used Huawei phones. Most used phones are collected through Huawei's recovery system, to ensure that phones are legally and safely disposed of in an eco-friendly manner, and that valuable components and materials are extracted and recycled into reusable raw materials.

For excellent conductivity, precious metals such as gold are used on the circuit boards of phones. After several chemical processing steps, including deplating, electrolysis, refining, and smelting, a considerable amount of gold can be extracted.

On top of this, phone circuit boards with precious metal stripped are then sent into several blue machines, which process the metal into bags of metal powder (mainly copper) that weigh hundreds of kilograms.

More than 120 kg of gold and 87 metric tons of copper can be collected from 10 million disassembled phones. It goes to show that seemingly useless used phones are actually a hidden goldmine that is capable of producing recycled gold and copper for industrial use.

In China, around 290 million used phones emerged in 2019 alone. Achieving safe disposal of e-waste and maximum resource recycling ultimately depends on advanced technologies and circulation processes, including systematic classification and disassembling, physical and chemical treatments for e-waste, and extraction technologies for precious metal.

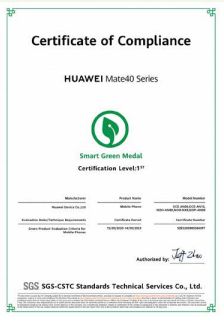
* Quoted from Economic Daily

Eco-friendly Product Certifications

Obtaining environmental certification is the fastest way to demonstrate our success in environmental protection. Over the past year, we have earned and received certifications for our products in accordance with a number of leading environmental protection standards both in and outside of China.

SGS Green Product Certification

The Mate 40 series and Mate X2 have earned the Smart Green Medal (Certification Level: 1st) from SGS, which is its highest level for rating green products.


Certificate of Compliance

HUAWEI Mate40 Series

Smart Green Medal

Certification Level:1st

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

Environmental Protection Rating Certification for Electronic and Electrical Products

Huawei Consumer Business Group passionately adheres to the Made in China 2025 strategic plan and engages in designing green products that are made in China, while also promoting green design and manufacturing in industries. From 2018 to 2020, a total of 78 models of 32 different Huawei products, including phones, tablets, and PCs, have been recognized as green, Chinese-designed products.

In 2020, 46 Huawei phones and tablets earned an A classification from the China Quality Certification Center (CQC), which is CQC's highest environmental protection rating.


中国电子电气产品环保等级评价证书

本产品等级为：A 级

中国质量认证中心

China Environmental Labeling Certification

China Environmental Labeling Certification, commonly known as Ten Rings Certification, demonstrates that the certified product is high-quality, environment-friendly, safe, and energy-efficient. Since 2017, the MateBook series laptops have earned China Environmental Labeling Certification. And a few years later, in 2020, a series of desktop monitors and computers were also certified.


中国环境标志产品认证证书

Becoming a Responsible Corporation

Repaying trust with responsibility, through technology

62,439

In 2021, 62,439 Euphrates Poplar seedlings, the first batch of trees donated by Huawei and its consumers, began to take root in the desert of Jinta County, Gansu Province.

No. 1

We have helped a supplier complete the first Zero Waste to Landfill Management System Certification from TÜV Rheinland, a globally recognized third-party certification organization.

95,000

We have created about 95,000 jobs around the world.

25,000

In 2020, we provided more than 25,000 online courses and 1,000 in-person courses for our employees. The duration of these courses has exceeded 7.77 million hours, with a total of more than 200,000 individual enrollments.

4M

As of May 2021, 4 million developers around the world had already joined our HMS ecosystem.

Customer Obsession

Innovative Technologies for Privacy Security

We are committed to building a brand that is trusted by global consumers in terms of privacy protection by strictly complying with the Generally Accepted Privacy Principles (GAPP), the EU's GDPR, and all other local laws and regulations in the countries and regions where we operate. Huawei sticks to the concept of privacy security throughout the entire product lifecycle to protect consumers' personal data.

We adhere to the concept of "Innovative Technologies for Privacy Security" to leverage leading security technologies in Huawei Consumer Business Group to fully protect user data. For example, Huawei has built a Trusted Execution Environment Operating System (TEE OS) that supports hardware isolation. Sensitive user data such as fingerprints, facial biometrics, and lock screen passwords is all encrypted, verified, and stored in the TEE OS to prevent privacy leaks. The microkernel of TEE OS has obtained CC EAL5+ certification, the highest for a commercial OS, and it uses the formal verification method. Compared with traditional verification methods, formal verification starts from code and uses mathematical methods for verification. It then analyzes each possible execution of that code, which eliminates system vulnerabilities from the source to enhance systemic security.

In the HMS domain, we have established a complete system for managing personal data protection, and we are the global leader in terms of personal data security management, transparency, and privacy compliance. For example, AppGallery manages the security of apps with a unique four-layer system — malicious behavior detection, security vulnerability scanning, privacy leak checks, and manual identity verification checks. This system ensures that only secure apps are available to download from AppGallery. HUAWEI Mobile Cloud encrypts the data transmitted in device-cloud channels and the data it stores to protect user data from end to end.

Huawei devices have received dozens of global top authoritative certifications in privacy protection and cyber security and been well recognized by global certification authorities, which means the privacy protection and cyber security capabilities of Huawei devices have been inspected by authoritative third parties and been able to protect consumers' privacy comprehensively and effectively.

