Huawei Investment & Holding Co., Ltd.
2024 ANNUAL REPORT

**Building a Fully Connected,
Intelligent World**

HUAWEI

Who is Huawei?

Founded in 1987, Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We have approximately 208,000 employees and we operate in over 170 countries and regions, serving more than three billion people around the world. We are committed to bringing digital to every person, home and organization for a fully connected, intelligent world.

Advance with the times and shine bright

Laying the groundwork for All Intelligence

In 2024, artificial intelligence (AI) played a critical role in advancing the Fourth Industrial Revolution. Experiencing faster, more widespread commercial use, AI is becoming a major driver of global economic growth and bringing profound changes to individuals, homes, and enterprises. Driven by AI, networks are evolving with upgrades in capacity, latency, and architecture, paving the way for all industries to enter the age of All Intelligence.

Huawei will continue to strengthen investment in technological innovation to provide our customers with high-quality products and services. As we bolster the foundations of an increasingly digital and intelligent world, we will step up efforts to set new benchmarks with "lighthouse" projects to help light the way forward for industry intelligence.

Strengthening innovation, openness, and collaboration

The age of All Intelligence will create unprecedented opportunities and challenges for innovation. Huawei believes in the power of an open approach to research and innovation, and we are working closely with industry partners and academia to advance technology and help different industries modernize. We continue to innovate based on two core drivers: science and technology, and customer needs.

For the past three years, we have invested more than 20% of our annual sales revenue back into R&D to ensure the competitiveness of our products and solutions. We dive deep into industry scenarios, guide product planning accordingly, and continue to invest heavily in R&D while strengthening strategic synergy across hardware, software, chips, devices, networks, and cloud. Through these efforts, we want to build more open and easier-to-use platforms, support a wide range of AI models and applications, and create greater value for the industry as a whole.

Succeeding through quality, prioritizing security and trustworthiness

Quality is our lifeline – and our path to success. We are committed to providing customers with high-quality products and services and ensuring that our products are maintenance-free throughout their lifecycles. We actively share our 30-plus years of quality management experience with partners as part of our broader efforts to build an end-to-end quality management system. Together, we can promote quality growth across the industry.

Cyber security and privacy protection are the cornerstones of the digital and intelligent world. Huawei provides secure and trustworthy ICT infrastructure and smart devices. We have the right capabilities, embrace open collaboration, and are a responsible participant in the digital ecosystem, prioritizing our commitment to cyber security over all commercial interests. We have continued to build up our comprehensive cyber security governance system, while embedding cyber security requirements into all aspects of our business processes. We also work closely with our partners to provide secure and trustworthy products, solutions, and services that help customers enhance their network resilience. We actively contribute to cyber security standards and work closely with all stakeholders to build a secure and trustworthy cyberspace.

Advancing ecosystem development for a more dynamic industry

Ecosystems are fertile ground for innovation and growth. Only when every stakeholder in the ecosystem grows and succeeds can we have a truly flourishing community for all. We are redoubling efforts to open up our platform capabilities to ecosystem partners in domains like HarmonyOS, Kunpeng, Ascend, and cloud computing. Together, we will continue to provide developers with easy-to-use tools and products. We are also doing our part to help cultivate outstanding professionals for the ICT industry. These efforts include providing basic digital skill training to local communities, as well as holding various competitions and innovation-oriented events.

We value openness and collaboration and work hard to help others succeed. We focus on developing core ICT technologies and enhancing our strengths in complex hardware and software platforms, and we make these capabilities openly available to partners, developers, universities, and open source communities. Our ultimate purpose is to stimulate ecosystem-based innovation and drive industry development.

Powering sustainable development with technology

We believe that digital technology is an effective tool to fight climate change, protect the environment, and enable green development. Building on innovative ICT solutions, we provide customers with leading energy-efficient and eco-friendly products and solutions. We are also working with partners up and down the value chain to further advance energy conservation and emissions reduction, promote renewable energy, and contribute to a circular economy. We are exploring every viable approach to promote sustainable development.

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Message from the Rotating Chairwoman

Our devices are now back in the fast lane, and we are making historic breakthroughs in HarmonyOS ecosystem development. We continued to optimize our business mix for cloud computing, and our digital power kept forging ahead, placing quality before all else. Our intelligent automotive solutions turned a profit in 2024 for the first time.

Every inch of progress is hard-won. I would like to thank our customers around the world for your trust, giving us the drive to keep moving forward despite all manner of difficulties. Thanks to all of our suppliers and partners, as well as all developers, for sticking by our side to drive the industry forward and build a thriving ecosystem. Thanks to all consumers for your appreciation and support – meeting your needs is our north star. Thanks also to the entire Huawei team for all of your hard work. You are dauntless and united, committed to creating value for our customers. And finally, thanks to the families and loved ones of all our employees for their quiet support. They are our rocks, our source of strength.

I. A long-term approach, advancing with the times

AI has taken the world by storm. The extent of its impact isn't just the change it has brought, but the sheer speed of change. From groundbreaking work in ChatGPT and Sora, to leading examples of AI scientists winning Nobel Prizes – and to the phenomenal rise of DeepSeek – the world is witnessing faster breakthroughs in AI technologies and applications, alongside application-driven innovation.

Over the next decade, demand for AI computing power will continue to grow, creating huge opportunities for computing systems with broader, more holistic strengths. In the meantime, the next one or two years will define the competitive landscape for AI devices. AI will be a core capability of future devices and a defining factor for user experience. As technology improves and cost drops rapidly for AI inference, the penetration of AI devices will soar within a short period of time. New AI devices, intelligent connected vehicles, and AI agents will give rise to a massive amount of new connections. They will drive demand for higher

As the spring wind comes, it sweeps the snow from mountaintops.

As it goes, it fills the world with flowers.

In 2024, the entire team at Huawei banded together to tackle a wide range of external challenges, while further improving product quality, operations quality, and operational efficiency. We rounded off 2024 with CNY862.1 billion in revenue, and our performance was in line with forecast.

In the connectivity domain, we managed to overcome cyclical downturns in industry investment, maintaining solid business results. With 10 years of preparation in the computing domain, we were able to seize new opportunities in AI and achieve substantial growth.

uplink bandwidth, lower latency, and more intuitive human-machine interaction, paving the way for an incredible range of new and exciting applications.

AI is driving a great transformation in society, bringing unprecedented, long-term opportunities. And while we embrace opportunity, we reject *opportunism*. That is, we will focus on strengthening the core competitive edge of our products and keep bringing better products and services to our customers. We're not anxious, nor at a loss. We aren't rushing recklessly ahead. And we're not driven by short-term bubbles. We keep our feet firmly on the ground, building foundational technologies and striving to do better every step of the way.

II. Maintaining strategic focus and strengthening our core competitive edge in strategic domains

There's more and more uncertainty in the world these days, but one thing is certain: We must remain strong at all times. Moving forward, we will continue to cultivate fertile ground and strengthen our core competitive edge in strategic domains.

Over the next three years, despite an economic downturn, we will increase investment in strategic depth, particularly in building foundational technologies, and seek growth opportunities through differentiation.

Through our *Tianshui*, *Dishui*, and *Pacific Ocean* plans, we're positioning ourselves to seize strategic opportunities in AI and computing. With our *Tianshui* plan, we are working with partners to increase traffic on wireless networks. With our *Dishui* plan, we are working with partners on three major sources of data traffic for fixed networks – data centers, campuses, and homes. Together, we will raise the bar for connectivity and user experience. And with our *Pacific Ocean* plan, we will help our customers succeed by providing targeted data solutions that combine computing, storage, and networks.

Devices are our vanguard products, pushing the boundaries of user experience through nonstop

innovation. Large-scale shipments of high-quality devices are driving the rapid development of the electronics industry in China.

For different businesses and industries, Huawei will take a forward-looking approach, build strategic depth, establish showcase projects to light the path forward for our customers, and transform small successes into big ones.

We will continue to leverage the strengths of our complete portfolio to meet the needs of different industries. Our technical experts and industry experts will dive deep into real-world industry scenarios, and different business domains will innovate together to solve the practical issues that customers face. This will become our primary operating model to seize new market opportunities. Through regular review and modeling of markets and projects, we will continue to improve our insight and adaptability. Over the next three years, we will continuously cultivate reserve teams, temper them in the market, and build a tide of highly capable teams to meet strategic challenges in the age of intelligence.

Action is the best vessel to cut through fog. Only with deep roots in technology can we branch out to change the future.

III. Cultivating fertile ground: Developers are the be-all and end-all of ecosystem development

A thriving ecosystem is the foundation for industry development. At Huawei, we actively promote openness, collaboration, and shared success, and continue to increase our strategic investment in ecosystem development to cultivate fertile ground. We are fully aware that developers are the be-all and end-all of ecosystem development. Whether an ecosystem is successful depends on if it's readily accessible and useful – and whether or not developers like using it. Our top goal for ecosystem development is to help developers and partners succeed, so providing them with ongoing, quality services will be the focus of our ecosystem investment in the foreseeable future.

The faintest trickle of water can grow into a river. And sparks, while small, can set the fields ablaze.

The Huawei Cloud, Kunpeng, Ascend, and HarmonyOS ecosystems are growing rapidly. By the end of 2024, the Kunpeng and Ascend ecosystems attracted 6.65 million developers and over 8,500 partners. There were more than 7.2 million HarmonyOS developers, and HarmonyOS was installed on over one billion devices. The HarmonyOS ecosystem is at a tipping point as it shifts from quantitative to qualitative change.

In 2025, we will continue to strengthen foundational ecosystems.

For HarmonyOS, we will continue to invest heavily in ecosystem development and spare no effort to support our partners. Together, we will provide consumers with better options, more possibilities, and a more inspired experience.

The computing ecosystem is another priority. With our open Ascend AI hardware and software platform, we will enable end-to-end AI innovation and support the optimal performance of more AI models and applications. For Kunpeng, we have launched end-to-end toolchains to help our partners achieve business success.

Only with fertile ground will flowers grow. Our cloud computing business will continue to cultivate fertile ground and improve application awareness for its various tech stacks and developer platform.

Massive trees grow from tiny seedlings. Every step counts.

An industry ecosystem is not just about bringing more partners on board; it's about shared, symbiotic growth. Let's work together to unveil a new vista of ecosystems where each member reinforces the next.

IV. Succeeding through quality and satisfying customers with high-quality products and services

Quality is not just a customer need. It's our responsibility. Huawei has raised quality management to a new, strategic height. We're dedicated to delivering high quality and ensuring that our products are maintenance-free throughout their lifecycles. We aim to succeed through quality. It's the foundation of our strategic depth, and we will continue to strengthen it. By continually enhancing product and service quality, we will stay on the path of high-quality development.

We believe in quality by design, and work to ensure the quality of our products and systems at the very source.

We also extend our quality management capabilities to the entire value chain. We embed quality requirements throughout the manufacturing process, and strictly control the quality of products leaving the factory floor.

Our approach is to make complex things simple and do the simple things repeatedly – and with heart.
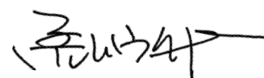
In 2025, we will continue to apply our "Succeed Through Quality" approach to all management systems and business activities. We are firmly committed to our quality goals and will keep honing quality as a competitive edge.

In torrential waters, we will hold fast to our anchors, calibrating the mast of our belief.

In the face of challenges, we have chosen the most difficult but correct path forward. We will continue to increase our investment in strategic depth, and bring better products and services to our customers around the world.

In the face of opportunities, we will advance with the times, working with our customers and partners across all industries to solve one problem after another.

Though stronger wings take time to temper, they'll bring us to the sky. Whether we face rising winds or quiet waters, we will continue moving forward. Long roads always have the best view.

Meng Wanzhou
Rotating Chairwoman

Business Highlights in 2024

☁ Driving Ubiquitous Connectivity

- We worked with carriers and partners around the world to continue driving 5G's business success. By the end of 2024, the total number of 5G users worldwide exceeded 2.1 billion. We worked with carriers to drive 5G development through business-network synergy, while engaging in continuous innovation to improve network experience and working to further unlock the value of mobile Internet. Infrastructure supported by 5G general and private networks was also used to overhaul production across more industries, improving productivity, security, and work environments.

- We worked with carriers worldwide to deploy 5.5G networks and tap into new scenarios of experience monetization such as livestreaming, gaming, subway coverage, and business travel. Together, we explored ways to create new value and ushered in the new era of 5.5G – an era where 10 gigabit interconnection is a reality. In the home broadband domain, we continued to explore and innovate, upgrading smart home services based on our 10 Gbps optical networks and restructuring bearer networks to improve user experience and unleash new business value.

- Our wireless rural network solution further simplified deployment and eliminated the need for mains power supply, base station poles, and site transmission in order to connect the unconnected. In one remote community in Brazil, for example, a network deployed with this solution brought online healthcare services and education to more than 3,000 residents, helping bridge the digital divide.

🖳 Enabling Pervasive Intelligence

- In 2024, we continued advancing our All Intelligence Strategy by pursuing a series of innovations in the AI domain. These innovations support a vast range of AI models and applications across industries and are helping accelerate intelligence to reshape and upgrade industries.

The Kunpeng and Ascend ecosystems continued to grow steadily, with more than 8,500 partners and 6.65 million developers joining them to develop over 20,000 solutions. We also released CANN 8.0, our Ascend heterogeneous compute architecture, and launched our openMind application enablement kit to accelerate innovation and create thriving ecosystems.

- We launched Pangu Models 5.0, which have been fully upgraded to deliver competitive capabilities including full coverage of specifications, multiple modalities, and powerful reasoning. Pangu Models 5.0 include different sized models that can be adapted to different business scenarios and better integrate the digital and physical worlds. This helps more customers tackle the most challenging issues they face in specific industry scenarios. Pangu Models 5.0 have been used in more than 400 scenarios in over 30 industries including steel, manufacturing, and railways, helping them go intelligent while unleashing the power of digital and empowering innovation.

- In the intelligent automotive solution domain, we launched a series of solutions centered on intelligent driving. HUAWEI ADS and HarmonySpace Cockpit continued to bring more consumers a superior driving experience, and the HUAWEI Vehicle Control, HUAWEI Automotive Optics, and HUAWEI Vehicle Cloud businesses developed rapidly. Throughout the year, we shipped more than 23 million sets of intelligent automotive components. We also continued to work with more than 600 partners along the value chain to provide car OEMs with quality intelligent automotive components that offer premium experiences.

- We continued to leverage digital and intelligent technologies to help upgrade the new energy industry. In 2024, we launched the Smart String & Grid-Forming ESS Platform, which is able to effectively integrate large amounts of renewable energy into grids to significantly improve renewable energy consumption. We also used intelligent technologies to combine power generation, grids, loads, and storage, as we worked to build green, reliable, and resilient energy systems that support intelligent and green production in industries.

✴ Delivering a Personalized Experience

- In 2024, the Consumer BG stayed consumer-centric to deliver an unparalleled intelligent experience to consumers across all scenarios, and created a high-end, fashion-forward, and technology-driven brand that appeals to consumers and has a human touch.

- We have continued innovating to deliver a compelling intelligent experience to consumers across five major scenarios: HarmonyOS Office, Fitness & Health, HarmonyOS Smart Home, HIMA-powered Smart Travel, and Entertainment.

- We officially launched HarmonyOS 5 to deliver users a high-quality experience with exquisite design, seamless interconnection, advanced intelligence, robust security, and smooth performance.

- We upgraded our HUAWEI Flagship Stores and HUAWEI Smart Life Stores around the world to provide more immersive and intelligent experiences to consumers across all scenarios. We also launched special services and organized community activities focused on accessibility to ensure everyone has equal access to technology and the digital world.

✴ Building a Digital Platform

- Huawei Cloud is focused on reshaping industries with AI and cultivating the fertile ground needed to support industries' digital and intelligent transformation. By the end of 2024, Huawei Cloud had covered 33 geographical Regions and 96 availability zones (AZs), providing quality cloud services to customers in more than 170 countries and regions.

- Global demand for highly reliable and efficient AI computing power is growing exponentially, so Huawei Cloud launched CloudMatrix, an AI-native cloud infrastructure based on an architecture featuring system-level innovation, to provide customers with stable and reliable AI computing power. In addition, we fully upgraded our DataArts data governance pipeline and our full portfolio of database products to help enterprises simplify data use and improve model training efficiency. We also released the Mainframe-to-Cloud Solution that builds a new core system on the cloud to help enterprises like banks more agilely respond to market changes and keep pace with the intelligent era.

- Huawei Cloud remains committed to building an ecosystem that is created and fostered by all to benefit everyone in it. Our cloud is an ecosystem that aggregates industry applications, as well as a platform that empowers developers and partners around the world. By the end of 2024, Huawei Cloud had attracted more than 7.8 million developers and 45,000 partners from across the globe to jointly build an open global ecosystem that thrives on shared success.

Five-Year Financial Highlights

	2024		2023	2022	2021	2020
	(USD Million)	(CNY Million)	(CNY Million)			
Revenue	**118,162**	**862,072**	704,174	642,338	636,807	891,368
Operating profit	**10,878**	**79,361**	104,401	42,216	121,412	72,501
Operating margin	**9.2%**	**9.2%**	14.8%	6.6%	19.1%	8.1%
Net profit	**8,577**	**62,574**	86,950	35,562	113,718	64,649
Cash flow from operating activities	**12,119**	**88,417**	69,807	17,797	59,670	35,218
Cash and short-term investments	**51,021**	**372,232**	475,317	373,452	416,334	357,366
Working capital	**43,749**	**319,178**	421,662	344,938	376,923	299,062
Total assets	**176,837**	**1,290,149**	1,263,597	1,063,804	982,971	876,854
Total borrowings	**36,305**	**264,871**	308,414	197,144	175,100	141,811
Equity	**74,649**	**544,619**	507,568	437,076	414,652	330,408
Liability ratio	**57.8%**	**57.8%**	59.8%	58.9%	57.8%	62.3%

Note: These financial figures are from the consolidated financial statements prepared in accordance with IFRS Accounting Standards.
    CNY amounts are converted into United States dollars ("USD") using the closing rate at the end of 2024 of USD1.00 = CNY7.2957.
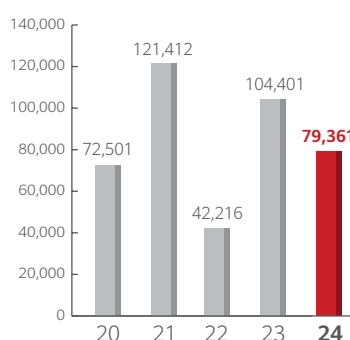
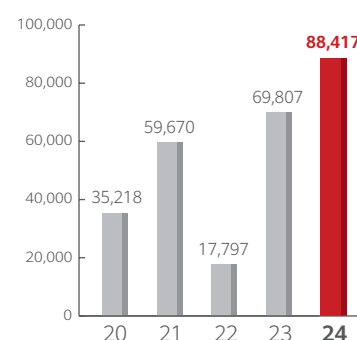## Revenue

CAGR: (1)%

CNY Million
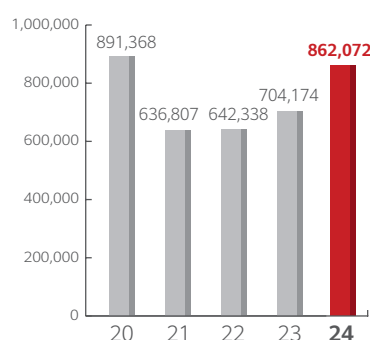
Operating profit

CAGR: 2%

CNY Million

Cash flow from operating activities

CAGR: 26%

CNY Million

Message from the Chairman

Maintaining strategic focus, innovating, and succeeding through quality

In 2024, it was all hands on deck as we rose to meet a wide range of challenges. We stayed the course and forged ahead to achieve our business goals, and our overall performance was in line with forecast. I'd like to thank our customers, partners, consumers, and friends from all over the world for your ongoing trust and support.

Over the past year, we strengthened investment in innovation and R&D. We continued to hone our overall competitive edge, while improving customer satisfaction and user experience. Our ICT infrastructure business remained solid, and our consumer business began growing again. Our intelligent automotive solution business grew rapidly. Our cloud computing business further optimized its business mix, and our digital power business focused on developing core, high-value products. All the while, we have worked hard to drive digital inclusion and promote green and sustainable development around the world.

Moving forward, we will continue to advance the development of digital and intelligent infrastructure, devices, and AI. We will maintain strategic focus and invest more in strategic depth. Through open collaboration, we will innovate nonstop to provide better products and services for our customers around the world as we work to achieve steady, long-term growth.

Quality is the cornerstone of everything we do. We are in constant pursuit of high quality, and we have built an end-to-end quality management system to keep pushing our products and services to the next level. We aim to succeed through quality, delivering high-quality products and services to keep earning customer loyalty and trust.

Building solid digital and intelligent infrastructure for better business innovation and development

5G and gigabit networks are picking up steam worldwide, and 5.5G has entered the fast lane of commercial rollout. Network infrastructure is expanding its reach, going beyond connecting people to also connecting vehicles and things. Now with enhanced connectivity and sensing capabilities, advanced networks will lay the groundwork for the widespread adoption of AI by making truly ubiquitous connectivity and data aggregation possible.

Meanwhile, industries are going digital and intelligent faster than ever. And with rapid advancements in AI, networks will see more complex service scenarios, a far more diverse range of experience requirements, and rapid traffic growth from large AI models. As this transformation unfolds, digital and intelligent infrastructure will face an unprecedented set of new demands.

At Huawei, we are leveraging our leading expertise in communications network infrastructure to build competitive network solutions that provide experience assurance for all types of intelligent connections between people, things, industries, vehicles, and homes.

In particular, we are working closely with carriers worldwide to incubate innovative services for individuals, homes, and industries. Together, we will keep opening up network capabilities, exploring experience monetization, and bringing user experience to new heights. We are also joining forces with industry partners to dive deep into industry scenarios and promote faster adoption of 5G, optical networks, and Wi-Fi 7 in the industrial Internet, allowing these technologies to move from supporting systems into core production systems.

Huawei is also forging a solid computing backbone to offer more options for the world. Building on Kunpeng and Ascend, we are making the most of synergy across multiple domains, including computing, networks, storage, and cloud, to establish unique strengths in supernodes, clusters, and other forms of massive computing power.

We are also working to cultivate foundational software ecosystems based on the openEuler operating system, the openGauss database, the CANN AI computing enablement platform, and the MindSpore AI computing framework. This is part of our broader efforts to help our partners better innovate and develop AI applications. Together, we provide a full range of products to meet the diverse AI computing needs of different industry scenarios – from data centers to edge, and from training to inference.

Huawei Cloud has upgraded its entire stack for AI to provide fertile ground for industries to go digital and intelligent. We are building up AI-native cloud infrastructure and providing secure, stable, and quality cloud services such as AI-native databases, knowledge lakes, and software development toolkits. Through these efforts, we want to help our customers with the training and application of large AI models to support intelligent transformation. To date, more than 140 global carriers, 500 global finance organizations, 90% of Chinese Internet companies, and 95% of the top 30 carmakers in China have chosen Huawei Cloud.

Advancing our AI strategy to enable faster innovation and large-scale application

In the smart device domain, we aim to provide people with a compelling intelligent experience through better products and services. We are leading innovation in intelligent mobile imagery, maximizing synergy between cloud, networks, edge, devices, and chips. Our smart devices, powered by the intelligent features of HarmonyOS, are evolving into truly smart assistants for users. And with AI-enabled dynamic noise cancellation and voice enhancement features, Huawei devices can eliminate background and environmental noise for crystal-clear calls.

As for intelligent automotive solutions, we have launched HUAWEI ADS 3.0, which enables safer driving, more efficient travel, and a more comprehensive intelligent experience. In 2024, HUAWEI ADS-powered vehicles drove over 1.4 billion kilometers with intelligent driving – 30% of their total mileage. We are committed to open collaboration, working to provide more carmakers with intelligent automotive solutions.

In our carrier business, we are working alongside carriers and partners worldwide to build AI for Networks and Networks for AI, helping carriers reshape their business, operations and maintenance (O&M), and other capabilities to capitalize on the new opportunities in the age of intelligence. More and more carriers are turning to AI agents and copilots for network O&M to augment traditional service operations centers and network operations centers. This in-depth integration of AI and networks is giving rise to many innovative applications and services. For example, Chinese carriers are providing intelligent services like real-time translation during calls and AI generated content (AIGC) for more than 24 million users.

In our enterprise business, Huawei is bringing ICT into industry scenarios, developing innovative scenario-based solutions that meet the unique needs of different industries to speed up their digital and intelligent transformation. To date, alongside our customers and partners, we have unveiled 83 global showcase projects for domains like smart cities, finance, energy, transportation, manufacturing, education, healthcare, and ISP.

Powering coordinated development: Green, low-carbon, digital, and intelligent

At Huawei, we believe that innovation plays an important role in fighting climate change, protecting the environment, and enabling green development. We are pushing the limits of technology in three key areas: advancing energy conservation and emissions reduction, promoting renewable energy, and contributing to a circular economy. In particular, we continue to improve the energy efficiency of our products and solutions, and help our customers make better use of ICT to reduce their own carbon emissions. We are driving the development of clean power and helping digitalize the energy sector in an effort to promote coordinated progress in green, low-carbon, digital, and intelligent transformation.

Right now, data centers account for more than 80% of the ICT industry's total electricity consumption. This isn't sustainable, so we are doing our part to drive change. For example, we helped one of our customers build the world's largest standalone liquid-cooled intelligent computing center. This center has a power usage effectiveness (PUE) of less than 1.15, reduces cooling costs by 20%, and saves 33.33 million kWh of electricity each year.

Using Huawei technology, an office campus in Kronenburg, Netherlands, became the first in Europe to deploy an energy project that integrates optimizers, PV inverters, energy storage systems, and chargers. This project is helping our customer get closer to achieving self-sufficiency – a key step towards making their campus net-zero carbon.

Promoting sustainable development through digital inclusion

Digital and intelligent transformation is sweeping across the globe, creating new opportunities for individuals, industries, and society in a burgeoning digital economy. Ubiquitous and inclusive connectivity is key to ensuring this digital economy develops sustainably.

At Huawei, we are using technology to help bridge the digital divide by bringing more people into the digital fold and accelerating the digital transformation of public services.

Together with carriers, we have brought connectivity to more than 120 million people in remote areas across over 80 countries and regions. By responding quickly and providing dedicated assurance services, we have supported stable communications during over 300 major events and natural disasters.

In Zambia, we worked with a carrier to build a smart village called Muchila. Thanks to rural networks and PV inverters, local residents now have access to better network connectivity, electricity, smart education, and healthcare services.

In China, we jointly released an ophthalmology model with the Zhongshan Ophthalmic Center of Sun Yat-sen University, equipping village doctors with better ophthalmic diagnosis and treatment capabilities. This allows the general public to benefit more from high-quality medical resources.

In addition to connectivity and accessibility, we are working to drive broader digital inclusion through our TECH4ALL initiative. As part of this initiative, our Skills on Wheels projects like DigiTruck provide digital skill training for people in remote communities where traditional classrooms are scarce. Five years after launch, these mobile classrooms have traveled more than 50,000 kilometers, training more than 110,000 people across 20 countries in Africa, the Middle East, Europe, Latin America, and Asia-Pacific. As for making technology itself more inclusive, we developed

the HarmonyOS 5 Celia Voice Enhancement feature to empower people with speech disorders to find their own unique voice, making it easier for them to connect and express themselves. Accessibility features like this serve nearly eight million users every month.

Growing together with partners through open innovation

We will keep delivering on customer needs while pushing the limits of science and technology. We are working closer than ever with universities, research institutes, industry organizations, and ecosystem partners around the world to identify and explore future research directions, drive technological progress, and bring research results to the marketplace.

Our Chaspark website provides online access to global academic and technical resources. This platform provides free online access to over 190 million patent records and more than 8,000 academic conferences, and has published more than 570 industry challenges, 300 contest problems, and 10 open source projects.

We believe that open collaboration leads to mutual growth. We are working with industry partners and developers to build open ecosystems in domains like HarmonyOS, openEuler, and openGauss. Together, we aim to bring together all types of expertise across the industry to unleash ecosystem-based innovation and create a better digital and intelligent future.

By the end of 2024, the ecosystems for domains like Kunpeng, Ascend, and Huawei Cloud have attracted more than 48,700 partners and developed over 41,300 innovative applications. They have also incubated 38 foundation models and over 160 high-performance operators. These achievements have helped accelerate the digital and intelligent transformation of industries. More than 20,000 HarmonyOS apps and atomic services have been released, covering 18 vertical domains and nearly all aspects of everyday life.

Enhancing corporate governance and ensuring operational compliance to better serve our customers

A robust corporate governance system is the cornerstone of sustainable development. In 2024, our governance bodies, including the Representatives' Commission and the Board of Directors, operated

in a standardized manner, effectively fulfilling their responsibility and exercising their authority.

In 2024, the Commission held three meetings where they reviewed and approved Commission election rules, further improving the company's governance system documentation. At these meetings, the Commission also approved matters such as proposals for annual profit distribution and annual capital increases, reports from the Board of Directors and the Supervisory Board, and the proposal for selling a portion of Yinwang equity interest.

In 2024, our Board of Directors held 13 meetings where they reviewed and approved matters such as the company's medium-to-long-term strategic plan, annual business plan, audit report as well as proposals for profit distribution and capital increases.

At Huawei, we are committed to globalized operations and we believe that legal compliance is a bulwark against the uncertainties of international politics. We work hard to conduct business with integrity and conform to business ethics and all applicable laws and regulations in the countries and regions where we operate. This is one of our core guiding principles. For years, we have meticulously built up a compliance management system that aligns with industry best practices and have embedded compliance management into our business activities and processes. These efforts continue to this day. We work hard to create a culture of integrity, and require all employees to comply with our *Business Conduct Guidelines* (BCGs).

The intelligent world is approaching fast, creating incredible opportunities and challenges. As always, we will maintain strategic focus and keep building up our core competitive edge. We are working hard to establish our competitive advantages in different business domains and bring digital to every person, home and organization for a fully connected, intelligent world.

Liang Hua
Chairman of the Board

Industry Trends

An Age of All Intelligence Is Fast Approaching

These days, we live in a world of growing uncertainty – a phenomenon compounded by geopolitical conflict, deglobalization, and a struggling world economy. While it remains unclear what the future has in store, one thing is certain: Everyone needs to remain strong. To that end, more and more countries and regions are taking the initiative to build up critical infrastructure. For a growing number of companies, one way to remain strong is to advance AI and speed up its adoption.

AI is set to become the most impactful technology in history. No other technology has had such a profound impact in such a short amount of time. And these days, with the rise of outstanding, open source foundation models that are cheaper to train, we are seeing a paradigm shift in AI development. What was once an AI race between closed-door labs is becoming an open game of innovation that welcomes participants from all sectors of society. These open source models have lowered the barrier to AI innovation and have caused industries around the world to see the cost of inference in a new light.

AI has major implications for every person, home, and industry. It is stimulating innovation in both businesses and business models – and unlocking opportunities for both digital and intelligent infrastructure and smart devices.

- Mobile AI applications are booming. We are seeing new forms of human-machine interaction, new ways to generate content, and broader use of embodied AI in all aspects of work and life. These trends will help fully unleash the value of ubiquitous ultra-broadband networks.

- Smart home applications are on the rise. Smart devices, smart home services, and smart assistants will prompt the rollout of all-optical connections in more and more homes.

- Industries are going digital in greater depth. Digitalization, intelligence, and decarbonization are reshaping the competitive landscape. And as industries integrate AI more deeply into their production processes, they need to be able to move data in real time and fully unleash its value. This can only be accomplished with next-generation digital and intelligent infrastructure.

Overall, ongoing advancements in AI are catalyzing more in-depth intelligent transformation across industries, paving the way for the age of All Intelligence.

Digital and Intelligent Infrastructure and Devices Are Going AI-Native Faster Than Ever

Connectivity: 5.5G is on, and networks and AI are converging rapidly

AI uptake is accelerating in the device domain, where AI devices, intelligent connected vehicles, and AI agents will give rise to massive numbers of new connections. Moving forward, a single AI data center (DC) will need to house 100,000 cards, if not more. There will be a wide range of needs for intelligent connectivity, and we will see significant changes in the traffic mix on networks. These trends will spur the development of AI-centric communications networks, but getting there will require upgrades in four areas.

- **Building 5.5G and 10 Gbps access networks to support on-demand access to AI services**

  In the AI era, individual consumers, homes, vehicles, machines, and industries will all have diverse needs for connectivity and experience. To keep up, all networks – mobile broadband networks, home networks, and enterprise campus networks – are evolving to deliver 10 Gbps access. Large-scale 5.5G deployment is already taking hold around

the world. By the end of 2024, there were more than 70 devices that support the 5G Advanced standard, and over 60 carriers and their industry partners had launched commercial 5.5G networks. At the same time, networks are evolving to run on all spectrum bands, deliver multiple capabilities, and provide ubiquitous access to communications, sensing, computing, and AI services. At present, 50G PON and Wi-Fi 7 technologies are becoming mainstream for home and enterprise networks, upping the game for user experience and laying the groundwork for intelligent connections between all things.

- **Reinventing voice and video calling to take experience to new heights**

  Thanks to AI, conventional calling is giving way to ultra-HD, interactive, and intelligent calling, which brings a truly immersive, multi-modal experience to users. AI is also reinforcing experience assurance, enabling real-time awareness of users, services, and networks, as well as intelligent orchestration of network resources. These capabilities will provide a real-time, deterministic experience for a large number of intelligent connections with disparate service level agreement (SLA) requirements.

- **Rearchitecting networks to handle DC traffic surges**

  - **DC networking:** As AI clusters continue to grow in scale, network traffic within data centers is spiking. To unlock the full potential of AI computing power, DC networks need to be built to support large AI clusters and deliver both high throughput and reliability. More synergistic innovation between computing, data storage, and networking will also be key.

  - **DC interconnect:** Given that AI DCs are shifting towards distributed deployment, 800GE will be vital for DC interconnectivity, making it possible to effectively coordinate and harness computing power across DCs.

  - **DC access:** Providing a deterministic experience for DC access across different latency circles (e.g., 1 ms for access networks, 5 ms for metropolitan area networks, and 20 ms for nationwide networks) has become a shared target across the industry.

- **Revolutionizing network O&M and reaching a higher level of network autonomy**

  Role-specific copilots and scenario-specific agents will completely redefine network O&M. Built on a Telecom Foundation Model, these copilots and agents will greatly improve user experience, support service innovation, and enhance O&M efficiency and resource utilization. TM Forum and many other global industry organizations have come to a consensus on reaching Autonomous Network Level 4 (AN L4), and many leading global carriers have already formulated their roadmaps to get there.

Computing infrastructure: Making computing power available everywhere to turbocharge intelligence across industries

AI is progressing by leaps and bounds along two paths, creating insatiable demand for more computing power. The first path is in pursuit of artificial general intelligence (AGI), fueled by efforts to augment the cognitive abilities of models with super-scale computing infrastructure. The second path aims to reduce the barriers to AI adoption and broaden its application across industries.

To address growing demand for computing power, AI computing infrastructure and ecosystems need to keep evolving in four areas.

- **Unit-node computing power:** Supernodes help break through the computing bottlenecks of individual nodes and are becoming a mainstream option for heavy computing workloads. With a peer-to-peer architecture and an innovative high-speed bus, supernodes allow hundreds or even thousands of AI chips to work together as efficiently as an individual node. This translates into huge leaps in unit-node computing power, up from single cards to the aggregated power of hundreds or even thousands of cards. Improvements in computing power density and memory capacity can slash the time needed for model training, while large-scale memory pooling and sharing can greatly boost inference performance and cut costs.

- **Ultra-large clusters:** Synergistic optimization of computing scale, computing usage effectiveness (CUE), and cluster utilization is central to new breakthroughs in ultra-large clusters. First, innovative network architecture can provide the high bandwidth and low latency required for stable and reliable data transmission, which is essential for ultra-large clusters with hundreds of thousands or even millions of cards. Second, greater synergy between computing, data storage, and networking can greatly increase cluster CUE and utilization.

This, coupled with technologies like prefill-decode (PD) disaggregation, can support more efficient responses to inference requests from a staggering number of users. Third, a well-functioning management platform is needed for the clusters' full-domain unified management, proactive fault prevention, and rapid fault location across domains.

- **Affordability of AI inference:** Efficiency, cost, and flexibility are top considerations as companies look for the right AI inference solutions. As AI inferencing expands from data centers to the edge and devices, inference hardware is also taking on more forms – going beyond clusters to servers, appliances, edge stations, boards, cards, and modules to cover all potential scenarios. As for inference software, ongoing enhancements to out-of-the-box performance and lower barriers to development are critical for broader adoption. In the case of edge and on-device inference,

synergistic optimization of hardware and software helps reduce both the latency and cost of inference, further driving down the cost of AI adoption in companies.

- **Computing ecosystem development and joint innovation:** As industries go intelligent, they need a wide array of innovative products, models, and applications. Developing these offerings requires a whole-of-ecosystem approach. Building on foundational AI software and hardware platforms, the ecosystem needs to develop specialized hardware modules as well as a rich set of toolchains, acceleration libraries, and development kits that become more performant and easier to use over time. Together, ecosystem partners and developers can help bridge the last mile of AI adoption and speed up intelligent transformation across industries.

Cloud: Upgrading a full stack of cloud services for AI

As a general-purpose technology, AI is penetrating more deeply into the fabric of all industries. AI cloud services are the optimal solution for many companies that are looking to incorporate AI into their business. Cloud platforms can provide on-demand access to massive computing power, out-of-the-box access to mainstream foundation models, multi-modal data governance, and comprehensive security assurance. These cloud capabilities go a long way towards reducing the barriers to AI application in companies.

With **on-demand access to massive computing power on cloud**, companies can experiment inexpensively and verify rapidly. For most companies, building their own AI DCs can be burdensome and costly. AI technology is evolving rapidly, so it's challenging to manage and coordinate multiple generations of AI hardware and software products that co-exist in a single DC. When combined with extremely high environmental requirements for DC equipment rooms, building in-house AI DCs is far less flexible than using cloud services. Cloud platforms provide companies with real-time, on-demand access to massive AI computing power with unmatched flexibility, efficiency, stability, and price performance. All told, cloud platforms are a springboard for faster AI innovation.

Cloud platforms also offer **out-of-the-box access to mainstream foundation models**, making AI application even easier for companies. On cloud platforms, companies can find a full range of

mainstream foundation models that are affordable and designed to address the specific needs of different industries. Cloud platforms also provide complete toolchains for model tuning, deployment, and testing, which help lower the technical barriers to fine-tuning and incremental training. This allows companies to focus on their own business innovation and value creation.

Cloud platforms can also provide a **multi-modal data governance pipeline** to help companies create data management solutions for AI implementation. Most companies have plenty of documents and data at their disposal, but these are not always organized in a way that's conducive for AI systems to recognize and discern patterns. That's where a data governance pipeline can help: It closely integrates AI models and data toolchains, helping companies rapidly upgrade their AI data governance systems and refine data quality to fully unlock the value of their data assets.

Comprehensive security assurance services on cloud platforms can help keep AI applications secure. Designed to defend against even the most severe attacks, cloud-based security assurance services support physical and logical isolation, and ensure that all platform operations are both transparent and auditable. They provide security guarantees at the hardware, software, and application layers to ensure zero service interruption, zero data loss, and regulatory compliance.

Smart devices: AI-native devices for an intelligent experience across all scenarios

Device-wise, AI adoption continues to accelerate. The industry has quickly evolved from app-based AI, to integrating AI into device functionality, and now to making devices *innately intelligent* – or AI-native. An AI-native device has two distinct characteristics:

- **AI-centric technology stacks:** With an architecture that maximizes synergy between a device, its chips, and cloud, the device has AI technology deeply embedded into its operating system, so it's powered by intelligence at all layers, from the kernel to system apps.

- **System-level AI agents:** AI agents serve as an interaction hub that can accurately understand user intent, define a task, break it into steps, and execute to provide the user with exactly what they need. With an AI agent, users can accomplish what they want faster and do whatever their creativity inspires.

AI has become a key differentiator for devices in terms of user experience, and AI-native devices will grow rapidly in both quantity and adoption. In the next two years, the penetration rates of both AI phones and AI personal computers (PCs) will exceed 50%, according to forecasts of multiple research institutes.

AI-native devices will bring a more intelligent experience to all possible scenarios, whether users are working out, having fun, in the office, on the go, or at home. Formerly disparate device ecosystems (such as mobile device, office device, and IoT device

ecosystems) will also converge at a growing rate. Together, they will form unified, open ecosystems. Intelligent connectivity between different devices (e.g., smartphones, PCs, tablets, watches, bands, earphones, smart screens, and other devices with new form factors) will lead to an intuitive, consistent, and intelligent experience across these devices as they work seamlessly together.

These trends promise huge benefits across the board. Consumers will have a better experience than ever, with more services, greater convenience, and better security. At the same time, developers will see a boost in productivity and returns.

Smart devices with new form factors will continue to emerge, including new foldable phones, augmented reality (AR) glasses, and embodied AI devices. These devices will make the most of AI, spatial computing, multi-modal interaction, converged sensing, and other cutting-edge technologies to provide users with an even greater range of new experiences than was previously possible.

Moving forward, the AI-native device industry will thrive if all players put user experience front and center, work together to define the intelligence levels of AI devices (from L1 to L5), and refine the standards for quantifying intelligent user experience.

Intelligent vehicles: Heralding the age of smart mobility

Intelligent driving technology is redefining mobility, making driving safer and providing a wider array of on-board smart services. Nonstop innovation in intelligent driving solutions is moving the automotive industry towards more advanced levels of autonomous driving. Different combinations of sensors allow vehicles to model their environment with precision. Automotive-grade computing platforms are more powerful than ever, delivering the massive computing power needed for advanced intelligence. Algorithm architectures are evolving from segmented modeling to full-domain and end-to-end modeling. Once piecemeal approaches to algorithm development are now data-driven and iterative. As a result, vehicles can operate with greater intelligence and autonomy by learning the mappings required for safe driving directly from sensor data.

Advancements in intelligent driving technology are contributing to the convergence of once disparate functionality, such as navigation pilots on both highways and urban roads, as well as valet parking. This has given rise to a seamless experience across all mobility scenarios, from parking space to parking space. Autonomous vehicles will be able to drive on any type of road and learn to drive even better over time.

Advanced driving systems are gaining momentum, turning vehicles into mobile terminals that generate much-needed data for the digital world. AI models – whether on-board or on cloud – need to be trained with high-quality data, helping make vehicles even smarter, increasing transportation efficiency, preventing accidents, and ultimately providing consumers with better, safer mobility experience.

The intelligent world will rely on new energy infrastructure for power systems, electric vehicles (EVs), and the digital industry. These three types of new energy infrastructure stand out for their remarkable quality, safety, and reliability – features that will be crucial for a greener, smarter, and safer future.

New energy infrastructure for power systems: Grid forming technology is shifting power systems away from fossil fuels towards new energy sources – particularly solar and wind power. Grid forming can effectively address the balance and safety challenges caused by new energy sources due to their intermittency, randomness, and fluctuation, providing support for any fluctuations in frequency and voltage. Grid forming contributes significantly to the safe and stable operation of power grids, and it's speeding up the transition towards solar and wind power as primary sources of energy.

New energy infrastructure for EVs: The widespread adoption of new energy infrastructure is fueling transformation in both mobility and energy spaces, and it's paving the way for the robust development of the EV industry.

Broader availability of charging infrastructure (particularly fast and ultra-fast charging infrastructure) and higher uptake of on-board ultra-fast charging technology will make charging both a fast and painless experience, and dispel any charging anxiety among potential EV buyers.

At the same time, well-coordinated development of EVs, charging piles, and charging networks is vital to addressing concerns over the growing share of electricity demand from EVs. This type of coordination depends on building a robust ecosystem that benefits all participants, including investors, builders, operators, and users.

New energy infrastructure for the digital industry: This type of energy infrastructure is gaining traction and is designed to accommodate different industries' growing demand for green electricity. As industries continue to apply AI on a wider scale, they inevitably need more computing power. And with more computing power comes more energy consumption. So moving forward, an abundance of electricity – especially green electricity – is necessary to ensure ample and sustainable computing power. Many countries around the world have announced policies or plans for coordinated development of computing power and electricity. New power supply systems that are predominantly comprised of solar, wind, and hydrogen power will be widely used in large low-carbon DCs as well as low-carbon telecom sites, providing green electricity to power the intelligent world.

Open Collaboration and Joint Innovation for a Better Intelligent World

Progress comes from every single step we take, and transformation happens when we go all in. Innovation gives industries the tools they need to navigate their way forward, and it opens the door to an intelligent future – a world where all forms of intelligence will interconnect and co-exist in symbiosis. Building this world requires joint effort from all players: developers who write code for production line machines, customers whose unique needs cause technology to evolve, partners who package industry know-how into applications, and the list goes on. Through open collaboration, let's get this boat moving and sail towards a better intelligent future together.

Management Discussion and Analysis

Our Vision, Mission, and Strategy

Huawei's mission is to bring digital to every person, home and organization for a fully connected, intelligent world. To this end, we will:

- Drive ubiquitous connectivity and promote equal access to networks to lay the foundation for the intelligent world

- Provide diversified computing power to deliver ubiquitous cloud and intelligence

- Redefine user experience with AI, offering consumers a more personalized and intelligent experience across all scenarios, including home, travel, office, entertainment, and fitness & health

- Build powerful digital platforms to help all industries and organizations become more agile, efficient, and dynamic

Ubiquitous Connectivity

Every person has the right to be connected. Connectivity is the foundation for social progress and economic growth. Connections will soon become a natural and ubiquitous resource, provided by networks that proactively sense changes and user needs. These networks will offer intelligent, seamless, and secure connections to people and things whenever and wherever they want. With the advent of 5.5G, we begin a new chapter in this story.

Pervasive Intelligence

In the digital economy, computing power is a new driver of productivity. Data itself is a core asset, and cloud and AI are the new tools of productivity. Moving forward, AI computing will account for more than 80% of a computing center's capacity, providing the muscle for practical AI applications in all areas of life. To deliver ubiquitous cloud and intelligence, we will need to provide diversified computing power.