Case Studies

Building a secure and reliable Internet environment for users with HUAWEI Browser

With the booming development of the Internet, browsers have become a focal tool for opening us up to the world. The primary aim for HUAWEI Browser is to build a secure and reliable Internet environment for users. Adhering to the core concept of "innovative technologies for privacy security", HUAWEI Browser provides the following features:

Detecting malicious websites for secure and smooth online surfing

The Internet is full of phishing websites and scamming websites that attempt to steal users' data by deception. Should users accidentally load such websites, they are inadvertently giving away their accounts or privacy, or running other risks. Huawei and industry-leading security vendors jointly detect the security of websites. HUAWEI Browser will notify users of potential security risks, and remind them that accessing such websites may be dangerous. The addresses that are visited by users are desensitized before we send them to the third-party security vendors. In this way, neither Huawei nor the third-party vendors will know the website content that users accessed. Furthermore, the malicious website detection function of HUAWEI Browser is enabled by default so that users' privacy can be protected without requiring any user input.

Intelligent anti-tracking for eluding trackers

After a user views an item that they want to buy online, their browsing data is usually collected by advertisers using tracking cookies, which means they will see ads of the item they viewed on different websites. The intelligent anti-tracking function of HUAWEI Browser can identify tracking websites in advance and synchronize them to users' phones. If a user visits these websites, HUAWEI Browser will automatically block tracking cookies when sending a visit request to the website to block cross-site tracking. Tracking websites are identified and blocked on phones to safeguard users' privacy.

Blocking ads for uninterrupted online surfing

Unnecessary ads on the web page severely affect user experience, but with HUAWEI Browser, you can filter ads at a website level, with the number of blocked ads displayed in a widget on the address bar. For ad-heavy websites, HUAWEI Browser will block such ads automatically. For normal websites, users can manually set the ads filtering function to their liking.

Intelligently blocking pages from automatically opening and downloading apps for smoother online browsing

HUAWEI Browser blocks pages from automatically opening and downloading apps, to ensure users can browse safely without any interruption. Moreover, this function is enabled by default and does not need to be configured.

Besides the functions just covered, HUAWEI Browser also has a number of privacy security functions, such as personalized perception and control, private browsing, perceptible and controllable sensitive permission use by a third-party website, Child mode, and others. HUAWEI Browser continues to be user-centric and devotes itself to building a secure and reliable Internet environment for users to enjoy smart digital life.

Case Studies

Protecting children under the age of 14 online, with Huawei Child account

HMS now provides Child accounts for children under the age of 14. For security purposes, after users sign in to a Child account, content that is unsuitable for children will be filtered, and these safety mechanisms are used across all native apps, including AppGallery, HUAWEI Video, HUAWEI Music, HUAWEI Books, and HUAWEI Browser. For instance, after a nine-year-old child signs in to their Child account and opens HUAWEI Video, the app pages are displayed in the Child mode, and all displayed content is suitable for children. If a Child account user tries to open content that is not suitable for them, parental consent is required.

Filtering inappropriate content according to children's age for online safety

AppGallery only displays content that is appropriate to a Child account user's age, preventing them from accessing inappropriate content such as games. If a child searches for inappropriate content, AppGallery will automatically block this request or request parental consent. Child account aims to protect vulnerable children from content that may harm their physical and mental health.

Preventing children from making in-app purchases by requesting parental consent for any payments

Children cannot make random purchases in game apps after signing in to a Child account. Parents can add a Child account into their family group, allowing children to make payment requests to their parents when they want to purchase services in HUAWEI GameCenter, HUAWEI Books, HUAWEI Themes, etc. Parental consent is mandatory for allowing Child account users to make in-app purchases.

Eco-friendly Retail Stores for a Secure and Sustainable Shopping Experience

Huawei has opened more than 5,000 experience stores worldwide, including global flagship stores and authorized experience stores. We not only combine technology with stylish store design, but also ensure our stores are as eco-friendly and sustainable as possible.

We regularly conduct environment, health, and safety (EHS) assessments and internal audits in every store to create a safe environment for our customers. The arrival of the Internet of Everything (IoE) era has seen us add innovative Seamless AI life experience areas in our stores, allowing customers to explore ubiquitous Seamless AI life first hand. We hope our stores not only build bridges between consumers, developers, and local artists, but are places where you can chat and interact with others, take a rest, or have fun, just like staying at your friend's place. Here, you can also feel the connections among history, humanity, technology, and future. We are going to build more "urban living rooms" and encourage everyone to visit them.

Our Huawei stores value sustainable development of the environment and incorporate eco-friendly practices into every material and decoration where possible, to build an eco-friendly shopping experience environment. In our flagship store in Milan, we use innovative bio-energy conversion technology to convert footsteps into electrical energy that we then use to power our store. In our global flagship store on Nanjing East Road in Shanghai, large and highly transparent glass windows in the product experience area allow more natural light into the building, which in turn cuts energy consumption and distorts the border between indoor and outdoor spaces. Copper-colored metal plates used in the atrium area can be disassembled and recycled, which complies with the cyclic design principles for sustainable development. The felt materials in the ceilings and walls of our global flagship store in Shenzhen's MixC World shopping mall are recycled from the plastic parts of used Huawei devices to cut carbon emissions and promote the development of a circular economy.

Responsible Supply Chain

Both Huawei's products and its sustainable development practices are widely recognized, which stem from the efforts of Huawei and its global suppliers. We encourage our suppliers to assume social and environmental responsibilities to a high standard, which include establishing a comprehensive CSR management system, respecting and protecting employees' rights and interests, and implementing responsible raw material procurement in the supply chain.

476

A total of 476 supplier audits were carried out from 2020 to June 2021. Huawei and its suppliers have created a high-standard industry chain.

Responsible Supply Chain Management Standards

In accordance with multiple generally accepted international standards such as ISO 26000, ISO 14001, ISO 45001, and SA8000, as well as industrial standards such as those of the Responsible Business Alliance (RBA) Code of Conduct, Joint Audit Cooperation (JAC) Supply Chain Sustainability Guidelines, and the UN Guiding Principles on Business and Human Rights, we developed the Huawei Supplier Social Responsibility Code of Conduct, which raises the standards of our suppliers' CSR. This document intends to encourage cross-party cooperation with our suppliers regarding mutual environmental, social, and labor responsibilities.

This document encompasses five parts: Labor, Health and Safety, Environmental Protection, Business Ethics, and Management Systems.

Labor Rights and Interests, and Human Rights		Occupational Health and Safety		Environmental Protection		Business Ethics		Management Systems	
Freely chosen employment	✓	Fire safety	✓	Environment permission report	✓	Honesty and integrity	✓	Corporate commitments and management responsibilities	✓
No child labor	✓	Hazardous chemical management	✓	Environmental requirements for products	✓	Intellectual property rights	✓	Risk assessment and management	✓
Protection of minors	✓	Occupational health management	✓	Pollution prevention	✓	Fair transaction, advertising, and competition	✓	Upstream suppliers management	
Working hours	✓	Security defense for devices	✓	Energy saving and emission reduction	✓	Identity protection and non-retaliation policy	✓	Internal audit and management review	✓
Compensation and benefits	✓	Hazardous operation surveillance	✓			Responsible mineral procurement	✓		
Humane treatment	✓	Occupational injury management	✓			Privacy protection	✓		
Non-discrimination	✓	Emergency planning	✓						
Free association	✓	Dormitories and canteens	✓						
		Absolute rules	✓						

Responsible Supply Chain Management Process

Huawei has established a complete responsible supply chain management process and mechanism from sourcing to officially welcoming suppliers into the cooperation and even to the cooperation phase.

1 Management of Suppliers' Qualification at the Sourcing Stage

Get certified by ISO 14001 and ISO 45001 systems.
No violation records at the Institute of Public & Environmental Affairs (IPE). If any exists, Huawei expects the supplier to clear such records.
No media scandals.

2 Certification of New Suppliers

CSR system certification is mandatory for new suppliers. Specially trained and certified auditors who have the veto power perform on-site assessment for potential suppliers according to the Huawei Supplier Social Responsibility Code of Conduct. We will give a supplier who fails the CSR system certification for the first time a second chance to improve itself, but we will not engage in any cooperation with the supplier until they are certified.

In 2020, a total of 88 new suppliers were introduced to Huawei Consumer Business Group. Unfortunately, four of them failed to become Huawei's partners because they were not certified by the CSR system.

3 Signing the Social Responsibility Agreement

After a new supplier is certified by the CSR system, the supplier must sign the Huawei Supplier Social Responsibility Agreement with Huawei before commencing formal cooperation, which further specifies the responsible supply chain management requirements for suppliers at the agreement level.

4 Annual On-site Assessment

Based on the Huawei Supplier Social Responsibility Code of Conduct, we have developed a comprehensive supplier social responsibility evaluation system to review our suppliers' sustainable development capabilities. We invite third-party auditors to assess suppliers' social responsibilities from five dimensions at their production sites, and all the upstream suppliers will be assessed tier by tier.

5 Promoting Improvement

We instruct suppliers to trace the root causes of any issues found in the on-site assessment and handle them accordingly. We incorporate these issues into the "Huawei Supplier Corrective Action Request (SCAR)" IT system and continue to follow up the implementation of the corrective and preventive measures. Suppliers must address the issues within 90 days at most. In response to the challenges and pain points found in our audits, we hosted CSR management improvement seminars with our suppliers to help them quickly and effectively address such issues.