Building a Fully Connected, Intelligent World

Personalized Experience

Using AI, cloud, and big data technologies, enterprises can better understand their customers' needs and innovate with greater agility to craft a more personalized experience. Coordination and collaboration across industries will drive innovation at scale. With the continuous evolution of smart devices, a seamless experience across all scenarios will become the foundation of an intelligent life.

Digital Platform

A new digital wave is sweeping the globe. Digital and AI technologies are helping all governments and enterprises become more agile, efficient, and dynamic. Open, secure, flexible, and easy-to-use digital platforms are facilitating innovation and transformation in all industries. These digital platforms will be the bedrock and the fertile ground for our digital society to flourish.

Ubiquitous Connectivity

Connectivity has extended from people to things and from our homes to the factory floor. Now it's the foundation of everything in an increasingly intelligent world. Huawei is doing what it can to help our customers get ready for the future.

For mobile and home users, Huawei teams up with carriers to provide an ultra-broadband experience across all aspects of everyday life.

For governments and enterprises, Huawei works with our partners to enable digital and intelligent transformation in different industries. We provide intelligent connectivity solutions for different industrial scenarios, including ubiquitous ultra-broadband, deterministic experience, and hyper-automation, to support the diverse needs of all customers.

We are working to push connectivity to its limits with leading products and solutions, including our all-new 5G-A[A] solutions, intelligent core networks, Xinghe Intelligent Network, and F5.5G all-optical networks. We are also actively collaborating with the industry to define its next steps and drive the advancement of connectivity. To better meet connectivity requirements in industrial scenarios, we are using AI to enable hyper-automation of network O&M and developing new algorithms to pave the way for truly deterministic IP networks.

As green development becomes the clear path forward for all industries, the compounding forces of digitalization and decarbonization will drive us ever closer to a sustainable future. Huawei works closely with customers and partners on nonstop innovation for new digital and energy infrastructure. We aim to provide green ICT that will enable green development and bring greener connections to all parts of the world.

Pervasive Intelligence

Data has become a valuable raw material, and computing power has become the new driver of productivity. The amount of data we produce will explode as more and more of the devices around us become smart, and more industries will need massive, intelligent storage capabilities to handle these new resources. Abundant and affordable computing power will determine the future of the digital economy.

Through nonstop innovation in data storage, diversified computing, and cloud services, Huawei is helping industries go digital and intelligent by making pervasive intelligence possible. Together we will build a fully intelligent world.

Huawei provides a comprehensive portfolio of AI-ready data storage products and solutions that help customers build future-proof data storage power, continuously boost data processing efficiency and utilization throughout their business processes, and keep their data secure.

Huawei works tirelessly to build an open computing ecosystem. We keep pushing the limits of foundational software and hardware for Kunpeng and Ascend, and collaborate with industry partners to build a solid computing backbone as a viable alternative for the world.

In cloud computing, Huawei Cloud focuses on "AI for Industries", aiming to help different industries tackle their most challenging issues. We achieve this by cultivating fertile ground for industries' digital and intelligent transformation and reshaping industries with AI.

In terms of intelligent automotive solutions, Huawei remains committed to our strategic position as a provider of new components for vehicles. We provide superior driving and charging experiences by continually iterating our solutions, including HUAWEI ADS, HarmonySpace Cockpit, HUAWEI Vehicle Control, DriveONE, and liquid-cooled ultra-fast charging. We work with partners along the value chain to provide car OEMs with quality intelligent automotive components that offer premium experiences. Our goal is to bring intelligence to every vehicle.

AI and digital technologies are making power systems more intelligent. This is making new energy more secure, stable, intelligent, and efficient than ever. Through nonstop innovation, Huawei continues to build new energy infrastructure for power systems, new energy infrastructure for electric vehicles, and new energy infrastructure for the digital industry. We aim to contribute to a greener, better future by powering the shift towards decarbonization, electrification, digitalization, and intelligence in the energy sector.

Personalized Experience

The physical and digital worlds are converging, and the process is speeding up. Mass production is giving way to mass customization, leading to greater business innovation, closer collaboration across ecosystems, and a richer user experience.

Using new technologies like AI and cloud, enterprises can better understand their customers' needs and innovate with greater agility to craft a more personalized experience. Coordination and collaboration across industries will drive innovation at scale.

In our user-centric intelligent world, usage scenarios and experiences are evolving. The boundaries between products and services continue to break down, with many converging scenarios, including home, travel, office, entertainment, and fitness & health. Soon all content and services will travel with users for a completely seamless, holistic experience. Smart collaboration between software and devices will give users an intelligent experience across all scenarios.

We will continue working closely with partners across our software, service, and hardware ecosystems to both integrate existing technology and drive innovation to better serve consumers. Our "1 + 8 + N" Seamless AI Life strategy is centered on smartphones and touches on five major scenarios: HarmonyOS Office, Fitness & Health, HarmonyOS Smart Home, HIMA-powered Smart Travel, and Entertainment. Through HarmonyOS, we empower our ecosystem partners to provide consumers with an unparalleled intelligent experience across all scenarios.

Digital Platform

Data volumes are growing exponentially as more and more industries embrace intelligence. Enterprises are applying digital and intelligence to a growing array of scenarios as cutting-edge technologies, innovative models, and intelligent algorithms continue to emerge. All of this is creating a multiplying effect of accelerated innovation.

From video data and industrial data to personal data and consumption data, all data is coming from more sources and in more forms and is becoming more fragmented. Powerful digital platforms are needed to integrate this data.

New technologies in connectivity, cloud, AI, computing, and industry applications are converging to support comprehensive intelligent connections between people, things, and information at multiple levels. These technologies will help industries expand their traditional boundaries, and enable enterprises to expedite intelligent upgrade. Enterprises will have to adapt their strategies, organization, processes, marketing, services, manufacturing, and R&D to cope with changes. To do so, enterprises need to synergize the cloud, networks, edge, and devices to build an open, powerful digital platform with multidimensional perception, all-domain collaboration, accurate judgment, and continuous evolution. With cloud as the foundation and AI at its core, this digital platform helps users accumulate industry know-how, rapidly innovate their core business processes, and quickly iterate to respond to changes in their business environments.

A digital platform is one of the core engines that drives success in digital and intelligent transformation. New information technologies can make organizations more efficient through intelligent management of their physical assets like buildings, factories, production lines, and utilities. At the same time, advanced digital technologies in connectivity, cloud, AI, and computing can change the way organizations operate and create new business models. This is the process of digital and intelligent transformation. An organization's IT systems and the corresponding operational methods combine to form a digital platform.

Together with its ecosystem partners, Huawei provides innovative technologies, products, and solutions that help its customers build open, secure, flexible, and easy-to-use digital platforms. With its digital platform, Huawei assists customers in crafting their own intelligent solutions, and enables industries to navigate digital transformation and intelligent upgrade. Huawei's digital platform is injecting new momentum into the digital economy.

2024 Business Review

In 2024, Huawei remained strategically focused, continued driving high quality across all business processes, optimized its portfolio to enhance business resilience, and worked to build thriving ecosystems and provide customers with increasingly competitive products and solutions. In 2024, Huawei's annual sales revenue was CNY862,072 million, an increase of 22.4% year-over-year. Our overall performance was in line with forecast.

By business segment

(CNY Million)	2024	2023	YoY
ICT Infrastructure	369,903	352,756	4.9%
Consumer	339,006	245,134	38.3%
Cloud Computing	38,523	35,514	8.5%
Digital Power	68,678	55,229	24.4%
Intelligent Automotive Solution	26,353	4,588	474.4%
Other	19,609	10,953	79.0%
Total	862,072	704,174	22.4%

Note: During 2024, our revenue derived from the cloud computing business, including revenue from other Huawei segments, amounted to CNY68,801 million.

By region

(CNY Million)	2024	2023	YoY
China	615,264	471,303	30.5%
EMEA	148,355	145,343	2.1%
Asia Pacific	43,306	41,041	5.5%
Americas	36,301	35,362	2.7%
Other	18,846	11,125	69.4%
Total	862,072	704,174	22.4%
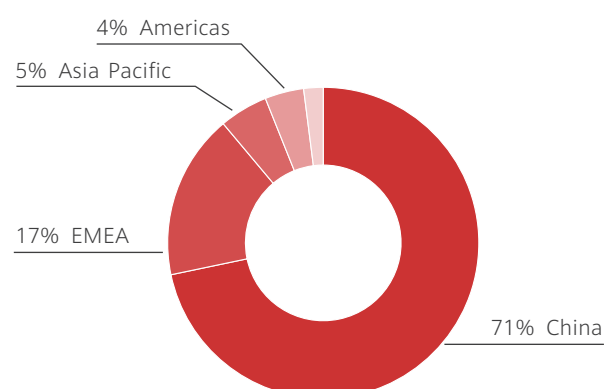
- In the Chinese market, as industries accelerated the rate at which they went digital, intelligent, and low-carbon, we fully leveraged our strengths in computing, storage, networks, digital power, devices, and intelligent automotive solutions. As a result, Huawei saw growth across all its business segments in China. In 2024, our revenue from the Chinese market was CNY615,264 million.

- In Europe, the Middle East, and Africa (EMEA), ICT infrastructure was rapidly constructed and industries sped up their digital, intelligent, and low-carbon transformation. As a result, our ICT infrastructure business remained steady, our cloud computing business grew rapidly, and the performance of our digital power business was in line with forecast. Furthermore, our consumer business remained focused on building out the HarmonyOS ecosystem and developing converged products. Huawei's revenue from this region was CNY148,355 million in 2024.

- In the Asia-Pacific Region, as 5G deployment accelerated and industries stepped up efforts to go digital, intelligent, and low-carbon, our ICT infrastructure business remained steady, our cloud computing business grew rapidly, and our digital power business also grew. In addition, our consumer business ramped up innovation and saw a rapidly growing ecosystem. Huawei's revenue from this region was CNY43,306 million in 2024.

- In the Americas, network traffic grew, 5G and data communication network construction picked up speed, and industries increased the pace of digital, intelligent, and low-carbon transformation. As a result, our ICT infrastructure business remained steady, our cloud computing business grew rapidly, and our digital power business also grew. Meanwhile, our consumer business remained focused on developing converged products. In 2024, our revenue from this region was CNY36,301 million.

ICT Infrastructure Business

The digital and intelligent transformation – recognized as the Fourth Industrial Revolution – is currently reshaping the world around us, just as mechanization, electrification, and informatization have done in the past. ICT technologies like AI and 5.5G are driving production to advance from simple automation to intelligent operations and fueling the convergence of the digital and physical worlds. Such technologies have become key to the development of the digital and intelligent economy, and are playing a major role in powering global economic growth.

Over the past 30-plus years, Huawei has worked hard to contribute to the development of global ICT infrastructure. First, we sought to increase connectivity through our All IP Strategy, after which we expedited digitalization for all with our All Cloud Strategy. We also released our All Intelligence Strategy in 2023 in an effort to accelerate intelligence. In 2024, we continued advancing this All Intelligence Strategy by fostering innovation across all aspects of our business, from new theories, architectures, and engineering to new products, portfolios, and business models. In doing so, we support a vast range of AI models and applications across industries, and accelerate intelligent transformation across all industries.

In 2024, Huawei released a set of reports on exploring the intelligent world, including:

- The *Intelligent World 2030 (Version 2024)*, which describes Huawei's outlooks for the future of the ICT industry, including future scenarios, industry spaces, and technological characteristics;

- The *Striding Towards the Intelligent World (Version 2024)*, which navigates innovation paths for ICT industry development; and

- The *Global Digitalization Index (GDI) 2024*, which measures the impact of ICT industry maturity on the economy.

These reports aim to drive a consensus across the ICT industry, provide quantitative data to inform decision making, and contribute to a more prosperous digital economy.

Carrier Market

2024 marked the first year of 5.5G commercial use. Huawei works with carriers around the world to build networks that feature ubiquitous 10 gigabit access and offer a premium experience. These green, low-carbon networks carry multiple services over fully-converged connections and support agile and autonomous operations and maintenance (O&M). Huawei works alongside carriers to explore experience monetization and successfully navigate the paths to "Networks for AI" and "AI for Networks", which are helping carriers achieve new revenue growth.

In 2024, Huawei worked with carriers to deploy 5.5G networks and tap into new scenarios of experience monetization such as livestreaming, gaming, subway coverage, and business travel. Together, we explored ways to create new value and ushered in the era of 5.5G – an era where 10 gigabit interconnection is a reality. We also worked side by side to drive 5G development through business-network synergy, engaged in continuous innovation to improve network experience, and further unlocked the value of mobile Internet. Furthermore, we worked to build new connections so that more people can benefit from a digital world in which inclusive development is promoted for all.

We explored new opportunities in the home broadband market by providing 10 gigabit home broadband access, incubating new digital and intelligent services, and delivering quality experience. Working towards the goal of experience differentiation and assurance, we supported carriers in building highly reliable, quality AI-centric networks.

As intelligent transformation and green transition have become the dominant trends of communications networks, Huawei and carriers are working together to establish new intelligent O&M practices around the world. Huawei explores and provides innovative digital and intelligent services that combine with each carrier's unique advantages to enrich their offerings to end users.

In 2025, Huawei will remain customer-centric and work with carriers around the world to keep innovating and exploring new services, so as to provide more diversified, intelligent, and personalized network experience. We will help carriers reshape business, O&M, and digital infrastructure as they transform from providers of traditional connectivity services to providers of digital services, and help them stay competitive as they tap into a new business space and achieve sustainable development.

Building Intelligent Connectivity to Drive Business Success

2024 saw the rapid iteration and evolution of AI, and the beginning of a new era marked by the mutually reinforcing growth of connectivity and AI. This places new requirements on communications networks, which serve as the foundation of the information society, and creates new opportunities for development. Huawei has worked with carriers worldwide to incubate innovative services for individuals, homes, and industries, explore new models of experience monetization, and provide users with better network services.

Integrated business innovation: Creating a new paradigm for mobile broadband business together

- Chasing the age of mobile AI with commercial 5.5G and new experience monetization models

  Huawei innovates alongside the world's leading carriers to verify 5.5G technology, deploy 5.5G commercial networks, and explore innovative application scenarios.

  - Recognizing the advent of the age of mobile AI, Huawei and world-leading carriers took early actions to explore the intelligent applications and service capabilities supported by 5.5G networks. Huawei helps carriers launch the intelligent New Calling service, which supports intelligent applications such as AI shorthand, real-time translation, and digital avatar generation. Huawei also helps carriers deploy smart parking solutions, which transmit images to the cloud in real time, allowing license plates to be automatically identified and parking fees to be automatically charged. This overcomes numerous difficulties previously encountered during the management of roadside parking. Huawei also worked with a carrier to build a 5.5G Internet of Vehicles (IoV) showcase project for cities piloting vehicle-road-cloud synergy. In collaboration with a carmaker, we incubated the intelligent vehicle-cloud solution, which takes advantage of three innovations: device-network synergy, network-edge convergence, and radar-video convergence. This solution has helped build an intelligent IoV network that offers high speeds and low latency, and is capable of detecting all elements in all weathers.

  - Huawei works with carriers in China, Europe, the Middle East, and Asia Pacific to explore experience monetization, define application scenarios, design products and offerings, and develop user bases. The carriers' business models have transformed from being connectivity-centric to experience-centric, helping them improve user experience and increase revenue. By the end of 2024, Huawei had helped carriers release experience monetization packages in more than 20 provinces and cities in China. In the Middle East, Huawei worked with one carrier to launch the world's first 5.5G Innovation Center. This center serves as a launchpad to explore new scenarios for differentiated experience monetization, such as rate assurance for fixed wireless access (FWA) services, low latency for gaming, and prioritized experience assurance for VIP users. The carrier has since benefited greatly from unleashing the deeper value of its 5.5G network.

- Accelerating large-scale 5G development and inspiring monetization from multiple dimensions

  5G network and user numbers have increased rapidly, and by the end of 2024, the total number of 5G users worldwide exceeded 2.1 billion. Huawei works with carriers to promote 5G development through business-network synergy and unleash the benefits of the mobile Internet.

  - In Europe, Huawei works side by side with carriers to unleash the full potential of 5G by continuously optimizing 5G networks. For a carrier in the region, we helped improve their edge user experience by about 40%, and dataflow of usage (DOU) by around 10%. The carrier also worked with Huawei to update its brand by offering differentiated 5G connectivity services. This carrier now provides game acceleration services and livestreaming media services to deliver users a more reliable experience. These offerings have led to an about 10% increase in high-end users and driven continuous revenue growth for the carrier.

- In Asia Pacific, Huawei works closely with carriers based on precise user segmentation to identify new high-value user groups such as office workers, students, online order couriers, and tourists. One of the carriers customized differentiated 5G packages for these user groups in order to boost traffic consumption, which increased ARPU by 10% to 15%. In collaboration with Huawei, another carrier in this region launched the world's first lightweight FWA solution and put it into large-scale commercial use. The carrier now offers more affordable devices as well as prepaid packages, which has improved the penetration of 5G home broadband services.

- In Latin America, Huawei leveraged business-network synergy to help a carrier build a benchmark 5G-powered city. The carrier successfully addressed a number of user development challenges through this project and increased 5G user penetration from 8% to 21%, while promoting 5G development to meet local requirements.

■ Accelerating digital connectivity development and boosting traffic growth

Emerging markets are rapidly moving towards digitalization, meaning that there is huge space to explore in the demography, traffic consumption, and digital application in these markets. Huawei fosters synergy between devices, businesses, and networks to help carriers accelerate the development of connectivity, promote 4G user upgrade, and monetize traffic.

- The Mobile Money service has become a new entry point for users to access digital lifestyles, resulting in more mobile broadband connections. In Africa, Huawei helped a carrier realize around 4% growth in mobile payment users and about 13% in ARPU through joint innovation of digital financial services. The carrier saw higher penetration in both mobile broadband and digital payment services, and helped drive the rapid development of inclusive finance.

- Video services have also rapidly developed and become a major source of revenue for carriers. Huawei helps carriers address the network congestion caused by rapid traffic growth and deliver a smoother high-definition (HD) video experience to users. One carrier in Asia Pacific used our services to free up 19% suppressed traffic and achieve return on investment (ROI) about 20% faster.

- One-stop rural network services are instrumental in improving ROI regarding rural network coverage. In Africa, Huawei helped a carrier create a new ecosystem for rural networks. The solution fully utilizes the excess power produced by local solar panels to charge phones. This helps address the lack of mobile phone charging facilities in rural areas. Furthermore, the carrier uses the phone charging services as a springboard for one-stop offerings, including mobile payment, SIM card sales, and entry-level phone purchases. These services have been particularly effective at addressing the lack of sales agents and high device prices. Ultimately, the solution has helped drive a significant increase in the number of rural users and the revenue of sales agents.

Integrated technology innovation: Building target networks for the age of mobile AI

Huawei builds solutions that feature cross-domain, scenario-specific, and system-level innovations. Such solutions help carriers guarantee deterministic and consistent experience for their users, while also improving network experience and energy efficiency.

■ New deterministic experience with 5.5G: In China, Huawei has used our intelligent multi-band multi-antenna solution and Intelligent Personalized Experience (IPE) solution to overcome the technical gaps that had previously prevented carriers from providing end-to-end deterministic network experience. These solutions ensure users can enjoy a premium experience with new services, while helping carriers reimagine their traffic-based monetization models to achieve experience-based monetization.

■ Gigabit experience with scenario-based network rollout: In Asia Pacific, a carrier deployed Huawei's indoor digital solution in stadiums. The solution has allowed them to provide a user downlink rate of over 100 Mbit/s during major events, and increased traffic volume by a factor of 2.6.

■ Better user experience with simplified green mobile broadband: In Europe, a carrier used Huawei's GigaGreen solution to improve their network investment efficiency, enhance user experience by about 30%, and reduce energy consumption by around 30%.

Upgraded smart home services: Opening up new space for the home broadband business

According to a third-party report, the world had over 1.46 billion fixed broadband connections in 2024. Huawei provides the F5.5G 10Gbps All-Optical Broadband solution to help carriers develop digital and intelligent home broadband services and realize new business growth.

- A new engine for 10 gigabit home broadband access: In China, Huawei's 50G PON end-to-end fiber to the home (FTTH) solution helped carriers upgrade their broadband bandwidth to 10 Gbit/s, drastically improving home broadband service experience by delivering nearly 10-fold higher bandwidth and ultra-low latency.

- Quality experience with fiber to the room (FTTR): In Europe, Huawei's FTTR all-optical home solution helped one carrier meet home users' requirements for over 1 gigabit Wi-Fi coverage, with all blind spots eliminated. Furthermore, through technology innovation that reimagined user experience, the carrier greatly improved user satisfaction, and increased revenue by about 10%.

- New home broadband opportunities with new digital and intelligent services: In China, Huawei works with partners to help carriers develop new brands for digital and intelligent home services. We help carriers build a new entry point for home AI applications and create a new ecosystem for home services. These offerings meet users' personalized service requirements, while incubating services such as cloud gaming and smart healthcare that significantly boost user activity and ARPU.

Bearer network restructuring: Unleashing new value in ultra-broadband networks

In 2024, Huawei worked with carriers across the globe to build bearer networks that center on AI and data-center applications and are capable of delivering premium experience, high reliability, and strong security, thus unleashing the true value of ultra-broadband networks.

- Data-center-focused network evolution to meet AI service requirements: In China, data centers are increasingly deployed in a distributed manner. Data center operators expect networks to provide large capacity, low latency, and high reliability, especially in scenarios such as remote training and decoupled storage-compute. Huawei's lossless wide area network (WAN) and ultra-broadband network solution helps carriers meet these requirements. With our solution, distributed training performance reaches over 95% of that achieved in centralized training. This has helped enterprises improve the efficiency of foundation model training and inference.

- High network reliability and security to realize stable carrier operations: In Europe, Huawei's All-Optical Premium Transmission solution helped one carrier complete service protection switchover within 50 ms, ensuring high network reliability. In Africa, Huawei's Unified Secure Access Service Edge (SASE) solution helped another carrier detect around 90% of unknown threats, providing excellent network security capabilities for enterprises and meeting their requirements for intelligent transformation.

- Differentiated all-scenario experience assurance to improve user satisfaction: In China, Huawei's Super-Connectivity Converged IP Network solution helped a carrier better identify network congestion, optimize network traffic, guarantee service experience, and improve user retention. With this solution, the carrier is able to provide 10 gigabit on both mobile and fixed networks.

Helping Carriers Stride to Techcos to Seize Opportunities amid Transformation

A plethora of new intelligent technologies are creating new opportunities for carriers, who now more than ever need to transform by embracing new technologies and business models. Huawei works closely with carriers to help them transform from telecom companies (telcos) to technology-focused companies (techcos). This transformation of business, O&M, and digital infrastructure helps carriers develop unique competitive advantages.

Exploring opportunities for growth through business innovation

Huawei works with carriers to develop a wider range of specialized products for SMEs. We provide integrated portfolio solutions, digital operation platforms, and a diverse array of cloud applications for different industries, and help industry ecosystems grow. In addition to providing connectivity, we help carriers provide digital services to create more space for development.

- SME domain: Huawei provides an XtoB enterprise business solution and business model consulting services that give full play to carriers' advantages. This helps carriers launch one-stop packages that agilely meet the requirements of more enterprises. In Europe, Huawei developed an integrated solution built on the private line service and implemented Wi-Fi networking, IoT, and electronic shelf labels. This solution helped a carrier establish a strategic partnership with a retail group, covering the group's hundreds of supermarkets across Europe. Through this, the carrier increased its SME market share by about 10%. Huawei also provided tools that are easy to market, sell, install, and maintain to help the carrier deploy networking solutions quickly, reducing their deployment time in typical supermarket settings from 6 hours to 2.

- Government and enterprise domain: This domain includes many industries, each with their own unique requirements. Huawei uses cloud and data services to help carriers lay a solid foundation for digital transformation. In Africa, we worked together to help government departments integrate cloud technology into their IT systems and help countries build national digital ID systems. We drew from our wealth of experience in building "IP + optical" e-Government extranet to help carriers develop services suited to local requirements. In the education and healthcare sectors, Huawei introduced global and local ecosystem partners through the Huawei Cloud partner system to help carriers build innovative digital solutions. In the finance sector, Huawei Cloud GaussDB has facilitated digital transformation. In the transportation sector, we built one-stop AI development tools for key applications such as station hub management and vehicle-goods collaboration. This helped enterprises achieve more stable model training and improve version release efficiency threefold. In the data service space, Huawei helped a carrier in China build an open platform to monetize big data.

- Consumer-facing domain: Huawei uses the Mobile Money platform to help carriers aggregate ecosystems, provide new mobile finance portals users can leverage to access digital and intelligent lifestyles, and create new sources of revenue. In the Middle East, for example, Huawei worked with partners to provide end-to-end mobile financial solutions that helped a carrier develop mobile financial services that catered to local needs.

Enabling new growth with intelligent operations

Huawei helps carriers accelerate intelligent operations, which ensures service experience and enables business growth. We work together to inject momentum into industry development through green infrastructure construction and modernization. Huawei has worked with carriers in more than 10 countries to form best practices of intelligent operations, which have become benchmarks for industry development.

- Achieving new growth with intelligent operations

  - In the field of digital and intelligent lifestyle services, we help carriers increase revenue by aggregating ecosystems and providing digital lifestyle services built around mobile finance for hundreds of millions of users. In Africa, Huawei helped a carrier launch a super app that supported quick access by partners and merchants. Nearly 100 applets were released through that super app over the course of about one year.

  - In the field of customer service, we help build AI-based intelligent customer services that coordinate with surrounding systems, like the business support system (BSS), operations support system (OSS), and customer experience management (CEM), to provide seamless customer experience across the whole customer journey. The all-domain intelligent customer service center has become a new touchpoint for carrier marketing, sales, and services, improving customer satisfaction and marketing conversion. In Asia Pacific and Latin America, Huawei helped carriers provide omni-channel access and intelligent customer services for end users, which improved customer service efficiency and satisfaction.

- In the field of business operations support, we use AI capabilities to accelerate the process from idea to monetization and infuse intelligence into every phase of our customers' business processes, from service package design and go-to-market to marketing monetization. In the Middle East, we introduced the AI copilot into convergent billing systems to perform analysis and derive predictions, which helped a carrier increase marketing conversion by more than 10% and predict user churn 40% more accurately, ultimately increasing revenue.

- In the field of marketing support, we use converged data and AI technology to build smart decision engines, which help carriers transform their marketing models and achieve precision operations. This allows carriers to make better-informed decisions to provide the right offerings to the right people, through the right channels at the right time. In Asia Pacific, we provided real-time precision marketing and differentiated user experience assurance to help a carrier develop more than 200,000 livestreaming users within one year, increase the carrier's ARPU by more than 50%, and double the dataflow of usage (DOU) of livestreamers compared with that of common users.

■ Assuring new experience with intelligent O&M

- Intelligent O&M for wireless networks: We use AI to transform O&M and significantly improve network O&M efficiency. In Asia Pacific, a carrier used the intelligent assistant to achieve wireless and transmission cross-domain service restoration for front offices, reducing traffic loss by 15%. Using intelligent root cause analysis for back offices, the carrier improved analysis accuracy to 95% and reduced location time from 30 minutes to 2. Field maintenance engineers (FMEs), assisted by the FME copilot, reduced repeated site visits by 30%, and improved fault resolution efficiency by 30%.

- Intelligent O&M for home broadband networks: We provide service-level proactive poor-QoE evaluation and problem demarcation capabilities, which help carriers improve user experience. AI models based on data convergence help carriers improve marketing conversion by identifying potential customers. In the Middle East, we provided accurate topology restoration and fault location to more effectively process alarms and complaint tickets, helping engineers save time by eliminating unnecessary site visits. FMEs used the intelligent assistant to rectify faults 40% faster.

- Intelligent experience optimization: We use the customer experience index (CEI) based detractor model and the Simulated Reality of Communication Networks (SRCON) engine to make the Network Net Promoter Scores (N-NPS) visible, manageable, and improvable. In China, Huawei helped a carrier build an N-NPS leading network. Detractors have since been reduced by 20%, and the N-NPS score increased from 78 to 82 points within 45 days. In Latin America, Huawei correlated the CEI model with the N-NPS metric system to help a carrier improve the mobile network NPS by 10 points, helping the carrier rank No. 1 for two consecutive years in the country where it operates.

■ Unleashing new momentum through green infrastructure

- In the field of telecom infrastructure, we work with carriers to build simplified and green network architecture. Through holistic intelligent network planning, we help carriers achieve the optimal total value of ownership (TVO), accelerate the phasing out of old devices, and improve energy efficiency and user experience. We built green sites with committed power availability (PAV). We customized the green design for each site, which increased the PAV from 85% to 99.5%, saved fuel by about 10%, and reduced ineffective site visits by about 10%. We built green central offices and modernized the equipment rooms by factoring in all elements. We were able to optimize the power usage effectiveness (PUE) from 2.0 to 1.3, free up about 70% of equipment room space, and enable equipment rooms to run without diesel generators.

- In the field of data center infrastructure, we are committed to building greener, faster, more elastic, and more reliable data centers for carriers and enabling business growth through technological innovation. In China, Huawei used coordinated energy-saving technologies to help a carrier build intelligent computing data centers that are both green and reliable. The technology organically linked Layer 1 (the facility layer) and Layer 2 (the IT hardware platform layer) to reduce the total energy consumption by about 10%. In Africa, Huawei released the FusionBlock solution, which helped a carrier complete delivery and rollout within 10 months, shortening the project time to market (TTM) by about 20%.

Reshaping infrastructure to unleash new value

The digital infrastructure centered around telecom networks is becoming more intelligent and automated, which creates business opportunities. Huawei uses its end-to-end digital technology capabilities when working with partners to develop intelligent and automatic network management tools. These tools help build intelligent and efficient digital infrastructure. Huawei also works with carriers to strengthen cloud and data service capabilities to unleash business value.

In the field of autonomous networks, intelligent evolution is becoming a major trend for communications networks. By the end of 2024, 66 industry partners around the world had signed the *Autonomous Networks Manifesto*, and 14 leading carriers had released their autonomous network strategies and set clear goals and plans for L4 autonomous networks. In 2025, L4 autonomous network solutions will enter commercial deployment. Huawei has developed more than 10 intelligent agents based on 20 high-value scenarios, covering network O&M, optimization, and operations. Through the Autonomous Driving Network (ADN) solution, Huawei continues to help carriers improve network automation and accelerate higher-level autonomy.

- For O&M, we use solutions such as intelligent troubleshooting of wireless and transmission networks to quickly locate faults and realize more targeted site visits. These solutions helped a carrier in China increase fault identification and location automation to 90%, and reduce fault rectification time from 3.5 hours to just 30 minutes, significantly improving network O&M capabilities and user satisfaction.

- For network optimization, our wireless network quality and energy efficiency optimization solution and transmission network quality optimization solution help carriers unleash the full potential of their network resources. These solutions helped a carrier in Africa boost traffic by increasing DOU by more than 25%, and improve network quality and user experience.

- For operations, we use telecom foundation models and digital twins to develop solutions such as solutions for personalized service experience assurance and home broadband service experience assurance. The solutions help carriers improve their user experience assurance by proactively identifying user intent. One carrier in China has already increased its ARPU by more than 5% using these solutions.

In the field of cloud business, embracing digital and intelligent transformation is the way forward for carriers. Carriers will need to construct digital infrastructure, develop cloud-based businesses, and migrate business systems to the cloud.

- Our hybrid cloud solutions for carriers have helped ensure business continuity during their digital and intelligent transformation. In Asia Pacific, we worked with a carrier to deploy a hybrid cloud in the local data center to provide more than 120 types of cloud services. We used cloud federation technology to implement collaboration between public and private clouds, serving more than 20 government departments and supporting the development of smart cities and intelligent manufacturing. In China, we used distributed cloud architecture encompassing the public cloud, local data centers, and edge computing to help a carrier provide high-availability and high-security cloud drive and cloud phone services, which improved user experience. In the Middle East, we provided multi-cloud disaster recovery (DR) to ensure business continuity and meet carrier needs for different DR levels.

- The hybrid cloud solutions for carriers help enterprises smoothly migrate their core business systems to the cloud. In Asia Pacific, a carrier replaced old databases using GaussDB. The carrier was able to upgrade its core billing applications such as revenue management while reducing costs by about 30% for software function upgrading and O&M.

In the field of data storage, Huawei uses reliable, efficient, and resilient data infrastructure to drive a paradigm shift from managing data across its lifecycle to managing data as an asset, which helps carriers unleash the value of data.

- Huawei's data lake solution provides a knowledge base capable of responding in minutes. This knowledge base converts haphazard data into data assets that can be used for intelligent inference, helping carriers launch intelligent marketing assistants quickly. In China, our next-generation high-performance distributed file storage, which is purpose-built for AI, fulfilled a carrier's needs for multi-modal, trillion-parameter training. The storage solution improved the long-term stable training duration by about 30% for the carrier.

- Huawei's next-generation all-flash storage system is used to build data foundations of financial-grade reliability. It enables carriers to run services with zero interruption, zero data loss, and zero congestion during peak hours. In Latin America, Huawei helped a carrier build a multi-level data security system to handle cyber security threats such as ransomware attacks, improve service resilience, and recover critical services within 4 hours.

Staying Customer-centric and Providing Carriers with Services That Deliver Quality and a Positive Impact

As the most trusted partner of carriers around the world, Huawei is dedicated to staying customer-centric. We are continuing to build a comprehensive service system of experts, talent, partners, platforms, and processes while creating more value for customers. Together, we are working tirelessly towards a fully connected, intelligent world with exceptional user experience.

- We continue to build upon our more than 30 years of experience in serving carriers by developing delivery capabilities for complex and challenging scenarios. We work alongside carriers to build communications networks in efficient ways, and promote inclusive connectivity and inclusive development that helps bridge the digital divide. For example, at the edge of the Sahara, Huawei has helped carriers build rural network sites that provide unbroken signal coverage across a vast area spanning 700 kilometers. We work side by side with carriers to provide modern communications services for more than 350,000 people in the area. In the Amazon River basin in Latin America, Huawei worked with local carriers to overcome various challenges such as difficult transportation, installation, and construction, and deploy 4G networks for communities located in remote areas. Local residents now have easy, timely access to external information, online education, and medical assistance.

- We work with carriers to support the stable operation of more than 1,500 networks worldwide and provide critical assurance for major sporting and social events. We act quickly to support disaster relief efforts by ensuring network recovery and providing communications channels for rescue. In the Middle East, to ensure communications for large-scale gatherings, we set up a team of more than 850 Huawei engineers to provide preventive maintenance inspection and service assurance for optical fibers spanning more than 20,000 kilometers. This eliminated nearly 1,700 network risks and delivered optimal user experience.

- We work relentlessly to provide premium network services that help carriers improve network quality so that they provide the best possible experience for their users. In Asia Pacific, Huawei helped a carrier overcome the impact of floods on their network and greatly improve network quality and user experience. This carrier's outstanding network performance allowed it to top the rankings of an authoritative third-party organization in all metrics. In Africa, Huawei helped a carrier migrate more than 1,200 sites within just two months and improve network quality using our network operations solutions. This carrier achieved a record-high score in authoritative third-party evaluations.

- We connect the data breakpoints in multiple value streams, such as loss reduction against service faults, complaint handling, user experience improvement, and marketing development. We use a closed-loop method to accelerate value creation, helping carriers improve business performance. In Asia Pacific, we helped a carrier reduce user complaints by 30% and service traffic loss (such as due to network faults) by 8%. The carrier went on to achieve top rankings for six metrics, including network experience, in an evaluation by an authoritative third-party organization.

Enterprise Market

The digital and intelligent era is fast approaching. Therefore, Huawei has teamed up with partners from around the world to help customers build solid future-oriented digital and intelligent infrastructure. Together, we have dived deep into industry scenarios and helped more customers quickly go digital and intelligent. We are also working hard to cultivate ICT professionals and create a fertile space in which both the economy and society can thrive.

We have worked with partners to delve deep into customer business scenarios that span numerous sectors including smart cities, finance, transportation, energy, education, healthcare, manufacturing, and Internet services. Together, we are exploring the best paths forward for the digital and intelligent transformation of each of our customers. To this end, we have developed over 200 solutions that build on our industrial intelligence reference architecture. These solutions are already being extensively deployed and we have defined multiple implementation models for digital and intelligent transformation. Based on this experience, we launched the *Amplifying Industrial Digitalization & Intelligence Practice White Paper* that summarizes more than 100 success stories to help customers accelerate their digital and intelligent transformation.

We are also building a healthy "Partners + Huawei" system that advocates open collaboration for shared success. We had over 49,000 partners in the enterprise market by the end of 2024, and we are continuing to empower our partners to better serve our customers.

A Wealth of Experience in Helping Industries Go Digital and Intelligent

Smart Cities & Smart Public Services

Committed to driving the digital transformation of economies, social development, and talent cultivation, Huawei collaborates closely with customers and partners to accelerate city intelligence. We have played an active role in the development of over 700 smart cities across more than 100 countries and regions worldwide.

Huawei's Inclusive Connectivity Solution and Government Cloud Solution help bridge the digital divide, improve people's well-being, and advance the digital economy by migrating public services to the cloud and improving governance efficiency. For example:

- Huawei-built networks have connected more than 1,800 government agencies and supported more than 300 government applications in one African country, helping slash broadband costs by 97% and improve electronic visa processing efficiency by 81.8%, which improves people's quality of life while reducing the financial burden on the government.

- In China, our solutions such as Tech Lab Solution, Smart Emergency Management Solution, and AI Weather Forecast Model Solution focus on improving people's well-being, enhancing public safety, and optimizing public services. The Smart Emergency Management Solution has helped customers integrate a six-level vertical coordination system for emergency management, while the AI Weather Forecast Model Solution is delivering AI-powered weather forecasts that are about 10% more accurate than the industry average.

Rooted in the concept of "City Intelligent Twins" and an open technological architecture, we collaborate with partners to fully embrace the era of intelligent public services and smart city development. Leveraging innovative technologies such as Ascend, Pangu, and open source large models, we work with partners to deliver groundbreaking intelligent experiences and provide advanced digital and intelligent solutions that significantly enhance public services and city management, bringing intelligence to new heights. For instance, in the realm of public services, we have enabled a shift from a "One-stop Service" model for citizens to a "Real-Time Interactive Chat" model that provides seamless, intelligent services. Another example is city governance, where our solutions have helped greatly increase the efficiency of responding to public concerns.

In partnership with the Shenzhen government, Huawei has accelerated city intelligence, achieving an immediate resolution rate of over 90% for citizen requests. Our efforts have also contributed to Shenzhen winning the 2024 World Smart City Award and the National First Prize in the AI Track of the 2024 Digital China Innovation Contest.

Finance

Huawei is committed to building resilient financial infrastructure that leverages storage-computing-network-cloud-device synergy to achieve "zero downtime" with always-on services, "zero wait" with fast, low-latency transactions, "zero trust" with end-

to-end security, and "zero touch" through autonomous operations, all while supporting financial service innovation. To date, we have served over 5,600 customers from the finance sector in more than 80 countries and regions.

In 2024, we worked with industry partners to launch the Digital CORE Solution 5.0, which has helped one bank achieve 99.999% resilience and agile service innovation. The solution also helped this bank cut its service launch period from months to days and accelerate the modernization of its core systems.

We have also worked with industry partners to develop the Data Intelligence Solution 5.0 for the banking sector. This solution delivers end-to-end real-time data processing on a data platform, which has helped one bank increase its marketing conversion rate by 20% and risk interception rate by 30%. The solution also adopts AI models to help improve service efficiency and value. It has helped one bank improve its customer service efficiency by 18%, increase the number of business transactions in the financial market by 40%, and accelerate its transformation towards intelligent banking.

In the securities sector, we partnered with a top integration service vendor (ISV) to implement a core transaction solution for securities across all scenarios, which has helped one securities company increase its transaction system performance more than 10-fold.

We also launched the Smart NOS 3.0 Solution in 2024. The solution provides financial-grade O&M assurance through AI-based risk governance, assessment, optimization, and autonomy enablement. More than 200 customers in the finance sector have used this solution to improve their network stability by 50% and O&M efficiency by 20%.

We launched the Global Financial Partner RongHai Program, under which we work with financial partners around the world to develop resilient and intelligent scenario-based solutions. Our Huawei Financial Partner Go Global Program is continuing to gain steam, helping more financial partners in China go global and create new value for customers worldwide.

Transportation

In the transportation sector, Huawei is focusing on laying a digital and intelligent foundation for comprehensive transportation and logistics systems through transportation hubs, transportation networks, passenger and freight flows, and the low-altitude economy. Such a foundation will streamline passenger, logistics, business, fund, and information flows, and support secure and efficient operations across both supply and value chains. We aim to enable convenient travel and smooth logistics for a digital and intelligent future.

We currently serve more than 100 sea and land ports and over 210 airports, airlines, and air traffic management organizations around the world. Our solutions also cover over 200,000 kilometers of roads, road traffic in over 70 cities, more than 300 urban rail lines, and over 180,000 kilometers of railways worldwide.

To enable an age of All Intelligence, we are building a solid computing backbone to support a vast range of AI models and applications and empower intelligent upgrade across transportation scenarios. We have also worked with partners to develop industry-specific models and scenario-based applications, and worked with nearly 40 solution partners to develop about 20 scenario-based solutions, which have been applied and replicated in more than 60 countries and regions worldwide.

- Ports & Customs

  - Ports: In 2024, we released port models and the *Port Digital Transformation White Paper*, which serve as key references for the digital transformation of ports.

  - Customs: Our multi-checkpoint linkage solution has improved inspection efficiency by 50% and cut the costs of customs clearance by 60%, helping clear the way for full land port-city-campus integration.

- Aviation

  - We released the *Smart Airport Architecture and Practice* and *5G Private Network Development and Application White Paper* to help boost the operating quality and efficiency of aviation hubs.

  - We launched the Fully Connected All-Optical Network Solution for smart airports, which can be used to build secure, agile, intelligent, and green converged networks.

  - In Asia Pacific, we helped upgrade one airport's network in just 4.5 months – something that traditionally takes 12 to 18 months – and increased its network capacity more than 10-fold.

- Rail

  - We released the Smart Railway Perimeter Detection Solution to improve railway yard and station security. In Africa, this solution helped one passenger railway agency improve its inspection efficiency by 50% and reduce asset loss risks by 80%.

- We released the *FRMCS White Paper 2.0* to define the evolution path for next-generation railway mobile communications.

- We released the Smart Hub Solution for urban rail and the *Next-Generation Smart Urban Rail All-Optical Network Technical White Paper* to facilitate station-city integrated operations.

- Roads

  - We launched the Transportation Operations Coordination Center - Advanced (TOCC-A) that helps improve overall traffic efficiency and safety governance. The solution has helped reduce the number of traffic accidents in a major city in China by about 10% and increase public transportation usage to over 85%.

  - We released the *Cloud-Network-Device Integrated Security Technical White Paper for Roads*, which explores innovative approaches to road network safety.

  - For urban transportation, we launched the Intelligent Transportation System (ITS) 2.0 which has improved urban traffic efficiency by 15%.

  - Our ITS 1.0, ITS 2.0, TOCC, and TOCC-A solutions have been adopted in more than 70 cities across over 30 countries and regions.

- Transportation & Logistics Infrastructure

  - We launched the Smart Logistics "1 + N" Solution in 2024, which improves supply and value chain resiliency and security while reducing overall logistics costs. In China, this solution has helped one company intelligently coordinate upstream and downstream supply chain logistics, improving vehicle dispatching efficiency by 15% and increasing the identification rate of security risks during logistics operations to more than 90%.

Energy, Chemicals & Smelting

In the electric power domain, Huawei focuses on integrating ICT with digital electric power platforms and industry practices. We have worked with partners to support the digital and intelligent transformation of nearly 200 power companies worldwide by helping them pursue secure, efficient, green, and sustainable development.

We have actively participated in the development of national and international standards related to power distribution and related domains to drive the standardization and global development of the electric power industry. We have also driven the development of a target communication network for power distribution, and assisted in the resolution of two world-class challenges in distribution network communications – medium-voltage backhaul and 400V transparency.

By leveraging ICT technologies, such as high-speed power line communications (HPLC) and edge computing units (ECUs), we jointly developed the Intelligent Distribution Solution (IDS) with our partners. This solution helps customers increase sensing transparency in distribution transformer districts, transform their passive O&M model to proactive O&M, and improve user satisfaction:

- In China, this solution is helping one power company detect medium-voltage faults within 1 minute, send alarms on low-voltage faults within 3 minutes, complete real-time line loss analysis within 15 minutes, and reduce average outage durations by 56%.

- In Asia Pacific, the solution has also helped one power company reduce the duration of user-perceived power outages to less than 2 minutes, and cut line loss by about 20%. This has allowed the company to transition from single-point digitalization to architecture-based digital and intelligent transformation that is more open, evolvable, and systematic.

Some of the other achievements we made in the electric power domain include:

- Working with power companies outside China to explore a new model for using one fiber for multiple services, which helps cut the cost of fiber network deployment by 30% compared with the traditional model where separate networks are constructed for different services;

- Bringing the AI weather model to power generation in the new energy domain, which has helped one power generation company in China improve its power prediction pass rate by 8% and integrate large amounts of renewable energy into grids;

- Developing fine-grained OTN (fgOTN) technology that helps customers build secure and stable main communication networks that deliver 99.9999% reliability;

- Helping power plants and stations move from passive O&M to proactive O&M with solutions like NearLink, WLAN, HarmonyOS, Integrated Service Delivery Platform (ISDP), and edge intelligence, which enable 1-minute fault detection and improve inspection efficiency by 60%.

Huawei also works with customers and partners in the oil and gas, mining, steel, nonferrous metal, chemical, and building material domains to jointly accelerate industry transformation towards a safer, greener, and more efficient future.

- Oil & Gas

  - We helped one oil company develop a large model with 70 billion parameters, which has driven a 10-fold increase in the efficiency of tasks such as seismic processing and interpretation.

  - We helped one pipeline company build a large model and introduce optical sensing for pipeline inspections to ensure operational security for more than 10,000 kilometers of oil and gas pipelines.

  - We helped one offshore oilfield build a cloud foundation that has helped increase productivity by 30%.

  - We helped one onshore oilfield upgrade its data collection infrastructure, which has greatly improved the precision of its dynamometer card calculations. By leveraging cloud-edge synergy, we also enabled the dynamic adjustment of intermittent production at wells, reducing well visits by about 80% and the electricity needed to lift 1 metric ton of liquid from underground by 25.7%.

- Mining

  - We have worked with partners to apply Pangu mining models to more than 100 mining scenarios. These applications are already being replicated in more than 60 mines.

  - We have continued to drive innovation in MineHarmony, with 110 partners and 420 types of equipment certified by China's National Key Laboratory for MineHarmony.

  - We launched the industrial Internet platform for mining which now supports more than 50 intelligent mining projects.

  - The Huawei MetaWorks Digital Twin Platform has helped more than 50 mining companies go intelligent.

  - We helped one customer build China's first underground coal mine with one network supporting all services. This network operates stably, even at 900 meters below ground. The technology used in this solution has since been included in the *General Technical Specifications for Integrated Coal Mine Information Bearing Network* released by China's National Energy Administration.

- We helped customers achieve stable remote control and autonomous driving at open-pit mines in extreme weather conditions such as those on plateaus and in deserts, and over 99% of these customers' mining trucks are now operated remotely online.

- Smelting

  - We worked with one customer to establish a preliminary system that integrates 5G, cloud, and AI based on the industrial Internet architecture, with AI covering 23 scenarios across nine domains. We also helped this customer win the Innovate for Impact Use Case award from the International Telecommunication Union (ITU) at the AI for Good Global Summit.

- Chemicals

  - We helped one customer develop real-time optimizer (RTO) technology for gasification powered by AI models, which reduced the average coal consumption per plant by 1.33% and annual carbon dioxide emissions by 20,086 metric tons.

Education

Huawei applies ICT technologies in the education sector to cultivate ICT professionals, bridge the digital divide, and drive equity in education. To date, we have served more than 7,800 customers in the education sector across over 120 countries and regions.

- In higher education, our Digital Training Solution, Smart Classroom Solution, Scientific Research Computing Solution, and Smart Campus Solution have accelerated the intelligent transformation of the education sector. These solutions cultivate inter-disciplinary ICT professionals who, in turn, go on to facilitate the digital transformation of other industries. More than 40 of the world's top 100 universities have chosen Huawei as their partner for digital and intelligent transformation.

- In primary and secondary education, we focus on solutions like School Connectivity and Smart Classroom to drive equity and accessibility in education. In the Middle East, for example, we helped one customer build a national intelligent education platform, which is expected to help over 1,400 K–12 schools and 29 universities cultivate more than 9,000 professionals in digital leadership and ICT technology every year.

Healthcare

Huawei provides scenario-based solutions for the healthcare sector, such as Smart & Healthy City, Medical Technology Digitalization, and Smart Hospital Campus, to accelerate the intelligent transformation of the industry and promote inclusive and equitable healthcare services. Our solutions have served more than 5,600 healthcare institutions in over 110 countries and regions.

In China, we have participated in the construction of healthcare security platforms, health information platforms, and disease control information platforms at the national, provincial, and municipal levels, as well as more than 700 telemedicine platforms, and are serving more than 1,800 tertiary hospitals. These efforts facilitate reform and high-quality development at public hospitals to help build smart and healthy cities. In addition, we have applied AI in digital pathology and assisted diagnostics. These applications label deformed cells within seconds and produce diagnostic reports within minutes. They have also improved the accuracy of AI-based quality control to more than 90%.

In Europe, we are helping customers make their infrastructure more digital and intelligent, enabling secure storage of and quick access to petabytes of imaging data. This has given more patients access to more efficient, convenient, and personalized AI-powered diagnostics and treatment services.

Manufacturing, Retail, Hospitality, Real Estate, and Other Domains

Huawei is committed to bringing intelligence to industries. As such, we have worked with more than 1,400 partners to serve over 8,000 customers in manufacturing, retail, hospitality, real estate, and other domains across more than 60 countries and regions.

- Manufacturing

    - For R&D digitalization, we have drawn upon Huawei's own 30-plus years of R&D expertise to develop a data management engine along with software and hardware development toolchains powered by foundation models, helping companies improve their R&D efficiency and achieve collaborative innovation. In China, we helped one carmaker improve its overall R&D efficiency by more than 30% through digitalization.

    - For intelligent factories, we have developed unified digital production platforms and converged production networks to eliminate data silos and foster collaboration across R&D,

production, and the supply chain. For example, we worked with another carmaker in China to build a digital and intelligent factory that has achieved flexible manufacturing. A single production line can now manufacture vehicles for different brands based on incoming orders. As a result, the factory's overall productivity has increased by 20%, while its costs and energy consumption have dropped by 20% and 19%, respectively.

- Retail

    - Huawei and its partners provide Smart Retail Store, Branch Interconnection, and Retail Cloud solutions. These solutions unlock the potential of smart interactions, intelligent connectivity, cloud platform services, big data, AI, and other capabilities, allowing customers to focus on user experience and achieve agile operations. With converged networks, 1,000 stores can be connected within a single day, reducing overall costs by 80%.

- Hospitality & Real Estate

    - Huawei has worked with partners to develop campus network solutions for hotels and smart building solutions. These solutions increase overall O&M efficiency by 50%, boost average network speeds by 38%, and lower energy costs by 15%. This is helping enterprises in these industries achieve intelligent, efficient, green, and low-carbon development while delivering premium user experiences.

Internet Services

Huawei has a broad range of products and portfolio solutions that we leverage to provide cutting-edge products, solutions, and services to Internet service providers (ISPs) and Internet companies. To date, we have served more than 10,000 ISPs and Internet companies from more than 160 countries and regions, helping them build 10 Gbps, service-oriented, and intelligent ICT infrastructure.

- Home broadband: We provide solutions including All-Optical Home Broadband Access Network, Integrated Access, "IP + Optical" Converged Transport Network, and Intelligent O&M to help ISPs systematically expand coverage, increase speeds, and improve experience, all while optimizing their overall return on investment.

- Managed services: Our solutions, such as Managed Network Service and Managed Storage Service, help managed service providers (MSPs) create service platforms that make O&M, sales, delivery, and growth easier. These solutions also increase operating efficiency and maximize business value for MSPs.

- Internet: Our solutions, like data center multi-architecture computing and the ultra-broadband network, help e-commerce platforms, video platforms, and other such customers increase their system resilience and ensure the long-term development of intelligent services.

- Media: Our Intelligent Media Solution leverages cloud, IP, and other intelligent technologies to help customers achieve efficient and precise content collection, production, and distribution, enabling the intelligent transformation of media services.

Portfolio Solutions

Based on deep insights into customer needs and ongoing technological innovation, Huawei has launched a number of leading products and portfolio solutions that help us meet the unique needs of different customers during their digital and intelligent transformation.

- Intelligent Campus

  Huawei's campus portfolio solutions pre-integrate ICT technologies for campus scenarios. Together with our partners, we have used these solutions to serve more than 1,000 customers across various sectors, including manufacturing, education, healthcare, and real estate, and help them build 10 Gbps, digital, and green intelligent campuses and accelerate Intelligent Campus 2.0 development.

  We have worked with partners to help industrial campuses go digital and intelligent. Using digital and intelligent technologies, like AI and HarmonyOS, we efficiently integrate the data flows and service flows of multiple campuses based on the campus digital platform to build industry development, operations management, and enterprise service systems. In China, we helped one enterprise boost its work efficiency by 20%, service satisfaction by 30%, and operating efficiency by 30%.

  We have also worked with partners to build intelligent stadiums, and provide top-level designs and portfolio solutions that focus on new experience, efficient operations, and ICT development standards for high-density Wi-Fi 7 coverage and in-building solutions (IBSs). These solutions have been used to support major sporting events and public sports operations. In the Middle East, we helped one partner guarantee its VIP users download speeds of 1 Gbit/s so that they could enjoy a new multi-angle livestreaming experience. This has created a new benchmark in the sports industry.

- Data Center

  Huawei has launched a series of portfolio solutions for scenarios like cloud data centers (DCs), AI DCs, and edge DCs, which serve more than 300 customers in finance, electric power, and other sectors. These solutions are driving the development of new DCs that achieve ultimate efficiency, all intelligence, and hyper resilience.

  In 2024, we launched the industry's first Multilayer Ransomware Protection Solution for Cloud Scenario (C-MRP). This solution detects more than 99.9% of all ransomware attacks and enables service recovery within seconds to ensure the security and reliability of cloud DCs. In addition, we released the *AI DC White Paper*, which provides a reference for the industry in planning and building AI DCs.

  Our Hyper DataBase Solution (HDBS) is a new database option we have created for customers looking to upgrade their critical business systems. In China, the solution has helped improve service transaction performance in the finance sector by 60% through software-hardware synergy, and reduced the time needed for service recovery to less than 120 seconds when using an intra-city dual cluster deployment mode. This level of performance and reliability is increasingly necessary for core services in the finance sector.

- Digital Site

  Huawei has launched a series of portfolio solutions for digital sites such as Digital Pole Site, Digital Pipeline, and Digital Station to provide long-distance accurate sensing, intensive deployment of IoT networks, and edge intelligence for customers. These solutions are currently being used by more than 100 customers and leading the digital and intelligent transformation of outfield infrastructure.

  – In intelligent highway and urban transportation scenarios, our innovative Radar- and Video-based Management Pole Site Portfolio Solution improves travel safety and experience by supporting long-distance sensing (up to 1,000 meters), all-weather high-precision lane-level positioning, and all-round trajectory generation.

  – In industry scenarios such as the protection of railway perimeters, airport perimeters, oil and gas pipelines, and other types of critical infrastructure, our Perimeter Protection Site Portfolio Solution improves perimeter safety by combining video and optical fiber to ensure fewer missed and false alarms and lower latency. The solution also effectively identifies different types of intrusions and reduces the false alarm rate by 90% compared with traditional solutions, enabling end-to-end, full-coverage, all-weather, and intelligent protection.

- For electric power stations, oil & gas facilities, and related transportation scenarios, our Digital Station Portfolio Solution improves network deployment efficiency by 30% and fault locating efficiency by more than 20% thanks to its integrated platform that brings together diversified computing power, converged networks, intelligent and simplified deployment, and centralized O&M. The solution helps slash and sometimes even eliminate the manpower required for station operations and supports intelligent operations and visualized remote O&M to drive the intelligent upgrade of digital stations.

■ Wide Area Network

Wide area networks (WANs) traditionally serve as an enterprise's support system, but are now being used as a production system. Huawei has developed WAN solutions for customers in multiple sectors including manufacturing, energy, transportation, and ISP. These solutions help customers build premium networks and maximize network value.

In 2024, we released the "One City One Network 2.0" target architecture for WANs. In China, we have helped cities coordinate the planning of data connectivity, intelligent connectivity, and optical connectivity so that they can build network infrastructure that can constantly evolve, supporting the all-domain digital transformation of cities.

In Asia Pacific, we released the "One ISP One Network" target architecture and solution to help ISPs build elastic ultra-broadband networks that feature a simplified architecture and deliver a superior experience based on Huawei's cutting-edge IP and optical technologies. This architecture and solution will help ISPs unleash the value of their networks through architecture innovation.

Helping SMEs Go Digital and Intelligent

Huawei works closely with its partners to gain deeper insights into industry scenarios and customer needs. With these insights, we deeply integrate technology with specific business scenarios and upgrade policies, tools, products, and solutions to help customers go digital and intelligent.

Commercial Market

We firmly adhere to a partner-led strategy in the commercial market and are committed to building out a partner system that is based on mutual trust and thrives on shared success. Together with our partners, we aim to build an intelligent world.

We have joined hands with numerous partners to deepen our understanding of customer needs across different scenarios in various industries. This insight helps us develop more competitive marketable products and scenario-based solutions. We have launched more than 260 new products and 90 scenario-based solutions targeting education, healthcare, ISP, manufacturing, hospitality, retail, and other sectors. In addition, the HUAWEI eFly app serves as a digital support platform that partners can use to accelerate the digital and intelligent transformation of SMEs.

Distribution Business

We have adopted an installer-centric model in the distribution business and are working hard to build a healthy and well-organized distribution partner system. Under the HUAWEI eKit brand, we have developed products that are easy for our distribution partners to buy and sell, easy for installers to install and maintain, and easy for users to learn and use, and have also provided digital operation platforms, in order to help micro, small and medium enterprises (MSMEs) go digital and intelligent more easily.

In 2024, we developed more than 400 marketable scenario-specific products for SME offices, budget hotels, primary and secondary schools, retail stores, and more. We also upgraded our digital platforms, like the HUAWEI eKit app, based on the business journeys of our distribution partners, to better support their efficient one-stop operations.

Currently, HUAWEI eKit serves more than 100 countries and regions, and has created a healthy distribution partner system. HUAWEI eKit jointly establishes the brand with distribution partners through marketing activities and enables their independent sales. With the "digital platform as a service" model, HUAWEI eKit aims to help partners serve end users more efficiently.

A Thriving, Symbiotic Partner Ecosystem and Global Service Capabilities

Partner Strategy

In the enterprise business, Huawei is committed to our long-term "Being Integrated" strategy. As such, we adopt fair, just, transparent, and simple partner policies. We have built a healthy partner ecosystem that thrives on shared success, so that we can grow with partners with shared benefits as the bridge, integrity as the foundation, and rules as the guarantee. Huawei and its partners are striving to co-build a customer-centric culture and mechanism and create a healthy business environment in order to help customers succeed. By the end of 2024, we had over 49,000 partners in the enterprise market.

Huawei is committed to working with partners to develop leading industry solutions by integrating resources and complementing capabilities in the areas of market expansion, consulting and planning, solution development and integration, and delivery verification. As part of these efforts, we have established 16 OpenLabs around the world where we have developed more than 200 scenario-based solutions.

Enterprise Services

Customer centricity is one of Huawei's core values. Currently, we collaborate with over 6,000 service partners to build a global service system for customers, the commercial market, and the distribution business. Together, we are providing high-quality services to more than 56,000 customers worldwide, and are supporting the secure and stable operation of over 120,000 customer networks. In 2024, we launched the O3 Work Studio. Powered by digital and intelligent technologies, this studio helps partners make their equipment digital and intelligent so that we can work with partners to provide high-quality, consistent services to customers.

We will continue to increase our investment in the development of service capabilities for industry scenarios, and create competitive digital and intelligent service solutions, tools, and platforms. We aim to provide customers with a complete range of services for the entire solution lifecycle, from consulting, planning, design, and implementation to industry O&M and business operations support. In addition, we will continue to develop more training and certification services to cultivate more skilled professionals for industry customers and enable the digital and intelligent transformation across industries.

ICT Services and Software

Huawei ICT Services and Software is committed to pioneering as the most reliable service partner and creating an intelligent world with ultimate experiences. Our solutions, powered by emerging technologies like AI and Digital Twin, support the entire ICT infrastructure lifecycle from planning and construction to maintenance, optimization, operations, and training. We innovate nonstop, alongside our customers and partners, to build green, efficient, secure, robust, agile, and intelligent ICT infrastructure that provides users with new digital services and ultimate experiences. Through these efforts, we aim to enable new growth for customers and accelerate digital and intelligent transformation across industries.

Intelligent Connectivity Integration: Accelerating Green, Resilient, and Reliable Target Network Evolution

To drive the evolution towards green, resilient, and reliable target networks and maximize returns from network investment, we continued modernizing wireless sites and central offices (COs). This has significantly reduced energy consumption and operational expenditure (OPEX) and supported the rapid development of new services, including B2H and B2B services. In 2024, we modernized more than 100,000 sites and 4,000 COs, which helped our customers significantly shorten their payback period by reducing their electricity consumption by 740 million kWh and their OPEX by US$140 million. Additionally, we released the *Green Management Whitepaper* in collaboration with carrier customers and the *Technical Specifications and Evaluation Methods for Network Resilience* together with the China Academy of Information and Communications Technology (CAICT). A number of projects we jointly carried out with customers have won TM Forum's Excellence Award and Catalyst Awards.

Intelligent IT Integration: Building New Computing Infrastructure to Unlock New Potential in Intelligent Computing

This year we leveraged a number of novel approaches, like prefabrication, to build out diversified computing centers for our customers. These new approaches helped shorten data center integration times by 29%. Another standout achievement we made in 2024 was the delivery of the world's largest standalone liquid-cooled intelligent computing center. By implementing AI-powered dynamic temperature adjustment algorithms across L1 (infrastructure) and L2 (hardware) layers, this facility achieved an impressive power usage effectiveness (PUE) of 1.15, while cutting annual power consumption by 33.33 million kWh, cooling costs by 20%, and carbon dioxide emissions by 17,665 metric tons (the equivalent of planting 980,000 trees). Using a systems engineering approach, we consolidated computing, storage, and networking to create a highly stable computing cluster through computing platform integration and O&M services. This resulted in a mean time between failures (MTBF) exceeding 48 hours and cluster utilization surpassing 96%, unleashing immense computing power. Through AI computing enablement and optimization, we reduced the model deployment and performance optimization timeline from months to just weeks, which unlocks the business value of computing power faster. In 2024, we also received eight industry awards, including the IDC Best in Future of Digital Infrastructure, for helping customers continue to build, manage, and utilize computing platforms.

Customer Support:
Ensuring Stable and Consolidated Network Operations

Huawei's global technical service centers and over 6,000 maintenance experts worked alongside partners in 2024 to support the stable operation of more than 1,500 networks worldwide. We continued to go wherever our customers need us and provide professional services with a human touch during major events and in the face of natural disasters such as earthquakes, typhoons, and floods. We conducted regular network health assessments to predict and mitigate risks. With our zero-trust operation model, we have also established three lines of defense, encompassing pre-incident, in-incident, and post-incident security. We also deployed the intelligent maintenance assistant Copilot, powered by foundation models, to provide O&M engineers with one-stop access to knowledge and solutions that help them safeguard the continued stability of customer networks.

Intelligent Operations:
Creating Business Value Through Service-centric Operations

In 2024, Huawei AUTIN™ continued to drive service-centric operations transformation. By extending our service loss reduction solution from the wireless domain to the "IP + Optical" and FTTx domains, we further reduced traffic loss caused by network faults and improved customer satisfaction and network value. We also worked with TM Forum and leading carriers to release the *New-Generation Intelligent Operations White Paper 2.0* which summarizes current best practices and outlines a reference architecture for service-centric operations transformation. Huawei AUTIN™ and multiple carriers earned three TM Forum Catalyst Awards for Business Impact, Application of AI & Automation, and Outstanding Contribution to TM Forum Assets. Additionally, Huawei was listed in GlobalData's Leaders quadrant for operations services.

SmartCare®:
Unleashing the Value of Data with Leading Network Performance, Experience, and Satisfaction

HUAWEI SmartCare® is committed to building the best networks with the ultimate performance and user experience, which is only possible with the best products and the best services. To live up to this commitment, in 2024, we helped customers continue to lead in network benchmarking and protect their brand value. We also helped customers quickly monetize network experience through differentiated service experience assurance and data-driven precision marketing. Our innovative user satisfaction perception model and spatio-temporal digital twin solution can accurately identify and reduce detractors caused by network faults and help improve network net promoter scores (N-NPSs). In 2024, in collaboration with Omdia, we released the *Data-driven NPS Management White Paper*, and our partnerships with customers were recognized by multiple awards, including the GSMA GLOMO Best Mobile Operator Service for Connected Consumers, TM Forum Catalyst Awards, and GLOTEL Awards.

Intelligent Digital Service: Building a New Entry to Mobile, Digital Life for New Growth

Huawei Mobile Money went beyond digital wallet services by integrating 15 new micro-finance services this year. The open platform allowed partners to rapidly develop scenario-based applications and grow the user base and recurring revenue. Huawei Mobile Money topped Juniper Research's 2024 Competitor Leaderboard for Digital Wallets.

Our Convergent Billing Solution (CBS) helped improve the adoption rate of new tariffs from 50% to 70% by introducing the AI Agent to Idea to Cash 2.0, which enables automatic tariff analysis and optimization. In addition, our next-generation interactive intelligent billing solution – Billing 3.0 – enabled a zero-confusion billing experience for end users.

Our Artificial Intelligence Contact Center (AICC) solution leveraged multi-channel collaboration and large language models to create next-generation intelligent contact centers that still maintain a human touch. So far, this solution has helped customers improve their self-service rate to 85% and their first contact resolution (FCR) rate to over 90%.

Huawei Learning: Advancing Cultivation of Global Talent with Digital and Intelligent Skills

Huawei Learning provides systematic talent development services to help customers and partners nurture the skilled talent they need for the digital and intelligent world. These services cover talent planning, cultivation, assessment, and operations. In 2024, we also released the *Intelligent Computing and Foundation Model Talent White Paper*, in collaboration with the CAICT, and provided intelligent computing training to 30,000 learners from more than 100 carriers and vertical industry customers. Additionally, over 10,000 ICT professionals received Huawei's Intelligent Computing certifications last year. By the end of 2024, Huawei had cultivated over 3.5 million ICT professionals, who had collectively earned 1 million Huawei certifications.

Connectivity

In the age of mobile AI, intelligent services will be available everywhere. New services and devices will constantly emerge, such as personal AI assistants, AI devices, intelligent connected vehicles, and AI home applications. Furthermore, industries will go digital and intelligent faster than ever. These trends will raise unprecedented requirements for connectivity.

Wireless Network

Continuing to lead value creation in the wireless industry

- 5G is in full swing around the world. By the end of 2024, 5G networks were serving more than 2.1 billion users in 126 countries and regions, and 5.5G was entering the fast lane of commercial rollout. Globally, 30 carriers had completed 5.5G technological verification, and 8 had launched commercial 5.5G networks. These developments rapidly drove the wireless industry forward.

- AI adoption is gaining momentum in the device domain. AI applications such as AI assistants, intelligent connected vehicles, and embodied intelligent robots are ushering in the age of mobile AI and creating new opportunities for the wireless industry.

Huawei's 5G-A^A solutions: Laying a solid foundation for the age of mobile AI

At MWC Barcelona 2024, Huawei was honored with seven GLOMO awards for our wireless solutions. At the Global Mobile Broadband Forum 2024, we launched our all-new 5G-A^A solutions, which encompass advanced base station equipment, a fully-digital site, and a RAN agent. These solutions combine 5.5G and AI to deliver multi-dimensional network capabilities, laying a solid foundation for the age of mobile AI. This means the solutions can help maximize network value and achieve the goals of "Networks for AI" and "AI for Networks".

- Huawei's full-band Massive MIMO helps carriers build foundation networks for the age of mobile AI. Using advanced technologies like extremely large antenna array (ELAA), adaptive ultra-high-resolution beam, and ultra-wideband radio front units, Massive MIMO is the first of its kind in the industry to support simplified deployment on all bands and in all scenarios. Carriers can use this solution to build networks that deliver 1 Gbit/s uplink and 10 Gbit/s downlink peak speeds.

- Huawei's Ambient Site helps carriers reduce O&M costs. We apply digital technology to key site equipment, including antennas, power supply units, and transmission equipment, and create digital twins for all site resources, enabling resource visibility, sensing, and control. This allows carriers to increase their site resource utilization.

- Huawei's green technology contributes to carriers' sustainability goals. Our 5G-A GigaGreen solution can reduce a site's energy consumption by as much as 40%. We have won GLOMO awards for our Green Antenna solution and "0 Bit 0 Watt" solution. Our FDD 8T8R has been added to China's *National Recommended Catalog of Energy Saving & Carbon Reduction Technologies and Equipment in the Field of Industry and Information Technology*, in recognition of our continued contributions to green development and energy conservation in the wireless industry.

- Huawei's RAN agent – the first of its kind in the industry – boosts carriers' intelligent O&M. Powered by the Telecom Foundation Model and radio digital twin technology, our solution enables an agent-based digital engineer team to significantly improve network O&M efficiency and maximize network value. This solution is conducive to integrating level-4 autonomous network capabilities into carriers' business processes.

Cloud Core Network

The convergence of 5.5G and AI has opened the door to the age of mobile AI. After a year of commercial deployment, intelligent core networks have moved beyond enhancing connectivity to boosting connectivity for AI. These networks enable carriers to seize entries for new services and transform their O&M.

- With Service Intelligence, carriers can transform their basic telecom services and create new entries for AI services. In China, New Calling networks currently serve over 40 million users, with the capacity to serve more than 100 million. In the Middle East, New Calling has been commercialized for the first time. Huawei's New Calling solution received an Industry Collaborator Award from the GSMA Foundry.

- With Network Intelligence, carriers can achieve user awareness, service awareness, and network awareness. This allows carriers to accurately identify user experiences and network statuses, push the right packages to the right users, and achieve dynamic experience assurance, enabling the monetization of differentiated user experiences. Huawei's Intelligent Personalized Experience (IPE) solution received an award at Network X 2024.

- With O&M Intelligence, carriers can use technologies like AI agents to boost O&M quality and efficiency. AI copilots support the unified management of massive amounts of knowledge dispersed across different locations, and AI agents help engineers tackle complex network faults efficiently. Both have entered commercial use in China. Huawei's ICNMaster solution won a Catalyst Award from TM Forum, as well as other major awards.

- The intelligent telco cloud underpins leading telecom infrastructure for the age of mobile AI. This cloud can manage heterogeneous computing power and infuse AI capabilities into network elements. With its leading dual-engine architecture, this cloud helps carriers smoothly adopt intelligent container platforms.

Optical

The optical industry began F5.5G commercial deployment in 2024. Huawei focuses on 10 Gbps all-optical networks and premium transmission networks to help customers build AI-centric F5.5G all-optical networks. We have helped carriers roll out networks that facilitate ubiquitous access to AI. We have also worked with enterprise partners to drive digital and intelligent transformation across industries.

In October 2024, the European Telecommunications Standards Institute (ETSI) completed the release of the first F5G Advanced (F5G-A) standard. To support the rapid advancement of intelligent applications, Huawei has continuously innovated based on the F5G-A standard to provide solutions in three main areas: optical transmission, optical access, and enterprise optical networks.

- Huawei's F5.5G All-Optical Premium Transmission Network supports efficient collaboration between computing centers through a highly reliable 400G backbone transmission network. By deploying all-optical switching in intelligent computing centers, Huawei supports the centers' smooth evolution towards more than 10,000 cards. By deploying all-optical switching at a metro edge, Huawei helps carriers build a 1-millisecond metro transmission network that allows users to easily use computing power on-demand, just as they would with water and electricity.

  At Network X 2024, Huawei was honored with the Most Innovative Optical Transport Use Case Award.

- Huawei's F5.5G 10 Gbps Intelligent Access Network is an end-to-end solution that enables carriers to achieve ubiquitous 10 Gbps access, deterministic experience, and computing-network integration. Our innovative triple-mode technology – which combines GPON, 10G PON, and 50G PON – drives smooth evolution towards 10 Gbps access. This technology is essential for 10 Gbps optical networks, which are a new type of information infrastructure that underpins digital economic growth. In addition, Huawei has launched the industry's first FTTR+X solution to help carriers expand from deploying single fibers for broadband access, to building Wi-Fi networks, and ultimately providing smart services for homes and enterprises. With this solution, one carrier in China increased its ARPU by 30%. Furthermore, Huawei has completed more than 100 pilots and commercial deployment projects for 50G PON around the world, accelerating the commercialization of F5.5G 10 Gbps all-optical networks.

- In the enterprise market, Huawei's FTTO 2.0 solution helps enterprise customers create green 10 Gbps intelligent campuses by rapidly replacing copper cables with optical fibers. Huawei's end-to-end fgOTN solution – the first of its type in the industry – transforms communications networks in industries like electric power and transportation, enabling customers to swap SDH for fgOTN. Furthermore, Huawei's innovative solutions, including Optical-Visual Linkage Perimeter Inspection and Optical Spectral Sensing for Gas Leakage Detection, make work safer and more efficient for enterprise employees.

Data Communication

As AI progresses by leaps and bounds, industries are going intelligent faster than ever. In the data communication domain, Huawei is committed to realizing "AI for Networks" and "Networks for AI" with our Xinghe Intelligent Network offerings. Our featured solutions, including ultra-efficient data center network, high-capacity WAN, high-quality 10 Gbps campus network, and intelligent security protection, leverage AI and digital technologies to help customers boost productivity.

Net5.5G is a typical innovation system for the next-generation Internet industry, and has won widespread recognition from both industry players and customers. A Net5.5G project has been initiated within ITU, and the World Broadband Association (WBBA) has released the Net5.5G R1 standard. Together with industry organizations, partners, and customers, Huawei will continue driving the evolution of data communication networks towards Net5.5G.

- **Xinghe Intelligent Fabric**

  This solution provides a range of products and technologies, including AI Turbo (based on a network scale load balance algorithm), Network Digital Map, ultra-fast switchovers at three levels, high-density 400GE and 800GE, and StarryLink optical modules. With these products and technologies, we create one map for intelligent O&M, one platform for simplified deployment, and one network for diversified computing power, helping customers enhance their operational security and efficiency.

- **Xinghe Intelligent WAN**

  This solution provides new capabilities such as 400GE converged transport, SRv6, and Network Digital Map to help carriers stride towards Net5.5G target networks. In the enterprise business domain, Xinghe Intelligent WAN supports multi-purpose networks and intelligent O&M capabilities that are essential for agile, reliable, and intelligent WANs.

- **Xinghe Intelligent Campus**

  This solution focuses on user experience and is comprised of multiple new technologies and capabilities, such as all-scenario Wi-Fi 7, experience assurance for key applications and VIP users, Network Digital Map, network AI agents, and Wi-Fi Shield. This solution is ideal for building a high-quality 10 Gbps campus network featuring wireless, application, O&M, and security experience upgrades. To date, the solution has served multiple industries, including education, healthcare, and finance.

- **Xinghe Intelligent Network Security**

  This solution provides integrated security protection across clouds, networks, edges, and endpoints to achieve unified secure access service edge (SASE), empowering enterprise customers to build networks with end-to-end resilience and security.

Computing

Computing power is the foundation of ongoing digital and intelligent transformation, and we at Huawei actively promote openness, collaboration, and shared success. With a focus on in-depth, converged innovation in computing, storage, and networking, we are working closely alongside global partners to build a solid computing backbone, foster a thriving computing ecosystem, and provide the world with a viable alternative for computing.

Accelerating Innovation for Shared Success in a Digital and Intelligent Future

Huawei works tirelessly to build an open computing ecosystem by focusing on foundational technology and architectural innovations surrounding Kunpeng and Ascend. In the past year, we have worked alongside our partners and developers to create a solid computing backbone as a viable alternative for the world. We continued to strengthen the foundational hardware and software of Kunpeng and Ascend, ensuring they are not just usable, but useful and easy to use. Furthermore, we launched an innovation enablement program to make development faster. By the end of 2024, more than 8,500 partners and 6.65 million developers had joined the Kunpeng and Ascend ecosystems, and over 22,800 solutions had been certified. These were part of our efforts to create an open and sustainable computing ecosystem with industry players.

In Kunpeng, we continued to dive deep into industry scenarios with fully-upgraded products, providing the computing needed to drive the digital and intelligent world forward. We launched boards and cards tailored to different scenarios by fully opening up Kunpeng, from motherboards to modules. This allowed partners to build flexible and diversified devices that meet the varying computing needs of data centers, edge computing, and other workloads. The upgraded full-pipeline toolchain Kunpeng DevKit and performance acceleration engine Kunpeng BoostKit enabled customers and partners to more easily develop applications.

By the end of 2024, more than 400 partners had developed applications based on Kunpeng, and over 17,000 solutions had been certified Kunpeng-compatible, covering core systems across industries such as finance, telecom, electric power, education, and healthcare.

Ascend AI made full use of Huawei's technical expertise in computing, storage, networking, optical, and operations & maintenance management to build a solid computing backbone through system-level architecture innovation. Ascend AI has been widely adopted in industries such as Internet, telecom, and finance. It remains entirely open and supports development along five lines: hardware, operators, acceleration libraries, models, and applications. By the end of 2024, we had worked with partners to develop over 160 high-performance operators and incubate 38 foundation models and more than 380 foundation model applications. Our goal is to help foundation models progress beyond the innovation phase and see real-world application every step along the way.

The heterogeneous compute architecture CANN was also further opened up, with more than 200 comprehensively-optimized basic operators being added. Additionally, the average development time for a typical operator was reduced from two person-months to 1.5 person-weeks. The Ascend inference engine MindIE was also upgraded to help partners develop more efficient inference systems. We have already worked with more than 50 partners to release foundation model inference solutions, accelerating AI deployment across industries.

Huawei also continued contributing to open source by enhancing the AI capabilities of the openEuler operating system and the openGauss database. By the end of 2024, total installations of openEuler had exceeded 10 million. Furthermore, the MindSpore Community had seen over 11 million downloads by users from more than 130 countries and regions, supporting more than 50 mainstream foundation models within and outside China.

In a bid to further push the boundaries of science, Huawei collaborated with 15 universities to establish Kunpeng & Ascend Innovation Centers of Excellence and Kunpeng & Ascend Innovation Hubs. Additionally, the Intelligent Base industry-academia collaboration program jointly run with 72 universities had trained over 6,000 instructors and developed more than 1,600 courses by the end of 2024, accelerating the development of global computing talent.

Data Awakening: Building Future-proof Data Storage Power

The age of AI has unlocked the potential of dormant data, with 80% of previously untapped data now being used to boost the accuracy of AI models. Simultaneously, the widespread adoption of intelligent technologies across industries is causing data volumes to double every two years. At Huawei, we are committed to building future-proof data storage power to support this transformation. We have launched a comprehensive portfolio of AI-ready data storage products and solutions which serve over 26,000 customers in more than 150 countries and regions, including over 140 of the world's top 200 banks.

In 2024, Huawei and a third-party organization jointly released the *Future-proof Data Storage Power* white paper, aimed at driving global data infrastructure upgrades. In China, Huawei led the construction of data storage power centers, looking to assetize, factorize, and monetize massive amounts of data. Outside China, we provided future-proof data storage power for customers in industries such as finance and manufacturing, helping accelerate their intelligent transformation.

- Huawei continued redefining data storage for the age of AI in 2024 to enhance the efficiency of AI processing across the entire data lifecycle and drive AI adoption in industries.

  - Data collection phase: Huawei's Scale-Out Storage enabled customers in Europe to import 48 PB of data into converged data lakes for scientific research. This allowed them to use 65% less storage space compared to other industry solutions. Additionally, we launched our Smart Disk Enclosure, supported by an innovative diskless architecture, which provided a reliable storage foundation for cloud and Internet customers.

  - Model training phase: Huawei's New-Gen High-Performance AI Storage increased the cluster utilization of AI model training for one carrier customer in China by 32%.

  - Model inference phase: Huawei's DCS AI solution is continuing to accelerate AI deployment across industries. In one top Chinese hospital, our data engineering tool ModelEngine trained 1.03 million pathological slides in just two months, expediting the adoption of pathology AI models.

- In 2024, Huawei pressed ahead with the transition from hard disk drives (HDDs) to solid-state drives (SSDs), and worked tirelessly to make all-flash storage accessible across all service scenarios.

  - Our New-Gen Converged All-Flash Storage, which provides industry-leading performance and data resilience, continued to support our customers' service continuity of their mission-critical applications.

  - Our All-Flash Scale-Out Storage, an industry-leading, green, high-density storage system, helped one European customer reduce energy consumption from 16.0 W/TB to 1.04 W/TB which ultimately translated to a 93.5% reduction in electricity costs and significantly lower carbon emissions.

  - Our All-Flash Backup Solution, the industry's first solution to deliver multi-layer ransomware protection (MRP), helped one Latin American customer centrally back up data from more than 90 sites, safeguarding critical data assets.

Bringing Digital and Smart Office to Every Workspace and Person

In the field of smart office, Huawei launched the CloudLink Video Conferencing Platform which is capable of delivering 4K ultra-HD video quality and supporting massive concurrent connections, thus enabling a seamless global collaborative office experience.

In smart education, the HUAWEI IdeaHub Smart Classroom Solution removes geographical and temporal barriers through its interactive distance learning capabilities. This solution enhanced education equity across multiple regions by providing high-quality education resources to students in remote areas and individuals with disabilities.

Cloud Computing Business

The age of All Intelligence is here, bringing new opportunities and challenges to every person and company. Innovative technologies, such as cloud and AI, are advancing rapidly and helping industries solve problems and boost productivity, creating tangible business and social value. Huawei Cloud strives to pioneer AI for industries in the intelligent world. We are focused on reshaping industries with AI and cultivating the fertile ground needed to support industries' digital and intelligent transformation.

Cultivating the Fertile Ground That Accelerates the Digital and Intelligent Transformation of Customers Worldwide

Huawei Cloud is continuing to ramp up the construction of KooVerse, our global cloud infrastructure, in order to deliver quality cloud services and consistent experience to our customers around the world. In 2024, Huawei Cloud started providing local cloud services in Egypt, the Philippines, and more regions to help customers accelerate their digital transformation. In addition, our data center in Wuhu, China, has officially entered operation. This data center together with those in Gui'an and Ulanqab form three cloud hubs in China to meet computing power requirements across the country. By the end of 2024, Huawei Cloud had covered 33 geographical Regions and 96 availability zones (AZs), providing services to customers in more than 170 countries and regions.

Inside China, Huawei Cloud has been diving deep into industry digitalization. Huawei Cloud has already become part of more than 800 e-Government cloud projects and served China's six major banks, 12 commercial joint-stock banks, and top five insurance companies. Huawei Cloud has also been used by 95% of China's top 30 carmakers, 90% of the country's top 50 e-commerce companies, 90% of the top 50 gaming companies, 90% of Internet companies, and 80% of retail companies.

Outside China, Huawei Cloud follows a By Local, For Local principle and provides customers with cutting-edge technologies and localized services to enable the digital transformation of industries. In 2024, Huawei Cloud maintained rapid growth and became a trusted cloud brand for customers in Asia Pacific, Latin America, the Middle East and Central Asia, Africa, Europe, and more.

In the Asia-Pacific region, Huawei Cloud takes full advantage of our unique strength in local cloud infrastructure and localized O&M to serve customers across a number of sectors such as finance, government services, enterprises, and Internet. Huawei Cloud has also become one of the best partners for many enterprises' digital transformation. For example, Telkomsel, the largest mobile carrier in Indonesia, built a high-performance big data platform based on Huawei Cloud to accelerate fixed-mobile convergence (FMC) and bring users a seamless network service experience.

In Europe, Huawei Cloud has become one of the fastest-growing local cloud providers. Based on our cloud Regions in a number of countries, including Ireland and Türkiye, we provide cloud services that deliver ultra-low latency, outstanding experience, and high security and reliability. We are also using innovative technologies like AI and big data to accelerate the intelligent upgrade of industries in Europe. By the end of 2024, Huawei Cloud had worked with partners to serve more than 6,000 enterprises in Europe. DeFacto, a leading retail e-commerce company in Türkiye, adopted Huawei Cloud to help it provide users with a premium online shopping experience. The company was then easily able to cope with access request and order volume spikes up to five times their off-season average during their Black Friday promotion.

In Latin America, Huawei Cloud is among the cloud service providers with the most nodes, the fastest local service launches, and the fastest business growth. Huawei Cloud has helped thousands of customers in industries such as finance, media, retail, logistics, and Internet realize digital transformation. For example, Libertad, a major financial solutions provider in Mexico, has partnered with Huawei Cloud to provide efficient and innovative financial solutions.

In the Middle East and Central Asia, Huawei Cloud has served top customers in industries including governments, finance, oil and gas, mining, telecom, media and entertainment, e-commerce, and retail. By utilizing the high-security and low-latency services provided by our cloud Region in Riyadh, we deliver

quality cloud services alongside a vast range of innovative industry-specific solutions, as well as stable and reliable local delivery service assurance for our customers in the region. Starzplay, a leading OTT platform in the UAE, selected Huawei Cloud for their full-stack serverless architecture reconstruction. Following this move, they have been able to cope with traffic peaks during large-scale international sports events and guarantee a smooth HD viewing experience for 3.2 million viewers.

In Southern Africa, Huawei Cloud was the first international mainstream cloud service provider to provide hyperscale cloud services. In recent years, Huawei Cloud has continuously increased investment in cloud data center infrastructure. We have provided local cloud services in Johannesburg, South Africa, and become one of the top 3 players in the infrastructure as a service (IaaS) market in the country. In 2024, we also deployed the first hyperscale local cloud in Lagos,

Nigeria. The Passenger Rail Agency of South Africa has additionally migrated its virtualization system based on Huawei Cloud and benefited from around 40% higher efficiency in cloud instance provisioning.

In Northern Africa, Huawei Cloud is the fastest-growing cloud service provider and one of the best partners for digital transformation in the government and enterprise sector. In 2024, Huawei Cloud started providing local cloud services in Egypt to help customers in Northern Africa, as well as those in Central and Western Africa, create new value on the cloud. GB Corp, an Egyptian manufacturing company, adopted Huawei Cloud's one-stop solution, cloud-native technology, and cloud transformation deployment solution. This has allowed the company to strengthen its competitiveness, with our cloud helping it boost operational efficiency by about 50%, significantly enhance scalability and security, and reduce costs by around 30%.

Continuously Innovating to Build AI-native Clouds

In the age of AI, Huawei Cloud focuses on "AI for Industries" and is diving deep into industries to truly understand customer needs. Through constant innovation in products and technologies, Huawei Cloud delivers a secure, stable, and quality cloud service experience to our customers in the government and enterprise sector, and works alongside them to tackle the toughest challenges in their business scenarios.

CloudMatrix: AI-native cloud infrastructure for AI computing power

The scale of foundation models is exploding, quickly growing from tens of billions to hundreds of billions and even trillions of parameters. This is leading to rapid growth in demand for highly reliable and efficient AI computing power. As such, Huawei Cloud has launched CloudMatrix, an AI-native cloud infrastructure based on an architecture that features full-stack, system-level innovation. This is the industry's first cloud architecture that is purpose-built for AI and delivers optimal performance for heterogeneous computing. It interconnects and pools all resources, such as CPUs, NPUs, DPUs, storage, and memory, and flexibly schedules their use through the cloud platform. CloudMatrix represents an evolution in computing, moving from monolithic architectures towards a new matrix architecture. CloudMatrix is suitable for building AI-native cloud infrastructure where everything can be pooled, peer-to-peer, and composed.

Furthermore, Huawei Cloud provides AI cloud services through our three AI computing centers in China: Gui'an, Ulanqab, and Wuhu. These services deliver efficient, long-term stable, and reliable AI computing power for the training and inference of foundation models.

Pangu Models 5.0: Reshaping industries with foundation models

Huawei Cloud's Pangu models focus on industry-facing applications to help customers tackle the most challenging issues they face in specific scenarios and reimagine operations and efficiency across numerous industries. In 2024, Huawei Cloud launched Pangu Models 5.0, which have been fully upgraded to deliver competitive capabilities including full coverage of specifications, multiple modalities, and powerful reasoning. Pangu Models 5.0 include models trained with over 1 billion, 10 billion, 100 billion, and 1 trillion parameters. These model sizes mean Pangu models can be adapted to more business scenarios. Pangu Models 5.0 have been enhanced with spatialtemporal

controllable generation (STCG) and can more accurately understand the physical world through multiple modalities including text, images, video, radar, infrared, and remote sensing. Pangu models feature a deep combination of chain-of-thought technology and policy search, which greatly improves the models' ability to solve mathematical problems, plan complex tasks, and invoke tools.

Over the past year, Huawei Cloud's Pangu models have been used in more than 400 scenarios in over 30 industries. They have played a significant role in areas like government services, finance, manufacturing, pharmaceutical R&D, coal mining, steel manufacturing, railways, autonomous driving, industrial design, architectural design, and meteorology.

In meteorology, Huawei Cloud has worked with the Meteorological Bureau of Shenzhen Municipality to integrate high-quality regional meteorological datasets with a global model capable of forecasting at a resolution of 25 km. This integration produced a regional forecast model capable of forecasting at resolutions of 5 km, 3 km, and even 1 km, while accurately forecasting weather elements such as temperature, rainfall, and wind speed.

In logistics, Huawei Cloud has worked with a leading manufacturer to revamp their logistics with AI, identifying the best possible solutions for managing vehicles, purchase orders, goods, and transportation routes from among tens of billions of combinations. This has helped increase vehicle scheduling efficiency by 51%, reduce vehicle loading times by 41%, raise load factors by 9.6%, and improve per-capita efficiency by 50%.

Knowledge-centric data lake: Unleashing the value of data

To help enterprises simplify data use and improve model training efficiency, Huawei Cloud has upgraded the DataArts data governance pipeline to provide AI-oriented and knowledge-centric data foundations. This new version offers a number of new features, including AI and data convergence engines, data development and governance, knowledge services, and AI and data application enablement services. The upgraded DataArts significantly improves resource utilization and data supply efficiency.