6 Responsible Performance Assessment and Results Application

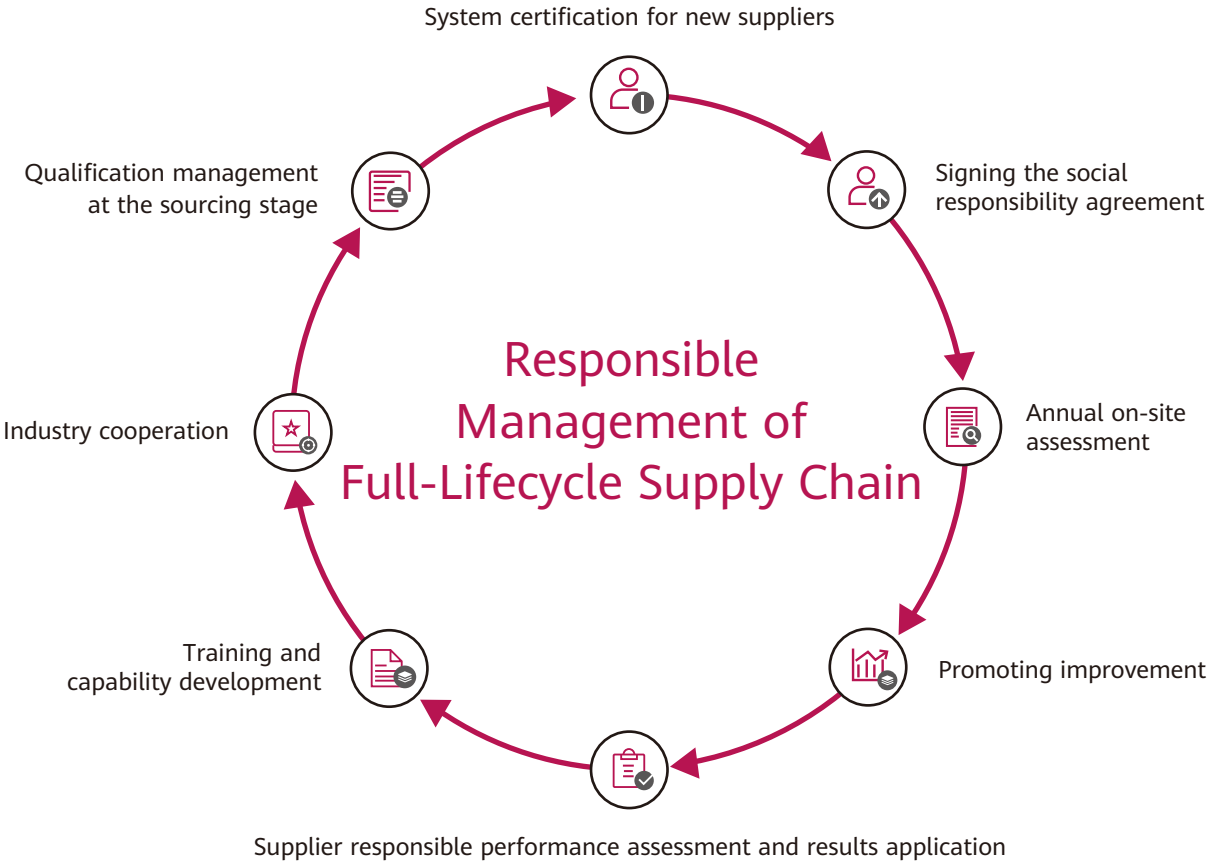
We annually assess the performance of our suppliers' sustainable development to gain a comprehensive view of their CSR strategy as well as on-site assessment results, and understand the progress they have made over the past year. The audit results form a part of the supplier's comprehensive performance assessment, which will significantly impact our decision about future cooperation and be used as a benchmark when we choose suppliers for new projects and category supplier portfolio management. Those who perform to our standards will be prioritized for future cooperation opportunities, whereas those who perform poorly will be given time to address their problems. We may, however, also reduce the procurement and level of cooperation, or may even cancel the partnership altogether.

7 Training and Capability Development

We are passionate about helping our suppliers improve their CSR management and self-development, and this will be strengthened by Huawei and its suppliers building an operation model that conforms to sustainable development principles.

We work with global professional CSR organizations to actively provide CSR training and guidance for suppliers to adopt industry-leading practices, incorporate sustainable development principles into their business strategies, reduce business risks, and improve operational efficiency. In 2020, we partnered with professional organizations to carry out special projects to help suppliers improve their labor rights and interests, environmental protection, fire safety, and occupational health. These projects have benefited over 137 suppliers to date by helping them identify potential risks, improve internal management mechanisms, train up professional management teams, and improve their human resource, environmental protection, fire safety, and occupational health management.

We have launched a strategic supplier development project to foster sustainable development among our strategic suppliers, helping them identify development opportunities related to strategy, business, technology, quality, project management, and CSR, among others, all with the goal of improving their overall performance and competitiveness. This project also helps our suppliers identify development opportunities in well-being of employees, carbon emission reduction, waste reduction, supplier management, health and safety, etc.



Labor Rights and Interests and Human Rights at Supplier Side

Being people-oriented is the core of and the basic requirement for supply chain responsibility management.

Protecting labor rights and interests and human rights in Huawei's supply chain

Freely chosen employment

Suppliers must ensure that all employees are hired on a purely voluntary basis and are not forced to work. Suppliers must not restrict their employees' personal freedom, or withhold their identification documents. Suppliers must not use slave labor or engage in human trafficking, including transporting labor by threat, coercion, violence, abduction, or deception, and harboring, recruiting, transferring, or receiving such labor or services. Employees shall not be required to pay deposits, recruitment fees, or other fees to employers or agents.

Young workers

Suppliers shall comply with all applicable local laws and regulations regarding minimum working age and are forbidden from employing children. According to the International Labor Organization, child labor refers to people who are below the minimum employment or compulsory education age in the relevant country or region. If there is no clear definition in local law, they are defined as people who are under the age of 15. Suppliers shall also not allow legally-employed underage workers who are minors under the age of 18 to engage in work that may endanger their health or safety.