Huawei Cloud databases: Upgrading six areas to accelerate large-scale adoption across industries

In 2024, Huawei Cloud's full portfolio of database products achieved major upgrades in six areas: architecture, models, reliability, security, intelligence, and ecosystem. These products have been widely used across multiple industries, such as banking, insurance, securities, government services, energy, transportation, retail, e-commerce, and IoT. They have been highly recognized by customers around the world. Furthermore, the outstanding performance of Huawei Cloud databases has been recognized by multiple international analyst organizations, and GaussDB Centralized, GaussDB Distributed, and TaurusDB have all passed security and reliability testing. These products offer our customers a reliable option as they pioneer digital and intelligent transformation.
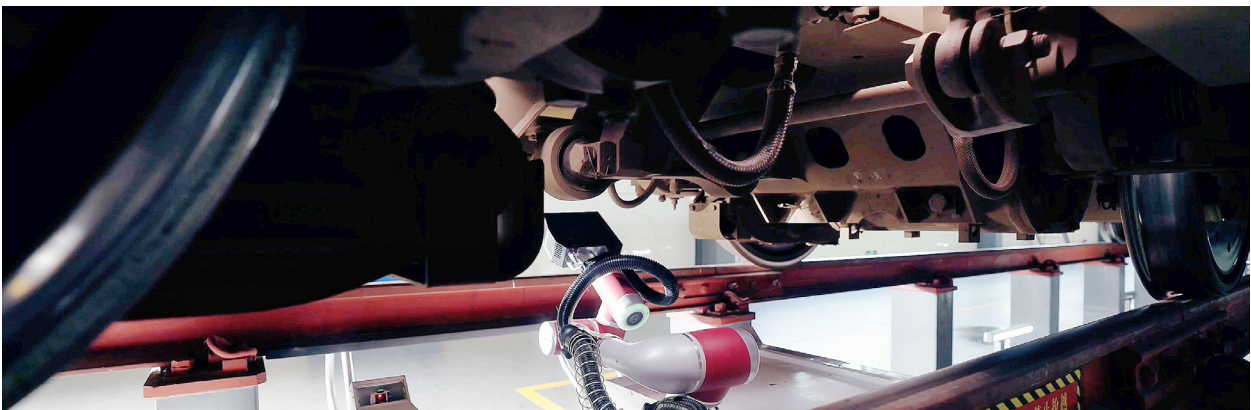
On railways, the Pangu model has been combined with inspection robots to accurately identify 32,000 inspection items of a train, covering more than 350 types of complex faults in 8 categories. This greatly improves the operational efficiency of high-speed railways and reduces costs.

In steel manufacturing, the Pangu model has helped China Baowu Steel Group Corporation predict the optimal parameters for its hot rolling production line. The model has helped to significantly reduce the time needed to optimize the line for a production run, and improve prediction accuracy and the finished product rate of steel sheets. In addition, the Pangu model is being used in blast furnace scenarios to simulate conditions such as furnace temperatures, molten iron temperatures, and silicon contents, giving operators greater control over the blast furnaces, reducing costs, and improving efficiency.

Creating a flourishing digital content ecosystem: Seamless AI voice translation

Huawei Cloud provides full-stack media service capabilities, including a low-latency global media network, media engines, and the MetaStudio digital content production pipeline. Huawei Cloud builds AI-native media infrastructure based on its abundant computing power, petabytes of high-quality audio and video data from specific scenarios, and artificial intelligence generated content (AIGC) technologies that combine computer graphics (CG) and computer vision (CV). Huawei Cloud is also working alongside ecosystem partners to develop more scenario-specific solutions and foster a thriving digital content ecosystem on the cloud. Huawei Cloud MetaStudio applies cloud and AI technologies to scenarios like virtual human generation, 3D content production, and AI translation, all of which take digital content production and application to the next level.

Pangu Doer: Reimagining customer interactions

Over the past year, Huawei Cloud has been reshaping and upgrading our offerings through an AI-native approach, and launched the Pangu Doer based on a "1 + N" architecture. This intelligent assistant system combines Pangu models with cloud services and empowers traditional cloud services with AI to help customers more efficiently and conveniently use Huawei Cloud.

The "1" in the architecture refers to the unified Huawei Cloud intelligent assistant, which provides intelligent service capabilities such as knowledge query, information inquiry, operation execution, and optimization-oriented analysis. These capabilities cover every aspect of enterprises on the cloud, from planning and use to maintenance and optimization, and allow Pangu Doer to reshape interactions between Huawei Cloud and customers.

"N" refers to the combination of Pangu models and the data and experience accumulated across common scenarios, such as product R&D, data analysis, security protection, and office collaboration. These are the scenarios that most frequently arise during the work processes of enterprise users. Huawei Cloud uses AI to provide dedicated cloud services to individuals working in these scenarios and help them improve efficiency.

In 2024, Huawei Cloud used AI for the Chinese-to-English voice translation of the documentary *To the Summit*. The documentary covers the story of Xia Boyu – China's first double amputee to scale Mount Everest. The documentary includes a large number of complex sounds and scenarios produced by the natural environment, such as snowstorms and avalanches, which often drown out the sound of speech. In addition, reflecting the intense emotion of speakers in the documentary in another language was also a complex task. Huawei Cloud overcame these challenges by using technologies such as the speech separation model and personalized emotional speech transfer. The resulting voice translations retain the timbre, emotion, and tone of those in the documentary, notably Xia Boyu, while employing a lip-movement–driven model for lip syncing. When he speaks, his English sounds natural and smooth, giving viewers a better viewing experience. This is an example of how Huawei Cloud uses full-stack media service capabilities to achieve Cloud for Good and infuse technology with a human touch.

CraftArts hardware development toolchain: Accelerating R&D innovation and intelligent manufacturing

Huawei Cloud CraftArts has continued to receive upgrades, with new releases including the industrial digital model engine (iDME) along with its high-value features, the industrial data exchange engine service (iDEE), the next-generation digital collaboration platform for product development (IPDCenter), the industrial simulation cloud platform (SIM Space), and the digital manufacturing cloud platform (MBM Space). The CraftArts toolchain facilitates the development of foundational technologies for the industrial cloud platform and continuously enriches this platform with new industry knowledge. Furthermore, Huawei Cloud works with industry operators, ecosystem partners, and industry customers in models such as cloud factories and industrial clouds, which facilitate collaboration across the industry value chain and drive the digital transformation and upgrade of industries.

Mainframe-to-Cloud Solution: The crucial final step in enterprise migration to the cloud

Core systems are the most critical business systems for all enterprises. In recent years, many large enterprises like banks have begun migrating their core systems from mainframes to the cloud. This move allows them to more agilely respond to market changes and keep pace with the intelligent era. Core system migration is the essential last step in enterprise migration to the cloud and their path to embracing All Intelligence.

In 2024, Huawei Cloud officially released the Huawei Mainframe-to-Cloud Solution for global customers. This solution helps customers build a new core system on the cloud that features high availability, simple O&M, and greater agility. Mainframe migration to the cloud is more than a simple replacement of mainframe or midrange computers. It is an architectural innovation that upgrades user experience for core systems. Currently, most banks in China have chosen to partner with Huawei to build their new core systems on the cloud.

Joining Hands with Partners and Developers to Build a Thriving Innovation Ecosystem on the Cloud

Huawei Cloud remains committed to building an ecosystem that is created and fostered by all to benefit everyone in it. Our cloud is an ecosystem that aggregates industry applications, as well as a platform that empowers developers and partners worldwide. By the end of 2024, Huawei Cloud had attracted more than 7.8 million developers and 45,000 partners from across the globe.

In 2024, Huawei Cloud released AppStage, a product of application platform as a service (aPaaS). AppStage provides one-stop application, data, and AI services and makes application management more efficient and intelligent. Cloud Device services, such as cloud phones and cloud spaces, have already entered large-scale commercial use, maximizing the business value of computing and storage power on the cloud. KooVehicle, the autonomous driving solution for dedicated vehicles, has been applied in areas such as mines and ports. It is the first solution of its kind to realize unmanned driving in a mine 5,000 meters above sea level. Through the industry aPaaS, Huawei Cloud actively promotes digital and intelligent solutions for government organizations and enterprises, while offering Expertise as a Service and accelerating the digital and intelligent transformation of industries.

Building a unified developer platform on Huawei Cloud

Huawei Cloud is building a unified developer platform and a cloud-based developer ecosystem centering on foundational technologies like Ascend, HarmonyOS, and Kunpeng. By doing so, Huawei Cloud provides a unified developer portal through which developers can continuously innovate based on a fundamental ecosystem. Meanwhile, the Huawei Developer Space connects developers to foundational technologies, developer toolchains, and developer resources so they can more easily access knowledge and develop apps anytime and anywhere. In 2024, more than 600,000 developers successfully applied for free resources within the Huawei Developer Space. In addition, Huawei Cloud has upgraded the Huawei Cloud Developer Institute, established a team of more than 1,000 Developer Technical Support Engineers (DTSEs), engaged with over 1,600 advocates, and supported more than 5 million learners.

Building a holistic, open, win-win partner ecosystem

Huawei Cloud focuses on capabilities and provides comprehensive support for partner capability and business development. In 2024, Huawei Cloud ramped up investment in policies, organizations, and enablement, and upgraded a number of its existing programs to expand the ecosystem around the world. These programs include the Partner Customer Engagement (PCE), the Software Partner Development Path, and the Service Partner Development Path. Huawei Cloud has also worked alongside partners to develop numerous joint solutions that target industry scenarios. We are using the PCE mechanism to share business opportunities that address customers' key requirements, helping businesses interconnect for shared success.

Within the startup ecosystem, Huawei Cloud has launched an AI for Startups enablement program to promote the innovation and commercialization of AI application scenarios and reshape industries with AI. Furthermore, Huawei Cloud provides the Huawei Cloud Startup Program and the Huawei Cloud Accelerator, which are aimed at supporting startups around the world. To date, Huawei Cloud has invested hundreds of millions of Chinese yuan to help more than 6,000 startups innovate on Huawei Cloud.

Huawei Cloud is continuing to enhance the platform capabilities of KooGallery and has launched the industry's first B2B AI application store. By the end of 2024, more than 8,000 partners had registered with KooGallery and released over 12,000 products which serve over 700,000 users around the world in more than 10 industries, including manufacturing, education, government services, and finance. KooGallery is also developing rapidly outside China, and the total transaction amount of partners' products in 2024 increased by more than 500% in these markets compared with 2023.

Digital Power Business

Carbon neutrality and intelligence are bringing society closer to a new green era. The integration of energy, transportation, and information is creating new opportunities in every industry. To seize these opportunities, Huawei Digital Power is developing new energy infrastructure for power systems, electric vehicles (EVs), and the digital industry, while focusing on renewable energy, mobility electrification, and digital transformation. By the end of 2024, Huawei Digital Power had helped customers generate 1.4113 trillion kWh of green power and reduce electricity consumption by 81.8 billion kWh. These efforts have reduced CO_2 emissions by more than 710 million metric tons, equivalent to planting 970 million trees.

We prioritize quality, and consider quality a key principle in digital power development. With a focus on key sectors, we continuously increase investment in quality, and are stepping up efforts to enhance the end-to-end safety and quality management systems. We have also been working to improve quality standards, optimize product and onsite deployment architectures, improve safety technology and engineering capabilities, build comprehensive organizational capabilities, and bring together and enable competency partners. These efforts have enhanced the quality of our management from our business planning, design, development, and manufacturing, to our procurement, go-to-market, sales, delivery, and operations & maintenance (O&M). We are also continuing to build quality and competitive products and services, and further improve customer satisfaction and the reputation of our products' quality, all while strengthening the core of our digital power business.

New Energy Infrastructure for Power Systems

Grid-forming technologies are one of the key pillars of new power systems, and many countries are racing to make breakthroughs in these technologies. We have developed the Smart String & Grid-Forming Energy Storage System (ESS) Platform to help drive the shift from grid-following and grid-supporting systems to grid-forming systems. This is part of our broader efforts to promote high-quality industry development.

Our FusionSolar smart PV and ESS solutions provide new options for utility-scale plants, grid-forming ESSs, microgrids, commercial & industrial (C&I) systems, residential systems, and more. These solutions are being used to develop new energy infrastructure for power systems. In 2024, Huawei PV inverter shipment reached about 176 GW.

- Utility-scale plants: Our smart PV and ESS solutions increase operational efficiency throughout a plant's lifecycle, so that customers can turn their facilities into safe, reliable clean energy plants that remain grid friendly, support smart O&M, and provide lower levelized cost of electricity (LCOE).

- Grid-forming ESSs: Our Smart String & Grid-Forming ESS Platform has built safety into every level of its architecture to provide all-scenario grid-forming, full-lifecycle cost-effectiveness, and full-link digitalization. It significantly improves power grid stability and renewable energy consumption by allowing increased penetration of renewable energy into the grid.

- Microgrids: Our microgrid solutions focus on building synergy between power generation, grids, loads, and storage to provide completely green on-grid and off-grid power supply. These microgrid solutions also provide safe, reliable, and economical green power in remote areas without mains supply, such as mines and islands.

- C&I: Our FusionSolar C&I One-Fits-All Solution helps enterprises reduce energy consumption costs while increasing renewable energy utilization to help industries go green and low-carbon.

- Residential: Our one-stop FusionSolar Residential Smart PV Solution brings together a number of technologies and products to support the construction of a green, autonomous residential power ecosystem. The solution uses optimizers, PV inverters, ESSs, chargers, electrical loads, grids, and management systems to maximize self-consumption and self-sufficiency and unlock intelligent power consumption management. This is helping more families achieve a low-carbon lifestyle.

Left: In the Middle East, Huawei helped build the world's largest microgrid plant along the coast of the Red Sea. The plant uses a 400 MW PV system, a 1.3 GWh ESS, and large-scale grid-forming technology to power a local city with 100% renewable energy. By the end of 2024, the plant's 16 straight months of stable operations had produced more than 1 billion kWh of green power.

Right: In November 2024, one power plant in China's Tibet region successfully transitioned from grid-following to grid-forming systems using a 30 MW PV system and a 6 MW/24 MWh ESS from Huawei. The plant, located in a cold, mountainous region 4,600 meters above sea level that is plagued by a weak power grid, uses grid-forming capabilities to increase its PV power output by 8-fold from 1.5 MW to 12 MW when at full capacity.

Left: One office campus in Kronenburg in the Netherlands became the first in Europe to deploy an energy project that integrates optimizers, PV inverters, ESSs, and chargers. This approach has effectively helped the customer address the power supply rationing and electric vehicle charging problems caused by their low power supply and limited mains supply. It has also eliminated the need for mains supply network reconstruction on the campus and is helping the customer get closer to achieving self-consumption and self-sufficiency – a key step in making this campus net-zero carbon.

Right: The Swedish town of Gnesta is building a sustainable green community by deploying Huawei's residential PV and ESS systems to achieve 100% self-consumption of green electricity. By the end of 2024, more than 1,000 of the town's 2,000-plus households and facilities, including ceramics studios and the homes of race car drivers and engineers, had installed Huawei PV and ESS systems.

New Energy Infrastructure for EVs

We have launched hyper-converged e-Mobility solutions and FusionCharge solutions for the mobility industry to help accelerate its electrification. These solutions are used to build new energy infrastructure for EVs so that charging a vehicle is as easy as refueling one.

Smart Charging Network

In the smart charging network domain, Huawei focuses on core technologies and is committed to working with other industry players to construct high-quality charging infrastructure. We are also working with partners up and down the value chain to build an ultra-fast charging ecosystem that thrives on joint research, co-development, and sharing. This initiative is designed to speed up the deployment of fast and ultra-fast charging across all scenarios and promote the adoption of EVs.

- For passenger vehicles, Huawei FusionCharge solutions deliver superior quality, optimal ROI, and excellent experience – one that is fast, quiet, convenient, and safe.

- Our dual-connector fast charging, dual-connector ultra-fast charging, and dual-connector megawatt charging solutions support efficient charging, high-quality operation, and extremely low power loss for all commercial vehicles, especially the heavy-duty trucks used in logistics.

By the end of 2024, we had worked together with our customers and partners to deploy more than 50,000 fully liquid-cooled fast and ultra-fast chargers in more than 200 cities in China and roughly a dozen regions outside China. Moving forward, we will rapidly expand the reach of our smart charging network to cover cities, intercity transport, logistics, and campuses, achieving our vision of "jointly charging the road ahead".

Left: In September 2024, ultra-fast chargers became available along the entire G318 Highway in China, marking the completion of the world's highest-altitude ultra-fast charging network. This network is intended to serve as a national benchmark for green and low-carbon roads. By the end of 2024, Huawei had worked with its customers and partners to deploy 36 fast and ultra-fast charging sites at an average altitude of 3,720 meters above sea level along the highway. These charging sites deliver an optimal charging experience to users and are helping unlock green mobility.

Right: Shenzhen Metro Lingye Charging Station, a key pillar of Shenzhen's City of Superchargers project, has recently completed its first phase of development. It uses two of Huawei's fully liquid-cooled ultra-fast charging power units, which can output a maximum of 720 kW and are equipped with four 600 kW liquid-cooled ultra-fast charging connectors and twenty 250 kW fast charging connectors. This station can charge more than 500 vehicles a day, and has an average daily charging capacity of 600 kWh per charging connector – much higher than industry average. In addition, the station delivers excellent user experience with its silent operations and high-quality assurance systems.

DriveONE

The Huawei DriveONE team provides ePowertrain systems and other highly stable and reliable products and solutions that deliver optimal performance for pure electric and extended-range hybrid vehicles. Built using integrated die-casting, our DriveONE products can increase vehicle efficiency to 92% according to the China light-duty vehicle test cycle (CLTC) and support an industry-leading motor speed of 22,000 revolutions per minute and a torque of about 687 N·m. We also use multiple technologies such as iTrack and device-cloud collaboration to achieve ultra-long ranges, strong power, and intelligent driving functions. These features improve user experience. In addition, when equipped with our kilovolt-level high-voltage platform, these vehicles can drive for around 200 km with only 5 minutes of charging, which reduce user range anxiety.

As of December 2024, our ultra-high-efficiency, high-voltage ePowertrain platform, which comes equipped with silicon carbide (SiC), had won wide recognition from across the industry and been put into large-scale commercial use by many carmakers. By the end of 2024, over 1.3 million of these powertrain systems had already been shipped.

Power safety is a critical issue for new energy vehicles. The Huawei DriveONE team puts quality first to ensure its products operate with "zero risks and zero accidents". We have built end-to-end quality standards and processes for all phases of our DriveONE product lifecycle, from material sourcing and design to system verification and manufacturing. We are also working with industry partners to further improve quality.

Left: The STELATO S9 comes equipped with Huawei's DriveONE high-voltage SiC ePowertrain which can achieve up to 200 km of range with only 5 minutes of charging and provides a CLTC range of 816 km. The STELATO S9 also supports features like fast charging, low power consumption, and long range, providing a premium and comfortable driving experience.

Right: The LUXEED R7 Extended Range Edition uses Huawei DriveONE intelligent range extension to achieve 5.43 km of range for every 1 kWh of charge. It has also reduced its fuel consumption to 5.68 liters per 100 km when the battery is drained. This energy-saving and fuel-efficient car can even serve as a mobile power station by providing 6 kW of output power for other devices, making travel more fun.

New Energy Infrastructure for the Digital Industry

To support digital transformation, we have continued to build new energy infrastructure for the digital industry that includes data center facility and site power facility solutions. We want to reduce the energy consumption and carbon emissions of every bit of data generated, and help bring the world more green computing power and connections.

Data Center Facility and Critical Power

The world's increasing demand for intelligent computing is creating huge opportunities for the data center industry. Through continuous technological innovation, Huawei has developed an array of scenario-based solutions for intelligent computing data centers. We are committed to succeeding through quality and putting security and reliability first in order to support the construction of highly reliable computing facilities that will power the digital era forward.

■   FusionPower is a series of integrated power supply and distribution solutions that support fast delivery and flexible capacity expansion, offering novel approaches to the flexible power supply needed for intelligent computing. Our FusionDC prefabricated modular data center solutions adopt a "1 + 4 + N" ecosystem design, which includes *1* unified architecture, *4* core modules, and collaboration with *N* excellent ecosystem partners. With these solutions, we can now build 1,000-rack data centers in just six months and support reliable, agile, and sustainable data centers throughout their lifecycles.

■   Our FusionModule series supports fast delivery, high-density deployments, efficient cooling, and intelligent O&M of data centers.

With the era of intelligent computing fast approaching, Asia-Pacific is rapidly emerging as a global hub for intelligent computing data centers. A landmark Malaysian data center project in Johor has adopted Huawei's FusionPower9000 solution which comes with a fully decoupled architecture that supports one power system per container and rapid integrated deployment. This solution has halved the data center's time to market to 10 months, setting a global benchmark for intelligent computing data centers.

The SERES Super Factory is an example of China's recent achievements in smart manufacturing. It has more than 1,600 sets of intelligent equipment and more than 3,000 robots used for intelligent collaboration. The factory used Huawei's FusionModule2000 and its integrated design to deploy a data center in just seven days, setting a new record in data center construction speed. In addition, the data center is powered by the Huawei UPS5000-H, which delivers reliable, extremely efficient power supply.

Site Power Facility

Huawei is also working to help carriers and tower companies build simplified, green, and reliable site power facilities, accelerate their transition to green and low-carbon energy, and transform from energy consumers into energy prosumers.

- **We are working with energy consumers to develop highly resilient networks that minimize total cost of ownership (TCO) and achieve carbon neutrality:**

  - Our trend-setting "One Site One Cabinet" and "One Site One Blade" solutions are redefining simplified site construction and site capacity expansion by improving site energy efficiency to about 97%.

  - Our iSolar PV deployment solution enables sites to replace diesel generators with solar panels, increasing green energy utilization rates to 100%.

  - Our CloudLi intelligent lithium batteries offer high-quality and low-cost ESSs for sites.

  - Our smart site solution supports intelligent site O&M and visualizes energy efficiency, reducing manual site visits by about 80%.

- **Energy prosumers use Huawei solutions to coordinate sites and power grids for energy monetization.**

  - Our Site Virtual Power Plant (VPP) Distributed ESS Solution allows sites to engage in multiple power services, such as demand-side response, frequency response, and peak staggering, which unlock new revenue streams for these sites.

In Malaysia, Huawei helped one customer build solar-powered sites in remote mountainous areas. The sites that receive sufficient sunlight can now be fully powered by solar, which eliminates their carbon emissions, reduces average site energy OPEX by more than 90%, and increases power availability from less than 85% to over 99.5%. In addition, Huawei's intelligent site management system NetEco allows O&M personnel to perform site O&M remotely, eliminating their twice monthly site visits while significantly improving project operation experience.

Huawei Digital Power is committed to building an ecosystem-centric business, and establishing a partner system that is defined by trust, profitability, simplicity, and growth. We are working to achieve collaborative development with various partners and promote high-quality industry development.

Consumer Business

2024 marked the first year of the Consumer BG's new decade of development and during this year, we stayed consumer-centric to deliver an unparalleled intelligent experience to consumers across all scenarios. We have worked hard to create a high-end, fashion-forward, and technology-driven brand that appeals to consumers and has a human touch.

In 2024, our flagship smartphones were back in the fast lane. We returned to regular product launches and brands were upgraded, comprehensively improving our competitiveness. Our new Pura Series became an industry leader in imagery and design, and the HUAWEI Mate XT | ULTIMATE DESIGN was named one of the Best Inventions of 2024 by *TIME* magazine thanks to its cutting-edge breakthroughs that blew the competition out of the water.

Our wearables became bestsellers in the global market, achieving the largest market share in more than 10 countries and regions outside China with shipments ranking No. 1 globally for three consecutive quarters. A number of our innovative wearables won high acclaim among consumers worldwide. In particular, over two million HUAWEI WATCH GT 5 Series units were shipped within 20 days of launch. By the end of 2024, our tablets also ranked No. 1 in China in terms of market share for four consecutive quarters, representing a historic breakthrough.

In 2024, HarmonyOS 5 was officially launched after 10 years of persistent investment. More than 20,000 HarmonyOS apps and atomic services have been launched, and over 7.2 million registered developers have joined the HarmonyOS ecosystem. HarmonyOS Smart Home also achieved rapid growth, ranking No. 1 in sales in the Chinese market.

Multiple Harmony Intelligent Mobility Alliance (HIMA) vehicle models were launched by four brands (AITO, LUXEED, STELATO, and MAEXTRO) as the alliance grew by leaps and bounds. Throughout the year, more than 430,000 HIMA-powered vehicles were delivered, and these vehicles ranked No. 1 in terms of the average transaction price in the Chinese high-end segment for five consecutive months. This also greatly enhanced the competitiveness of our vehicle components.

Leading the Industry Through Innovation and Building a High-end, Fashion-forward, and Technology-driven Brand

Over the past several years, the Consumer BG has been working hard to deliver an unparalleled intelligent experience to consumers across all scenarios. We have continued to enhance the presence of Huawei devices across all scenarios, aiming to deliver a compelling intelligent experience to consumers across five major scenarios: HarmonyOS Office, Fitness & Health, HarmonyOS Smart Home, HIMA-powered Smart Travel, and Entertainment.

Smartphones

In 2024, we forged ahead together with our ecosystem partners, other partners, and our consumers in order to build a brighter future. In the first half of the year, we launched the HUAWEI Pocket 2 and HUAWEI nova Flip, and unveiled our new Pura brand – the spiritual successor of our P-series phones – with the HUAWEI Pura 70 Series. In the second half of the year, we launched the HUAWEI Mate XT | ULTIMATE DESIGN, HUAWEI nova 13 Series, HUAWEI Mate 70 Series, HUAWEI Mate X6, and more. These smartphones continued to win high acclaim from consumers around the world.

We have worked tirelessly to build a high-end brand. The HUAWEI Mate 70 Series, the year's long-awaited flagship smartphones from Huawei, was launched at the Huawei Mate Brand Gala held on November 26, 2024. The HUAWEI Mate 70 Pro+ features a number of notable breakthroughs:

- It revolutionizes aesthetics design, using a micro-nanometer 3D printing technique to construct a super-strong rear panel made from golden-thread vegan fibers woven together with silver silk.

- The phone comes with the industry's first super durable high gloss titanium architecture which uses a titanium-aluminum alloy refined through multi-stage heat treatment to eliminate impurities and improve reliability.

- This is also the first device that comes with the Ultra Chroma Camera, which is equipped with 1,500,000 spectral channels to produce incredible true-to-life colors.

- The industry's first satellite paging feature enables the phone to receive satellite SMS without a constant satellite connection. This means users can stay connected at all times and will never miss important notifications or SMS messages.

HUAWEI Mate70 Pro

Thanks to software-hardware-chip-cloud synergy, the HUAWEI Mate 70 Series has significantly improved photo and video shooting capabilities as well as performance.

In the foldable phone market, Huawei continues to lead the way in industrial design and experience, and has once again redefined the industry with an innovative form factor. The HUAWEI Mate XT | ULTIMATE DESIGN, the world's first-ever commercial tri-fold smartphone, has made the impossible possible. It is the world's largest foldable phone with a gigantic 10.2-inch immersive display[1], while also remaining the world's thinnest foldable phone with a thickness of just 3.6 mm[2]. It is a versatile innovation that pushes the boundaries of what is possible on a smart device, winning it the title of one of the Best Inventions of 2024 by *TIME* magazine, and opening a new chapter of foldable phones.

The HUAWEI Mate X6, our brand-new dual-fold flagship smartphone, features an Innovative Distributed Architecture that improves signal, cooling, and durability performance. The all-new Ultra Chroma Camera more accurately reproduces true colors than traditional phone cameras, and the large screen combined with Live Multi-task delivers the best-in-class intelligent, immersive, and efficient experience.

The HUAWEI Mate XT | ULTIMATE DESIGN, the world's first-ever commercial tri-fold smartphone, was named one of the Best Inventions of 2024 by *TIME* magazine and became a new industry leader.

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[1] Among all foldable smartphones launched by September 10, 2024, the HUAWEI Mate XT | ULTIMATE DESIGN features the largest screen. When in Triple Screen, the screen measures 10.2 inches diagonally across, assuming a standard rectangle. The actual display area may be smaller than the stated value, due to the presence of rounded corners.

[2] Among the foldable smartphones launched by September 10, 2024, the HUAWEI Mate XT | ULTIMATE DESIGN is the thinnest commercially available foldable smartphone. The thickness in Triple Screen does not include the thickness of the screen frame and rear camera module. Data comes from Huawei labs. Actual product dimensions may vary depending on the product configuration, manufacturing process, and measurement method.

HarmonyOS Office

HarmonyOS Office is focused on the "Creation of Beauty". Therefore, Huawei is working hard to achieve this vision by enabling more convenient connectivity, smoother flow of information, and more intuitive human-machine interactions through multi-device collaboration and ecosystem integration.

In 2024, we launched GoPaint, our new painting app for tablets. Together with the HUAWEI M-Pencil powered by NearLink technology and the PaperMatte™ Display, the app brings consumers a superb digital creation experience. Our GoPaint Worldwide Creating Activity digital creation event provides a new place for consumers around the world to unleash their creativity and share in the joy of creation.

The new HUAWEI MatePad Pro 13.2-inch comes equipped with HarmonyOS 5 and delivers improved productivity and experience. From 2023 Q4 to 2024 Q3, Huawei maintained the top position in the Chinese tablet market in terms of market share for four consecutive quarters.

Our new flagship laptop, the HUAWEI MateBook X Pro, strikes the ideal balance between portability and performance, creating a new paradigm of lightweight laptops weighing under 1 kilogram. The HUAWEI MateBook GT 14, with its new cooling system and sleek, cutting-edge design, is our newest flagship laptop and delivers professional-level performance and a premium experience.

French illustrator Mayada sharing how to use the GoPaint app and explore the ease of creativity with digital art enthusiasts at the HUAWEI Flagship Store in Paris

Fitness & Health

2024 marked the 11th year since our entry into the smart wearables domain in 2014. In this domain, we continued to innovate and provide consumers with a broad portfolio of products and quality services. By the end of 2024, over 182 million Huawei wearables had been shipped around the world. In addition, the HUAWEI Health app had achieved 110 million monthly active users and served more than 540 million users worldwide.

The Consumer BG launched multiple innovative wearables in 2024 as it entered this next decade of growth:

- The new HUAWEI WATCH ULTIMATE DESIGN Gold edition was launched, delivering an extraordinary technological experience thanks to its premium materials and cutting-edge craftsmanship.

- The HUAWEI WATCH Ultimate Series was newly equipped with a Golf Courses Map feature and its two-way BeiDou satellite messaging capabilities were upgraded to better assist outdoor explorers during their adventures.

- The HUAWEI WATCH GT 5 Series adopted a new sharp-edged design as well as the new HUAWEI TruSense System and emotional wellbeing feature. It is also powered by the HUAWEI Sunflower Positioning System which supports pro-level tracking for sports like golf and trail runs.

- The HUAWEI WATCH D2 is the industry's first smart watch to support ambulatory blood pressure monitoring. Its Health Glance feature[1] allows users to identify potential health risks earlier and better understand trends in their overall wellness.

- The HUAWEI WATCH FIT 3 features a square screen and ultra-slim and stylish design. It supports all-round health management through Stay Fit and Smart Suggestions features, providing personalized, science-based fitness and diet recommendations.

The new HUAWEI TruSense System brings together all of the company's latest advances in vital sign monitoring, taking wrist-based health monitoring capabilities to new heights by shifting from indicator-by-indicator measurements to multi-dimensional

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[1] This feature is not medical software, and should not be used to treat medical conditions. Results are for reference only, and should not be used for medical diagnosis or treatment.

tracking. This system is a new milestone for Huawei in the wearable technology field thanks to the breakthroughs made in health monitoring accuracy, comprehensiveness, and speed. The HUAWEI TruSense System's platform capabilities have also been opened up to the entire industry, academic, research, and healthcare ecosystem around the world, helping both partners and users develop seamless, convenient, and proactive health management methods. To date, 1,225 apps have been connected to Huawei's wearables ecosystem, and we have implemented 274 health research projects with partners. Through these actions, we are working with partners around the world to nurture a thriving global fitness and health ecosystem.

Building on our existing broad portfolio, we have also launched the "Light Up Your Rings" campaign to build a deep bond with consumers around the world. The HUAWEI Activity Rings feature, commemorative medals, and a points system help users maintain healthy lifestyles and exercise habits through fun experiences. During the summer of 2024, Huawei held offline activities in the HUAWEI Flagship Stores in Paris, Berlin, and other major cities to encourage local consumers to stay healthy. Throughout the year, more than 100 offline events were held, with all three rings being completed more than 212 million times, helping participants reach new heights in their fitness and wellness journeys.

HarmonyOS Smart Home

In 2024, Huawei, together with the Chinese Ministry of Housing and Urban-Rural Development's Center of Science and Technology Industrial Development, led the development of industry standards for high-quality homes. The implementation of industry policies has improved confidence across the smart space industry, and accelerated the iteration of smart space products across the value chain. This policy and standards support has also accelerated industry development.

We have become deeply involved in the real estate market. We have established extensive strategic partnerships with more than 200 respected real estate developers to jointly drive industry transformation and accelerate intelligent development within the real estate industry. Together, we are reshaping the smart living space ecosystem.

We took a forward-looking approach to engage with top designer groups by jointly hosting a designer contest that attracted more than 200,000 designers. We have worked to integrate their cutting-edge design concepts with Huawei HarmonyOS Smart Home technologies to boost innovation in the home decoration market. This has improved the user awareness and brand reputation of Huawei HarmonyOS Smart Home. The Consumer BG leverages technology to pioneer a new age for smart homes as we develop a blueprint for the intelligent life of the future.

Fitness & lifestyle influencer and HUAWEI Wearable Product Ambassador Pamela Reif (right, front row) leading a group of users in a "Light Up Your Rings" event at the HUAWEI Flagship Store in Berlin

Entertainment

In 2024, HUAWEI SOUND, Huawei's all-scenario intelligent acoustics brand, was upgraded to become the exclusive provider of Huawei's high-end acoustic technologies and sound effects. Its logo can be found on our products across all scenarios, including headphones, PCs, tablets, HUAWEI Vision products, speakers, and HIMA-powered flagship vehicles, helping provide consumers with an authentic, immersive, and powerful audio experience.

The HUAWEI FreeBuds Pro 4, the first TWS earbuds launched with the upgraded HUAWEI SOUND brand, supports 2.3 Mbps lossless transmission, thanks to the Huawei-exclusive L2HC 4.0 audio codec technology. The earbuds are tuned in collaboration with China's Central Conservatory of Music to recreate authentic sounds. These earbuds come with an advanced call noise cancellation feature that ensures calls are always crystal clear, even when at concerts or during football matches at stadiums. They also utilize the HarmonyOS ecosystem, becoming the first earbuds that deeply integrate with the Celia voice assistant.

The HUAWEI FreeBuds 6i is a trendy and versatile offering that comes with the Intelligent Dynamic ANC 3.0 to seamlessly optimize noise cancellation for users' surroundings and strike the ideal balance between immersive experience and comfort. A new color option has been introduced for the HUAWEI FreeClip earbuds, and a drop reminder feature has been added to further enhance user experience.

In content services, HUAWEI Music continues to provide high-quality and all-scenario audio services and experiences. It partners with global copyright holders to provide a library of tens of millions of songs from around the world, with every song available in ultra HD audio and spatial audio. HUAWEI Music has utilized the technologies provided by the HarmonyOS ecosystem to build an audio matrix covering 15 scenarios, including headphones, smart speakers, intelligent cockpits, HUAWEI Vision products, and wearables. Together, they provide users with a convenient, intelligent, and high-quality audio experience across all scenarios.

In 2024, Huawei launched multiple new HUAWEI Vision products, bringing more high-quality entertainment and innovative intelligent interaction experiences to consumers. A prime example is the HUAWEI Vision V5 Max 110 – the first device to come equipped with the Black Diamond Screen, becoming the new benchmark for MiniLED TVs. Despite the Chinese TV market's overall shipment decline, shipments of the HUAWEI Vision V5 Max 110 increased, and it grabbed a 42.3% and 48.2% market share in the CNY20,000 and CNY30,000 segments, respectively, further cementing Huawei's leadership in the high-end market.

Official Launch of HarmonyOS 5

In 2024, Huawei officially launched HarmonyOS 5. More than 20,000 HarmonyOS apps and atomic services have been launched, over 7.2 million registered developers have joined the HarmonyOS ecosystem, and over one billion devices now run on HarmonyOS.

In 2019, we launched HarmonyOS, the industry's first all-scenario distributed operating system. A core concept underpinning HarmonyOS is the possibilities created when different devices are powered by a single OS. Following four iterations, HarmonyOS powers a wide array of products including smartphones, tablets, wearables, HUAWEI Vision products, and HarmonySpace Cockpit, and supports their intelligent collaboration across all scenarios, consistently bringing innovative experiences to hundreds of millions of consumers. In 2024, HarmonyOS 5 was officially launched. With a complete overhaul from the inside out, this release marks the most significant upgrade made to HarmonyOS since its conception.

New architecture: HarmonyOS 5 adopts a brand-new system architecture that deeply integrates software, hardware, the cloud, and apps to dramatically increase system smoothness and battery performance. The HUAWEI Mate 60 Pro, powered by HarmonyOS 5, is 30% smoother than its predecessor and its battery life is 56 minutes longer. In terms of all-scenario experience, thanks to the all-new DSoftBus, HarmonyOS 5 can support three-times more connections that transmit four-times faster while consuming 20% less power. Devices across all scenarios can be automatically interconnected and effectively collaborate when in close proximity.

New experience: HarmonyOS 5 delivers an enhanced experience across the board, offering increased intelligence, enhanced security, and smoother performance.

■ Its balanced appearance and feel provide users with a more immersive and engaging visual and interactive experience.

On October 22, 2024, Huawei launched HarmonyOS 5 to deliver consumers a high-quality experience with exquisite design, seamless interconnection, advanced intelligence, robust security, and smooth performance.

- All-scenario interconnectivity allows the easy transfer and sharing of apps, services, and content between different devices, giving users a consistent cross-device experience.

- The Celia voice assistant is now supported by Pangu models, making it a more professional, convenient, and considerate choice for user queries. The new Celia Voice Enhancement feature also helps speaking-impaired users communicate with newfound ease, giving technology a human touch.

- The all-new HarmonyOS Security Architecture better protects privacy (including user images, files, and contacts) from the ground up and ensures the security and reliability of apps and atomic services.

- The innovative system architecture and HUAWEI Ark Engine massively improve system performance, and deliver smoother-than-ever gaming and other experiences.

New ecosystem: Huawei has worked with partners and developers around the world to build the HarmonyOS ecosystem. This ecosystem has developed at incredible speeds, making breakthroughs in 2024 alone that took other operating systems over 10 years to achieve.
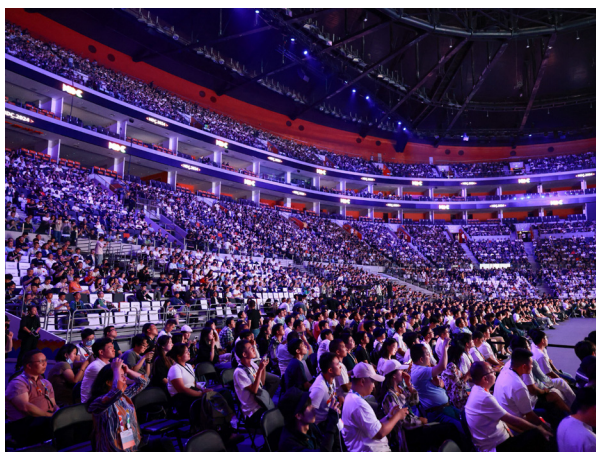
The Huawei Developer Conference 2024 opened on June 21, bringing together thousands of developers from around the world. Users and developers of different ages gathered to get a hands-on experience in the accelerated development of the HarmonyOS ecosystem.

In 2024, the development of the HarmonyOS ecosystem was supported by a wide range of partners and developers. HarmonyOS apps and atomic services have been rapidly launched on AppGallery across numerous domains, including social networking, office productivity, lifestyle tools, navigation, finance, travel, entertainment, news, books, education, and gaming.

Huawei is committed to delivering new experiences on HarmonyOS apps. For example:

- For the first time, HUAWEI Video introduced a design inspired by camera elements such as light, shadow, and close-ups. The AiMax Cinema Zone also offers audio-visual effects like 4K HD image quality, HDR Vivid, and Audio Vivid.

- In HUAWEI Music, the Concert Hall section features top music brands, national music organizations, and well-known artists.

- HUAWEI Books combines quality literature with exclusive animations and artistic fonts.

- In HUAWEI Browser, the Vision section curates top global news stories from more than 500 authoritative media outlets on a daily basis.

- HUAWEI Wallet has introduced an engaging Tap to Pay feature using near-field sensing technology, allowing users to share content with a single tap.

- HUAWEI Mobile Cloud delivers a consistent experience on both devices and the cloud, allowing users to watch or share images or videos on the cloud as conveniently as if they were stored locally.

In the four-plus years since the OpenHarmony open source project was launched, more than 390 ecosystem partners and 8,100 contributors have submitted over 120 million lines of code. Furthermore, more than 960 hardware and software products have passed compatibility tests by the OpenHarmony community, and OpenHarmony has become the fastest-growing open source community for smart device OSs. It has been extensively applied in multiple sectors including transportation, healthcare, electric power, finance, education, and consumer electronics.

New HarmonyOS ecosystem talent are also constantly being cultivated. In the Chinese market, by the end of 2024, more than 6.14 million people had joined HarmonyOS Workshops, 229 open courses on HarmonyOS had been taught at universities, and approximately 395,000 developers had obtained HarmonyOS app developer certification. Over 280 industry-academia partnership programs on HarmonyOS had also been launched by the end of the year. These many achievements are all signs that the talent pool for a thriving HarmonyOS ecosystem is constantly growing.

Premium apps on HarmonyOS 5 have all been updated to bring users high-quality digital content including video, music, books, and news through more immersive interactions.

Retail and Services: In-Store Experience, Corporate Social Responsibility, and Environmental Protection

Huawei is committed to building "community living rooms" that are open to consumers so they can enjoy an intelligent experience across all scenarios. By focusing everything we do on consumer experience, we strive to deliver a smooth and personalized product experience to consumers, jointly build and share the HarmonyOS ecosystem, and give our brand a human touch through marketing, sales, and services.

In 2024, we continued to build and upgrade our large HUAWEI Flagship Stores and HUAWEI Smart Life Stores that can be found in major cities around the world. These stores provide immersive and intelligent experiences to local consumers across all scenarios, particularly in interactive automotive and smart home settings. In addition, we provided more considerate store services and put communities first. By the end of 2024, Huawei had 16 Flagship Stores around the world, and 393 Smart Life Stores each with a total floor space of over 500 square meters.

By focusing on improving consumer experience and integrating with local culture at our stores, Huawei has built vibrant "community living rooms" that bring technology and people together while providing considerate and professional store services. Some stores have upgraded their fitness & health sections, child-friendly interactive spaces, or after-sales service sections, along with special customer services including complimentary coffee, gift packaging, birthday gifts, free delivery, and free protective film attachment, bringing more convenience to consumers and making each of their visits a pleasant experience.

In 2024, Huawei stores continued to engage and grow with their communities. Through Discover HUAWEI events, they provided more than 510,000 free classes that attracted more than 3.07 million consumers. In addition, our stores organized community activities like "Light Up Your Rings", GoPaint, and XMAGE events, as well as the HUAWEI Summer Camp and community concerts. We also work hard to make sure no one is left behind in the digital world by sharing our devices' accessibility features in every Flagship Store, which aims to help visually- and hearing-impaired users embrace a tech-enhanced life.

In the service domain, the Consumer BG has implemented a range of innovative initiatives and provided considerate services to show care for consumers and fulfill our corporate social responsibilities. By the end of 2024, we had more than 2,000 Huawei Authorized Service Centers covering 50 countries and regions. Throughout the year, these centers conducted over 930 million consumer interactions worldwide.

We take consumer needs seriously, and require our team to handle them with the utmost professionalism. On October 10, 2024, Huawei became the first Chinese smartphone brand to provide video-based customer services using sign language for hearing-impaired users. By leveraging our technological expertise and innovations, these services help users overcome communication obstacles and gain equal access to the digital world, and are a testament to Huawei's commitment to enhancing accessibility and building a brand that has a human touch and appeals to all types of consumers.

Huawei's device refurbishment services have played an important role in our environmental protection and carbon reduction efforts. By selling recycled and refurbished second-hand devices, we are able to not only extend the service life of Huawei products, but also reduce the environmental impact of electronic waste and recycle important resources. By the end of 2024, we had refurbished nearly one million devices using strict official refurbishing standards and sold them for reuse. Moving forward, we will further optimize our recycling and refurbishing processes so that more devices can be reused. In addition, we have increased R&D investment in environmentally friendly materials and energy saving technologies in order to drive the green development of the entire industry.

As part of Huawei's TECH4ALL initiative, HUAWEI Flagship Stores offer digital literacy training to senior citizens across China, providing them with information accessibility and helping them bridge the digital divide and bring new possibilities to life.
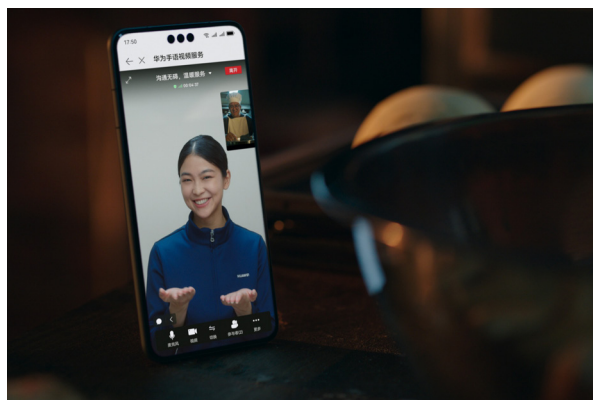
Video-based services in sign language give hearing-impaired users equal access to the digital world and help them embrace a tech-enhanced life.

Intelligent Automotive Solution Business

Industry Trends

In 2024, the new energy vehicle (NEV) market continued to grow rapidly driven by intelligent transformation. China's monthly NEV penetration rate peaked at 52% last year, and more than 70% of NEVs priced at CNY200,000 and above now come equipped with L2 or higher-level autonomous driving systems. Furthermore, advanced intelligent driving functions, like Navigation Cruise Assist (NCA) in urban areas, are becoming increasingly common. This has led to more advanced autonomous driving functions and better intelligent cockpit experiences becoming the two top priorities for NEV buyers.

Huawei is determined to remain a provider of new intelligent components for vehicles. In line with this strategic position, our Intelligent Automotive Solution (IAS) business unit will continue to pursue technological innovation and industry leadership in key intelligent services and leverage Huawei's ICT expertise to provide customers with intelligent solutions that deliver unparalleled experiences. We will prioritize quality, safety, and security, and work with ecosystem partners to create both business and social value.

Business Development

At the beginning of 2024, we released a new brand centered on intelligent driving, as part of our broader efforts to dive deep into technologies, lead the development of intelligent vehicles, and bring intelligence to every vehicle. The HUAWEI Intelligent Automotive Solution business has also grown rapidly over the last year, and we shipped more than 23 million sets of intelligent automotive components in 2024, nearly seven times more than were shipped in 2023.

HUAWEI ADS and HarmonySpace Cockpit are widely recognized as leading brands in automotive intelligence. The HUAWEI Vehicle Control, HUAWEI Automotive Optics, and HUAWEI Vehicle Cloud businesses are also developing rapidly. We are working with more than 600 partners along the value chain to provide car OEMs with quality automotive components that offer premium experiences. By the end of 2024, 15 vehicle models that we helped car OEMs launch had become benchmarks for mid-range and high-end vehicle models in the NEV market. These vehicle models come with a variety of propulsion systems (extended-range, pure electric, and hybrid vehicles), in a number of form factors, including compact cars, SUVs, MPVs, and off-road vehicles.

Value Creation

We are currently turning our technical strengths into brand potential to help car OEMs achieve business success.

- The AITO M9, which features leading intelligent technologies like HUAWEI ADS and HarmonySpace Cockpit, has become the best-selling model among vehicles priced at CNY500,000 and above.

- The STELATO S9 was the top seller among pure electric luxury sedans priced at CNY400,000 and above for five straight months.

- The LUXEED R7 became a best seller among pure electric SUVs priced at CNY250,000 and above just hours after its launch.

- 25,000 AVATR 07 units were pre-ordered within 17 days of its launch, as its intelligence-enabled, tech-rich design has made it a preferred choice for young customers.

- The VOYAH DREAM, which runs on HUAWEI ADS, remained the top seller in new energy MPVs for several consecutive months following its launch.

- Fangchengbao 8 has also adopted HUAWEI ADS.

- The upcoming MAEXTRO S800 is designed with an L3 intelligent driving architecture – the first of its kind. This flagship vehicle is expected to reshape the luxury car market.

Leading Competitiveness

In 2024, we launched HUAWEI ADS 3.0 which has an instinctive security network embedded into its advanced end-to-end architecture to deliver enhanced system security. It debuted with the industry's first "parking-to-parking" feature that supports a seamless experience across all driving scenarios. ADS 3.0 also features an all-directional collision avoidance system – CAS 3.0 – that takes active safety to the next level, and enables cutting-edge personalized Valet Parking Driver (VPD) services. In 2024, HUAWEI ADS-powered vehicles

drove over 1.4 billion km with intelligent driving – 30% of their total mileage. 45% of that intelligent driving occurred while in urban areas, and the greatest distance traveled by a single user using Huawei's intelligent driving system exceeded 100,000 km. Users also used Huawei's intelligent driving system to park over 100 million times last year. The more consumers use this solution, the more they want to use it.

Our HarmonySpace Cockpit creates a connected intelligent space for smart mobility. It simplifies user-cockpit interactions with its HarmonyOS home screen desktop and phone connectivity that allows smooth content transfer between smartphones and head units. The Celia voice assistant, powered by a foundation model, also supports more natural and smooth conversation between people and cockpits. HUAWEI SOUND can be integrated into the HarmonySpace Cockpit to offer brand-new smart audio experiences, while Augmented Reality Head-Up Displays (AR-HUDs), Cockpit Vision, light field displays, and megapixel headlight modules are creating a new era of all-scenario smart display experiences.

Our intelligent digital vehicle platform (IDVP) offers a full service-oriented architecture that combines high-performance vehicle control modules and an advanced vehicle control operating system (VOS). This platform is the first of its kind in the industry that is ready for large-scale delivery, and can enable efficient development for car OEMs. Six vehicle models equipped with IDVP have entered mass production, and this platform will be integrated into more than 20 models in the next two years.

Huawei is continuing to push the limits of technology to develop and upgrade intelligent automotive solutions, and create high-value features that deliver a safer and more comfortable driving experience. Huawei is also striving to become a driver of high-level intelligence for vehicles.

Quality, Safety, and Security

Quality, safety, and security are the lifelines of automotive products. One of Huawei's core strategies is to succeed through quality. We are continuously building up our end-to-end quality management systems, and strengthening quality management and control at each process link. We are also working with partners along the value chain to develop high-quality products.

We pursue a "zero defect" approach that prioritizes safety, security, and quality, and integrates these requirements into all business processes, from R&D and testing to manufacturing, supply, and procurement. We have continued to enhance our quality, safety, and security systems to ensure products meet our high standards by strengthening our engineering capabilities in automotive-grade functional safety, safety of the intended functionality (SOTIF), and cyber security.

We are continuing to increase R&D investment in this area, promote further synergy between software, hardware, chips, and cloud, and develop advanced technologies such as end-to-end architectures and instinctive security networks. All these efforts are aimed at improving product quality, safety, and security on all fronts.

Research and Innovation

Today, we live in a dynamic and turbulent world, where changes occur at breathtaking speed. Challenges loom large, yet the opportunities before us are unparalleled. At Huawei, we have two key drivers of innovation: science and technology, and customer needs. Both commercial value and market demands are driving our innovation and determining how we invest in science and technology. Breakthroughs in technology, in return, stimulate customer needs and allow us to create greater value for customers.

Basic Research

In 2024, we strengthened our basic research and theoretical study, aligning with business strategies and centering on mathematical logic. This has helped the company make the soil more fertile and build up innovation capabilities to break through bottlenecks holding back the development of specific businesses.

- Huawei insists on basic research, as each breakthrough is like a beacon in the darkness, which will generate innovation momentum and foster long-term growth across diverse business sectors.
  - Game theory:
    - We proposed a new prophet inequality to address the integrality gap between an infinite-dimensional mixed-integer program and its linear-programming relaxation. Regarding the long-standing problem of revenue maximization in the unit-demand single-buyer setting, our new approach guarantees a tight 3-approximation to the established theoretical benchmark, marking the first major breakthrough in this area in 15 years. The paper on this breakthrough was published at the 2024 IEEE 65th Annual Symposium on Foundations of Computer Science (FOCS).
  - Basic AI theories:
    - We presented the first reinforcement learning and value-based tree-search learning framework for the purpose of fine-tuning open source large language models (LLMs) and improving their chain-of-thought (CoT) reasoning. This approach defines a value function for tree nodes, thereby boosting the inference accuracy of certain mathematical and gaming tasks by 14% on average and by 50% at maximum.
    - We also put forward LEGO-Prover, a theorem proving agent based on LLMs. Through interaction and coordination between its prover, evolver, and growing skill library, our work facilitates automatic theorem proving, resulting in a 5%–10% improvement in success rates on miniF2F.

- Our scientific research aims to bring together the ingenuity of scientists to solve the requirements, challenges, and pain points of different businesses.
  - Massive MIMO transceivers feature high computational complexity. To address this, we proposed a theory and framework for transform-domain signal processing, which effectively suppresses the expansion of signals' dynamic range and reduces computational complexity by more than 25%.
  - Based on the Hebbian learning rule, we developed a new local strategy, other than backpropagation, for neural networks, achieving a fine-tuning throughput improvement of over 20% for LLMs.
  - We have used an algebraic modular approach and short Reed-Solomon (RS) codes to realize rapid decoding of RS codes. This has helped us approach the theoretical minimum number of iterations inherent in the Welch-Berlekamp (WB) key-equation problem, thus surpassing the t+e boundary established by C.-L. Chen in 1981.

- Our Chaspark website provides online access to global academic and technical resources, connecting the world and creating fertile ground on which we can nurture new ideas through academic exchanges. This platform provides free online access to over 190 million patent records and more than 8,000 academic conferences, and has published more than 570 industry challenges, 300 contest problems, and 10 open source projects. Many university educators submit ideas to help find solutions to these challenges, and their efforts have helped resolve more than 300 such challenges to date.

Open Innovation

We dive deep into customer scenarios, stay close to end users, creatively address issues, and make significant technological breakthroughs based on our solid theoretical foundation. Guided by commercial value and market demands, we leverage our strengths in systems engineering and a complete portfolio to constantly create value for customers.

■ **Wireless Communications**

We are innovating nonstop to drive industry breakthroughs and seize enormous opportunities presented by the age of mobile AI. To this end, last year, we:

– Put forward the A-Core network architecture prototype based on agentic AI, making application-driven generative AI networks a reality.

– Broke through the pilot resource utilization bottleneck that hindered traditional massive MIMO in a centimeter wave frequency band by employing AI-based RF-MAP and full-rank calculation in ultra-low-dimensional latent space. This allowed us to increase spectrum efficiency by almost five times.

– Utilized the effects of self-healing, a property of orbital-angular-momentum, in a millimeter wave frequency band to realize non-line-of-sight propagation of signals on the ground, expanding coverage by more than 10 dB.

– Enabled direct connection of mobile phones to Low Earth Orbit satellites over a millimeter wave frequency band, increasing capacity density by around five times.

■ **Optical Networks**

In optical networking, we:

– Defined a new optical fiber channel damage model and innovatively used cascaded forward error correction (FEC) technology to realize low latency, and helped formulate the IEEE standard for short-range 800G optical interconnection.

– Made advances in large-bandwidth high-order modulation and in 240 GBd ultra-low-drive-voltage thin film lithium niobate (TFLN) modulation technology, helping build a data center interconnect (DCI) solution with the lowest possible cost per bit.

– Overcame technical challenges such as multi-layer wafer hybrid bonding and wafer-level optical window hermetic packaging, allowing for the large-scale commercial use of

high-port-count MEMS-based OXC. This enables the efficient scheduling of intelligent computing clusters with millions of cards.

■ **Networking**

For networking, we:

– Proposed a novel network spatio-temporal balance algorithm to overcome the challenge of sparse model training regarding parallel communications, thus realizing network throughput greater than 95%.

– Developed the industry's first collective communication algorithm for asymmetric, heterogeneous links, solving the issue of reusing bandwidth for buses and networks while improving communications performance by more than 55%.

■ **AI Algorithms**

We have made constant breakthroughs in AI algorithms, which will help us tackle key challenges and seize major opportunities related to foundation models in the age of AI.

– To date, Pangu models have been used in over 400 scenarios across more than 30 industries, helping these industries go intelligent more easily.

– Pangu models have helped Celia perform training with trillions of tokens and aided its memory and perception in 23 top scenarios, translating to a task planning success rate of 90%.

– HUAWEI ADS 3.0 now comes packed with a multi-modal fusion perception network and an innovative end-to-end cognitive architecture that supports brain-like thinking. These technologies help realize lossless information transmission and end-to-end, human-like intelligent driving, with responsiveness increased by at least 100%. In 2024, HUAWEI ADS-powered vehicles drove over 1.4 billion kilometers with intelligent driving – 30% of their total mileage. The greatest distance traveled by a single user using Huawei's intelligent driving system exceeded 100,000 km. Users also used Huawei's intelligent driving system to park over 100 million times last year.

- **Computing**

    In computing, we:

    - Released the AI-powered Atlas 900 A3 Cluster that comes with a new architecture that deeply integrates compute, storage, and networks. This combined with SuperPOD has helped us craft systematic computing solutions, addressing customer computing demands for model training and inference.

    - Continued sharpening the competitive edge of our Ascend products and solutions by improving their performance, ease of use, and openness.

    - Launched CANN 8.0, which supports more than 80 new fused operators and over 100 Ascend C APIs.

    - Developed a collective communication algorithm, designed the LLM PD-disaggregated deployment solution, unveiled the LLMDataDist component, and started supporting a PyTorch library for extending graph mode capabilities to enhance LLM inference performance on Ascend.

- **Consumer Business**

    We remain committed to technological innovation and foundational technology breakthroughs. We made a number of breakthroughs in this area to ensure we can consistently provide consumers with a better experience.

    - We developed the industry's first Advanced Precision Hinge System for foldable phones. This system ensures precise and delicate dual-hinge movement so that each fold, whether inward and outward, is smooth and seamless.

    - We made great progress in ultra-thin, flexible glass technology. Our tri-fold phone is the first ever to come equipped with a 322-square-centimeter UTG-glass display, offering every consumer a visual symphony in the palm of their hands.

    - We also launched the first-of-its-kind Ultra Chroma Camera, which is equipped with 1,500,000 spectral channels to produce incredible true-to-life colors. This camera, along with the Ultra Lighting Camera, improved color accuracy by an astounding 120%.

    - We continue to explore how to use AI to improve consumer experiences, including through applications like Pure Voice. This AI-powered feature can intelligently sense the caller, enhance their voice, and eliminate background and environmental noise for crystal-clear calls even in the noisiest environments.

    - We used AI Cloud Enhancement to improve photo quality and clarity, bringing users an ultimate 10x telephoto experience.

    - We also unveiled the HUAWEI TruSense System, which allows our smart watches to accurately measure blood pressure through high-precision sensors.

- **Foundational Software**

    - Our GaussDB became the industry's first database to be awarded the Evaluation Assurance Level 4 Augmented (EAL4+) certificate, both in China and globally, as part of the Common Criteria for Information Technology Security Evaluation (CC). It is also the only database to receive the highest level of security and reliability evaluation – Level II – from China.

    - Thanks to breakthroughs in multi-dimensional awareness and scheduling, as well as subsecond in-place upgrades, the performance of openEuler improved by 15% in four major Kunpeng-powered scenarios, making it easier to upgrade cloud hosts and realize "zero migration".

    - We also coordinated the optimization of different resources, including the Kernel, Compiler, OS Window System, and Application Framework, to better the performance of HarmonyOS 5 by 30% compared with the previous version.

- **Systems Engineering**

  – Detection and localization of silent data corruption in large-scale AI computing clusters have long plagued the industry. However, our breakthroughs in this area allow the detection of 90% more faults while still guaranteeing the performance of such systems.

– To address reliability challenges of HarmonyOS 5, we made breakthroughs in high-performance stack unwinding and concurrent fault localization technologies, achieving an accuracy rate of over 94% for the automated detection of reliability and performance faults.

– In software engineering, we built three lines of defense for HarmonyOS, which can identify more than 80% of security issues of software before they occur.

Huawei has one of the world's largest patent portfolios

Through years of sustained innovation in fundamental domains, Huawei has become one of the world's largest patent holders, currently holding **150,000+** active granted patents.

Huawei's patents are broadly recognized across the industry

Huawei is an industry leader in patents in multiple major standards fields, including cellular communications, short-distance communications, and audio and video codecs. Hundreds of companies have obtained licenses to Huawei's patents by signing bilateral patent license agreements with us or through patent pools.

By the end of 2024, Huawei had signed more than **230** license agreements.

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

In 2024, our total R&D spending reached **CNY179.7 billion**, representing **20.8%** of our total revenue. Our total R&D investment over the last decade now exceeds **CNY1.249 trillion**.

On December 31, 2024, **113,000** employees (about **54.1%** of our workforce) worked in R&D.

Improving the Management System

Our global management system supports the company-wide promotion of our corporate culture and the effective management of our business. Ultimately, we aim to:

- Continue to succeed through quality for high-quality development

- Stay customer-centric, build an ecosystem for shared success, and continue creating greater value for customers by meeting their needs and pursuing technological innovation

- Effectively manage risks, and ensure operational compliance and business continuity

- Carry out corporate social responsibility (CSR) initiatives and promote sustainable development

Succeeding Through Quality

Quality is a central part of Huawei's strategy. In order to succeed through quality, we have built up quality systems and capabilities to improve quality from end to end. These systems touch on everything from product quality and supply chain quality to manufacturing quality and service quality. This is how we will achieve high-quality development.

In 2024, we achieved many breakthroughs in quality.

- **We improved quality leadership of our management at all levels to continually improve quality.**

  - We continued setting clear quality objectives and providing quality-related incentives, and strengthened quality backtracking.

  - We implemented multiple quality initiatives to improve quality leadership and awareness, foster a culture of quality among all staff, and encourage employees to pursue quality every day. These initiatives included the formulation of new quality policies, and quality conferences, audits, and training for employees.

- **We continued to build up and roll out our ISO 9000-based total quality management system in order to make quality one of our core competencies.**

  - We have built up significant experience and capabilities in quality management over the past 30-plus years, and we are adapting this experience to address the unique characteristics of different business domains. This is achieved by embedding quality requirements into every process of our business domains.

  - We have maintained a firm grip on quality by design for products and systems, and strengthened the management of incoming quality control and high-quality delivery.

  - We have ensured stable and secure network operations and prevented systematic quality risks.

  - We have extended our quality requirements and management to our suppliers and partners (including channel partners) so that we can jointly drive the entire industry forward.

  Together, we deliver quality products and services to keep earning customer loyalty and trust.

- **We improved the capabilities of our quality organizations, especially their quality systems engineering, to address real-world issues.**

  - We strengthened staffing and upskilling for quality-related positions and created a robust quality team. Our 10-plus quality engineering committees took on the responsibility of nurturing key quality-related capabilities and cultivating seeded players.

  - We made full use of quality systems engineering methods, such as the Huawei hardware innovation and optimization approach (HINA), theory of inventive problem solving (TRIZ), and failure mode and effects analysis (FMEA), to help address real-world challenges facing our businesses.

  - Our quality organizations worked alongside business teams on delivery to reinforce and refine quality.

  - We've doubled down on efforts to manage knowledge gained during operations and after-project retrospection.

  Combined, these improvements have helped us develop digital and intelligent quality management capabilities and succeed through quality, giving us an advantage in insights, decision making, and action.

- **We strengthened customer satisfaction and partnership management to ensure our collaboration models remain healthy and encourage business teams to improve and address key issues in this regard.**

  - We stayed focused on our valued customers and core products throughout the year while embracing this great time. We have continued efforts to use survey assessments and closed-loop improvement for ongoing improvement. We also refined the model for assessing the health of our partner ecosystem. This has helped us create more channels through which we can collect more feedback from customers and partners.

  - Business management teams have also been tasked with improving customer stickiness and achieving shared success with partners by determining key areas for improvement through an analysis of key issues and taking concrete improvement measures.

  These future-focused mechanisms create an upward spiral of ongoing improvement.

- **All aspects of Huawei's management system have been certified by leading industry organizations**, including our systems for financial robustness, quality management, risk management, human resource management, delivery and services, supply chain management, knowledge management, project management, trustworthiness and software engineering, cyber security and privacy protection, information security, functional safety, Environment, Occupational Health and Safety (EHS), CSR, Corporate Sustainable Development (CSD), and business continuity management. This has brought us extensive recognition from customers. The company has been evaluated and certified by numerous independent third parties, receiving a number of certifications including:

- ISO 9001
- TL 9000
- IATF 16949
- ISO 13485
- Capability Maturity Model Integration (CMMI)
- ISO 17025
- ISO 10012
- ISO 14001
- ISO 14064-1
- ISO 45001
- IECQ QC 080000
- ISO 50001
- ISO 22301
- SA 8000
- ISO 30415
- ISO 28000
- ISO/IEC 20000-1
- ISO/IEC 27001
- ISO/IEC 27017
- ISO/IEC 27034
- ISO/IEC 27018
- ISO/IEC 27701
- ISO/IEC 29151
- CSA STAR
- PCI DSS
- PCI 3DS
- SOC 1/2/3
- ISO 27799
- ISO 26262
- ISO 21448
- ISO/SAE 21434
- BS 10012
- A-SPICE
- TISAX
- NIST CSF

Huawei representatives visit sites of an Electronic Manufacturing Services (EMS) provider for quality improvement. Through such visits, we help factories unearth opportunities for improvement with regards to zero defect management, lean manufacturing, and intelligent manufacturing. Together, we aspire to create world-class quality brands.

Regulatory Compliance

Huawei works hard to conduct its business with integrity and conform to business ethics standards and all applicable laws and regulations. We have worked for years to build a compliance management system that aligns with industry best practices and embed compliance management into every aspect of our business activities and processes. These efforts continue to this day. Huawei emphasizes a culture of integrity and invests heavily to make it a reality. As such, every Huawei employee is required to strictly adhere to our *Business Conduct Guidelines* (BCGs).

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

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

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

- With an open mind, we proactively engage and work with customers, partners, regulators, and other stakeholders on compliance, to constantly enhance mutual understanding and trust. We participate in fair market competition while fulfilling our corporate compliance responsibilities in order to facilitate a healthy business environment.

Compliance Management by Domain

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

Trade Compliance

One of the core principles adopted by Huawei is to abide by all applicable export control laws and regulations, and fulfill export control obligations and responsibilities. We have invested immense efforts over the years to establish a mature and sustainable internal system for trade compliance that aligns with industry best practices.

We have also established an integrated trade compliance management organization within the company. This organization manages trade compliance across both group functions and regional business. In addition, we have established specialist teams globally that monitor changes to local laws and regulations; formulate and refine our trade compliance policies, systems, and processes; and promote the implementation of relevant requirements in applicable business units.

Huawei continuously requires employees to improve their trade compliance awareness with training provided in various forms. The company also periodically conducts assessments and audits of its trade compliance system. Employees must sign Huawei's BCGs each year, which include commitments to observing applicable export control laws and regulations, so that they fully understand their responsibilities and obligations, as well as those of the company, regarding export controls.

Financial Compliance

Huawei upholds the core principle of complying with all applicable laws and regulations on economic sanctions, anti-money laundering, and anti-terrorist financing, and the company has continuously invested resources into the establishment and continuous improvement of its financial compliance management system. Huawei assesses financial compliance risks based on a number of elements such as geography, transaction counterparties, and products and services, and manages financial compliance risks by setting control points in business processes, as well as employing IT tools. Huawei conducts financial compliance checks and audits, and continuously provides financial compliance training to all its staff to foster a robust compliance culture.

All Huawei staff are prohibited from engaging in activities that violate applicable laws and regulations on economic sanctions, anti-money laundering, and anti-terrorist financing. Therefore, Huawei has established an incentive and accountability system. Huawei employees who do not abide by applicable laws and regulations shall be held legally liable.

Through contractual arrangements, Huawei requires its counterparties, including but not limited to customers and suppliers, to comply with applicable laws and regulations on economic sanctions, anti-money laundering, and anti-terrorist financing.

Anti-Bribery Compliance

Huawei has a zero-tolerance policy towards bribery and corruption. We continuously strengthen anti-bribery compliance management. Specifically, we constantly monitor and identify related risks, embed compliance controls into our processes, and organize compliance checks and evaluations to see if our controls are effective.

Huawei pays close attention to the management of employee behavior. We strengthen training to increase employee compliance awareness and prevent bribery and corruption. Any employee found to have violated our compliance requirements is held strictly accountable for their actions.

Huawei also pays close attention to the management of related third parties. We require all of our partners to comply with our anti-corruption policies, and also adhere to agreement clauses and applicable legally-permitted supervision and control procedures in order to prevent inappropriate behaviors.

IP and Trade Secret Protection

Respecting and protecting IP: Huawei is dedicated to its long-term investments into R&D and continuously enriching its IP portfolio. Huawei is one of the world's largest patent holders, and the company believes that respecting and protecting IP is the bedrock of innovation. As a follower, practitioner, and contributor of IP rules, as well as an innovator, Huawei invests heavily into IP protection and respects the IP of others. Huawei has reached cross-license agreements with major ICT companies around the world, and works tirelessly to cultivate an industry environment that protects innovation and IP across countries and regions.

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

The key measures Huawei has taken to protect the trade secrets of others include:

- Issuing our *Regulations on Respecting and Protecting Third Party Trade Secrets*, which set out clear rules that employees must follow to respect and protect the trade secrets of others during business activities and ensure that employees carry out business activities legally and in accordance with our contracts

- Embedding trade secret protection requirements into business processes such as R&D, sales, procurement, and human resources, conducting regular reviews, and continuously improving management mechanisms by taking away lessons and case studies from day-to-day operations

- Organizing publicity, training, and exams on trade secret protection for all employees, so that they are fully aware of their obligations and responsibilities regarding trade secret protection compliance

- Conducting supervision, including checks and audits, to examine efforts aimed at protecting the trade secrets of others and thus ensure effective implementation of our policies, rules, and processes

- Establishing an accountability system based on official corporate policies such as the *Accountability Protocol for Infringements of Other Parties' Trade Secrets* and the *Accountability Rating Criteria for Information Security Violations* to hold violators accountable for any trade secret violations

Regional Compliance Management

For every country and region outside China where Huawei operates, we have appointed a compliance officer and a country board director responsible for compliance (dual role). They manage and supervise the compliance of subsidiaries. Under their guidance, subsidiaries take a number of key measures to guarantee the operational compliance of our businesses:

- Guided by the tone at the top of our organization, subsidiaries continue to internalize external laws and regulations by formulating their own compliance management policies in accordance with applicable local laws and regulations. To date, subsidiaries in more than 130 countries and regions have published their own compliance white papers, which serve as a guide for businesses and employees to fulfill their jobs.

- Subsidiaries are responsible for fully identifying compliance risks related to sales, service, supply, R&D, and other business activities that may be caused by uncertainties from geopolitics and economic prospects, technical sanctions, or trade barriers. They then assign compliance management responsibilities to business departments; implement related regulations and processes; and carry out checks and assessments to ensure that key control measures are effectively implemented.

- Subsidiaries provide extensive compliance training for their employees. In 2024, 193,200 compliance training opportunities were provided for our employees outside of China and 79,300 compliance-related exams were taken. The company also works hard to build a corporate culture that values honesty, integrity, and regulatory compliance. These efforts are aimed at helping employees fully understand the compliance-related obligations and responsibilities they hold, as well as those of the company.

Management Transformations

Our management transformations in 2024 focused on boosting organizational and business productivity and seizing the huge opportunities presented by AI. By pursuing these targets in line with our strategic directions, the company aims to further reinforce digitalization and explore new ways to go intelligent.

- **We continued to roll out the Contract Reviews and Conclusions at Representative Offices Transformation Program, which is injecting new vitality into representative offices and improving their operational efficiency and capabilities.**

  - Representative offices that have already undergone this transformation now possess relatively complete control over their own staff, finances, and daily operations. Their authority, responsibilities, and rules related to the distribution of benefits have been clearly defined.

  - Key account departments now serve as the unified interface for customer engagement. This allows us to fully leverage the company's strengths in ICT, and enable key account departments to better serve more customers from all businesses.

  - Representative offices are now able to independently supplement their expert resources and their own capabilities, which allows them to better respond to customers and improve service quality.

- **We have continued leveraging digital and intelligent technologies to unleash productivity.**

  - Huawei is capitalizing on the tremendous opportunities created by the rapid advancement of AI and the seismic changes AI is bringing to every person, organization, and industry. We are using cloud + AI to boost productivity and exploring how to help enterprises go intelligent more easily, while also advancing our own transformation to set a benchmark for digital and intelligence through the application of HarmonyOS.

  - Internally, all our businesses are embracing intelligence to continually improve operational efficiency and user experiences in domains like product development, marketing, supply and manufacturing, delivery and services, finance, and human resources. This has helped the company provide quality products and services to customers faster.

  - We have also used HarmonyOS in our internal applications. We have used HarmonyOS to streamline whole sets of applications for different scenarios and positions based on our business streams. We currently have five paths for enterprise applications to run on HarmonyOS. The IT application architecture underpinning all of these has been refined over time and embedded into platforms to minimize changes to applications. Mobile Office is our first application powered by HarmonyOS 5. In addition, by adapting popular applications and over 1,700 WeCodes, the HarmonyOS development team has used what it has learned to help internal users with their daily mobile work based on HarmonyOS 5, to effectively support its commercial release.

- **We are going digital to enhance business resilience, avoid business interruptions, and safeguard the stability of our business operations.**

  We are using our own digital and intelligent technologies to reshape the experience of 274 accounts, 227,000 partners, and 44,000 suppliers that work with Huawei by connecting their transaction systems with ours. We have adopted a number of digitalization initiatives to better coordinate digital transactions across the entire value chain, starting with individual showcases before replicating them to more of our customers, partners (including ecosystem partners), and suppliers. This makes it easier and more efficient for them to do business with Huawei.

- **We strengthened iterations and operations of our IT systems, so that we can use digital technology to better serve our customers and partners.**

  - Our MetaERP is built on a simplified, flexible architecture that supports efficient resource allocation. We aspire to make MetaERP a leading digital platform for enterprise resource management and coordination. In 2024, we began pilots of fine-grained operations outside China. MetaERP visualizes data from our major business process in real time and is successfully driving business improvement and helping field offices create greater value. The system now also uses YuanRong and a new metadata multi-tenancy IT architecture to quickly support the development strategies of different businesses across the company.

  - In our ICT infrastructure business, we continued to optimize our sales and service process system, so that we can use digital to better serve our customers and partners.

  - In the carrier sector, we took further steps to connect our transactions and delivery IT systems with those of customers. This makes doing business with Huawei easier and more efficient. In 2024 alone, more than 50 new carrier customers connected their transaction and delivery systems with Huawei's from end to end.

  - In the enterprise sector, we created the new mobile and intelligent e+ platform for three target market segments to support internal and external collaboration in research, marketing, sales, supply, and services. We are also investing ongoing efforts to refine our "Huawei + Partners" system in order to improve customer satisfaction and the health of our partner ecosystem.

  - Our consumer business has maintained a flexible, modular architecture to support new "1 + 8" scenarios and services under the Huawei Zhixuan model, the government and enterprise business, and the whole-house intelligence business. This architecture has helped us continually improve partner productivity and consumer experience and refine the business's systematic "1 + 8 + N" service capabilities.

  - Our digital power business continues to prioritize quality. In 2024, this business continued to build up its end-to-end quality management system and pursued further digital transformation to support high-quality, sustainable development.

  - Our cloud computing business worked hard to improve its operational efficiency revolving around cloud service products, customers, ecosystems, and resources. This has helped Huawei Cloud provide leading digital and intelligent experiences for customers, partners, and developers as it moves forward with its plans to create a secure, stable, and quality cloud foundation for the upcoming intelligent world.

- **AI Business Intent and Governance Principles:**
  AI is driving technological changes that greatly improve efficiency, productivity, quality of life, and societal well-being. At the same time, it presents a fair share of ethical and governance challenges. Our company has done a significant amount of engagement and research to understand these challenges. As for implementation, we have established a company-wide set of rules, which include our AI business intent and six AI governance principles, to instruct related business domains in their research, planning, deployment, and adoption of AI. We have a dedicated task force to ensure that AI technologies are being designed, developed, deployed, and used properly. Their goal is to drive responsible and sustainable innovation in our AI business.

Organizational Vitality

Despite changes to our internal and external environments, the company has stayed true to its corporate culture and core values. We have flexibly pooled resources by business and continued efforts to develop organizations for diverse businesses and field offices. In addition, we have implemented management improvement initiatives related to organizations and talent to enrich talent and improve organizational capabilities and efficiency. In the face of uncertainties and ongoing challenges, our employees have stayed confident and our organization has remained dynamic.

In 2024, our initiatives for boosting organizational vitality focused on the following key areas:

- **Continuing to adapt our organizational structure to better support our business and ensure our elite team operations are supported by a large platform:**

  - The company has optimized its directly managed organizations and coordinated the operations of field offices, business units, group functions, and platform organizations.

  - The company has continued refining and strengthening its organizational structure to better support a multi-business landscape that integrates our ICT infrastructure, consumer, digital power, cloud computing, and intelligent automotive solution businesses.

  - We have steadily rolled out the Representative Office Full Autonomy Program to more representative offices around the world. This program gives representative offices greater autonomy, allowing them to independently operate, make decisions, fulfill contracts, and take responsibilities. This strengthens our representative offices and simplifies our HQ teams, and will ultimately help transform our organization into one with multiple elite teams supported by a large platform.

  - The company encouraged combined, penetrative operations between technical sales teams and integrated teams so that they can jointly make "the pie" bigger and create lighthouse projects that will serve as examples and benchmarks for the entire world.

  - We systematically organized joint operations projects in strategic areas of focus. This operating approach has helped us break down organizational boundaries and encourage closer collaboration between different departments through a systems engineering approach. This has helped us better leverage our complete business portfolio.

- **Keeping the business strategy in mind as we build up a team of managers who can continuously lead the company forward:**

  - We've stayed true to the manager selection mechanism, focus on their responsibility fulfillment results and contributions, and continue to implement a manager resume system, so that managers and experts who make great contributions to the company can continue to emerge in greater numbers.

  - We have continued to implement the term of office system for managers and encourage them to grow through mobility programs and transfers to new teams to inspire passion among all managers.

  - We have continued to emphasize that managers should have successful entry-level experience and implement a summary, retrospection, and modeling approach. We encourage managers to regularly self-reflect and improve their specializations, so that they can lead our businesses to ongoing success.

- **Assigning employees to positions that best suit them, unleashing the potential of current employees, and continuing to actively source experts and other talent from around the world, to keep enriching talent and maintain the dynamics of teams across the company:**

  - We have continued to bring in talent, like top minds and top-notch experts, from around the world, regardless of background or seniority. We have also joined national efforts to develop top-notch talent in China, widen and strengthen the nation's skilled workforce, and identify high-potential individuals from among these emerging talent.

  - We have adopted talent supply strategies that are tailored to our organizations and are working to create a diverse talent mix.

– We have strengthened the operations of our talent planning committees and steadily advanced an orderly mobility system for in-house experts and a training and practice system through the Strategic Reserve in order to upskill and reskill employees. These efforts will help our employees unleash their potential.

– We reinforced the Professional Staff Transformation Program in 2024 to create a stable specialist team.

– We redoubled efforts to systematically strengthen and stabilize locally-hired teams, and enhance their leadership and expertise, enabling them to maximize their value and act as a stronghold for local operations.

– We ramped up efforts to improve competency and qualifications (C&Q) management, focusing on both performance and capabilities. We are also reinforcing the operations of profession committees and capability development committees to maximize the value of experts.

■ **Continuing the implementation of the Contribute and Share system based on responsibility fulfillment results and developing a differentiated incentive mechanism:**

– The company is encouraging employees at different levels to better fulfill their operational responsibilities, and the development of an incentive mechanism that varies by business, development stage, and employee group, as a way to help organizations and employees deliver greater value.

– We are also channeling more resources towards our dedicated employees on the front lines. This is encouraging outstanding employees to make more contributions and motivating employees to take up positions within our business teams that are highly challenging or urgently need to be filled, thus generating even greater value for our customers.

■ **Staying customer-centric, inspiring dedication, and continuing to grow through self-reflection:**

– Huawei has and always will live by its core values of customer centricity, dedication, perseverance, and growth through reflection.

– On this basis, we are making every effort to create a dedicated, enterprising, and dynamic organizational climate in line with our diverse business portfolio and talent mix.

– We care deeply about our employees and will continue to ensure their physical and mental wellbeing by constantly improving their working and living environments and organizing various wellness activities.

Cyber Security and Privacy Protection

Leveraging New Technologies to Build a Secure Digital and Intelligent World Together

Over the past year, cutting-edge technologies such as AI, 5.5G, and quantum computing have accelerated digital and intelligent transformation across industries. While these advancements boost economic growth, the rapid expansion of digital assets has increased network exposure, heightening cyber security and privacy risks. Emerging technologies introduce new threat vectors, and the complexity of hardware and software supply chains continues to grow. As a result, ensuring cyber security and privacy protection remains an ongoing challenge.

In the past 30-plus years, Huawei has worked with carriers to build over 1,500 networks and helped millions of enterprises go digital. In addition, we have shipped tens of millions of sets of intelligent automotive components, and HarmonyOS is now running on over one billion devices. Whether for connectivity or devices, we have always maintained a solid track record in security.

At Huawei, we believe that cyber security and privacy protection are the cornerstones of the digital and intelligent world. We strive to tackle the challenges and seize the opportunities that accompany technological transformations through managerial improvement, technological innovation, and open collaboration. We work hard to hone our competitive edge in security, take concrete steps to manage related risks, and work alongside our customers, suppliers, and partners to strengthen cyber security and privacy protection capabilities. Through these actions, we are committed to creating a better life for all in the future digital and intelligent world.

Robust Cyber Security and Privacy Governance: Developing Intrinsic Security and Security Solutions Through Technological Innovation to Help Customers Build Network Resilience and Mitigate Risks

- **In 2024, we continued enhancing our cyber security and privacy governance system to ensure it was up-to-date.**

  Operationalizing our five-year trustworthiness transformation to consolidate the outcomes: In late 2018, Huawei kicked off our software engineering capability improvement transformation with the goal of developing secure, trustworthy, and high-quality products. After five years of systematic efforts, our software engineering capabilities comprehensively improved, with the transformation outcomes being integrated into our management systems and processes. All of the transformation objectives we set were achieved, fully preparing us for the operational stage. A key goal at this stage is to consistently implement the transformation outcomes during our operations, so that we can ensure the company continually delivers secure, trustworthy, and high-quality products.

  Internal product verification results indicate a decline in the overall density of issues (DI), with excellent standards being maintained for security and quality. Externally, we leveraged transformation outcomes to enhance collaboration with customers in key areas, such as lifecycle management, vulnerability management, digital certificate management, integrity protection, and security configuration. These efforts have helped customers mitigate risks on live networks and strengthen their cyber security and resilience.

  Establishing trustworthy open source software management mechanisms for guaranteed compliance and security: We have established mechanisms and automated operational platforms that cover the entire lifecycle of open source software, from supply and selection to governance, maintenance, giveback, and use. Thanks to coordinated efforts between open source project owners and the Open Source Project Management Committee, and based on the unified corporate-level open source software repository, we have made 25 engineering services available. These include

detection of open source software license violations for compliance, comprehensive vulnerability awareness, precise vulnerability location, and malware detection and handling. Through these efforts, we are now able to centrally manage open source software across all our products, solutions, and services. This approach ensures trustworthy, high-quality, and efficient governance while enhancing the underlying quality and security of our software.

Enhancing personal data protection governance to protect the rights of data subjects: We have continued to refine our personal data protection governance system while striving to observe all applicable laws and regulations. As part of these efforts, we have embedded personal data protection into business management systems at all levels and built relevant capabilities into business activities. Furthermore, we passed the audit for the ISO/IEC 27701:2019 Privacy Information Management System Standard, reaffirming the company's ongoing and systematic approach to personal data governance. We also continued to invest in the development and operations of compliance platforms for personal data protection. This has allowed us to strengthen business governance within the company while sharing platform capabilities and practical experience with external stakeholders. In 2024, we worked tirelessly to protect the rights of personal data subjects and handled over 25,000 requests quickly and effectively. We also conducted more than 80 internal inspections and audits to monitor and ensure the implementation and continual optimization of our governance system.

Building AI security governance systems to ensure AI and data security: Building upon our existing cyber security and privacy governance system, we have gained insights into AI risks and taken steps to develop a set of AI governance principles, developed an AI governance framework and system, and defined lifecycle security management activities within AI systems. These are detailed in the *Security for AI Systems: A Look at Effective Ways for AI System Security and Privacy* white paper, which we have released and shared with industry stakeholders. We emphasize data security and compliance management by identifying security and compliance risks throughout the entire data lifecycle, from collection, use, and storage to sharing and transmission. To address such risks, we have developed a robust data security governance framework that ensures security and compliance. We have outlined our data security requirements in the *Huawei Supply Ecosystem Data Standard White Paper* and extended these requirements to our supplier partners.

Working with customers and partners to ensure secure and trustworthy delivery and services: In response to evolving business complexity and security challenges, we have prioritized the security and trustworthiness of our toolchains to ensure the security of more than 1.1 million service operations worldwide. Our security compliance governance spans the entire data lifecycle and passed the System and Organization Controls 2 (SOC 2) audit. This achievement reaffirms Huawei's effective management of customer network data compliance and security throughout the delivery process. In the field of critical information infrastructure, we have published the *White Paper on Operation Trustworthiness and Security*, outlining our approach and practices for service operations security and trustworthiness governance. We share our knowledge, experience, and tools through our knowledge community, which is open to service partners. Meanwhile, we organized more than 460 Network Safety Day events with customers last year to strengthen cyber security awareness and capabilities and jointly support secure and stable network operations.

Complying with international supply chain security standards to ensure manufacturing and distribution security, and extending security capabilities to suppliers: We are ISO 28000:2022 certified in 29 key supply nodes of our business domains, including digital power, consumer business, and ICT infrastructure business. We prioritize security in manufacturing and distribution. This has led us to implement technical and managerial measures to prevent tampering, implantation, and forgery, thereby upholding the integrity and authenticity of our products throughout production. Additionally, we have collaborated with trusted logistics service providers and developed traceability capabilities tailored to business needs, allowing us to promptly detect and address anomalies in product distribution. We also strictly control risks related to purchased parts. In 2024, we conducted strict admission tests on the materials of more than 150 newly-introduced suppliers. Furthermore, we assessed and managed cyber security risks of more than 3,800 suppliers and privacy risks of more than 3,000 suppliers worldwide. We remain committed to advancing cyber security enablement. Our 25 cyber security courses have been taken by over 2,000 managers and engineers from core suppliers. Additionally, we have provided suppliers with access to cyber security tools and test cases, helping them systematically enhance their cyber security capabilities.

Improving the expertise of the cyber security and privacy protection workforce and boosting awareness of all employees: At Huawei, we use competency & qualification (C&Q) assessments to guide employee learning and improvement, ensuring that all employees are qualified for their jobs. To foster rapid employee growth, we have designed a series of training and practice programs that incorporate diverse learning methods such as role-playing and drills. Additionally, we have established and continuously optimized cyber security and privacy protection enablement platforms and targeted learning tools. This provides the cyber security and privacy protection workforce with a one-stop learning platform for accessing knowledge and improving skills. By the end of 2024, we had launched over 180 enablement courses, which had been attended more than 200,000 times. We also continued our Cyber Security and Privacy Protection Awareness Month campaign, engaging all employees and reinforcing their cyber security and privacy protection awareness.

Continuous investment in independent third-party verification: We continued to work with industry-recognized certification bodies to test the security capabilities of our products against international standards and best practices, providing customers with internationally-recognized security assurance. In 2024 alone, we obtained 58 security and privacy certificates, bringing the total to over 600. Most notably:

– The HongMeng Kernel was awarded the Evaluation Assurance Level 6 Augmented (EAL6+) certificate as part of the Common Criteria for Information Technology Security Evaluation (CC), and HarmonyOS received IT Product Information Security Evaluation Assurance Level 5 Augmented (EAL5+) from the China CyberSecurity Review, Certification and Market Regulation Big Data Center.

– Multiple products across various domains received the European Union's Radio Equipment Directive (RED) certifications, including base stations and microwave products, PV inverters, optical network terminals (ONTs), HUAWEI IdeaHub, wireless local area networks (WLANs), and the HUAWEI Pura 70 Series.

– Huawei's hardware root of trust (RoT) and HiSec OpenSSL cryptographic module received the renowned ISO 19790 certification.

■ **New technologies present new challenges, and we helped customers address such challenges through technological innovation and security solutions.**

Addressing risks posed by new technologies through innovation: In the field of AI, we have built five guardrails to ensure the security of data, models, content, applications, and operations and maintenance (O&M) throughout foundation model workflows. These guardrails are built upon core intrinsic security technologies, including multi-modal security alignment using directional suppression, multi-modal content moderation based on semantic understanding, and adversarial attack detection. Together, these ensure the secure deployment and utilization of foundation models.

Additionally, we have developed key technologies, including a content authenticity framework and watermarking solution, to address the challenges related to AI-generated content (AIGC) authenticity. These innovations also contribute to the development of international standards. Furthermore, Huawei released the Kunpeng confidential computing kit, which is compatible with general-purpose computing applications across the ecosystem, to ensure the security of AI inference and facilitate data free flow with trust (DFFT). In addition, supported by a unique heterogeneous confidential computing architecture, the kit guarantees the security and trustworthiness of AI computing, laying a foundation for security across all scenarios.

To ensure the security of post-quantum cryptography (PQC) algorithms, we worked with a university to design the PQC algorithm Scloud+, which boasts excellent performance and security. Additionally, we researched and developed the deformable hybrid certificate solution, an agile migration solution for root certificates, as well as an IKEv2 protocol migration improvement solution. These advancements have been shared with standards organizations.

Tailoring competitive security solutions for ICT infrastructure to customer needs: To support emerging 5.5G scenarios, we have developed full-lifecycle security capabilities, encompassing development, deployment, and runtime, based on our full-stack deterministic security approach. In addition to strengthening intrinsic security of networks, we have introduced advanced

technologies, such as the Minimum Recovery System and Decentralized Public Key Infrastructure (DPKI), in order to continually develop highly-efficient network security and resilience solutions. Furthermore, to combat the threat of ransomware attacks on enterprises, Huawei has launched a Multilayer Ransomware Protection (MRP) solution. This solution integrates security at both the network and storage layers to realize threat intelligence sharing and coordinated defense, delivering industry-leading ransomware protection capabilities. For enterprises with multiple branches, Huawei has launched the Xinghe Intelligent Unified SASE Solution, which uses a cloud-network-edge-endpoint integrated security architecture. The solution provides end-to-end security assurance to ensure coordinated protection across enterprise branches and headquarters.

Delivering new privacy and security experience through architectural and technological innovation in HarmonyOS for consumer devices: We have developed a new HarmonyOS Security Architecture for HarmonyOS in line with our principle of "Your Privacy, Your Control". We have also worked to create a robust HarmonyOS ecosystem by ensuring end-to-end security, from application development and release to installation and operation. Furthermore, we have redefined how applications access privacy data by shifting from traditional permissions management to an innovative secure access mechanism that focuses on managing data, which makes privacy controllable. Additionally, we have introduced innovative system-level file encryption, which enables the shift from single-user and multi-device security to a multi-user, multi-device collaborative security model. This change ensures high-level data protection. Furthermore, we have built a one-stop Privacy and Security Center, alongside key features such as Secure Shield, Minor Protection Mode, and End-to-End Encrypted HUAWEI Mobile Cloud. These advancements provide consumers with industry-leading privacy and security safeguards.

Using AI to enhance cloud-native security for Huawei Cloud: We have continued to strengthen Huawei Cloud's native security architecture, which is built around a centralized Security Operations Center and seven lines of defense. This framework enables us to successfully mitigate hundreds of billions of cyber attacks each year and maintain an exemplary security record of zero external intrusions and zero data leaks. Our commitment to security is further demonstrated by our attainment of more than 170 globally recognized security and privacy certifications, all of which reflect our tireless efforts to build secure, stable, and high-quality cloud services for our customers. Additionally, Huawei draws from its more than three decades of security expertise to provide security as a service. In addition to traditional safeguards, such as classified protection of cyber security, security operations, and data security, we have introduced advanced capabilities for new scenarios, including security large models, large model security, and synergistic device-cloud security. These innovations have won industry acclaim for helping customers develop comprehensive security capabilities and confidently navigate evolving cyber security landscapes.