Working hours

Suppliers shall comply with all applicable laws and regulations related to working hours and rest, and ensure that overtime work is voluntary. Standard weekly working hours (excluding overtime hours) should be determined by law, but cannot exceed 48 hours, and the total working hours per week shall not exceed 60 hours. Employees should have at least one day off for every six consecutive working days.

Compensation and benefits

The remuneration paid by a supplier to its employees shall comply with all applicable wage laws, including those related to minimum wages, overtime wages, and statutory benefits. Suppliers shall pay employees directly, in full, and on time, while also providing payslips that are clear to understand.

Humane treatment

In dealing with employees, suppliers must not use violence, including but not limited to verbal insults, threats, corporal punishment, sexual harassment, physical coercion, and illegal or opposite-sex frisking, or threat to commit such acts.

Non-discrimination

Discrimination against employees is forbidden during hiring, remuneration, promotion, rewards, providing training opportunities, and dismissal, among others, on the basis of race, color, age, gender, sexual orientation, gender identity or gender performance, ethnicity, disability, pregnancy, religious belief, political affiliation, membership in social groups, protected genetic information, marital status, etc. Employees or prospective employees shall not be discriminately required to undergo medical tests or physical examinations.

Free association

In accordance with local laws, suppliers shall respect the rights of all employees to voluntarily form and join trade unions, conduct collective bargaining, and engage in peaceful assembly, as well as to refuse to participate in such activities. Suppliers shall establish an effective employee management communication mechanism to communicate with employees or employee representatives on a regular basis. Employees and/or their representatives can communicate with management personnel regarding working conditions and management practices, as well as express their views and concerns without fear of discrimination or intimidation.

Continuous advancement in responsible raw materials management

Huawei will continue to work with industrial organizations, local governments, and upstream and downstream partners and take reasonable and effective measures to improve supply chains and practice responsible supply chain management. We endeavor to build a stable, orderly, diverse, responsible, and sustainable supply chain.

Launched 3TG investigation in 2011

We started investigating the sources of 3TG (Tin, Tantalum, Tungsten, and Gold) in our products.

Improved responsible management process in 2015

To further improve the management of responsible raw material procurement, we asked third-party professional organizations to review our mineral management responsibility process and optimize the conflict mineral assessment and due diligence process in accordance with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

Announced policies in 2017

Huawei announced the responsible cobalt supply chain policy, and included the responsible cobalt management into the Huawei Supplier Social Responsibility Code of Conduct, in which suppliers are required to complete cobalt due diligence and communicate with next-tier suppliers about due diligence requirements.

Further improved the system in 2019

We enhanced our mineral management responsibility system, by focusing on conflict-affected and high-risk areas while paying more attention to human rights, environment, health, and safety risks over the entire supply chain. We insisted on extending supply chain management to the origins of minerals and discussed upstream risk solutions with local governments, representatives of related organizations, and other stakeholders.

Traced 3TG smelters in 2013

We traced the 3TG supply chain back to upstream smelters/refineries. We required suppliers to cut off raw materials supply from unqualified sources.

Started managing cobalt in 2016

We expanded the scope of responsible raw material management, started managing responsible cobalt, and joined industrial organizations to discuss the cobalt supply chain due diligence management plans with upstream and downstream partners in the industry.

Implemented a five-step method in 2018

In accordance with the Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains published by OECD and China Chamber of Commerce of Metals, Minerals & Chemicals Importers & Exporters (CCCMC), we implemented cobalt due diligence and appointed third-party organizations to audit due diligence on cobalt supply chain factories, tracing the supply chain back to cobalt smelters, and even upstream cobalt mines.

Progressed continuously in 2020

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

Environment Protection by Suppliers

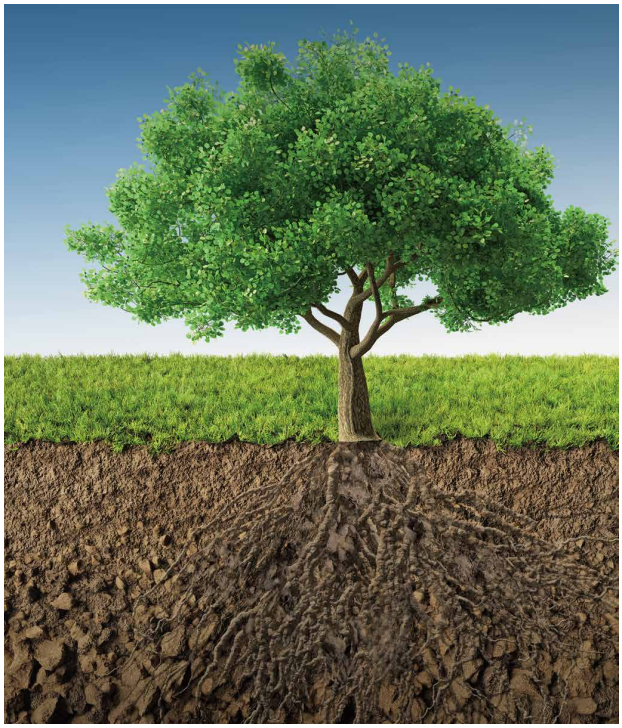
Dedicated management of volatile organic compounds (VOC) emissions

Huawei has formulated and released the Management Regulations for Volatile Organic Compounds Emissions of Suppliers requiring suppliers to reduce VOC emissions from coatings, inks, cleaning agents, and adhesives and other VOC emitting materials during the manufacturing process. We have trained our suppliers, communicated with them on site, and conducted investigations to help them identify emissions that possibly exceed the quota. We have also actively exchanged with industry experts and standardization organizations to research and boost the implementation of cost-effective, eco-friendly solutions, thereby helping suppliers meet VOC emission standards and helping people lead a green and sustainable life.