Safeguarding digital and intelligent transformation in the electric power industry through digital power solutions: We have remained committed to an intrinsic security and security-by-design approach as we constantly refine our security development processes. Our efforts in this regard have been recognized with the IEC 62443-4-1 certification, making us the first company in the industry to achieve this highest-level cyber security certification in this area. In addition, we have enhanced our vulnerability management capabilities to help customers maintain operational security throughout entire lifecycles. Our efforts in this regard have been further underscored by our obtainment of the ISO 29147 and ISO 30111 certifications for vulnerability management systems. We are among the first batch of organizations to receive these certifications.

Enhancing the security of intelligent automotive components and solutions and protecting user privacy: We have developed security capabilities for digital keys, navigation and positioning, and intelligent driving, alongside advanced privacy features such as the independent back-seat account, acoustic privacy shield, and a 720-degree omnidirectional privacy space. These advanced features enabled an automaker to be among the first to achieve the highest-level Intelligent Connected Vehicle Evaluation for security and privacy. This certification was presented by the Intelligent Vehicle Integrated System Test Area (IVISTA), led by the China Automotive Engineering Research Institute (CAERI).

Shared Responsibility, Joint Capability Building, and Collaboration for Shared Success

Huawei is committed to communicating and collaborating with key stakeholders, including governments, industry organizations, standards organizations, and enterprises, to jointly enhance security capabilities. Through such partnerships, we aim to be a trusted partner in the digital and intelligent world and deliver competitive security solutions to our customers.

In 2024, we made the following key achievements in external collaboration:

- We continued to contribute security proposals to standards organizations to drive the development of security standards in different industries.

  In the connectivity domain, we have continued to contribute cyber security proposals to international standards organizations such as 3GPP, GSMA, and ISO/IEC, including more than 330 to 3GPP and GSMA, maintaining our longstanding position as an industry leader in submissions.

  In the computing domain, we have contributed security proposals, including an AI computing platform security framework and general confidential computing framework, to ISO/IEC, Internet Engineering Task Force (IETF), and the National Information Security Standardization Technical Committee of China (TC260), and worked with industry partners to drive the development and application of computing security technologies.

- Our joint innovation with customers continued to evolve.

  We have partnered with Turkcell, a leading converged telecommunication and technology services provider in Türkiye, to strengthen its cyber security capabilities. Through joint efforts, Turkcell's vulnerability management platform is now interconnected with Huawei's vulnerability disclosure platform, enabling fast access to vulnerability information and swift, efficient remediation. Together, we have developed security configuration baselines and optimized security configuration management processes, aligning with laws, regulations, international standards, and industry best practices. Advanced tools have been deployed to support more efficient implementation, verification, and modification of security configurations. This has enabled Turkcell to ensure regulatory compliance, manage live network risks, improve network resilience, and increase the automation of its security governance.

  We have further deepened our partnership with China Mobile in the cyber security field, where we

are jointly exploring a next-generation defense system for critical information infrastructure through innovation and live network practices. Telecom networks feature highly standardized architectures, sophisticated and precise communication matrices, as well as stable and controllable operating environments. Building on this foundation, we have developed intrinsic security capabilities to enable efficient threat detection and targeted protection and thus ensure operational security and reliability. Notably, our 5G core network intrinsic security solution has now been deployed at scale in China Mobile's networks.

We have also collaborated with Jeraisy Group in Saudi Arabia using our Xinghe Intelligent Unified SASE Solution, which is powered by a cloud-network-edge-endpoint integrated architecture, to help the customer formulate a cyber security solution that features intelligent detection, intelligent collaboration, and intelligent integration. The dual intelligent detection capabilities of Site AI and the cloud AI brain have significantly strengthened Jeraisy Group's network security capabilities. With a 95% detection rate of unknown threats and an automatic threat event handling rate of 99%, our solution has helped Jeraisy Group emerge as a technology leader in the network security market.

Huawei and China CITIC Bank continued to collaborate through the Joint Digital Finance Innovation Lab, conducting practical innovation in financial AI security. Using Huawei's data shield privacy protection model, reinforcement learning algorithms, and key technologies like retrieval-augmented generation (RAG) with knowledge graphs and converged inference, we have developed an end-to-end security guardrail for AI models. This innovative guardrail technology realizes data security preprocessing before training, secure model development and training, and secure model application and O&M. This helps guarantee both compliance and security in the utilization of AI models. These measures have also reinforced the security of decision making in AI-enhanced financial services for China CITIC Bank, including intelligent marketing and risk control.

- In 2024, we worked with government organizations worldwide to cultivate local talent by sharing knowledge and experience.

  In Brazil, Huawei partnered with Serpro and Dataprev to provide a cloud service solution for the federal government, helping set new standards for data security and digital sovereignty in the public sector. This solution empowers Brazil to manage its government and citizen data with greater autonomy.

  In Uganda, Huawei was presented the Eastern Africa Cybersecurity Leadership and Innovation Award at the East Africa Internet Governance Forum (EAIGF). This award recognizes Huawei's outstanding contributions to cyber security and digital innovation in Eastern Africa.

- We also collaborated with industry organizations and local universities to improve cyber security capabilities and awareness in different regions.

  In collaboration with carriers, other equipment vendors, and industry partners, we actively contributed to the development of a number of key standards, including the GSMA Mobile Cybersecurity Knowledge Base and the Network Equipment Security Assurance Scheme (NESAS). Additionally, we supported the advancement of technical capabilities and the global application of the standards and capabilities. Our efforts have helped telecom regulators strengthen security governance and enabled local carriers to identify and systematically mitigate security risks on mobile networks. This in turn has helped to reduce fragmentation of mobile network security requirements and enhance the overall security capabilities of mobile networks.

As a commercial member of the Organisation of the Islamic Cooperation-Computer Emergency Response Team (OIC-CERT), we participated in the development of cyber security frameworks, standards, and best practices in 5G, cloud computing, AI, and PQC. These efforts enable OIC-CERT member states to develop resilient and trustworthy digital economies while facilitating local digital transformation.

In Morocco, we helped a leading university create courses for a master's program in information engineering and information system security. Through the cyber security courses, best practice sharing, and cyber security certifications as part of the program, we have contributed to the development of local talent in the fields of information system security design, deployment, and management.

In Southern Africa, we shared cyber security technologies and knowledge through the Huawei ICT Academy program and cyber security workshops, contributing to local talent development and improving local cyber security and privacy protection awareness and capabilities.

In Thailand, Huawei has collaborated with the local government and customers to strengthen cyber security in the country through partnerships and training initiatives. Huawei's efforts have been recognized with the Prime Minister Award – Thailand Cybersecurity Excellence Award – for the third consecutive year.

In the UAE, the Cyber Security Council presented the Most Valuable Partner award to Huawei for the company's contributions to local cyber security development.

Huawei remains committed to an open, collaborative, and responsible approach throughout digital and intelligent transformation. We communicate and work closely with stakeholders while offering secure and trustworthy technologies, products, solutions, and services. We also strive to comply with all applicable laws and regulations and fully respect privacy and data sovereignty. We are more than willing to work alongside all stakeholders to build a secure and trustworthy cyberspace.

Openness. Collaboration. Shared Success.

Digital and intelligent transformation is picking up speed worldwide, creating new opportunities and markets. The world will enter an age of All Intelligence within the next 20 years. This will be a future defined by information perception, communications, computing, and control, changing the way we live and work, redefining our relationship with the natural environment, and opening the doors to a new digital world. Artificial general intelligence (AGI) will play a key role in creating this future.

We stand ready to work more closely with our partners on open and joint innovation. We hope to pave the way for an eventual AGI that is accurate, adaptable, creative, and efficient. And to achieve this, we will work together to develop multiple forms of intelligence, build an open intelligent system based on autonomous agents, develop new computing modes, architectures, and components, and take a systems engineering approach to AI development.

Huawei will continue to openly collaborate with industry organizations and ecosystem partners across domains, including the public and private sectors, academia, research institutes, and users. We will keep contributing to standards and sharing both industry insights and technical challenges to drive the industry and technology forward. We will also step up efforts to create greater synergy between software, hardware, chips, networks, cloud, edge, and devices. This, combined with integrated innovation, will help make our products and solutions more competitive. As always, we will continue to work with partners to cultivate dynamic industry ecosystems and create an open and collaborative environment that thrives on shared success.

Key Progress and Industry Contributions

Huawei actively works with global industry organizations, and we hold more than 450 key positions in nearly 800 of these groups, including academic associations, standards organizations, industry alliances, and open source communities around the world. We promote deeper partnerships and mutual recognition of standards between industry organizations, and work hard to address industry challenges, breakpoints, and bottlenecks.

- **Standardization:** We firmly support the unification of global standards and promote efforts to open up, co-develop, and share global standards, helping outline a new vision for the industry. In 2024, we submitted nearly 10,000 contributions to standards organizations worldwide, and actively promoted global consensus on connectivity through organizations like 3GPP, ETSI, and ITU. We are helping our partners ensure a smooth evolution towards 5.5G, F5.5G, and Net5.5G.

- **Industry development:** We actively participate in global industry organizations and regularly contribute to seven major fields, including connectivity, computing, devices, and media, to promote sustainable industry development. In 2024:

  - We strengthened global industry cooperation and actively contributed industry white papers, testbeds, and standards to nearly 20 international organizations.

  - We released the *Amplifying Industrial Digitalization & Intelligence Practice White Paper* and worked with our partners to launch 10 new intelligent solutions for industries like smart cities, finance, transportation, manufacturing, electric power, mining, and oil

and gas. All these efforts are aimed at helping industries go digital and intelligent.

  - We worked closely with international organizations such as the UN Climate Change Global Innovation Hub, Urban Transitions Mission & Global Covenant of Mayors for Climate and Energy, and the Global enabling Sustainability Initiative (GeSI) on researching and applying ICT and digital power technologies. These efforts aim to accelerate green and digital transformation across industries like energy, manufacturing, transportation, logistics, and iron and steel, and support the transition to zero-carbon cities.

- **Ecosystem development:** We continue to push the limits of technology, open up capabilities, cultivate talent, and promote open and thriving ecosystems. We also join forces with universities, developers, and partners to foster ecosystem growth. By the end of 2024, 41,300 innovative applications have been developed through the Kunpeng, Ascend, and Huawei Cloud ecosystems to accelerate industry digitalization and intelligence. More than 20,000 HarmonyOS apps and atomic services have been released, covering nearly all aspects of everyday life.

Group photos – 15th GIO Roundtable, March 2025 in Barcelona and Beijing

In 2024, the Global Industry Organizations (GIO) Roundtable primarily focused on AI and data elements. Together, members released the *GIO White Paper on Industry-Specific Ecosystems V3.0* and the *AI-enabled Industrial Innovations White Paper*. Themed "New Opportunities and Challenges of the Data Industry in the Intelligent Era", the roundtable pictured above explored some of the difficulties industries had faced with data, progress they had made, and ways to maximize the value of data across regions and industries.

Standards Organizations

We actively contribute to standards organizations and work with customers and industry partners to support technological upgrade in fields such as connectivity, media, devices, and computing. We are also working to help all industries go intelligent, green, and digital, and to support the UN's Sustainable Development Goals.

We are promoting efforts to open up, co-develop, and share global standards, helping outline a new vision for the industry.

- Within 3GPP, we are actively contributing to the evolution of 5G-Advanced standards through technological innovation, helping lay the foundation for the age of mobile AI.

- Through the European Telecommunications Standards Institute (ETSI), we supported the release of the first F5G-Advanced standard, helping the optical communications industry evolve towards 10 Gbps all-optical networks and premium transmission networks.

- Through the ITU, we are working with partners in the ITU Radiocommunication Sector to explore how we can make better use of global spectrum for international mobile telecommunications (IMT) and drive spectral efficiency improvement worldwide. As part of our broader efforts to help upgrade optical industry standards, we are actively contributing to IOT-2030 next-generation optical systems in the ITU Telecommunication Standardization Sector and working with the industry to better outline the vision for next-generation technologies in the optical industry.

- Within ISO/IEC Joint Technical Committee (JTC) 1, we are actively contributing to standardization in audio and video, AI, cloud computing, and other industries, and working together to continuously improve the global AI governance framework that balances security supervision and innovation based on international standards and open consensus.

- Through the Institute of Electrical and Electronics Engineers (IEEE), we promoted the release of the Wi-Fi 7 standard and are actively contributing to the Wi-Fi Alliance (WFA) to promote industry application. In addition, we are contributing to the Wi-Fi 8 standard through innovation, enabling next-generation low-latency and high-bandwidth connectivity.

- Through the Internet Engineering Task Force (IETF), we are actively contributing new Internet connectivity technologies and working with the industry to explore four new connectivity scenarios: computing, intelligence, space-air-ground communications, and data. These are part of our broader efforts to help drive the upgrade of the data communications industry.

- Within the World Wide Web Consortium (W3C), we are working with partners to explore emerging technology directions for future services that meet Web standards, supporting efforts to develop high-performance and simplified Web subset standards, and helping improve the Web application development ecosystem.

Industry Alliances

Huawei is a committed partner in major industry alliances around the world. Together, we are working to promote sustainable industry development and help vertical industries go digital.

- **Strengthening international industry collaboration to advance digital transformation:** Huawei is an active partner in international industry organizations such as GSMA, WBBA, GeSI, AI Assurance Club, IDSA, OPC Foundation, and ZVEI. We actively contribute industry white papers, testbeds, and standards recommendations to support the development and application of new digital technologies in sectors such as communications, electronics, manufacturing, electric power, iron and steel, coal mining, oil and gas, and ports. Together, we are driving digital transformation forward.

- **Promoting industry competitiveness and sustainable development:** We are a major contributor to industry organizations such as GCC, UWA, WAA, iSLA, GIIC, and NIDA, and actively participate in industry activities organized by these organizations. We are working closely with partners all along the value chain to promote industry-wide consensus, standards development, testing and certification, and talent cultivation. These efforts help promote sustainable development in industries such as diversified computing, audio and video, short-range communications, smart Internet of Things (IoT), and fixed networks.

Academic Associations

Huawei embraces an open and diverse academic culture. We actively engage with global academic associations as part of our efforts to identify and explore future research directions and cultivate STEM talent. Together, we are invigorating academic pursuits while driving economic progress.

- **Probing the endless frontiers of science through sharing, exchange, and industry-academia collaboration:**

  - In 2024, we shared our perspectives on the future of wireless, optical, and foundational software at international academic conferences, and we are working with researchers worldwide to draft a technological blueprint for the intelligent world.

  - We strengthened collaboration with organizations like the China Computer Federation, releasing more than 80 new research topics to help drive progress in computer science.

  - We continue to support academic research in AI, producing positive results and driving AI technology forward.

- **Contributing new ideas to academic associations:** We have published more than 1,200 papers in high-impact journals and conferences, such as those organized by the Association for Computing Machinery (ACM) and IEEE.

- **Cultivating STEM talent through top competitions:** To inspire and engage the next generation of STEM talent, we contribute real-world industry challenges to multiple competitions like the International Collegiate Programming Contest (ICPC).

Open Source Communities

Huawei is a firm supporter and major contributor to open source communities, where we advocate inclusion, fairness, openness, solidarity, and sustainability. Through our work with partners to build world-class open source communities, we aim to accelerate software innovation and create thriving ecosystems.

- **Huawei actively participates in major open source organizations and projects.** We are a premium or founding member of more than 20 international open source foundations, including the Linux Foundation, Apache Software Foundation, Eclipse Foundation, OpenAtom Foundation, OpenInfra Foundation, Cloud Native Computing Foundation (CNCF), PyTorch Foundation, and Rust Foundation. We serve in hundreds of core code contributor roles, including Technical Steering

Committee members, Project Management Committee members, Project Team Leads, Maintainers, and Core Committers, contributing to more than 200 open source communities. Huawei has actively engaged in the definition of open source AI and the governance of open source licenses for AI in the industry, and we are working with industry partners to jointly launch a model openness evaluation framework in an effort to further advance the open source AI ecosystem.

■ **With a focus on foundational software, Huawei has launched over 10 influential open source projects to build a stronger foundation for digital infrastructure ecosystems.** We have launched multiple platform-level open source projects, such as KubeEdge, MindSpore, Volcano, openEuler, openGauss, OpenHarmony, Karmada, openGemini, and Kuasar. These foundational software projects have attracted an incredible number of contributors, including software vendors, developers, research institutes, and universities from all over the world. In 2024, KubeEdge was moved to the Graduated maturity level, and Sermant and openGemini were moved to the Incubating maturity level by CNCF. In 2024, MindSpore secured a 30% share of the new AI framework market in China, bringing its total downloads to more than 11 million.

■ **We are actively engaged in the governance and development of foundational software ecosystems with industry partners.** In 2024, we continued to actively contribute to two of the OpenAtom Foundation's core projects – OpenHarmony and openEuler. By the end of 2024, the OpenHarmony community has attracted more than 8,100 individual contributors, over 70 organization contributors, and more than 390 ecosystem partners, which have submitted more than 120 million lines of code. The openEuler community has rallied more than 1,900 organization members (e.g., top enterprises, research institutes, and universities), and over 21,000 individual open source contributors. The openEuler community itself has seen over 3.8 million downloads worldwide. In 2024 alone, openEuler added 5 million installations, bringing its total installations to more than 10 million.

■ **We are helping build sustainable and trusted open source communities.** Huawei actively works with partners from the software security industry to improve the security of open source ecosystems and address increasingly complex security challenges. We are deeply engaged in the development and promotion of major global software supply chain security standards and specifications, such as OpenChain and OpenSSF. We continue to fulfill our corporate social responsibilities to help build globally trusted open source ecosystems.

Ecosystems

We advocate openness and collaboration, and are working to help others succeed. We continue to push the limits of technology, open up capabilities, cultivate talent, and promote open and thriving ecosystems. As part of our ecosystem development efforts, we are working with universities, developers, and partners to build ecosystems around Kunpeng, Ascend, HarmonyOS, Huawei Cloud, and other businesses.

■ **We continue to expand industry-education integration and research-education integration, enable scientific research and innovation at universities, and help universities cultivate outstanding talent.**

   – Together with education institutions, we have launched the Intelligent Base, an industry-academia collaboration program. We are working with top universities in China to build centers of excellence and hubs that focus on innovation in science and education. We also released the Huawei Developer Advocate Program.

   – We are integrating technologies such as Kunpeng, Ascend, HarmonyOS, and Huawei Cloud into classroom teaching and experiments. Our support for universities also includes collaboration on cutting-edge technologies, funding for innovation topics, and hosting professional competitions. These initiatives have had an impact on more than 6,000 teachers and benefited over 600,000 students, helping build a sustainable talent pool for ecosystem and industry development.

- **We put developers front and center. We are working to improve the development experience and help developers grow.**

  – We have developed easy-to-use development standards, optimized toolchains, acceleration libraries, and development kits, and opened up more than 130,000 APIs.

  – We have also expanded our developer support team and improved mechanisms for responding to developer requirements, providing faster resolutions to issues.

  – We provide developers with a free Elastic Cloud Server (ESC) to help them work more efficiently. We continue to enable developers through a rich array of learning resources, activities, and competitions. In 2024, we developed more than 2,500 courses that attracted 1.16 million participants, carried out over 300 on-site activities and over 1,200 online activities, and held 12 flagship competitions.

  – By the end of 2024, more than 12 million developers have joined Huawei's ecosystems.

- **We are working to build a robust ecosystem partner enablement system to drive shared growth. We support innovation in applications and are empowering partners to better serve customers together.**

  – We continue to increase incentives for ecosystem partners through programs such as the Shining Star Program, Huawei Cloud Developer Program, Kunpeng Partner Program, and Ascend Partner Program. We have assigned several thousand experts to support partners in application development. We also provide multiple forms of support for ecosystem partners, including promotion, marketing, business opportunities, and business support, helping them to both engage with the ecosystem and benefit from it.

  – By the end of 2024, the ecosystems for domains like Kunpeng, Ascend, and Huawei Cloud have attracted more than 48,700 partners, developed over 41,300 innovative applications, and incubated 38 foundation models and over 160 high-performance operators. These achievements have helped accelerate the digital and intelligent transformation of industries and are providing more options for customers.

  – More than 20,000 HarmonyOS apps and atomic services have been released, covering 18 vertical domains and nearly all aspects of everyday life.

Industrial Policy

We are working to unleash the full business and social value of the ICT industry and promote digital inclusion.

- **We share best practices in digital economy development to promote digital inclusion.**
  Huawei and IDC jointly proposed the concept of a "Digital First Economy", encouraging policymakers to introduce more favorable policies that support the development of digital infrastructure, digital economy ecosystems, and digital talent. We have also shared best practices from different countries and regions in advancing their digital economies. These are part of our broader efforts to create greater social and business value, and to promote sustainable development through digital inclusion. At the World Economic Forum, ITU, and other international organizations and open forums, we regularly share our experience and best practices in promoting digital transformation, digital inclusion, and more.

- **We actively participate in public consultations on industrial policy, standards, and specifications in all countries where we operate.** These efforts include sharing recommendations on cloud-based and intelligent digital infrastructure, digital talent development programs, and new business model incubation. In every country, our goal is to promote inclusive and sustainable digital transformation.

Results of Operations

Financial Performance

(CNY Million)	2024	2023	YoY
Revenue	862,072	704,174	22.4%
Gross profit	382,571	325,364	17.6%
– Gross profit margin	44.4%	46.2%	(1.8)%
Total operating expenses	(311,532)	(283,644)	9.8%
– as % of revenue	36.1%	40.3%	(4.2)%
Other income, net	8,322	62,681	(86.7)%
Operating profit	79,361	104,401	(24.0)%
– as % of revenue	9.2%	14.8%	(5.6)%
Net finance expenses	(8,255)	(6,659)	24.0%
Income tax	(8,295)	(10,646)	(22.1)%
Net profit	62,574	86,950	(28.0)%

In 2024, Huawei's total revenue was CNY862,072 million, representing an increase of 22.4% YoY, while our net profit was CNY62,574 million.

- Due to industries' digital, intelligent, and low-carbon transformation, as well as our increasingly competitive products, our revenue continued to grow.

- As our revenue grew and we maintained a robust business portfolio, profitability from our main businesses gradually recovered.

Total operating expenses

(CNY Million)	2024	2023	YoY
Research and development expenses	179,687	164,721	9.1%
– as % of revenue	20.8%	23.4%	(2.6)%
Selling and administrative expenses	131,845	118,923	10.9%
– as % of revenue	15.3%	16.9%	(1.6)%
Total operating expenses	311,532	283,644	9.8%
– as % of revenue	36.1%	40.3%	(4.2)%

We continued to increase investment in future-oriented basic research and innovation in domains such as AI, foundational technologies, and intelligent vehicles. As a result, our R&D expenses rose YoY. However, since our revenue also grew, our R&D expenses as a percentage of revenue declined YoY.

We also continued to invest in the development of new business domains and ecosystem building, and our operating efficiency increased thanks to ongoing transformation. As a result, our selling and administrative expenses as a percentage of revenue decreased YoY.

Net finance expenses

(CNY Million)	2024	2023	YoY
Net foreign exchange losses	133	474	(71.9)%
Other net finance losses	8,122	6,185	31.3%
Total net finance expenses	8,255	6,659	24.0%

In 2024, Huawei's net finance expenses totaled CNY8,255 million, up 24.0% YoY. This change was mainly attributed to a change in other net finance losses.

Financial Position

(CNY Million)	December 31, 2024	December 31, 2023	YoY
Non-current assets	475,693	390,503	21.8%
Current assets	814,456	873,094	(6.7)%
Total assets	1,290,149	1,263,597	2.1%
Among which: Cash and short-term investments	372,232	475,317	(21.7)%
Trade receivables	109,558	97,224	12.7%
Contract assets	60,640	53,886	12.5%
Inventories and other contract costs	179,139	154,558	15.9%
Non-current liabilities	250,252	304,597	(17.8)%
Among which: Long-term borrowings	237,508	291,688	(18.6)%
Current liabilities	495,278	451,432	9.7%
Among which: Short-term borrowings	27,363	16,726	63.6%
Trade payables	104,908	86,362	21.5%
Contract liabilities	97,461	95,101	2.5%
Equity	544,619	507,568	7.3%
Total liabilities and equity	1,290,149	1,263,597	2.1%

As of December 31, 2024, Huawei's balance of total assets reached CNY1,290,149 million, representing an increase of 2.1% YoY, and our current assets accounted for 63.1% of our total assets.

As we optimized our debt structure and repaid some debts, our total short-term and long-term borrowings as of December 31, 2024 decreased by CNY43,543 million compared with the beginning of 2024.

Cash Flow from Operating Activities

(CNY Million)	**2024**	2023	YoY
Net profit	**62,574**	86,950	(28.0)%
Adjustment for depreciation, amortization, impairment, net foreign exchange losses and non-operating income and expenses	**52,242**	(9,012)	(679.7)%
Cash flow before changes in operating assets and liabilities	**114,816**	77,938	47.3%
Changes in operating assets and liabilities	**(26,399)**	(8,131)	224.7%
Cash flow from operating activities	**88,417**	69,807	26.7%

In 2024, our cash flow from operating activities was CNY88,417 million, representing an increase of 26.7% YoY.

Financial Risk Management

In 2024, we closely monitored the changes in our external environment and proactively assessed their impact on Huawei using the financial risk management system we have built over the past years. In addition, we continued to amend and improve our financial risk management policies and processes to further enhance our ability to withstand financial risks and better support our business development.

Liquidity Risk

We have continuously worked to improve our capital structure and short-term liquidity planning, budgeting, and forecasting systems to better assess mid- to long-term liquidity needs and short-term funding shortfalls. We have implemented prudent financial measures to meet our liquidity needs and guarantee our company's business development, including maintaining a robust capital structure and financial flexibility, keeping a proper level of funds, gaining access to adequate and committed credit facilities, creating effective cash plans, and centralizing cash management. As of December 31, 2024, our cash and short-term investments amounted to CNY372,232 million, which shows that we properly managed our liquidity risks.

(CNY Million)	**2024**	2023	YoY
Cash flow from operating activities	**88,417**	69,807	26.7%
Cash and short-term investments	**372,232**	475,317	(21.7)%
Short-term and long-term borrowings	**264,871**	308,414	(14.1)%

Foreign Exchange Risk

Our presentation currency is CNY, but we have foreign currency exposures related to buying, selling, and financing in currencies other than CNY. According to our established foreign exchange risk management policy, material foreign exchange exposures are hedged based on a comprehensive analysis of market liquidity and hedging costs. We have developed a complete set of foreign exchange management policies, processes, and instructions. These include:

- Natural hedging: We structure our operations to match currencies between procurement and sales transactions, to the greatest extent possible.

- Financial hedging: For certain currencies where natural hedging does not fully offset the foreign currency position, we hedge through forward foreign exchange transactions. In countries where local currencies depreciate sharply or that have strict foreign exchange controls, we manage foreign exchange exposures using different measures, including exchange rate protection and financial hedging. We have also adopted solutions like accelerating customer payment and promptly transferring cash out of these countries to minimize risks.

With other conditions remaining unchanged, exchange rate fluctuations would impact our net profit as follows:

(CNY Million)	2024	2023
USD depreciates by 5%	445	347
EUR depreciates by 5%	(216)	(28)
HKD depreciates by 5%	(1,493)	(1,681)

Interest Rate Risk

Interest rate risks mainly arise from Huawei's long-term borrowings. By analyzing interest rate exposures, the company uses a combination of fixed-rate and floating-rate financing tools to mitigate these interest rate risks.

1. Major interest-bearing long-term financial instruments held by the company as at December 31, 2024

	2024		2023	
	Effective Interest Rate (%)	(CNY Million)	Effective Interest Rate (%)	(CNY Million)
Fixed-rate long-term financial instruments: Long-term borrowings	3.74	38,186	3.64	61,676
Floating-rate long-term financial instruments: Long-term borrowings	2.32	199,322	3.69	230,013
Total		237,508		291,688

2. Sensitivity analysis

Assuming that the interest rate increased by 50 basis points on December 31, 2024 and other variables remained unchanged, the company's net profit and equity would decrease by CNY847 million (in 2023, the amount decreased by CNY956 million).

Credit Risk

The company has established and implemented globally consistent credit management policies, processes, IT systems, and quantitative credit risk assessment tools. It has established dedicated credit management teams across all regions and business units, and set up centers of expertise specializing in credit management in Europe and Asia Pacific. The company uses quantitative risk assessment models to determine customer credit ratings and credit limits and quantify transaction risks. It has also set risk control points for key activities across the end-to-end sales process to manage credit risks in a closed loop. Huawei's Credit Management Department regularly assesses global credit risk exposures and develops IT tools to help field offices monitor risk status, estimate potential losses, and determine bad debt provisions as appropriate. To minimize risk, a special process is followed if a customer defaults on a payment or poses an unacceptably high credit risk.

Sales Financing

With its global coverage, Huawei's sales financing team maintains close contact with customers to understand their financing needs and taps into a wide range of financing resources around the world. As a bridge for communication and cooperation between financial institutions and customers, the sales financing team provides customers with specialized financing solutions that contribute to ongoing customer success. Huawei remains committed to working with our financing partners to build a mutually beneficial financing ecosystem. Therefore, we engage our partner financial institutions to provide sales financing facilities in export credit, leasing, factoring, and other products with financial institutions undertaking risks and realizing the returns. Huawei has established systematic financing policies and project approval processes to strictly control financing risk exposures. Huawei only shares risks with financial institutions on certain projects, and measures and recognizes the risk exposures to ensure that business risks are under control.

Independent Auditors' Report

KPMG

Independent auditors' report on the consolidated financial statements summary to the Board of Directors of Huawei Investment & Holding Co., Ltd.

Opinion

The consolidated financial statements summary of Huawei Investment & Holding Co., Ltd. and its subsidiaries (the Group) set out on pages 96 to 138, which comprises the summary consolidated statement of financial position as at December 31, 2024, the summary consolidated statement of profit or loss and other comprehensive income and the summary consolidated statement of cash flows for the year then ended, and related notes, is derived from the audited consolidated financial statements of the Group for the year ended December 31, 2024.

In our opinion, the accompanying consolidated financial statements summary is consistent, in all material respects, with the audited consolidated financial statements, on the basis described in note 2 to the consolidated financial statements summary.

Consolidated financial statements summary

The consolidated financial statements summary does not contain all the disclosures required by IFRS Accounting Standards as issued by the International Accounting Standards Board. Reading the consolidated financial statements summary and our report thereon, therefore, is not a substitute for reading the audited consolidated financial statements of the Group and our report thereon.

The audited consolidated financial statements and our report thereon

We expressed an unmodified audit opinion on the audited consolidated financial statements for the year ended December 31, 2024 in our report dated March 26, 2025.

Management's responsibilities for the consolidated financial statements summary

Management is responsible for the preparation of the consolidated financial statements summary on the basis described in note 2 to the consolidated financial statements summary.

Auditors' responsibilities

Our responsibility is to express an opinion on whether the consolidated financial statements summary is consistent, in all material respects, with the audited consolidated financial statements based on our procedures, which were conducted in accordance with International Standard on Auditing 810 (Revised), *Engagements to Report on Summary Financial Statements*.

KPMG Huazhen LLP
Certified Public Accountants
15th Floor, China Resources Tower
2666 Keyuan South Road
Shenzhen 518052, China

March 26, 2025

Consolidated Financial Statements Summary

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Summary Consolidated Statement of Profit or Loss and Other Comprehensive Income

(CNY million)	Note	2024	2023
Revenue	8	862,072	704,174
Cost of sales		(479,501)	(378,810)
Gross profit		**382,571**	325,364
Research and development expenses		(179,687)	(164,721)
Selling and administrative expenses		(131,845)	(118,923)
Other income, net	9	8,322	62,681
Operating profit		**79,361**	104,401
Finance income and expenses	11	(8,255)	(6,659)
Share of associates' and joint ventures' results (post tax)		(237)	(146)
Profit before tax		**70,869**	97,596
Income tax	12	(8,295)	(10,646)
Profit for the year		**62,574**	86,950
Other comprehensive income (after tax and reclassification adjustments)	13		
Items that will not be reclassified to profit or loss:			
Re-measurement of defined benefit obligations		(294)	133
Equity investments at fair value through other comprehensive income (FVOCI) - net change in fair value		(303)	1,350
		(597)	1,483
Items that may be reclassified subsequently to profit or loss:			
Non-equity financial assets at FVOCI - net change in fair value and impairment loss		88	172
Translation differences on foreign operations		(184)	1,225
Share of other comprehensive income of associates and joint ventures		1	1
		(95)	1,398
Other comprehensive income		**(692)**	2,881
Total comprehensive income		**61,882**	89,831
Profit for the year attributable to:			
Equity holders of the Company		62,491	86,893
Non-controlling interests		83	57
		62,574	86,950
Total comprehensive income attributable to:			
Equity holders of the Company		61,798	89,773
Non-controlling interests		84	58
		61,882	89,831

The notes on pages 100 to 138 form part of this consolidated financial statements summary.

Summary Consolidated Statement of Financial Position

(CNY million)	Note	December 31, 2024	December 31, 2023
Assets			
Property, plant and equipment	14	**176,565**	156,495
Goodwill and intangible assets	15	**8,562**	8,537
Right-of-use assets	29	**24,914**	25,402
Interests in associates and joint ventures	16	**8,366**	7,336
Other investments and derivatives	17	**213,991**	154,510
Deferred tax assets	18	**15,562**	12,456
Contract assets	20	**2,347**	1,340
Trade and bills receivable	21	**4,664**	7,014
Other assets	22	**20,722**	17,413
Non-current assets		**475,693**	390,503
Inventories and other contract costs	19	**179,139**	154,558
Contract assets	20	**58,293**	52,546
Trade and bills receivable	21	**119,954**	102,050
Other assets	22	**84,519**	88,141
Other investments and derivatives	17	**226,286**	282,896
Cash and cash equivalents	23	**146,265**	192,903
Current assets		**814,456**	873,094
Total assets		**1,290,149**	1,263,597
Equity			
Equity attributable to equity holders of the Company		**544,416**	507,428
Non-controlling interests		**203**	140
Total equity		**544,619**	507,568
Liabilities			
Loans and borrowings	24	**237,508**	291,688
Deferred tax liabilities	18	**2,417**	3,433
Lease liabilities		**7,974**	7,460
Other liabilities	27	**2,353**	2,016
Non-current liabilities		**250,252**	304,597
Loans and borrowings	24	**27,363**	16,726
Employee benefits		**108,225**	98,861
Income tax payable		**6,268**	6,687
Trade and bills payable	25	**105,077**	90,845
Contract liabilities	26	**97,461**	95,101
Lease liabilities		**3,481**	3,375
Other liabilities	27	**123,782**	119,668
Provisions	28	**23,621**	20,169
Current liabilities		**495,278**	451,432
Total liabilities		**745,530**	756,029
Total equity and liabilities		**1,290,149**	1,263,597

The notes on pages 100 to 138 form part of this consolidated financial statements summary.

Summary Consolidated Statement of Cash Flows

(CNY million)	Note	2024	2023
Cash receipts from goods and services		931,642	770,927
Cash paid to suppliers and employees		(896,730)	(757,254)
Other operating cash flows		53,505	56,134
Net cash generated from operating activities		**88,417**	69,807
Net cash used in investing activities		**(49,757)**	(98,759)
Net cash (used in)/generated from financing activities		**(83,917)**	73,193
Cash and cash equivalents			
Net (decrease)/increase		**(45,257)**	44,241
At January 1		**192,903**	147,269
Effect of foreign exchange rate changes		**(1,381)**	1,393
At December 31	23	**146,265**	192,903

The notes on pages 100 to 138 form part of this consolidated financial statements summary.

Notes to the Consolidated Financial Statements Summary

1 Reporting entity

Huawei Investment & Holding Co., Ltd. (the Company) is a limited liability company established in Shenzhen in the People's Republic of China (PRC). The Company's registered office is at Building 1, Zone B, Huawei Base, Bantian, Longgang District, Shenzhen City, PRC. The Company's ultimate controlling party is the Union of Huawei Investment & Holding Co., Ltd. (the Union).

The Company and its subsidiaries (the Group) principally provide information and communications technology (ICT) infrastructure and smart devices. This includes providing products, services and solutions to customers in the fields of communications networks, IT, smart devices, cloud services, digital power and intelligent automotive solutions. The principal activities and other particulars of the Company's major subsidiaries are set out in note 32(b) to the consolidated financial statements summary.

2 Preparation basis of the consolidated financial statements summary

The Group has prepared a full set of consolidated financial statements (consolidated financial statements) for the year ended December 31, 2024 in accordance with IFRS Accounting Standards.

The consolidated financial statements summary has been prepared and presented based on the audited consolidated financial statements for the year ended December 31, 2024 in order to disclose material financial information relating to the Group's business operation.

3 Material accounting policies

(a) Basis of preparation of the consolidated financial statements

The consolidated financial statements have been prepared under the historical cost basis modified for the fair valuation of some financial instrument classifications (see note 3(e)).

The preparation of the consolidated financial statements in conformity with IFRS Accounting Standards requires management to make judgments, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed regularly and revised when required. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods.

Judgments made by management in the application of IFRS Accounting Standards that have significant effect on the consolidated financial statements and major sources of estimation uncertainty are discussed in note 4.

(b) Functional and presentation currency

All financial information in the consolidated financial statements summary is presented in millions of Chinese Yuan (CNY), which is the Company's functional currency.

(c) Consolidation

(i) Business combinations

The Group accounts for business combinations using the acquisition method when the acquired set of activities and assets meets the definition of a business and control is transferred to the Group. To be considered a business, an acquiree must comprise inputs and a substantive process that together significantly contribute to the ability to create outputs.

The Group may determine that an acquired set of activities and assets is not a business if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable assets and liabilities. Any goodwill that arises is tested annually for impairment (see

note 3(k)(ii)). Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred.

(ii) Subsidiaries

The financial statements consolidate the results, assets, liabilities and cash flows of all subsidiaries which the Group controls.

Subsidiaries are consolidated from the date that control commences until the date that control ceases. Intra-group balances, transactions, cash flows and any unrealized gains arising from intra-group transactions are eliminated in preparing the consolidated financial statements. Unrealized losses resulting from intra-group transactions are eliminated in the same way as unrealized gains but only to the extent that there is no evidence of impairment.

The Group controls an entity when it is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. When assessing whether the Group has power, only substantive rights are considered.

(iii) Non-controlling interests

Non-controlling interests represent the carrying value of the net assets of subsidiaries attributable to non-controlling equity holders. The Group measures non-controlling interests at the non-controlling interests' proportionate share of the subsidiary's net identifiable assets. Changes in the Group's interests in a subsidiary that do not result in a loss of control are accounted for as equity transactions, whereby adjustments are made to the amounts of controlling and non-controlling interests within consolidated equity to reflect the change in relative interests, but no adjustments are made to goodwill and no gain or loss is recognized.

(iv) Loss of control

When the Group loses control of a subsidiary, it is accounted for as a disposal of the entire interest in that subsidiary, with a resulting gain or loss being recognized in profit or loss. Any interest retained in that former subsidiary at the date when control is lost is recognized at fair value or, when appropriate, the cost on initial recognition of an investment in an associate or a joint venture (see note 3(d)).

(d) Associates and joint ventures

An associate is an entity in which the Group has significant influence, but not control or joint control, over its financial and operating policies.

A joint venture is an arrangement whereby the Group and other parties contractually agree to share control of the arrangement, and have rights to the net assets of the arrangement.

An investment in an associate or a joint venture is accounted for in the consolidated financial statements using the equity method until the date on which significant influence or joint control ceases. It is initially recognized at cost and subsequently adjusted to include the Group's share of the profit or loss and other comprehensive income (OCI) of the associate or the joint venture.

Unrealized profits and losses resulting from transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the investee, except where unrealized losses provide evidence of an impairment of the asset transferred, in which case they are recognized immediately in profit or loss.

(e) Financial instruments

(i) Recognition and derecognition

Financial instruments, comprising financial assets and financial liabilities, are recognized in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

The Group derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or where it neither transfers nor retains substantially all of the risks and rewards of ownership and loses control. When control is retained, the Group continues to recognize the financial asset to the extent of its continuing involvement. Financial assets are also derecognized when they are written off. Financial assets are written off when there is no reasonable expectation of further recoveries even though there may be enforcement actions ongoing.

The Group derecognizes a financial liability when its contractual obligations are discharged, canceled, or expire.

Financial assets and financial liabilities are offset and the net amount presented in the consolidated statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the recognized amounts and intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

(ii) Classification and measurement

All financial assets and liabilities are initially recognized at fair value, with the exception of trade receivables without a significant financing component, which are measured at their transaction price, determined in accordance with the Group's accounting policies for revenue. Subsequently, measurement depends on the financial assets/liabilities classification as follows:

■ Financial assets measured at fair value through profit or loss (FVPL)

Non-equity financial assets are classified as FVPL if they arise from contracts which do not give rise to cash flows which are solely principal and interest, or otherwise where they are held in a business model which mainly realizes them through sale. Such assets are re-measured to fair value at the end of each reporting period. Gains and losses arising from re-measurement are taken to profit or loss, as are transaction costs.

Equity investments are classified as FVPL unless they are designated as at FVOCI on initial recognition (see below). Dividends from equity investments, irrespective of whether classified as FVPL or FVOCI, are recognized in profit or loss as finance income.

■ Financial assets measured at FVOCI

Non-equity financial assets are classified as FVOCI where they arise from contracts that give rise to contractual cash flows which are solely principal and interest and that are held in a business model which realizes some through sale and some by holding them to settlement. They are recognized initially at fair value plus any directly attributable transaction costs, or in the case of trade receivables, at the transaction price.

At the end of each reporting period they are re-measured to fair value, with the cumulative gain or loss compared to their amortized cost (AC) being recognized as fair value reserve through other comprehensive income, except for the recognition in profit or loss of expected credit losses, interest income (calculated using the effective interest method) and foreign exchange gains and losses.

When these assets are derecognized, the cumulative gain or loss is reclassified from equity to profit or loss.

Equity investments are designated as at FVOCI where they are considered strategic to the Group. Such designation is made on an instrument-by-instrument basis, but may only be made if the investment meets the definition of equity from the issuer's perspective. Amounts accumulated in the fair value reserve in respect of these investments are transferred directly to retained earnings on the disposal of the investment. These investments are not subject to impairment.

■ Financial assets measured at amortized cost

Financial assets are held at amortized cost when they arise from contracts that give rise to contractual cash flows which are solely principal and interest and are held in a business model that mainly holds the assets to collect contractual cash flows.

Financial assets measured at amortized cost when they are not purchased or originated credit-impaired are measured at amortized cost using the effective interest method. For those purchased or originated credit-impaired, the Group applies the credit-adjusted effective interest rate since initial recognition. These assets are also subject to impairment losses (see note 3(k)). Interest income is calculated based on the gross carrying amount of the financial asset unless the financial asset is credit impaired, in which case interest income is calculated on the amortized cost (i.e. gross carrying amount less loss allowance). Interest income is included in finance income.

■ Financial liabilities

Financial liabilities are classified as measured at amortized cost or FVPL. A financial liability is

classified as FVPL if it is a derivative, contingent consideration or it is designated as such on initial recognition. Other financial liabilities are stated at amortized cost using the effective interest method. Interest is included in finance expenses unless capitalized into an asset (see note 3(t)).

■ Derivative financial instruments

Derivative financial instruments are recognized at fair value. At the end of each reporting period the fair value is re-measured. Derivatives are classified as assets when their fair value is positive or as liabilities when their fair value is negative. The gain or loss on re-measurement to fair value is recognized immediately in profit or loss, except where the derivatives are accounted for as hedges of a net investment in a foreign operation (see note 3(f)).

(f) Hedge accounting

The Group holds derivatives to hedge the foreign exchange risk on net investments in certain foreign operations.

At the inception of the hedging relationship, the Group documents the risk management objective, the strategy for undertaking the hedge, and the economic relationship between the hedged item and the hedging instrument, including whether the value changes of the hedged item and the hedging instrument are expected to offset each other.

Hedge effectiveness is assessed on an ongoing basis at the hedging commencement date and each subsequent reporting date. A hedge is considered effective when:

(i) there is an economic relationship between the hedged item and the hedging instrument;

(ii) the effect of credit risk does not dominate the value changes that result from that economic relationship; and

(iii) the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

To the extent that the hedge is effective, changes in the fair value of the derivative are recognized in other comprehensive income and presented within equity. Gains and losses representing hedge ineffectiveness are recognized in profit or loss. The balances from any hedging relationships for which hedge accounting is no longer applied remain in the translation reserve. The cumulative amount recognized in other comprehensive income is reclassified to profit or loss as a whole or in part on disposal or partial disposal of the foreign operation.

(g) Investment property

Investment properties are land and buildings which are owned or held under a leasehold interest (see note 3(j)) to earn rental income and/or for capital appreciation.

Investment properties are stated at cost less accumulated depreciation (see note 3(h)(ii)) and impairment losses (see note 3(k)). Rental income from investment properties is accounted for as described in note 3(q)(ii).

(h) Other property, plant and equipment

(i) Cost

Items of property, plant and equipment are stated at cost less accumulated depreciation and impairment losses (see note 3(k)). Cost includes expenditure that is directly attributable to the acquisition of the assets including for self-constructed assets, the cost of materials, direct labor, the initial estimate, where appropriate, of the costs of dismantling and removing the items and restoring the site on which they are located, and an appropriate proportion of production overheads and borrowing costs.

Construction in progress is transferred to other property, plant and equipment when it is ready for its intended use.

Gains or losses arising from the retirement or disposal of an item of property, plant and equipment are determined as the difference between the net disposal proceeds and the carrying amount of the item and are recognized in profit or loss on the date of retirement or disposal.

(ii) Depreciation

Depreciation is calculated to write off the cost of items of investment property and other property, plant and equipment, less their estimated residual value, if any, using the straight-line method over their estimated useful lives as follows:

- Buildings   30 years
- Machinery   2 to 10 years
- Motor vehicles   5 to 15 years
- Electronic and other equipment   2 to 5 years
- Decoration and leasehold
  improvements   2 to 15 years

Where components of an item of investment property and other property, plant and equipment have different useful lives, the cost of the item is allocated on a reasonable basis between the parts and each part is depreciated separately. Both the useful life of an item of investment property and other property, plant and equipment and its residual value, if any, are reviewed annually and adjusted if appropriate.

Freehold land and construction in progress are not depreciated.

(i) Goodwill and intangible assets

(i) Goodwill

Goodwill represents the excess of the fair value of consideration paid to acquire a subsidiary over the acquisition date fair value of the acquiree's identifiable assets acquired less liabilities, including contingent liabilities, assumed as at the acquisition date, less impairment losses (see note 3(k)(ii)).

(ii) Other intangible assets

Other intangible assets are stated at cost less accumulated amortization and impairment losses (see note 3(k)).

(iii) Amortization

Goodwill is not amortized but subject to impairment testing (see note 3(k)(ii)) annually.

The cost of other intangible assets with finite useful lives is amortized to profit or loss on a straight-line basis over the assets' estimated useful lives from the date they are available for use.

Their estimated useful lives are as follows:

- Software   2 to 10 years
- Patents and royalties   2 to 10 years
- Trademark and others   2 to 20 years

Both the useful lives and method of amortization are reviewed annually and adjusted if appropriate.

(iv) Research and development

Research and development costs are all costs directly attributable to research and development activities together with costs which can be allocated on a reasonable basis to such activities. The nature of the Group's research and development activities is such that the criteria for the recognition of such costs as assets are generally not met until late in the development stage of the project when the remaining development costs are immaterial. Therefore, expenditure on research and development activities is generally recognized as an expense in the period in which it is incurred.

(j) Leases

A contract is, or contains, a lease if on inception the contract conveys the right to control the use of an identified asset for a period of time, the lease term, in exchange for consideration.

The lease term is the non-cancelable period of the lease, together with any additional periods, when there is an enforceable option to extend the lease and it is reasonably certain that the Group will extend the term, or when there is an option to terminate the lease and it is reasonably certain that the Group will not exercise the right to terminate. The lease term is reassessed if there is a significant change in circumstances.

(i) As a lessee

At commencement, or on the modification, of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone price.

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at

or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term. If the lease transfers ownership of the underlying asset to the Group by the end of the lease term or if the Group expects to exercise a purchase option, the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of the Group's other property, plant and equipment.

Right-of-use assets are further reduced by impairment losses, if any, and adjusted for certain re-measurements of the lease liability.

The lease liability is initially measured at the present value of the total lease payments that are not paid on the commencement date, discounted using either the interest rate implicit in the lease, if readily determinable, or more usually, an estimate of the Group's incremental borrowing rate on the inception date for a loan with similar terms to the lease.

The incremental borrowing rate is estimated by obtaining interest rates from various external financing sources and making certain adjustments to reflect the terms of the lease and type of the asset leased.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including payments which are substantively fixed;

- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;

- amounts expected to be payable under a residual value guarantee; and

- the exercise price under a purchase option that the Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

The lease liability is measured at amortized cost using the effective interest method. It is re-measured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is re-measured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

Short-term leases and leases of low-value assets

As permitted by IFRS 16 Leases, the Group does not recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. Payments associated with these leases are recognized as an expense on a straight-line basis over the lease term.

(ii) As a lessor

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease.

The Group recognizes lease payments received under operating leases as income on a straight-line basis over the lease term as part of revenue (see note 3(q)(ii)).

(k) Impairment of assets

(i) Impairment of financial assets, contract assets and lease receivables

The Group recognizes an allowance for impairment on non-equity financial assets held at FVOCI and AC, and also on contract assets and lease receivables on an expected credit loss basis. Increases and decreases in the impairment allowance are recognized in profit or loss. The

expected credit losses are the difference (on a present value basis) between the contractual cash flows (or transaction price) and the present value of cash flows expected to be received based on the Group's past loss experience and reasonable and supportable expectations, at the end of the reporting period, about future credit conditions.

For trade receivables, contract assets and lease receivables, the Group recognizes impairment both individually and using provision matrices based on the probability that the customer will default during the lifetime of the asset, and the loss that will be incurred given the default (the lifetime expected loss). The Group defines default as the customer being more than 90 days past due.

For all other financial assets that are not purchased or originated credit-impaired, the Group recognizes impairment initially based on the probability that the customer or counterparty will default in the next 12 months unless there has been a significant deterioration in credit quality, or the financial asset becomes credit impaired in which case the impairment allowance is increased to the lifetime expected loss.

An asset is credit-impaired when it has one or more of the loss events described below:

- significant financial difficulty of the borrower or issuer;

- a breach of contract, such as a default or past due event;

- the restructuring of a loan or advance by the Group on terms that the Group would not consider otherwise;

- it is probable that the borrower will enter bankruptcy or other financial reorganization; or

- the disappearance of an active market for a security because of financial difficulties of the issuer.

In the case of purchased or originated credit-impaired financial assets, the Group only recognizes the cumulative changes in lifetime expected credit losses since initial recognition as a loss allowance.

(ii) Impairment of other non-financial assets

Internal and external sources of information are reviewed at the end of each reporting period to identify indications that non-financial assets, including property, plant and equipment, right-of-use assets, intangible assets and other long-term assets may be impaired.

Goodwill is tested for impairment at least annually. For the purposes of impairment testing, goodwill is allocated to each cash generating unit, or a group of cash generating units, that is expected to benefit from the synergies of the acquisition. Where impairment testing is of a cash generating unit (or group of units), an impairment loss is recognized in profit or loss where the recoverable amount is less than the carrying amount of the unit (or group of units) and the impairment loss recognized is allocated first to reduce the carrying amount of any goodwill allocated to the unit (or group of units).

Other assets are impaired and an impairment loss is recognized in profit or loss where the recoverable amount of the asset is less than its carrying amount, and reversed where there has been a favorable change in the recoverable amount. Impairment of goodwill is not reversed.

The recoverable amount of an asset or group of assets is the greater of its fair value less costs of disposal and value in use. Value in use is the total estimated future cash flows from the asset or, where the asset does not generate cash flows independent of other assets, a group of assets, discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset, or group of assets.

(l) Inventories

Inventories are assets which are held for sale in the ordinary course of business, in the process of production for such sales or in the form of material or supplies to be consumed in the production process or in the rendering of services.

Inventories are carried at the lower of cost and net realizable value.

Cost is calculated based on the standard cost method with periodic adjustments of cost variance to arrive at the actual cost, which approximates to weighted average cost. Cost includes expenditures incurred in acquiring the inventories and bringing them to their present location and condition. The cost of manufactured inventories and work in progress includes an appropriate share of overheads based on normal operating capacity.

Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and the estimated costs necessary to make the sale.

When inventories are sold, the carrying amount of those inventories is recognized as an expense in the period in which the related revenue is recognized. Any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs.

(m) Cash and cash equivalents

Cash and cash equivalents comprise cash at bank and on hand, demand deposits with banks and other financial institutions, demand deposits with third party merchants, and short-term, highly liquid investments that are readily convertible into known amounts of cash and which are subject to an insignificant risk of changes in value, having been within three months of maturity at acquisition. Bank overdrafts that are repayable on demand and form an integral part of the Group's cash management are also included as a component of cash and cash equivalents for the purpose of the consolidated statement of cash flows.

(n) Employee benefits

(i) Short-term employee benefits, contributions to defined contribution retirement plans and other long-term employee benefits

Salaries, profit-sharing and bonus payments, paid annual leave and contributions to defined contribution retirement plans and non-monetary benefits are recognized as liabilities and in profit or loss or in the cost of related assets in the period in which the associated services are rendered by employees. Where payment or settlement is expected to be made 12 months after the end of the reporting period, these amounts are discounted and stated at their present values.

(ii) Defined benefit obligations

The Group's obligation in respect of defined benefit plans is calculated separately for each plan by estimating the total amount of future benefit that employees have earned in return for their service in the current and prior periods which is

then discounted to present value. The calculation is performed by management using the projected unit credit method.

Service cost and interest cost on the defined benefit obligations and any curtailment gains and losses are recognized in profit or loss. Re-measurements arising from changes in actuarial assumptions regarding the amounts of future benefits are recognized immediately in other comprehensive income and shall not be reclassified to profit or loss in a subsequent period. However, the Group may transfer those amounts recognized in other comprehensive income within equity.

(o) Income tax

Income tax expense comprises current and deferred tax. It is recognized in profit or loss except to the extent that it relates to a business combination, or items recognized in other comprehensive income or directly in equity.

Current tax comprises the expected tax payable or receivable on the taxable income or loss for the year and any adjustment to the tax payable or receivable in respect of prior years. The amount of current tax payable or receivable is the best estimate of the tax amount expected to be paid or received that reflects uncertainty, if any. It is measured using tax rates enacted or substantively enacted at the reporting date. Current tax also includes any tax arising from dividends.

Deferred tax is recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and their tax bases. Deferred tax assets also arise from unused tax losses and unused tax credits. Deferred tax is not recognized for:

- temporary differences on the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss and does not give rise to equal taxable and deductible temporary differences;

- temporary differences related to investments in subsidiaries, associates and joint arrangements to the extent that the Group is able to control the timing of the reversal of the temporary differences and it is probable that they will not reverse in the foreseeable future;

- taxable temporary differences arising on the initial recognition of goodwill; and

- those related to the income taxes arising from tax laws enacted or substantively enacted to implement the Pillar Two model rules published by the Organization for Economic Co-operation and Development.

Deferred tax assets are recognized to the extent that it is probable that future taxable profits will be available against which the asset can be utilized. Future taxable profits are determined based on the reversal of relevant taxable temporary differences. If the amount of taxable temporary differences is insufficient to recognize a deferred tax asset in full, then future taxable profits, adjusted for reversals of existing temporary differences, are considered, based on the business plans for individual subsidiaries in the Group. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized; such reductions are reversed when the probability of future taxable profits improves.

The amount of deferred tax recognized is measured based on the expected manner of realization or settlement of the carrying amount of the assets and liabilities, using tax rates enacted or substantively enacted at the reporting date. Deferred tax assets and liabilities are not discounted.

A provision is recognized for those matters for which the tax determination is uncertain but it is considered probable that there will be a future outflow of funds to a tax authority. The provisions are measured at the best estimate of the amount expected to become payable.

Current tax balances and deferred tax balances, and movements therein, are presented separately from each other and are not offset. Current tax assets are offset against current tax liabilities, and deferred tax assets against deferred tax liabilities, if the Group has legally enforceable rights to set off current tax assets against current tax liabilities and the following additional conditions are met:

- in the case of current tax assets and liabilities, the Group intends either to settle on a net basis, or to realize the asset and settle the liability simultaneously; or

- in the case of deferred tax assets and liabilities, if they relate to income taxes levied by the same taxation authority on either:

  - the same taxable entity; or

  - different taxable entities, which, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered, intend to realize the current tax assets and settle the current tax liabilities on a net basis or realize and settle simultaneously.

(p) Provisions and contingent liabilities

Provisions are recognized for liabilities of uncertain timing or amount when the Group has a legal or constructive obligation arising as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, provisions are stated at the present value of the expenditure expected to settle the obligation.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be reliably estimated, disclosure is made of the contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

The main types of provisions are as follows:

(i) Provision for warranties

The Group provides assurance warranties for its standard products. The Group estimates the costs that may be incurred under its assurance warranty obligations and records a liability in the amount of such costs when revenue is recognized. Warranty costs generally include spare parts, labor costs and service center support. Factors that affect the Group's warranty liability include the amount of products sold, and historical and anticipated rates of warranty claims. The Group periodically reassesses its warranty liabilities and adjusts the amounts as necessary.

(ii) Provision for onerous contracts

A provision for onerous contracts is recognized when the expected benefits to be derived by the Group from a contract are lower than the estimated cost of meeting its obligations under the contract. The provision is measured at the present value of the lower of the expected cost of terminating the contract and the expected net cost of continuing with the contract, which is determined based on the incremental costs of fulfilling the obligation under the contract and an allocation of other costs directly related to fulfilling the contract. Before a provision is established, the Group recognizes any impairment loss on the assets associated with that contract.

(q) Revenue

Revenue is income arising from sales of products, provision of services or use by others of the Group's properties under leases in the ordinary course of the Group's business.

(i) Revenue from customer contracts

Revenue is measured based on the consideration the Group expects to be entitled to, from the contract with the customer and excludes those amounts collected on behalf of third parties. The Group recognizes revenue when it transfers control over a good or service (or a bundle of goods or services) to a customer.

i. Contract combinations and modifications

The Group combines separate customer contracts with the same customer or related parties of the same customers entered into at or near the same time when those contracts are negotiated as a package to form a single commercial objective, contain significant pricing dependencies or the goods or services promised in the contracts are a single performance obligation.

Contract modifications are generally treated either as a new separate contract, or as a prospective change to an existing contract. In cases when the additional or the remaining goods and services are not distinct from those transferred before the date of modification, modifications are accounted for through a cumulative catch-up adjustment.

ii. Warranties

If a warranty attached to a product sold by the Group is a distinct service in addition to standard assurance, the Group recognizes the warranty service as a separate performance obligation (POB) for which revenue is allocated and recognized on a straight-line basis over the warranty period. Otherwise, warranties provided by the Group are standard assurance and accounted for as a warranty provision at the time of the sale (see note 3(p)).

iii. Timing of revenue recognition

The Group determines at contract inception whether it transfers the control of a good or service (or a bundle of goods or services) underlying a POB to the customer over time or at a point in time. A POB is satisfied and related revenue is recognized over time by measuring the progress towards complete satisfaction of that POB, if one of the following criteria is met:

- the customer simultaneously receives and consumes the benefits provided by the Group's performance as the Group performs;

- the Group's performance creates or enhances an asset that the customer controls as the asset is created or enhanced; or

- the Group's performance does not create an asset with an alternative use to the Group and the Group has an enforceable right to payment for performance completed to date.

If a POB is not satisfied over time and the control over the related good or service is not transferred over time in accordance with the above criteria, it is recognized at a point in time when control is transferred.

iv. Variable consideration

Revenue is measured at the fair value of the consideration received or receivable, adjusted at contract inception for penalties, price concessions, returns, trade discounts, volume rebates and other sales incentives, such as coupons, provided that the level of expected return of goods, volume rebates and other incentives given can be estimated reliably and that revenue is only recognized to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur. When making an estimate for variable consideration, the Group considers several factors, including but not limited to, contract commitments, business practices, historical experience, customer take-up rates, and expected purchase volumes.

v. Significant financing component

The amount of consideration in a sales contract is adjusted for the existence of significant financing component in determining the transaction price only when the payment term exceeds one year in duration between performance and the expected payment date.

The Group recognizes interest income where payment is received more than one year in arrears of satisfaction of a performance obligation, reflecting a deemed lending of cash to a customer. Such interest income is presented in finance income.

The Group adopts the practical expedient under IFRS 15 *Revenue from Contracts with Customers* (IFRS 15) and does not account for the significant financing components where the Group anticipates at contract inception that the timing difference between transfer of control of a good or service to a customer, and the expected customer payment for that good or service will be one year or less.

vi. Stand-alone selling prices (SSP)

The transaction price of a contract with a customer is allocated to each POB in proportion to its SSP.

The Group uses directly observable SSP or estimated SSP in allocating transaction price to products. In establishing the estimated SSP, the Group mainly uses an average price approach by product category. Average price of a product is calculated with reference to the historical stand-alone product sale transactions for the product and the product category is determined with reference to the product family and geographical region.

For services that are regularly sold on a stand-alone basis, most of such services are customized and priced on a project basis, therefore the transaction prices generally reflect the SSP. For the services where an observable transaction price is unavailable such as the services sold in a bundle with products, the Group determines the SSP using a cost-plus approach, taking into account several factors, including but not limited to labor cost, competition and company business strategy.

When a significant discount is granted and is specifically attributable to one or more POB, that discount is allocated to the identified POB(s) if the allocation reflects the Group's regular sales pattern. In all other cases the discount is allocated to the contract as a whole.

vii. Contract assets and liabilities

A contract asset arises when revenue is recognized under a contract with a customer before the Group becomes unconditionally entitled to consideration. Contract assets are reclassified to trade receivables when the right to consideration becomes unconditional.

When consideration is received (or the right to consideration is unconditional) before the related revenue is recognized, a contract liability is recognized.

For a single contract with the customer, either a net contract asset or a net contract liability is presented. For multiple contracts, contract assets and contract liabilities of unrelated contracts are not presented on a net basis.

Trade receivables are recognized when the right to consideration under a revenue contract becomes unconditional, regardless of the billing date.

viii. Refund liabilities

A refund liability, such as for rebates to customers, other sales-based incentives granted, and expected product returns, is recognized when the Group expects to refund some or all of the customer contract consideration. Refund liabilities are presented in other liabilities in the consolidated statement of financial position.

ix. Contract costs

Certain incremental acquisition costs (those paid to acquire a contract such as commission) and fulfilment costs (those incurred to deliver services to customers) are initially capitalized to the extent that the costs are recoverable, and subsequently recognized as expense over the period of expected benefit, which is generally the associated contract duration.

Incremental acquisition costs are expensed as incurred where the amortization period of the asset that would have been recognized is one year or less.

The Group recognizes a contract cost impairment when the carrying amount of unamortized contract costs exceeds the difference between the remaining consideration expected and the associated contract costs relating to providing those goods and services under the contract.

The Group divides its business into five operating segments: ICT Infrastructure Business, Consumer Business, Cloud Computing Business, Digital Power Business and Intelligent Automotive Solution Business. The principal business activities of each segment are described in note 7. The specific revenue accounting policies applied by the Group in relation to the main activities, based on the characteristics of contracts and the business practices of the segments, are described below:

ICT Infrastructure Business

In the ICT infrastructure business, whose customers include telecom carriers and governments and enterprises, contracts typically involve multiple promises, including sales of equipment, software and a wide range of services, which are usually separate POBs. When the Group provides bespoke end-to-end solutions, such as data center projects and turnkey projects, if the goods and services in the contract are not distinct, the solution contract contains one single POB. Except for those related to certain standard products, warranties provided for ICT infrastructure business products are generally recognized as a distinct service.

There are two sales patterns within the ICT infrastructure business. One is direct sales to end customers and the other is distribution through channel partners. Generally, the Group directly sells to carrier customers, and payments are received according to the payment milestones set out in the contracts before or after the obligations are fulfilled, usually including advance, delivery, and completion payment milestones. The control of goods is transferred to the customer when the goods are delivered to the customer's designated location or installed. The Group usually sells to government and enterprise customers through distribution channels. If a distribution channel is the principal, the control of goods is generally transferred when the goods are delivered to the location designated by the channel. If the channel is an agent, the control of goods is transferred when the goods are delivered to the location designated by the second-tier channels or end-users that meet the criteria for a principal.

In most cases, solutions recognized as a single POB and services meet the criteria for the transfer of control over time. The Group primarily uses the output method to measure progress. For services such as hardware installation, network integration, network optimization, and network planning, the Group divides the whole service into several delivery milestones according to the deliveries specified in the contract to measure the performance progress. For services such as customer support, managed services and training, the Group generally recognizes revenue using the straight-line method.

Consumer Business

The consumer business mainly provides terminal devices and services that can be sold on a stand-alone basis, such as mobile phones and tablets. The consumer business generally sells its products through distribution channels. Additionally, the Group sells products to consumers directly through self-operated online platforms and retail stores. Full payment is commonly received in advance. In most cases, control of the goods is transferred when the goods are delivered to distribution channels or consumers. The nature of warranties for terminal devices and accessories is generally standard assurance.

For third-party applications, goods and services sold through the Group's online platforms and distribution channels, the Group is a principal if it controls a promised good or service before it is transferred to a customer, otherwise the Group is an agent.

Cloud Computing Business

The cloud computing business mainly provides customers with cloud services, such as elastic computing, storage, networks, security, and databases. Cloud services are mainly classified into contracts with periodic service access or contracts with usage services, where the former is charged on a subscription basis and the latter is charged based on actual utilization. In both contract types, POBs are satisfied over time and the Group recognizes revenue over the related contract period using a straight-line method or actual consumption volume multiplied by agreed charge rates.

Digital Power Business

The digital power business mainly sells products and solutions such as smart photovoltaics (PV), data center facilities, DriveONE (including e-mobility products for new energy vehicles), and smart charging networks, and generally includes POBs of sales of equipment, operation and maintenance services, and other professional services. Except for DriveONE products that are directly sold to automobile manufacturers, the Group sells other digital power products primarily through distribution channels. In most cases, control of the goods is transferred when the goods are delivered to distribution channels. The nature of warranties for digital power products is generally standard assurance.

Intelligent Automotive Solution Business

The intelligent automotive solution business mainly provides automobile manufacturers with intelligent automotive components and accessories, automated driving systems and related services, primarily through a direct sales model. The control of goods is transferred to the customer when the goods are delivered to the customer's designated location, and the control of software is transferred to the customer when the relevant functionality of the software is delivered to the customer. Services generally meet the criteria for the transfer of control over time and the output method is used to measure delivery progress. The nature of warranties for intelligent automotive products is generally standard assurance.

(ii) Rental income from operating leases

Rental income receivable under operating leases is recognized as revenue in equal installments over the periods covered by the lease term, except where an alternative basis is more representative of the pattern of benefits to be derived from the use of the leased asset. Lease incentives granted are recognized in profit or loss as an integral part of the aggregate net lease payments receivable. Variable lease payments that do not depend on an index or a rate are recognized as revenue in the accounting period in which they are earned.

(r) Government grants

Government grants are recognized at fair value when there is reasonable assurance that they will be received and that the Group will comply with the conditions attached to them.

Grants that compensate the Group for the cost of an asset are initially recognized as deferred income and then recognized in profit or loss on a systematic and rational basis over the useful life of the related asset.

Grants that compensate the Group for expenses to be incurred in the future are initially recognized as deferred income and then recognized in profit or loss in the same periods in which the expenses are incurred. Otherwise, the grants are recognized in profit or loss directly.

(s) Translation of foreign currencies

(i) Foreign currency transactions

Foreign currency transactions during the year are translated into the respective functional currencies of group entities at the foreign exchange rates ruling at the transaction dates.

Monetary assets and liabilities denominated in foreign currencies are translated into the functional currency at the foreign exchange rates ruling at the end of the reporting period. Exchange gains and losses are recognized in profit or loss, except those arising from derivatives used to hedge net investments in foreign operations (see note 3(f)).

Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the foreign exchange rates ruling at the transaction dates. Non-monetary assets and liabilities denominated in foreign currencies that are stated at fair value are translated using the foreign exchange rates ruling at the dates the fair value was measured.

(ii) Foreign operations

The results of foreign operations, except for foreign operations in hyperinflationary economies, are translated into the presentation currency of the Group (CNY) at the exchange rates approximating the foreign exchange rates ruling at the dates of the transactions. Statement of financial position items are translated into CNY at the closing foreign exchange rates at the end of the reporting period. The resulting exchange differences are recognized in other comprehensive income and accumulated separately in equity in the translation reserve. If the operation is a non-wholly-owned subsidiary, then the relevant proportionate share of the translation difference is allocated to the non-controlling interests.

The results and financial position of foreign operations in hyperinflationary economies are translated to CNY at the exchange rates ruling at the end of the reporting period. Prior to translating the financial statements of foreign operations in hyperinflationary economies, their financial statements for the current year are restated to account for changes in the general purchasing power of the local currencies. The restatement is based on relevant price indices at the end of the reporting period.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence, or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal.

(t) Borrowing costs

Borrowing costs that are directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of that asset. Other borrowing costs are expensed in the period in which they are incurred.

4 Accounting judgments and estimates

Significant judgments and key sources of estimation uncertainty are as follows:

(a) Revenue recognition

Revenue is recognized when control of a good or service is transferred to a customer. Where revenue is recognized over time, the Group primarily uses the output method to measure progress. Judgments applied when using the output method include assessing progress and milestones achieved and determining if that represents the value of goods and/or services delivered to the customer to date. Where revenue is recognized at a point in time, the Group assesses the transfer of control by reference to the contractual terms and the circumstance of the arrangements including a consideration of past business practice, such as whether the Group has a legal right to payment, title has passed, the customer has the risks and rewards of ownership, or the customer is using the asset to generate value for themselves.

In determining the transaction price and the amounts allocated to performance obligations, variable consideration is estimated using the most likely amount or expected value based on the nature of the specific consideration and the analysis of relevant contract terms, considering historical, current and expected information. The collectability of a consideration is estimated at contract inception, based on the Group's assessment of the customer's ability and intention to pay when due, and is reassessed if there are significant changes in the facts and circumstances.

For sales to distribution channels, judgments and estimates are also applied in determining when the control of the goods is transferred to channels and at what amount revenue should be recognized. The judgments include whether the channel is a principal or an agent in a transaction, and whether the channel's next sale is part of one arrangement. The Group monitors the channel inventory level with reference to the channel's normal turnover cycle and sales forecast, taking into consideration various factors including product characteristics, historical experience, market demand and external competition. Revenue is only recognized when the control of the goods is transferred and to the extent that it is highly probable that a significant reversal will not occur.

The Group judges a contract modification as a separate contract when the increase in contract scope is due to additional distinct promised goods or services and the price increases reflect the SSP of such goods or services plus any appropriate adjustments. Otherwise, a contract modification is judged as a prospective change to an existing contract when the remaining goods or services are distinct from those transferred before the date of the modification, or accounted for as cumulative catch-up adjustment to the revenue when the new or remaining goods or services are not distinct from those transferred.

Estimation is inherent in revenue recognition and revenue may materially change if management's estimation were to change or be found inaccurate or with the occurrence of unexpected events.

(b) Impairment of trade receivables and contract assets

The credit risk of customers is regularly assessed with a focus on the customer's ability and willingness to pay, reflected by the Group's estimation of the expected credit loss allowance on trade receivables and contract assets. The Group estimates expected credit loss by assessing the loss that will be incurred given customer default based on past payment experience and adjusted by the cash flow expected from collateral or credit risk mitigation received where these are considered to be integral to the asset, and by assessing the probability of default considering information specific to the customer as well as pertaining to the country and economic environment in which the customer operates. The estimate also incorporates forward looking data.

Impairment is assessed on an individual basis for trade receivables and contract assets meeting pre-determined criteria, including customers in financial difficulties, and contracts with risk

mitigation arrangements or significant financing arrangements, amongst others. Apart from receivables and contract assets that have been assessed and provided for individually, allowances are estimated using provision matrices by management with reference to the customers' credit risk ratings and aging analysis of the remaining trade receivable and contract asset balances. Different provision matrices have been developed by the Group based on different customer groups which exhibit different risk characteristics.

If the financial condition of customers were to deteriorate or improve, or actual future economic performance is different to the Group's estimates, additional allowances or reversals may be required in future periods.

(c) Net realizable value of inventories

The net realizable value of inventories is the estimated selling price in the ordinary course of business, less the estimated costs of completion and the estimated costs necessary to make the sale, adjusted by the losses for obsolescence and redundancy. These estimates are based on the current market condition, economic lives of the Group's products, availability of components required to assemble the Group's products and the historical experience of inventory losses. They could change significantly as a result of industrial technology upgrades, competitor actions, development of the Events as described in note 4(j) or other changes in market condition. Management will reassess the estimations at the end of each reporting period.

(d) Impairment losses of other non-financial assets

The carrying amounts of other non-financial assets (including property, plant and equipment, right-of-use assets, goodwill and intangible assets and other long-term assets) are reviewed periodically in order to assess whether the recoverable amounts have declined below their carrying amounts. In order to determine the recoverable amount, the Group uses assumptions and develops expectations, which requires significant judgment. The Group uses all readily available information in determining an amount that is a reasonable approximation of recoverable amount, including estimates based on reasonable and supportable assumptions and projections

of production volume, sales price, amount of operating costs, discount rate and growth rate.

(e) Income tax and deferred tax assets

The Group is subject to income taxes in numerous jurisdictions. Significant judgment is required in determining the Group's provision for income taxes. There are certain transactions and computations for which the ultimate tax determination is uncertain during the ordinary course of business. The Group recognizes liabilities in the relevant accounting period based on estimates of the probabilities of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact current and deferred tax liabilities and the taxation charge for the year.

Estimation uncertainty also arises from the recognition of deferred tax assets in respect of unused tax losses and credits and deductible temporary differences. Deferred tax assets are recognized to the extent that it is probable that future taxable profits will be available against which they can be utilized. Recognition primarily involves judgment regarding the future financial performance of each group entity, considering the reversal of existing taxable temporary differences and the periods in which tax losses can be utilized. Adverse changes to the operating environment or changes in the Group's organization structure could result in a future write-down of the deferred tax assets recognized.

(f) Provision for warranties

As explained in note 28(a), the Group makes provision for assurance warranties, taking into account the Group's recent claim experience and anticipated changes in claim expenditure. As the Group is continually upgrading its product designs and launching new models, it is possible that the recent claim experience is not indicative of future claims that it may receive in respect of affected product sales.

(g) Other provisions

The Group makes provisions for onerous contracts, outstanding litigations and claims based on project budgets, contract terms, available knowledge, legal advice and past experience. The Group recognizes provisions to the extent that it has a present legal

or constructive obligation as a result of a past event; that it is probable that an outflow of resources will be required to settle the obligation; and that the amount can be reliably estimated.

The Group makes provisions for onerous contracts in respect of losses arising from non-cancelable procurement agreements when there is a change in the Group's procurement demands such that the Group may not proceed with committed purchase orders or use the goods concerned. Provisions are made considering the contract terms, the suppliers' losses resulting from the Group's termination of the agreements and the extent to which the goods under the committed purchase orders will no longer be used in the Group's production. In estimating the losses for redundancies, inventories held on hand and non-cancelable purchase orders are evaluated as a whole. Judgment is required in making the estimates and the ultimate outcome may be different. The Group regularly updates its production plan and procurement demands, estimates probable losses, and adjusts provisions accordingly.

(h) Depreciation and amortization

Property, plant and equipment and right-of-use assets are depreciated on a straight-line basis over the estimated useful lives, after considering the estimated residual value. Intangible assets with finite useful life are amortized on a straight-line basis over the estimated useful lives. Both the period and method of depreciation and amortization are reviewed annually. The depreciation and amortization expense for future periods is adjusted if there are significant changes, such as operational efficiency or changes in technologies, from previous estimates.

(i) Fair value of financial instruments

Some of the Group's financial instruments are measured at fair value. In estimating the fair value of a financial instrument, the Group uses market-observable data to the extent it is available. Where directly market-observable data are not available, the Group uses valuation techniques that include unobservable inputs to estimate the fair value of certain financial instruments. The Group regularly reviews significant unobservable inputs and relevant valuation results.

(j) Financial impact of the Entity List event

On May 16, 2019 and August 19, 2019 (dates in note 4(j) are in U.S. time), the U.S. Commerce Department's Bureau of Industry and Security (BIS) added Huawei Technologies Co., Ltd. and certain non-US affiliates to the Entity List. On August 17, 2020, BIS amended the Foreign-Produced Direct Product Rule by expanding the scope of control over foreign-produced items, and further added certain Huawei non-US affiliates to the Entity List. Upon being added to the Entity List, export, re-export or in-country transfer of items subject to the U.S. Export Administration Regulations (including hardware, software, technology, etc.) to the listed entities shall be subject to a BIS license requirement (collectively referred to as the Events).

As a result, supplies of relevant items to the Group and sales of certain products of the Group are adversely affected. The Group has been taking active measures to mitigate the impact of the Events. Management has applied significant judgments to estimate the impacts arising from the Events and relevant impairments and provisions have been recognized and adjusted continually based on the development of the Events.

5 Changes in accounting policies

The Group has applied the following amendments issued by International Accounting Standards Board (IASB) to the Group's consolidated financial statements for the current accounting period:

- Amendments to IAS 1, Presentation of financial statements - *Classification of Liabilities as Current or Non-current (2020 amendments)*

- Amendments to IAS 1, Presentation of financial statements - *Non-current Liabilities with Covenants (2022 amendments)*

- Amendments to IFRS 16, Lease - *Lease Liability in a Sale and Leaseback*

- Amendments to IAS 7, Statement of cash flows and IFRS 7, Financial instruments: Disclosure - *Supplier Finance Arrangements*

The Group has not applied any new standard or interpretation that is not yet effective for the current accounting period. The adoption of amendments to IAS 1 and IFRS 16 does not have a material effect on the Group's consolidated financial statements, and the Group provided new disclosures in note 25 following the relevant requirements introduced by amendments to IAS 7 and IFRS 7.

6 New standards and amendments issued but not yet effective for the year ended December 31, 2024

The IASB has issued a number of new standards and amendments, which are not effective for the year ended December 31, 2024 and which have not been adopted in these financial statements. These developments include the following which may be relevant to the Group:

- Amendments to IAS 21, The effects of changes in foreign exchange rates - *Lack of Exchangeability*

- Amendments to IFRS 9, Financial instruments and IFRS 7, Financial instruments: Disclosure - *Amendments to the Classification and Measurement of Financial Instruments*

- IFRS 18, Presentation and Disclosure in Financial Statements

The Group is in the process of assessing impacts these developments will have on the Group's consolidated financial statements.

7 Segment information

Operating segments are determined based on the types of customers, products and services provided, as well as the Group's organization structure, management requirement and reporting system. The financial information of the different segments is regularly reviewed by the Group's most senior executive management for the purpose of resource allocation and performance assessment.

The Group divides its business into the following five operating segments:

- **ICT Infrastructure Business**

  The ICT infrastructure business mainly works on information distribution, interaction, transmission, processing, and storage, with a focus on two industries: connectivity and computing. The ICT infrastructure business provides global telecom carriers as well as government and enterprise customers with leading and innovative ICT products, solutions, and services. Our offerings include wireless networks, cloud core networks, data communication, optical, computing, data storage as well as services and software.

- **Consumer Business**

  The consumer business focuses on five major scenarios: HarmonyOS Office, Fitness & Health, HarmonyOS Smart Home, HIMA-powered Smart Travel, and Entertainment. It stays consumer-centric and provides smart devices including smartphones, tablets, personal computers, wearables, converged home devices, and Huawei Zhixuan vehicles, as well as the applications and services that run on these devices for consumers and businesses. Through these offerings, the business aims to deliver an intelligent experience across all scenarios.

- **Cloud Computing Business**

  The cloud computing business focuses on delivering Everything as a Service by making Huawei's ICT know-how, products, and solutions accessible in the form of cloud services. It provides customers, partners, and developers in different industries with innovative technologies, including artificial intelligence, data governance, media services, and software and hardware development tools.

- **Digital Power Business**

  The digital power business integrates digital and power electronics technologies, with a focus on key sectors in clean power generation, mobility electrification, and green ICT power infrastructure. It provides low-carbon products and solutions covering smart PV and energy storage systems, smart charging networks, DriveONE (including e-mobility products for new energy vehicles), data center facilities, and site power facilities, to help build a greener industry and to promote high-quality development.

- **Intelligent Automotive Solution Business**

  The intelligent automotive solution business focuses on providing new components for intelligent connected electric vehicles, and aims to help the automotive industry go intelligent and electric. It provides products and solutions including intelligent driving, intelligent cockpits, intelligent vehicle control, intelligent automotive optics, and intelligent vehicle cloud services.

During the year ended December 31, 2024, the Group amended the operating segment management and intra-group resource cross-charging and apportionment rules. Comparative figures have been adjusted on the same basis.

Segment revenue represents sales to external customers. Rental income and revenue unallocated to operating segments are included in other items.

(a) Revenue information in respect of business segments

(CNY million)	2024	2023
ICT Infrastructure	369,903	352,756
Consumer	339,006	245,134
Cloud Computing (i)	38,523	35,514
Digital Power	68,678	55,229
Intelligent Automotive Solution	26,353	4,588
Other items	19,609	10,953
Total	862,072	704,174

(i)   During the year ended December 31, 2024, revenue derived from the cloud computing business, including revenue from other segments, amounted to CNY68,801 million.

(b) Geographical revenue information

(CNY million)	2024	2023
China	615,264	471,303
Europe, the Middle East and Africa (EMEA)	148,355	145,343
Asia Pacific	43,306	41,041
Americas	36,301	35,362
Others	18,846	11,125
Total	862,072	704,174

8 Revenue

(CNY million)	2024	2023
Revenue from contracts with customers	861,335	703,246
Rental income	737	928
	862,072	704,174

Revenue from contracts with customers is analyzed by timing of revenue recognition as follows:

(CNY million)	2024	2023
Recognized at a point in time	717,351	564,255
Recognized over time	143,984	138,991
	861,335	703,246

Further disaggregation of revenue by business and geography is set out in note 7.

The amount of revenue recognized for the year ended December 31, 2024 from POBs satisfied (or partially satisfied) in previous years was CNY2,739 million (2023: CNY1,789 million), which is due to settlement of and adjustments to variable consideration based on actual measurements concluded in the period.

Transaction price allocated to remaining performance obligations

As at December 31, 2024, the aggregated amount of transaction price allocated to the remaining performance obligations under the Group's existing customer contracts was CNY91,764 million (2023: CNY91,439 million). This amount mainly represents the remaining performance obligations under the Group's ICT infrastructure business contracts. The Group will recognize the revenue in future when control of the corresponding service or product is transferred to the customer as stipulated in note 3(q). 79% of the amount is expected to occur over the next year (2023: 74%), while the remaining portion is expected to occur in the years that follow. The amounts disclosed above do not include any estimated amounts of variable consideration that are constrained.

The Group does not disclose information about remaining performance obligations that have original expected durations of one year or less as permitted by IFRS 15.

Revenue is recognized when a performance obligation is satisfied in accordance with the accounting policies in note 3(q). The timing of payment from customers relative to revenue recognition generates either contract assets or trade receivables for payments received in arrears or contract liabilities for payments received in advance.

Contract assets and contract liabilities are presented in notes 20 and 26 respectively.

9 Other income, net

(CNY million)	Note	2024	2023
Government grants	(i)	5,717	7,327
Fair value changes in financial instruments arising from disposals of subsidiaries and businesses	(ii)	–	55,853
Commissions on individual income tax payments withheld		692	614
Gain on disposal of interests in associates and a joint venture		290	286
Net gain/(loss) on disposal of property, plant and equipment, intangible assets and right-of-use assets	(iii)	2,018	(226)
Factoring expenses		(1,046)	(1,308)
Impairment of property, plant and equipment, intangible assets, goodwill, right-of-use assets, joint ventures and associates		(730)	(62)
Donations		(155)	(275)
Others, net		1,536	472
		8,322	62,681

(i) Government grants recognized as other income, net mainly represent conditional grants which are generally related to research and development projects.

(ii) The amounts recognized in the year ended December 31, 2023 mainly represented the fair value changes in the financial instruments arising from disposal of Honor business.

(iii) The amounts recognized in the year ended December 31, 2024 mainly represented the gain on the transfer of AITO and 问界 series trademarks and the related vehicle design patents to a third party buyer at a total consideration of CNY2,500 million.

10 Personnel expenses

(CNY million)	2024	2023
Salaries, bonuses and allowances	167,804	156,446
Defined benefit plans	6,530	6,205
Defined contribution plans and others	19,810	19,194
	194,144	181,845

Defined contribution plans

The Group contributes to defined contribution retirement plans for eligible employees. The plans are managed either by the governments in the countries where the employees are employed, or by independent trustees. Contribution levels are determined by the relevant laws and regulations concerned.

11 Finance income and expenses

(CNY million)	Note	2024	2023
Interest income on financial assets at amortized cost			
– fixed deposits		5,726	6,490
– other financial assets		632	717
Interest income on financial assets at FVOCI		235	393
Interest income on lease receivables		13	14
Dividend income and others	(i)	1,862	1,264
Finance income		8,468	8,878
Interest expense on loans and borrowings		(10,487)	(11,679)
Less: interest expense capitalized	(ii)	370	204
Interest cost on employee benefit obligations		(650)	(691)
Interest expense on lease liabilities	29(a)(ii)	(509)	(479)
Other interest expense		(175)	(321)
Net losses on financial instruments mandatorily at FVPL	(iii)	(5,082)	(1,811)
Net losses on disposal of financial assets at FVOCI	13(b)	(35)	(261)
Net foreign exchange loss	(iv)	(133)	(474)
Impairment loss		(18)	(3)
Bank charges		(4)	(22)
Finance expenses		(16,723)	(15,537)
Net finance expense		(8,255)	(6,659)

(i) Dividend income and others mainly represent the dividend from investment funds and equity investments.

(ii) Interest expenses capitalized represent interest costs on specific loans for property construction purpose.

(iii) The net losses mainly include fair value changes in equity securities and beneficiary rights, compound financial instruments as well as investment funds mandatorily at FVPL as disclosed in note 17.

(iv) For the year ended December 31, 2024, net foreign exchange loss included net fair value loss of CNY1,095 million on foreign exchange forward contracts that were not designated as hedging instruments (2023: net fair value gain of CNY2,800 million).

12 Income tax in the summary consolidated statement of profit or loss and other comprehensive income

Charge for the year

(CNY million)	2024	2023
Current tax		
Provision for the year	11,365	10,314
Under provision in respect of prior years	680	1,597
	12,045	11,911
Deferred tax		
Origination and reversal of temporary differences	(3,806)	(1,163)
Effect of changes in tax rates on opening deferred tax balances	56	(102)
	(3,750)	(1,265)
	8,295	10,646

13 Other comprehensive income

(a) Tax effects relating to each component of other comprehensive income

(CNY million)	2024			2023		
	Before-tax amount	Tax benefit/ (expense)	Net-of-tax amount	Before-tax amount	Tax (expense)/ benefit	Net-of-tax amount
Re-measurement of defined benefit obligations						
– The Group	(305)	11	(294)	151	(18)	133
Net change in the fair value and impairment loss of financial assets measured at FVOCI						
Net change in the fair value of equity investments						
– The Group	(474)	171	(303)	1,644	(294)	1,350
Net change in the fair value and impairment loss of non-equity financial assets						
– The Group	99	(11)	88	176	(4)	172
	(375)	160	(215)	1,820	(298)	1,522
Translation differences on foreign operations						
– The Group	(182)	(2)	(184)	1,202	23	1,225
– Share of associates and joint ventures	1	–	1	1	–	1
	(181)	(2)	(183)	1,203	23	1,226
	(861)	169	(692)	3,174	(293)	2,881

(b) Components of other comprehensive income, including reclassification adjustments

(CNY million)	2024	2023
Net change in the fair value and impairment loss of financial assets measured at FVOCI		
Changes in fair value recognized during the year	(410)	1,557
Reclassification adjustments for amounts transferred to profit or loss		
– Loss on derecognition (note 11)	35	261
Loss allowances recognized	–	2
Net deferred tax credited/(debited) to other comprehensive income	160	(298)
Net movement in the fair value reserve during the year	(215)	1,522
Translation differences on foreign operations		
Recognized during the year		
– Translation differences	(193)	1,357
– Effective portion of changes in fair value of hedging instruments	12	(158)
Reclassification adjustments for amounts transferred to profit or loss		
– Liquidation of subsidiaries	–	4
Net deferred tax (debited)/credited to other comprehensive income	(2)	23
Net movement in the translation reserve during the year	(183)	1,226

14 Property, plant and equipment

(CNY million)	Freehold land	Buildings	Machinery	Electronic and other equipment	Motor vehicles	Construction in progress	Investment property	Decoration and leasehold improvements	Total
Cost:									
At January 1, 2023	415	41,626	57,019	105,548	627	22,422	1,430	34,979	264,066
Exchange adjustments	(3)	(111)	(17)	(73)	(20)	54	(58)	(178)	(406)
Additions	25	55	2,590	3,627	68	40,560	26	55	47,006
Transfer from investment property	51	212	–	–	–	–	(263)	–	–
Transfer from construction in progress	–	2,790	7,608	8,274	2	(21,609)	–	2,935	–
Transfer to inventory	–	(658)	(201)	(1)	–	–	–	(454)	(1,314)
Disposals	–	–	(1,098)	(6,753)	(65)	(13)	(5)	(452)	(8,386)
Reclassified as assets held for sale	–	(4)	(70)	(15)	–	–	–	(6)	(95)
Hyperinflation adjustments	–	–	3	302	31	10	–	88	434
At December 31, 2023	488	43,910	65,834	110,909	643	41,424	1,130	36,967	301,305
At January 1, 2024	**488**	**43,910**	**65,834**	**110,909**	**643**	**41,424**	**1,130**	**36,967**	**301,305**
Exchange adjustments	(16)	(104)	(64)	(611)	(34)	(108)	5	(250)	(1,182)
Additions	–	1,258	2,207	5,767	362	41,996	18	868	52,476
Transfer from investment property	–	427	76	–	–	–	(608)	31	(74)
Transfer from construction in progress	–	18,466	20,191	11,939	5	(61,868)	–	11,267	–
Transfer to construction in progress	–	(100)	–	–	–	15	–	–	(85)
Transfer to inventory	–	(3,028)	(761)	(3)	–	–	–	(1,769)	(5,561)
Disposals	–	(205)	(1,676)	(5,862)	(65)	(167)	–	(844)	(8,819)
Reclassified as assets held for sale	–	–	(3)	(33)	–	–	–	–	(36)
Hyperinflation adjustments	–	–	3	275	23	–	–	81	382
At December 31, 2024	**472**	**60,624**	**85,807**	**122,381**	**934**	**21,292**	**545**	**46,351**	**338,406**
Accumulated depreciation and impairment:									
At January 1, 2023	–	7,609	25,078	72,237	448	79	209	21,382	127,042
Exchange adjustments	–	(10)	6	(21)	(10)	6	(3)	(119)	(151)
Depreciation charge for the year	–	1,388	6,351	13,284	54	–	53	3,642	24,772
Transfer from investment property	–	10	–	–	–	–	(10)	–	–
Transfer from construction in progress	–	–	–	2	–	(2)	–	–	–
Transfer to inventory	–	(102)	(94)	(1)	–	–	–	(387)	(584)
Impairment loss	–	–	35	6	–	2	–	–	43
Disposals	–	–	(493)	(5,628)	(62)	(1)	–	(439)	(6,623)
Reclassified as assets held for sale	–	–	(10)	(7)	–	–	–	(2)	(19)
Hyperinflation adjustments	–	–	2	250	23	–	–	55	330
At December 31, 2023	–	8,895	30,875	80,122	453	84	249	24,132	144,810
At January 1, 2024	**–**	**8,895**	**30,875**	**80,122**	**453**	**84**	**249**	**24,132**	**144,810**
Exchange adjustments	–	(10)	(19)	(395)	(18)	1	1	(156)	(596)
Depreciation charge for the year	–	1,641	7,465	13,082	65	–	46	3,565	25,864
Transfer from investment property	–	129	38	–	–	–	(189)	12	(10)
Transfer from construction in progress	–	–	–	1	–	(1)	–	–	–
Transfer to construction in progress	–	(85)	–	–	–	–	–	–	(85)
Transfer to inventory	–	(376)	(274)	(2)	–	–	–	(1,168)	(1,820)
Impairment loss	–	137	201	17	–	34	–	19	408
Disposals	–	(174)	(1,057)	(4,897)	(61)	–	–	(830)	(7,019)
Reclassified as assets held for sale	–	–	(4)	(32)	–	–	–	–	(36)
Hyperinflation adjustments	–	–	2	242	21	–	–	60	325
At December 31, 2024	**–**	**10,157**	**37,227**	**88,138**	**460**	**118**	**107**	**25,634**	**161,841**
Carrying amount:									
At December 31, 2024	**472**	**50,467**	**48,580**	**34,243**	**474**	**21,174**	**438**	**20,717**	**176,565**
At December 31, 2023	488	35,015	34,959	30,787	190	41,340	881	12,835	156,495

Based on the use of the relevant assets, the depreciation charge for the year is allocated to cost of sales, research and development expenses, and selling and administrative expenses. Impairment losses are charged to cost of sales and other income, net in the summary consolidated statement of profit or loss and other comprehensive income.