Zero landfill

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

In 2020, Huawei worked with TÜV Rheinland to help a supplier's factory establish a zero-landfill management system for solid waste. Within half a year, the supplier has reduced its landfill volume by more than 1,400 metric tons, with a landfill diversion rate as high as 98.95%, and obtained TÜV Rheinland's Two-Star Zero Waste to Landfill Management System Certification. This factory is the world's first to be certified by TÜV Rheinland's Zero Waste to Landfill Management System.



Helping suppliers manage their hazardous substances

Huawei requires its suppliers to improve their management of hazardous substances at standards higher than those of the industry and as specified in laws and regulations. In 2020, Huawei Consumer Business Group successfully pushed suppliers to completely prohibit the use of nine hazardous substances (such as benzene, toluene, xylene, and hexane) in the cleaning, degreasing, and demoulding agents during the manufacturing of mechanical mobile phone parts, and provided guidance for suppliers to cut and even stop the application of five substance types, such as hydrofluoric acid and nickel acetate.

System construction

We have applied the QC 080000 as a supplier admission and pushed suppliers to establish a thorough hazardous substance management system throughout the entire product development lifecycle, which encompasses R&D design, materials procurement, incoming materials inspection, production and manufacturing, logistics, and warehousing.

Risk management

Through our unremitting efforts, all Huawei Consumer Business suppliers have obtained the QC 080000 Certification. We have also performed all-around environmental protection risk screening on their products, entrusted a third party (SGS) to review all high-risk suppliers on site, and drive the resolution of any issues identified in a 100% manner.

Capability development

In 2020, Huawei organized several training sessions on hazardous substance management for over 250 suppliers, of which more than 880 product environmental protection management personnel attended the sessions. To address the weak links of suppliers in environmental protection management, Huawei released the Guide for Supplier Incoming Materials Spot-checking for Environmental Protection and offered guidance for suppliers to implement this guide.

How we measure suppliers' fulfillment of their responsibilities

Problems identified in audits are classified into the following three types based on risk assessment results:

Critical violations

A critical violation means extremely high risks that threaten people's life or are inhumane, such as hindering basic human rights, life-threatening risks, and environmental pollution. Typical cases, such as CSR redline issues, must be determined with SMART/5W1H-based quantitative risk analysis as evidence.

Major violations

A major violation means high risks which directly threaten one's life or the environment in the near future, or system defects that cause such threats. Typical cases include congested safety exits, unpaid overtime, and a lack of safety devices, among others. Sufficient quantitative risk analysis should be provided.

Minor violations

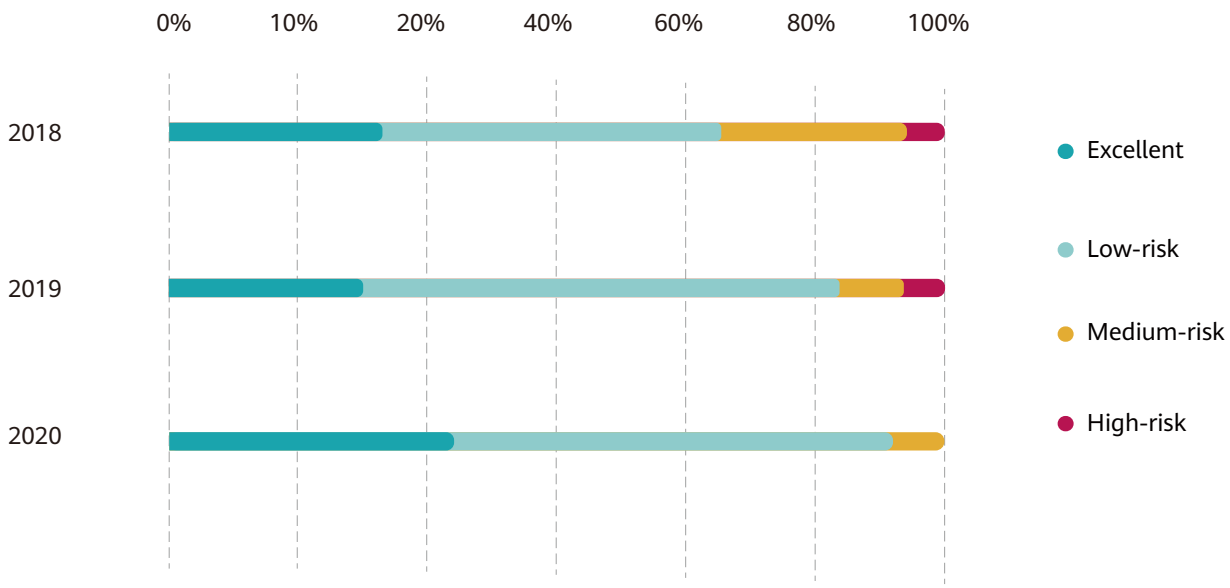
A minor violation means low-risk, long-standing, isolated, tolerable, or common deficiencies, for example, the first aid kit is locked or kitchen staff do not wear any facial masks. These are typical minor violations.

According to the weighted average score and audit result, the CSR fulfillment of suppliers can be graded in accordance with the following guidelines:

Level A	Level B	Level C	Level D
Level A indicates excellent suppliers. Their CSR fulfillment is industry-leading, with remarkable performance and management systems. An onsite review of these suppliers shall be conducted every three years. More business opportunities are awarded based on supplier performance management and portfolio management.	Level B indicates low-risk suppliers. Their CSR fulfillment is better than the industry average, and their performance and management systems are generally effective. They must close all issues found in the audit within 90 days and receive an onsite review every two years.	Level C indicates medium-risk suppliers. Their CSR fulfillment is below the average level of the industry, with barely satisfactory performance and low management system maturity, which need immediate improvement. They must close all issues found in the audit within 90 days and receive annual onsite review until they become low-risk suppliers.	Level D indicates high-risk suppliers. These suppliers must close all issues found in the audit within 90 days, among which critical violations must be rectified immediately and the effects of these violations be handled within one month, subject to subsequent onsite reviews. Annual onsite review is required for these suppliers until they become low-risk suppliers.

Continuous improvement of suppliers

From 2018 to 2020, supplier performance has improved year on year.



Community

Creating Jobs and Cultivating Talent

Huawei needs worldwide talent to fulfill our commitment of building diverse teams. We have employees from 157 countries and regions, who have helped us understand and absorb a rich mixture of global culture, broadened Huawei's vision of the globe, and promoted the local employment and economic development. Huawei is committed to treating employees equally regardless of their gender, race, ethnicity, or religious beliefs, and promises to ensure that all employees have equal opportunities for jobs, learning, and career growth.

In China, Huawei consumer business has created about 80,000 jobs, and outside of China, that number is 15,000.

Huawei has built a one-stop software, hardware, and service transaction platform that centers on the ecosystem of Huawei Consumer Business, covering HarmonyOS, application software, service market, enterprise apps, hardware market, and industry solutions, and helps partners in the ecosystem achieve full-lifecycle business success. By the end of March 2021, more than 134,000 apps worldwide have integrated HMS Core capabilities. By May 2021, 4 million developers have joined the HMS ecosystem.

Diversified and Inclusive Workforce Development

Remarkable talent underpins sustainable development, and therefore creating a diverse team is key to helping us remain competitive and build products that consumers trust and enjoy. Huawei gathers global talent and provides multiple career paths for employees to realize their potential. A potential team is a productive team, and this in turn benefits the products and services we offer to our customers.

To help employees achieve sustainable development and broaden their business prospects, in 2020 we arranged managers and business experts to share their hands-on experience, and invited industry experts to share their knowledge with our employees, to get a clearer picture of the industry's future. We also provided over 25,000 online courses and more than 1,000 systematic, in-person, and top-quality courses. The duration of these courses has exceeded 7.77 million hours, with a total of more than 200,000 individual enrollments

Under 25: **12%**
26–35: **56%**
36–45: **30%**
46 and above: **2%**

Doctor's degree: **4%**
Master's degree: **54%**
Bachelor's degree: **40%**
Other: **2%**

Care for Employees' Physical and Mental Health

We want our staff to strike a balance between work and life for efficient work and a healthy life, and create a simple, efficient, and caring work environment that promotes employee well-being.

Societies

We have 20 interest groups that employees can freely engage with their colleagues in.

Office environment

We provide employees with spacious work areas and facilities such as gyms, cafes, and nursing rooms to meet their needs.

Fitness and health groups

We have provided a variety of online and offline sports and team-building activities to encourage employees to achieve their goals and help them keep fit and stay healthy, of which more than 30,000 employees have actively engaged in.

Pandemic prevention and assurance

As a result of the widespread disruption that COVID-19 has caused in 2020, we have tried our best to ensure employees can return to and resume work in a safe and orderly manner.

Care for employees outside China

Since COVID-19 began to spread, to alleviate the anxiety of employees who have been quarantined or those who are unable to travel home due to the pandemic, we have organized lectures on mental health and general well-being as well as online team building and sympathy activities for employees and their family members during holidays.

Care for employees' physical and mental health

We have integrated internal and external health resources to give our employees all-round healthcare, which covers physical health, mental health, insurance, and daily health advice. We have also trained staff in first aid response and carry out regular training and drills.

Working with Communities

As a responsible corporation, we actively engage with local communities, carry out various activities in such communities, and work with local community organizers to protect the environment, help with disaster relief, and provide health assurance and social welfare.

Planting Euphrates Poplar Trees in Gansu

On April 8, 2021, Huawei officially launched its "Planting Euphrates Poplar Trees in Gansu" initiative. A total of 62,439 Euphrates Poplar seedlings were donated by Huawei and its consumers, and were planted in the desert of Jinta County, Gansu Province. This is the first grove of Euphrates Poplar seedlings to be planted in Jinta County in 2021. The seedlings that blow in the wind will grow to form a protective barrier in the desert.

The "Planting Euphrates Poplar Trees in Gansu" initiative was launched by Huawei and the China Green Foundation at the 2020 HUAWEI New Flagship Products Launch. Mr. Yu Chengdong, Huawei's Executive Director and CEO of the Consumer Business Group, announced at the launch event that Huawei will donate 50,000 Euphrates Poplar seedlings to Jinta County, Gansu Province. "We appreciate the splendid colors of the Euphrates Poplar trees and their tenacious spirit even more. Huawei hopes that together we can leave traces of our generation with these trees and contribute to the protection of the natural environment," he said.

Huawei has also invited people from all sectors to protect the natural ecosystem in Gansu Province. By June 30, 2021, consumers had donated over CNY1.43 million, and the number of donations reached 28,900. Real-time donations and progress of the program were publicized on the official Huawei Consumer Business website.

Each Euphrates Poplar tree can absorb 215.68 kg of carbon dioxide on average during its lifetime, and this number can grow to 54,998.4 kg for an acre of Euphrates Poplar trees (calculated based on 255 trees per acre). This year, a total of 62,439 Euphrates Poplar seedlings have been planted. It is expected that 245 acres of wind-proof and sand-proof forest will be generated to control 1,838 acres of area that is prone to sandstorms, which equal the total area of 1,042 football pitches. If a poplar absorbs an average of 215.68 kg of carbon dioxide in its lifetime, this program will be able to absorb about 13,470 metric tons of carbon dioxide, equivalent to the carbon dioxide emissions generated by about 5,000 1.6L vehicles over a year.

Euphrates Poplar trees have a long lifespan and are known as "desert heroes". They play a very important role in preventing wind and sand, blocking the movement of quicksand, and maintaining ecological balance. Moreover, they can effectively slow down the spread of desertification and improve the soil quality.

The "Planting Euphrates Poplar Trees in Gansu" initiative is only a part of Huawei's CSR strategy and its commitment on environment protection. Over the past decade, Huawei Consumer Business Group has worked with developers, supply chains, public welfare organizations, and other partners to proactively invest in sustainable development, and helped 93 of the top 100 suppliers achieve their carbon emission reduction goals.

Technology and nature must coexist in harmony, and this remains one of Huawei's long-term core beliefs. Huawei is committed to reducing the impact of its products and operations on the environment as well as its products and services during their entire lifecycle. Huawei is also well aware that every small effort has led to the growth of man-made forests. With an open mind and clear goals, we will continue to work with governments, industry associations, public welfare organizations, supply chains, and our consumers to boost sustainable development and better our social responsibilities. Meanwhile, we will continue to call on more people to get involved in the protection and restoration of the ecological environment by donating more desert Euphrates Poplar trees through Huawei's official website to protect our green environment.

Looking Forward

We have been riding through the night. Despite the challenges we face from a business perspective, we have never forgotten our original aim of bringing digital to every person, home, and organization for a fully connected, intelligent world. These challenges have been magnified by COVID-19 outbreak, which has caused adversity to all walks of life. We must clearly understand that building sustainable business models, integrating the value of society and the environment with business goals, and building sustainable leadership have become the only way for enterprises to achieve long-term high value growth.

Looking into the future, we will continue to create technological products that can be used by everyone and work with more partners to make "accessibility" an inherent mark of Huawei's products and realize the vision of "digital inclusion". We will work together with more professional institutions to develop solutions that can provide value for public education and health, so that society can also reap the benefits of science and technology.

Looking ahead to China's carbon emissions peak by 2030 and carbon neutrality by 2060, a brand-new blueprint has emerged, and an era that will trigger industrial revolution has arrived. We will continue to optimize and integrate the industry chain by building a "big cycle" of materials on the entire industry chain and a "small cycle" of products and components recycling as well as promoting energy renewability. In this way, we hope to build a circular ecosystem with our partners on the industry chain and contribute to the building of a beautiful home that is symbiotic with nature.

In the future, we will continue to realize our vision of the HUAWEI Seamless AI Life Strategy. With HarmonyOS and HMS ecosystem as the core driving force and service capabilities, we will focus on five life scenarios: smart home, smart office, easy travel, fitness & health, and entertainment, in order to provide consumers with a smart life experience that features smooth cross-device connections, capability sharing, and seamless information flow. We hope we can create solid value for consumers and the society, reduce resource demands, and reduce the burden on the environment.

No hardship will stop us from moving forward.

Appendix

About This Report

Time scope

This report covers the period from September 1, 2020 to August 31, 2021. Some events in this report may have happened before or after said period.

Concerning titles

For easier readability, "Huawei", "Huawei Consumer Business", "Consumer Business Group", or "we/our/us" in this report refers to Huawei Devices Co., Ltd., unless otherwise specified.

Scope of this report

This report was published in September 2021 in both Chinese and English as an independent enterprise sustainable development report. If you would like to view or download this report online, please visit:
https://consumer.huawei.com/en/sustainability/sustainability-report/?toCampaign

Scope of this report

The subject of this report is Huawei Device Co., Ltd., which includes all of its global branches, subsidiaries, and directly affiliated institutions.

Data sources and reliability statement

The data and cases in this report mainly come from Huawei's official documents, statistical reports, and publicly available information. Huawei promises that this report does not contain any false or misleading description and Huawei is responsible for the authenticity, accuracy, and integrity of the content thereof.

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