As at December 31, 2024 and 2023, the Group did not hold any property, plant and equipment as collateral for liabilities or contingent liabilities.

15 Goodwill and intangible assets

(CNY million)	Goodwill	Software	Patents and royalties (note (a))	Trademark and others	Total
Cost:					
At January 1, 2023	4,424	2,490	13,732	2,345	22,991
Exchange adjustments	72	–	8	6	86
Additions	–	613	1,084	549	2,246
Derecognition	–	(477)	(300)	(462)	(1,239)
At December 31, 2023	4,496	2,626	14,524	2,438	24,084
At January 1, 2024	**4,496**	**2,626**	**14,524**	**2,438**	**24,084**
Exchange adjustments	**112**	**(3)**	**3**	**6**	**118**
Additions	**–**	**387**	**1,179**	**293**	**1,859**
Derecognition	**(4,236)**	**(297)**	**(1,033)**	**(234)**	**(5,800)**
At December 31, 2024	**372**	**2,713**	**14,673**	**2,503**	**20,261**
Amortization and impairment:					
At January 1, 2023	4,106	1,935	7,997	905	14,943
Exchange adjustments	70	(1)	6	5	80
Amortization for the year	–	387	862	419	1,668
Derecognition	–	(477)	(207)	(460)	(1,144)
At December 31, 2023	4,176	1,844	8,658	869	15,547
At January 1, 2024	**4,176**	**1,844**	**8,658**	**869**	**15,547**
Exchange adjustments	**121**	**(3)**	**3**	**4**	**125**
Amortization for the year	**–**	**384**	**784**	**432**	**1,600**
Impairment loss	**159**	**–**	**–**	**–**	**159**
Derecognition	**(4,236)**	**(285)**	**(1,007)**	**(204)**	**(5,732)**
At December 31, 2024	**220**	**1,940**	**8,438**	**1,101**	**11,699**
Carrying amount:					
At December 31, 2024	**152**	**773**	**6,235**	**1,402**	**8,562**
At December 31, 2023	320	782	5,866	1,569	8,537

(a) As at December 31, carrying amounts of patents and royalties are analyzed as follows:

(CNY million)	2024	2023
Patents	5,665	5,038
Royalties	570	828
	6,235	5,866

(b) Based on the use of the relevant assets, the amortization charge for the year is allocated to cost of sales, research and development expenses, and selling and administrative expenses. Impairment losses are charged to cost of sales and other income, net in the summary consolidated statement of profit or loss and other comprehensive income.

(c) As at December 31, 2024 and 2023, all of the carrying amount of goodwill was allocated across multiple cash-generating units and the amount so allocated to each unit was not significant.

(d) As at December 31, 2024 and 2023, the Group did not hold any intangible assets whose title is restricted or pledged as security for liabilities.

16 Interests in associates and joint ventures

(CNY million)	2024	2023
Associates	7,786	6,615
Joint ventures	580	721
	8,366	7,336

Associates and joint ventures are accounted for using the equity method. None of the associates and joint ventures is individually significant.

Aggregate carrying amounts and summarized financial information of associates and joint ventures are as follows:

(CNY million)	Associates		Joint ventures	
	2024	2023	2024	2023
Aggregate carrying amount	7,786	6,615	580	721
Aggregate amount of the Group's share of associates' and joint ventures'				
Loss for the year	(134)	(106)	(103)	(40)
Other comprehensive income	1	–	–	–
Total comprehensive income	(133)	(106)	(103)	(40)

17 Other investments and derivatives

(CNY million)	Note	2024	2023
Financial assets at amortized cost			
Fixed deposits		**48,631**	111,215
Debt securities	(i)	**3,073**	3,575
		51,704	114,790
Loss allowances		**(25)**	(7)
		51,679	114,783
Financial assets mandatorily at FVPL			
Investment funds	(ii)	**174,199**	165,847
Equity securities and beneficiary rights	(iii)	**197,856**	136,552
Compound financial instruments	(iv)	**2,338**	3,746
Derivatives	(v)	**319**	482
		374,712	306,627
Financial assets at FVOCI			
Debt securities	(i)	**6,472**	5,950
Equity securities	(iii)	**7,414**	10,046
		13,886	15,996
		440,277	437,406
Non-current portion		**213,991**	154,510
Current portion		**226,286**	282,896
		440,277	437,406

(i)   Debt securities comprise investments in fixed rate bonds, floating rate notes, certificates of deposit, commercial paper, etc. Debt securities are measured at amortized cost where the Group intends to hold them to collect contractual cash flows. Other debt securities are classified as FVOCI since they are held to collect and for sale, and also give rise to cash flows which are solely principal and interest. The loss allowances on debt securities at FVOCI amounted to CNY2 million as at December 31, 2024 (2023: CNY2 million).

(ii) Investment funds comprise structured deposits, bond funds, money market funds, variable net asset value wealth management products, etc. Investment funds are measured at FVPL where the Group intends to sell them or where the investments do not give rise to cash flows which are solely principal and interest.

(iii) Equity securities and beneficiary rights represent equity investments and interests in equity investment arrangements. These investments are designated at FVOCI where they are considered strategic to the Group and meet the definition of equity from the issuers' perspective, or measured at FVPL. Dividend income received on equity investments at FVOCI amounted to CNY69 million (2023: CNY61 million), of which CNY2 million (2023: nil) is related to equity investments derecognized during the year ended December 31, 2024.

Certain equity investments at FVOCI were disposed of during the year ended December 31, 2024, and the corresponding cumulative gain in fair value reserve of CNY1,445 million (2023: CNY3 million) was transferred to retained earnings upon disposal of these investments.

(iv) Compound financial instruments comprise equity instruments with redemption options and convertible notes which are classified at FVPL.

(v) Derivatives mainly comprise foreign exchange forward contracts. As at December 31, 2024, the foreign exchange derivatives held as hedging instruments were financial assets of CNY2 million (2023: financial liabilities of CNY5 million included in other liabilities).

(vi) As at December 31, 2024 and 2023, the Group did not hold any investments pledged as collateral for liabilities or contingent liabilities.

18 Deferred tax assets/(liabilities)

(a) Components of recognized deferred tax assets/(liabilities)

(CNY million)	2024	2023
Accruals, defined benefit obligations, refund liabilities and unperformed obligations	5,839	5,373
Fair value changes of financial instruments	(1,115)	(1,953)
Depreciation and impairment of property, plant and equipment	(4,868)	(3,856)
Unrealized profit	3,905	4,556
Tax losses	8,650	4,900
Undistributed profits of subsidiaries	(1,176)	(1,237)
Write-down of inventories	584	656
Provision for loss allowances	444	429
Others	882	155
Total	13,145	9,023

Reconciliation to the summary consolidated statement of financial position:

(CNY million)	2024	2023
Net deferred tax assets	15,562	12,456
Net deferred tax liabilities	(2,417)	(3,433)
	13,145	9,023

(b) Deferred tax assets not recognized

Deferred tax assets were not recognized on certain unused tax losses, deductible temporary differences and unused tax credits in accordance with the accounting policy set out in note 3(o).

As at December 31, 2024, deferred tax assets had not been recognized in respect of unused tax losses amounting to CNY352,985 million (2023: CNY313,696 million) and deductible temporary differences amounting to CNY238,990 million (2023: CNY188,276 million); additionally, unused tax credits relating to overseas withholding income tax and corporate income tax incurred as well as certain research and development expenditure totaling CNY2,617 million (2023: CNY2,853 million) had not been recognized as deferred tax assets.

19 Inventories and other contract costs

(CNY million)	2024	2023
Inventories		
Raw materials	73,293	73,422
Manufacturing work in progress	55,167	34,534
Finished goods and consumables	33,343	28,631
Dispatched goods and contract work in progress	13,748	12,660
Other inventories	3,410	5,042
	178,961	154,289
Other contract costs	178	269
	179,139	154,558

As at December 31, 2024 and 2023, the Group did not hold any inventories pledged as collateral for liabilities or contingent liabilities.

(a) Amount of inventories recognized as an expense and included in profit or loss:

(CNY million)	2024	2023
Carrying amount of inventories sold	350,047	282,697
Write-down of inventories	11,586	583
	361,633	283,280

The write-down is included in cost of sales.

(b) Contract costs

The Group's contract costs represent contract fulfilment costs incurred to deliver services to customers, which will be charged to cost of sales when the corresponding performance obligations are satisfied.

No provision for impairment was required on contract costs as at December 31, 2024 or 2023.

20 Contract assets

(CNY million)	2024	2023
Gross carrying amount	61,157	54,189
Loss allowances (note 21(b))	(517)	(303)
	60,640	53,886
Non-current portion	2,347	1,340
Current portion	58,293	52,546
	60,640	53,886

Contract assets relate to the Group's rights to consideration for performance obligations that have been satisfied but not billed, primarily from ICT infrastructure business contracts. Contract assets are transferred to receivables when the right to payment becomes unconditional, other than the passage of time. This usually occurs when the Group issues an invoice to the customer in accordance with the billing milestones agreed in the contract, which are generally upon passing of the product or service acceptance tests.

Significant changes in the gross balances of contract assets during the year are as follows:

(CNY million)	2024	2023
At January 1	54,189	52,821
Addition during the year	54,559	50,267
Transfers to receivables or reversal during the year	(46,886)	(48,768)
Exchange adjustments	(705)	(131)
At December 31	61,157	54,189

21 Trade and bills receivable

(CNY million)	Note	2024	2023
Trade receivables			
Trade receivables from third parties	(i)	109,542	97,152
Trade receivables from related parties	31	16	72
		109,558	97,224
Bills receivable			
Bank acceptance bills		4,426	2,488
Finance company acceptance bills		1,925	2,719
Commercial acceptance bills		6,298	5,777
Letters of credit		2,411	856
	(ii)	15,060	11,840
		124,618	109,064
Non-current portion		4,664	7,014
Current portion		119,954	102,050
		124,618	109,064

(i) As at December 31, 2024, certain trade receivables, amounting to CNY5,319 million (2023: CNY6,885 million), were managed in a business model whose objective is achieved by both collection and sale, and therefore measured at FVOCI.

(ii) The Group's bills receivable are due within twelve months from issuance date.

(a) Aging analysis

At the end of the reporting period, the aging analysis of trade receivables is as follows:

(CNY million)	2024	2023
Not past due	83,911	73,604
Less than 90 days past due	19,878	15,767
90 days to 1 year past due	6,648	8,101
1 year and above past due	2,455	3,402
	112,892	100,874
Loss allowances	(3,334)	(3,650)
	109,558	97,224

Except for those with significant financing components, trade receivables are generally due within 30 days from the date of billing.

(b) Loss allowances of trade receivables and contract assets

Loss allowances in respect of trade receivables and contract assets are recorded using an allowance account unless the Group is satisfied that there is no reasonable expectation of further recoveries in which case the receivables are written off (see note 3(e)(i)).

The movement in loss allowances in respect of trade receivables and contract assets during the year is as follows:

(CNY million)	Note	2024	2023
At January 1		3,987	3,497
Loss allowances recognized		382	774
Uncollectible amounts written-off		(241)	(92)
Collection of previously written-off debtors		25	39
Exchange adjustments		(268)	(231)
At December 31		3,885	3,987
Representing loss allowances			
– on trade receivables		3,334	3,650
– on contract assets	20	517	303
– included in OCI on trade receivables at FVOCI		34	34
Total		3,885	3,987

Loss allowances recognized on trade receivables and contract assets are included in selling and administrative expenses.

During the year ended December 31, 2024, apart from exchange adjustments, the loss allowances of trade receivables and contract assets decreased mainly due to uncollectible amount written-off upon the disposal of trade receivables from certain customers in Northern Africa and Latin America.

(c) Transferred trade receivables not derecognized in their entirety

As at December 31, 2024, the Group's undue trade receivables with the face value of CNY6 million (2023: CNY8 million) have been transferred to banks and the Group received the corresponding remittance of CNY6 million (2023: CNY8 million). As these transactions are with recourse, the Group therefore has retained substantially all the risks and rewards and continues to recognize these trade receivables and the relevant financing as loans and borrowings (note 24).

As at December 31, 2024, the Group's trade receivables with the carrying amount of CNY2,844 million (2023: CNY2,760 million) have been transferred to banks. These trade receivables are covered by insurance policies issued by third party credit insurance agencies with the transferees as the loss payees. In these transactions, the Group retains risk not covered by the insurance, therefore the Group has neither transferred nor retained substantially all the risks and rewards in relation to the trade receivables and the Group is considered to have retained control of these trade receivables as the transferees have no practical ability to sell these trade receivables without the Group's consent. As such, the Group continues to recognize the transferred trade receivables of CNY532 million (2023: CNY527 million) and associated liabilities of CNY563 million (2023: CNY564 million) to the extent of its continuing involvement. The associated liabilities are included in other liabilities. As at December 31, 2024, loss allowances of CNY441 million (2023: CNY409 million) were made on these transferred receivables.

(d) Collateral

As at December 31, 2024 and 2023, except as disclosed in note 21(c), the Group did not hold any other trade and bills receivable pledged as collateral for liabilities or contingent liabilities.

22 Other assets

(CNY million)	Note	**2024**	2023
Advance payments to suppliers		**35,663**	51,985
Prepayment for acquisition of long-term assets		**8,658**	7,971
Tax receivables on unbilled deliveries	(i)	**5,894**	5,079
Income tax related assets		**1,447**	1,639
Other tax related assets		**23,123**	16,322
Pledged and restricted bank deposits		**6,634**	1,961
Other third party receivables		**16,717**	17,190
Other long-term deferred assets		**6,467**	2,938
Related party receivables	31	**632**	278
Assets held for sale		**6**	191
		105,241	105,554
Non-current portion		**20,722**	17,413
Current portion		**84,519**	88,141
		105,241	105,554

(i) Under certain tax regulations, value added tax (VAT) and other surcharges are payable at the earlier of delivery of goods and services or issuance of VAT invoices. These balances represent VAT and surcharge receivable from customers on unbilled deliveries and will be reclassified to trade receivables upon billing.

23 Cash and cash equivalents

(CNY million)	2024	2023
Cash on hand	4	5
Deposits with banks and other financial institutions	138,898	171,416
Highly liquid short-term investments	6,472	21,023
Deposits with third party merchants	891	459
	146,265	192,903

Short-term investments included in cash and cash equivalents are highly liquid, readily convertible into known amounts of cash and subject to an insignificant risk of changes in value. As at December 31, 2024, these short-term investments comprised money market funds of CNY6,472 million (2023: CNY1,024 million). The short-term investments as at December 31, 2023 also included reverse repurchase agreements with maturities of less than three months of CNY19,500 million, and fixed income structured notes of CNY500 million. Money market funds comprise investments in short-term debt securities which have constant or low volatility net asset values and are measured at FVPL. The fixed income structured notes are securities issued by Chinese security companies with guaranteed principal and fixed income.

As at December 31, 2024, cash and cash equivalents of CNY1,569 million (2023: CNY1,116 million) were held in countries where exchange controls or other legal restrictions were in force.

As at December 31, 2024, the Group held cash equivalents of CNY7,492 million (2023: CNY6,772 million) in multicurrency pooling arrangements to meet its day-to-day cash requirements. The facilities allow participating subsidiaries to place deposits and borrow funds from the counterparty banks in any freely convertible currency subject to the overall balance on the pools being positive.

As at December 31, 2024 and 2023, the Group did not hold any cash and cash equivalents pledged as collateral for liabilities or contingent liabilities.

24 Loans and borrowings

Contractual terms of the Group's loans and borrowings are summarized below.

(CNY million)	2024	2023
Short-term loans and borrowings:		
– Intra-group guaranteed	72	–
– Unsecured	154	432
	226	432
Long-term loans and borrowings:		
– Intra-group guaranteed	–	23
– Trade receivables financing (note 21(c))	6	8
– Unsecured	200,072	236,949
– Corporate bonds	64,567	71,002
	264,645	307,982
	264,871	308,414
Non-current portion	237,508	291,688
Current portion	27,363	16,726
	264,871	308,414

Intra-group guaranteed loans are external borrowings which have been raised by one group entity but contractual payments of principal and interest are guaranteed by another group entity.

Terms and repayment schedule

A summary of the main terms and conditions of outstanding loans and borrowings are as follows:

At December 31, 2024

(CNY million)		Interest rate per annum	Total	1 year or less	1 to 5 years	Over 5 years
Intra-group guaranteed bank loans:						
Bolivian Boliviano	fixed	**5.00%**	72	72	–	–
Trade receivables financing:						
United States Dollar (USD)	variable	**8.57%**	6	2	4	–
Unsecured bank loans:						
CNY	variable	**2.20% ~ 2.85%**	200,072	754	4,814	194,504
Nigerian Naira (NGN)	fixed	**29.00% ~ 29.25%**	114	114	–	–
Pakistani Rupee (PKR)	fixed	**17.12%**	20	20	–	–
Saudi Arabian Riyal (SAR)	variable	**7.16% ~ 8.34%**	20	20	–	–
			200,226	908	4,814	194,504
Corporate bonds:						
CNY	fixed	**2.48% ~ 3.45%**	38,878	18,909	18,971	998
USD	fixed	**4.00% ~ 4.13%**	25,689	7,472	18,217	–
			64,567	26,381	37,188	998
			264,871	27,363	42,006	195,502

At December 31, 2023

(CNY million)		Interest rate per annum	Total	1 year or less	1 to 5 years	Over 5 years
Intra-group guaranteed bank loans:						
CNY	variable	3.96%	23	23	–	–
Trade receivables financing:						
USD	variable	9.06%	8	2	6	–
Unsecured bank loans:						
CNY	variable	2.80% ~ 3.96%	191,186	404	38,662	152,120
Euro (EUR)	variable	4.73% ~ 4.94%	8,051	20	4,693	3,338
EUR	fixed	5.07%	1	1	–	–
Hong Kong Dollar	variable	6.00% ~ 6.94%	37,711	6,518	17,668	13,525
SAR	variable	2.89% ~ 8.35%	179	179	–	–
Bahraini Dinar	variable	5.80%	12	12	–	–
NGN	fixed	19.00%	201	201	–	–
PKR	fixed	17.12%	37	37	–	–
USD	variable	6.16%	3	3	–	–
			237,381	7,375	61,023	168,983
Corporate bonds:						
CNY	fixed	2.87% ~ 3.65%	46,094	9,152	36,942	–
USD	fixed	4.00% ~ 4.13%	24,908	174	24,734	–
			71,002	9,326	61,676	–
			308,414	16,726	122,705	168,983

Corporate bonds

The Group's CNY and USD corporate bonds were issued by the Company and its wholly-owned subsidiaries respectively. Main terms of the outstanding corporate bonds are as follows:

Corporate bond	Year of maturity	Face value million	Nominal interest rate
USD bond	2025	1,000	4.125%
USD bond	2026	2,000	4.125%
USD bond	2027	500	4.000%
CNY medium-term note	2025	18,000	2.870% ~ 3.380%
CNY medium-term note	2026	4,000	3.050%
CNY medium-term note	2027	3,000	3.260%
CNY medium-term note	2028	12,000	2.980% ~ 3.450%
CNY medium-term note	2034	1,000	2.480%

USD bonds are fully guaranteed by the Company.

Reconciliation of movements of major liabilities to cash flows arising from financing activities

Year ended December 31, 2024

Related liabilities (CNY million)	Other loans and borrowings	Corporate bonds	Long-term assets installments	Lease liabilities
Balance at January 1, 2024	237,412	71,002	1,304	10,835
Proceeds from borrowings	106,106	13,990	–	–
Repayment of borrowings	(143,539)	(21,000)	–	–
Long-term assets acquired	–	–	53	–
Installment payments	–	–	(466)	–
New leases	–	–	–	4,700
Payment of lease liabilities	–	–	–	(3,693)
Interest incurred during the year	7,460	2,399	–	509
Interest paid	(7,652)	(2,642)	–	(349)
Amortization of capitalized interests and transaction costs	390	59	23	–
Non-cash transactions (note)	(514)	–	–	–
Termination of leases	–	–	–	(72)
Exchange adjustments	641	759	3	(475)
Balance at December 31, 2024	200,304	64,567	917	11,455

Year ended December 31, 2023

Related liabilities (CNY million)	Other loans and borrowings	Corporate bonds	Long-term assets installments	Lease liabilities
Balance at January 1, 2023	140,926	56,218	1,647	10,571
Proceeds from borrowings	140,128	24,950	–	–
Repayment of borrowings	(44,911)	(12,000)	–	–
Long-term assets acquired	–	–	283	–
Installment payments	–	–	(722)	–
New leases	–	–	–	4,256
Payment of lease liabilities	–	–	–	(3,556)
Interest incurred during the year	8,378	2,491	–	479
Interest paid	(8,568)	(2,158)	–	(344)
Amortization of capitalized interests and transaction costs	120	62	29	–
Non-cash transactions (note)	(750)	–	–	–
Termination of leases	–	–	–	(5)
Exchange adjustments	2,089	1,439	67	(566)
Balance at December 31, 2023	237,412	71,002	1,304	10,835

Note: Under certain financing arrangements, the Group's entitlement to consideration from customer contracts is transferred for cash to financial institutions before the Group obtains unconditional rights, giving rise to financial liabilities included in loans and borrowings. The Group derecognizes the relevant loans and borrowings under these arrangements upon becoming unconditionally entitled to the relevant contract consideration.

25 Trade and bills payable

(CNY million)	Note	2024	2023
Trade payables			
Third party trade payables		**103,767**	85,487
Related party trade payables	31	**1,141**	875
		104,908	86,362
Bills payable			
Bank acceptance bills		**169**	1,390
Letters of credit payable		**–**	3,093
		169	4,483
		105,077	90,845

Supplier finance arrangements

The Group participates in a supplier finance arrangement under which its suppliers may elect to receive early payment of their invoices from banks. Based on the supplier's requirement, the bank pays the amounts due to the supplier in respect of invoices owed by the Group, the Group pays the supplier at the agreed date and then the bank will collect settlement from the supplier. The arrangement does not significantly extend payment terms beyond the regular terms agreed with the suppliers that are not participants of the arrangement, and the Group does not incur any interest towards the bank on the amounts due to the suppliers. The Group therefore continues to record the liabilities involved in the arrangement as trade payables and does not maintain separate records for these payables.

26 Contract liabilities

Significant changes in contract liabilities during the year are as follows:

(CNY million)	2024	2023
At January 1	95,101	87,575
Revenue recognized that was included in the contract liability balance at the beginning of the year	(65,212)	(57,716)
Increases due to cash received or billing for unperformed obligations	68,850	65,307
Exchange adjustments	(1,278)	(65)
At December 31	97,461	95,101

The balance of contract liabilities represents consideration received or billing in advance of performance, after offsetting the balance of contract assets under the same contract. Contract liabilities mainly include deferred warranty service income, vouchers, and advance receipts or billing related to sales of goods or services from ICT infrastructure business, consumer business and cloud computing business.

27 Other liabilities

(CNY million)	Note	2024	2023
Accrued expenses		30,805	25,093
Refund liabilities	(i)	21,690	17,980
Other taxes payable		15,891	15,637
Due in relation to property, plant and equipment		16,404	15,545
Due in relation to intangible assets		1,264	1,845
Derivatives	17(v)	341	304
Others	(ii)	39,740	45,280
		126,135	121,684
Non-current portion		2,353	2,016
Current portion		123,782	119,668
		126,135	121,684

(i)   Refund liabilities mainly comprise rebates and other sales-based incentives to customers.

(ii) As at December 31, 2024, others within other liabilities mainly included the financial instrument arising from the disposal of certain subsidiaries engaged in manufacturing and sales of server products in prior years, and the first installment received from sales of partial equity interests in subsidiaries engaged in the intelligent automotive solution business in the current year (note 34(a)).

28 Provisions

(CNY million)	Note	2024	2023
Warranties	(a)	10,992	6,975
Onerous contracts with customers		2,051	1,326
Onerous contracts with suppliers	(b)	6,153	6,635
Others	(c)	4,944	5,233
		24,140	20,169
Non-current portion		519	–
Current portion		23,621	20,169
		24,140	20,169

The non-current portion of provision of onerous contracts with customers is included in other liabilities.

Movement in provisions during the year is shown as below:

(CNY million)	Warranties	Onerous contracts with customers	Onerous contracts with suppliers	Others	Total
At January 1, 2024	6,975	1,326	6,635	5,233	20,169
Provisions made	9,766	1,450	2,615	903	14,734
Provisions utilized	(5,659)	(718)	(3,096)	(351)	(9,824)
Exchange adjustments	(90)	(7)	(1)	(841)	(939)
At December 31, 2024	10,992	2,051	6,153	4,944	24,140

(a) Warranties

The provision for warranties is determined based on estimates made from historical and forecast warranty data associated with similar products, the amounts of products under warranty at the end of the reporting period and their corresponding remaining warranty periods.

(b) Provision for onerous contracts with suppliers

The Group has entered into certain non-cancelable procurement agreements in its normal course of business. As a result of the Events disclosed in note 4(j) and changes in market demand for products, certain items under these procurement agreements may not be capable of being used in production and provision has been made for the estimated losses arising from fulfilling, amending or terminating relevant agreements in accordance with the accounting policy set out in note 3(p). The provision is charged to cost of sales.

(c) Others

Others are mainly provisions for outstanding claims, cases and disputes.

29 Leases

(a) As a lessee

The Group leases office premises, staff apartments, warehouses, production equipment and motor vehicles in the normal course of business. These leases typically run for an initial period of one to ten years. Some property leases contain extension options after the contract period and only a limited number of leases comprise variable payments. The Group also holds land use rights in the PRC, which are recognized as right-of-use assets at the date the Group became entitled to the rights.

Information about leases for which the Group is a lessee is presented below:

(i) Right-of-use assets

(CNY million)	Land use rights	Buildings	Motor vehicles and others	Total
Cost:				
At January 1, 2023	15,446	15,681	1,662	32,789
Exchange adjustments	(9)	(61)	26	(44)
Additions	2,391	3,518	738	6,647
Transfer to inventory	(737)	–	–	(737)
Derecognition	(1)	(2,149)	(725)	(2,875)
Hyperinflation adjustments	–	74	–	74
At December 31, 2023	17,090	17,063	1,701	35,854
At January 1, 2024	**17,090**	**17,063**	**1,701**	**35,854**
Exchange adjustments	**(2)**	**(459)**	**(4)**	**(465)**
Additions	**1,522**	**4,459**	**241**	**6,222**
Transfer from investment property	**74**	**–**	**–**	**74**
Transfer to inventory	**(2,547)**	**–**	**–**	**(2,547)**
Derecognition	**(5)**	**(2,865)**	**(133)**	**(3,003)**
Hyperinflation adjustments	**–**	**158**	**5**	**163**
At December 31, 2024	**16,132**	**18,356**	**1,810**	**36,298**
Accumulated depreciation and impairment:				
At January 1, 2023	1,755	6,884	864	9,503
Exchange adjustments	(1)	(6)	13	6
Depreciation charge for the year	323	3,131	410	3,864
Impairment loss	–	9	–	9
Transfer to inventory	(56)	–	–	(56)
Derecognition	–	(2,144)	(724)	(2,868)
Hyperinflation adjustments	–	(5)	(1)	(6)
At December 31, 2023	2,021	7,869	562	10,452
At January 1, 2024	**2,021**	**7,869**	**562**	**10,452**
Exchange adjustments	**–**	**(241)**	**–**	**(241)**
Depreciation charge for the year	**331**	**3,401**	**420**	**4,152**
Transfer from investment property	**10**	**–**	**–**	**10**
Transfer to inventory	**(154)**	**–**	**–**	**(154)**
Derecognition	**(3)**	**(2,794)**	**(131)**	**(2,928)**
Hyperinflation adjustments	**–**	**88**	**5**	**93**
At December 31, 2024	**2,205**	**8,323**	**856**	**11,384**
Carrying amount:				
At December 31, 2024	**13,927**	**10,033**	**954**	**24,914**
At December 31, 2023	15,069	9,194	1,139	25,402

During the years ended December 31, 2024 and 2023, certain right-of-use assets were derecognized as a result of lease cancellation or entering into finance sub-leases.

(ii) Amounts recognized in profit or loss

(CNY million)	Note	2024	2023
Interest expenses on lease liabilities	11	509	479
Expenses relating to short-term leases		639	442
Expenses relating to leases of low-value assets, excluding short-term leases of low-value assets		39	35
Variable lease payments not included in the measurement of lease liabilities		54	54

(iii) Amounts recognized in summary consolidated statement of cash flows

(CNY million)	2024	2023
Total cash outflow for leases	6,243	6,988

(b) As a lessor

Most of the Group's leases are operating leases under which certain properties are leased out (see note 8).

As at December 31, a maturity analysis of undiscounted lease payments to be received after the reporting date is as follows:

(CNY million)	2024	2023
Within 1 year	87	128
After 1 year but within 2 years	73	68
After 2 years but within 3 years	58	57
After 3 years but within 4 years	47	54
After 4 years but within 5 years	41	50
After 5 years	180	176
	486	533

30 Capital commitments

(CNY million)	2024	2023
Contracted for acquisition and construction of long-term assets	12,472	21,518
Investment commitments	449	2,385
Total	12,921	23,903

31 Related parties

A related party is a person or an entity that has control or joint control or significant influence over the Group, or is a member of its key management personnel, or is member of the Group, including associates and joint ventures.

Transactions between the Group and related parties are conducted on an arm's length basis. Outstanding receivables and payables with related parties are collected or paid in accordance with contracts, without additional interest or collateral.

Details of the Group's significant transactions with related parties are set out below.

Transactions with related parties

(CNY million)	Associates and joint ventures	
	2024	2023
Sales of goods and services	2,581	1,534
Purchase of goods and services	3,189	2,352

Balances with related parties

(CNY million)	Associates and joint ventures	
	December 31, 2024	December 31, 2023
Trade receivables	16	72
Contract assets	6	9
Other assets	632	278
Trade payables	1,141	875
Contract liabilities	45	206
Other liabilities	210	211

32 Group enterprises

(a) Parent and ultimate controlling party

The Group's ultimate controlling party is the Union.

(b) Major subsidiaries

Name of subsidiary	Place of incorporation	Proportion of ownership interest		Principal activities
		2024	2023	
Huawei Technologies Co., Ltd.	Chinese mainland	**100%**	100%	Development, manufacture, sale, installation, technical service and maintenance service of telecommunication products and ancillaries
Huawei Device Co., Ltd.	Chinese mainland	**100%**	100%	Development, manufacture and sale of mobile communication products and ancillaries
Huawei Machine Co., Ltd.	Chinese mainland	**100%**	100%	Manufacture of telecommunication products
Shanghai Huawei Technologies Co., Ltd.	Chinese mainland	**100%**	100%	Development of telecommunication products
Beijing Huawei Digital Technologies Co., Ltd.	Chinese mainland	**100%**	100%	Development of telecommunication products
Huawei Tech. Investment Co., Limited	Hong Kong, China	**100%**	100%	Trading of materials
Huawei International Co. Limited	Hong Kong, China	**100%**	100%	Distribution of telecommunication products
Huawei International Pte. Ltd.	Singapore	**100%**	100%	Distribution of telecommunication products
Huawei Technologies Japan K.K.	Japan	**100%**	100%	Development and sale of telecommunication products and ancillary services
Huawei Technologies Deutschland GmbH	Germany	**100%**	100%	Development and sale of telecommunication products and ancillary services
Huawei Device (Shenzhen) Co., Ltd.	Chinese mainland	**100%**	100%	Development, manufacture and sale of mobile communication products and ancillaries
Huawei Device (Hong Kong) Co., Limited	Hong Kong, China	**100%**	100%	Sale and related services of mobile communication products and ancillaries
Huawei Cloud Computing Technologies Co., Ltd.	Chinese mainland	**100%**	100%	Development and sale of cloud products
Huawei Technical Service Co., Ltd	Chinese mainland	**100%**	100%	Installation, technical service and maintenance service of telecommunication products and ancillaries
Huawei Software Technologies Co., Ltd.	Chinese mainland	**100%**	100%	Sale of cloud products and services
HiSilicon Technologies CO., LIMITED	Chinese mainland	**100%**	100%	Development and sale of semiconductors
HiSilicon (Shanghai) Technologies CO., LIMITED	Chinese mainland	**100%**	100%	Development and sale of semiconductors
Hisilicon Optoelectronics Co., Limited	Chinese mainland	**100%**	100%	Development, manufacture and sale of optoelectronic products related to information technology
Huawei Technologies Coöperatief U.A.	Netherlands	**100%**	100%	Intermediate parent company for certain overseas subsidiaries

33 Contingent liabilities

(a) On September 2, 2014 (dates in note 33 are in U.S. time), T-Mobile USA, Inc. ("T-Mobile") filed a civil action against the Group's subsidiary, Huawei Device USA Inc., in relation to the alleged misappropriation of trade secrets relating to certain of T-Mobile's mobile phone test equipment. The two parties reached a settlement on November 8, 2017.

On January 16, 2019, the United States Department of Justice issued an indictment against Huawei Device USA Inc. and Huawei Device Co., Ltd., containing 10 charges in relation to the alleged theft of trade secrets relating to the above equipment and alleged wire fraud and obstruction of justice. The charges relate to the years from 2012 to 2014.

(b) On January 24, 2019, the United States Department of Justice issued an indictment against Huawei Technologies Co., Ltd., Huawei Device USA Inc. and other parties. The indictment contains 13 charges in relation to alleged bank and wire fraud, violation of the International Emergency Economic Powers Act of the United States with respect to certain transactions involving Iran, and associated matters.

On February 13, 2020, the United States Department of Justice issued a superseding indictment which, on top of the charges filed on January 24, 2019, added Huawei Device Co., Ltd. and Futurewei Technologies, Inc. as defendants, and added 3 new charges of alleged racketeering conspiracy, alleged conspiracy to steal trade secrets and alleged conspiracy to commit wire fraud. The superseding indictment also includes new allegations including the defendants' alleged involvement in transactions involving North Korea and Iran.

The Group has engaged external counsels to assist it in respect of the matters referred to in (a) and (b) above. With regard to the matter referred to in (a) above, due to the complexity of the charges contained in this indictment, its overlapping with the superseding indictment issued on February 13, 2020 referred to in (b) above and the difficulties for the parties to prepare for the trial during COVID-19 pandemic, the US Government and the defendants filed motions on September 5, 2019, March 17, 2020, February 23, 2021, February 18, 2022, January 18, 2023, January 9, 2024 and October 23, 2024, respectively, requesting the trial to be postponed, and such motions were granted by the judge. Pursuant to the judge's latest decision on October 24, 2024, the trial will be postponed until October 26, 2026. With regard to the matter referred to in (b) above, pursuant to the judge's order on April 4, 2024, a placeholder trial date for January 2026 has been entered on the court's calendar.

Given the pre-trial stage of these proceedings, as at the date of approval of these financial statements, management considers that both the timing and the outcome of these matters are inherently uncertain, and that the amount of any possible obligation of the Group, if any, cannot be reliably estimated. Accordingly, these indictments give rise to contingent liabilities for the Group and no provision has been made in this regard in these financial statements. It is also not practicable at this stage for the Group to disclose an estimate of the possible future financial effect on the Group's financial statements of these matters.

34 Subsequent events

(a) During the year ended December 31, 2024, the Group entered into agreements with two buyers to sell to each of them 10% of the equity interests in its subsidiaries engaged in the intelligent automobile solution business and received the first installment of the consideration totaling CNY4,600 million. As at December 31, 2024, according to the relevant agreements, the deposits were placed in separate bank accounts jointly controlled by the buyers and the Group, and included in pledged and restricted bank deposits within other assets. The buyers and the Group determined the equity transfer date is February 28, 2025.

(b) Subsequent to December 31, 2024 and up to the date of approval of these financial statements, the Company has issued two super & short-term commercial papers, with an aggregate principal amount of CNY8,000 million.

(c) Subsequent to December 31, 2024 and up to the date of approval of these financial statements, the Group has drawn accumulatively CNY6,000 million from two credit facilities entered into by Huawei Technologies Co., Ltd., a wholly-owned subsidiary of the Group.

Risk Factors

At Huawei, risk factors are defined as those that could cause uncertainty regarding the company's ultimate achievement of its business objectives. We identify such factors in our strategic plans, business operations, financial systems, or the external environment. In this section, we will detail the major risk factors that could significantly impact the company's survival, reputation, financial position, operating results, or long-term prospects.

Huawei's Risk Management System

Huawei uses an Enterprise Risk Management (ERM) system that accounts for our unique organizational structure and operating model, in line with the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework and referencing the ISO 31000 risk management standard. Under this system, we have defined a robust set of ERM policies and processes, continuously refined our ERM organizations and operating mechanisms, and ramped up efforts to improve risk management and response. Huawei's ERM system ensures the following:

- The Board of Directors approves company plans for managing major risks and crises, and handles unexpected major incidents.

- Business managers, as the primary risk owners in their respective business domains, proactively identify and manage risks to ensure they remain at an acceptable level.

At Huawei, risk management is incorporated into both strategic planning and business planning processes. During strategic planning, we systematically identify and manage strategic risks. During business planning, we formulate appropriate countermeasures and monitor and report on risks as part of performance management during routine operations. Huawei ensures uninterrupted business operations by identifying major risk factors during strategic decision making and business planning, and taking necessary measures to control risks during operations and execution.

Strategic Risks

The age of All Intelligence is here. Digital technology is reshaping the world around us, and we want to make sure the future world is an inclusive one where everyone can benefit from digital technology. Thanks to constant advances in AI technology, industries are achieving more profound levels of intelligence. This rapid development in AI represents huge potential, as it significantly increases productivity and creates immense opportunities for enterprise innovation. However, these changes also bring new risks and challenges that must be carefully addressed – especially in the areas of security, compliance, and ethics. In addition, Huawei's external environment is more volatile and complex than ever. The world is facing the formidable challenge of deciding how globalization should proceed. This expected stagnation will only be compounded by the US government's sustained efforts to contain the development of leading technologies outside its borders. Despite these challenges, we will continue working hard to survive and thrive.

External Risks

Macro environment

We expect growth to slow in many economies in 2025. Despite slight drops in inflation, interest rates remain high, which will discourage both investment and consumer spending. Some businesses and governments will also face increased pressure to lower their debt. Furthermore, as the geopolitical landscape evolves, regional conflicts and protectionism will continue to undermine both business and consumer confidence. Given this uncertain business environment, Huawei will closely monitor risk and promptly adapt response strategies.

Compliance

Operational compliance provides a solid foundation on which Huawei can survive and continue serving and contributing to the world. Huawei has always been dedicated to compliance with applicable laws and regulations in the countries and regions in which it operates. Through sustained investment, we have established a compliance management system that applies to all our businesses and employees worldwide and covers all legal obligations, including but not limited to trade compliance, financial compliance, anti-bribery compliance, intellectual property (IP) and trade secret protection, and cyber security and privacy. This enables the systematic management of compliance risks through established policies, organizations, regulations, processes, and so on.

Despite these efforts, we may still feel the impact of the complex legal environments of some of the countries and regions in which we operate. For example, there may be a lack of clarity or transparency with regards to local laws or ambiguity surrounding legal systems or law enforcement. Huawei will continue, as always, to learn from industry best practices and take preventive measures to address these risks. The certainty of legal compliance is our best bulwark against the uncertainty of the external environment.

Trade

In 2024, the global economy and international trade remained sluggish. The rise of protectionism and trade barriers continued to disrupt the global trade order and undermine the stability of global value and supply chains. Changes in global trade patterns and regional conflicts also strained international shipping networks and the flow of goods. Persistent inflation and exchange rate fluctuations have accelerated deglobalization and supply chain fragmentation, and put global trade at risk.

Despite these uncertainties and challenges, we also observed signs of positive growth. In 2024, overall global trade increased slightly and the global economy remained resilient. The World Trade Organization predicts a slight increase in world merchandise trade in 2025. Emerging technologies like AI and new energy are also thriving and becoming a new driver of growth in both the global economy and trade.

As always, Huawei supports open and healthy global markets and advocates for cooperation in both trade and the economy. We will do our utmost to uphold international trade rules. We believe that digital innovation and applications will fuel the digital, intelligent, and green transition, as well as contribute to and serve the global economy and trade.

Natural disasters

It is our mission and primary social responsibility to maintain stable network operations. In 2024, Spain was struck by its most devastating flood in 50 years. Railways and roads were paralyzed and communications disruptions impacted most people in the country. In response, we immediately dispatched multiple experts to work alongside our customers in the affected areas. All 40-plus members of this joint team worked day and night to recover communications and maintain stable network operations. Throughout 2024, Huawei similarly responded to earthquakes in Kazakhstan and flooding around the world, including in the UAE, Bahrain, Saudi Arabia, and Qatar.

Natural disasters like these and typhoons have the potential to hinder our responsiveness in maintenance and supply, thus impacting the operations of the networks we have deployed. We have therefore developed contingency plans to respond to different types of natural disasters, and continued to improve our capabilities in this regard. This has helped us ensure our own business continuity, and more importantly, ensure the network stability for our customers.

Country-specific risks

Huawei currently operates in more than 170 countries and regions worldwide. The complex international economic and political landscape we operate in exposes us to a variety of different risks in different countries and regions. These risks include economic and political instability, exchange rate fluctuations, capital controls, and sovereign defaults. Any one of these risks could hinder Huawei's local business operations and bring uncertainty to our local business development.

In 2025, interest rates for the US dollar and the euro are expected to decline. However, emerging markets with heavier debt loads will still find it difficult to access funds from the global capital market, and so will continue to face default-related, capital overflow, and currency depreciation risks. As such, we will closely monitor changes in the environment, such as those related to exchange rate fluctuations, changes in economic fundamentals, regional conflicts, and commodity price fluctuations, and promptly employ effective countermeasures to ensure we achieve our business objectives.

Operational Risks

Information security

Although Huawei has a robust information security management system and takes stringent information security measures to protect its IP, it is impossible to completely prevent the improper use of our proprietary assets and information. Even when we are able to protect our IP through judicial means, it is still possible for us to suffer losses due to improper usage.

Intellectual property

Huawei has long been and will continue to be dedicated to independent innovation. We respect the IP of third parties while actively protecting our own. We also constantly work to improve our IP protection and risk management system. Despite this, there still exists the possibility that rights holders may file IP claims against Huawei and third parties may still infringe upon our IP. Huawei will continue to build a high-value IP portfolio and IP capabilities globally. Furthermore, we will vigorously follow and support international rules and industry conventions to address IP disputes and safeguard the operational security of our global businesses.

Corporate Governance Report

The company only exists to serve its customers. The purpose of growing our harvest and increasing the fertility of our soil is to better serve our customers. "Staying customer-centric and creating value for customers" are the company's common values. The conferment of authority is required to drive the facilitation and implementation of the company's common values. However, without effective controls in place, authority un-checked will ultimately hinder such common values. The company has a well-developed internal governance structure, under which all governance bodies have clear and focused authority and responsibility, but operate under checks and balances. This creates a closed cycle of authority and achieves rational and cyclical succession of authority.

The company's fate cannot be tied to any single individual and the governance bodies of the company shall follow a model of collective leadership. This collective leadership model is created upon common values, focused responsibility, democratic centralized authority, checks and balances, and growth by self-reflection.

In addition, the company stays customer-centric, inspires dedication, and continuously improves its governance structure, organizations, processes, and appraisal systems to sustain its long-term and profitable growth.

Shareholders and the Employee Shareholding Scheme

Huawei Investment & Holding Co., Ltd. is a private company wholly owned by its employees. Huawei's shareholders are the Union of Huawei Investment & Holding Co., Ltd. (the "Union") and Mr. Ren Zhengfei.

Through the Union, the company implements an Employee Shareholding Scheme (the "Scheme", or the virtual restricted shares plan), which involved 161,749 individuals, either current employees or retired beneficiaries, as of December 31, 2024. The Scheme effectively aligns employee contribution and development with the company's long-term development, fostering Huawei's continued success.

Mr. Ren Zhengfei is the Company's natural person shareholder and also participates in the Scheme. As of December 31, 2024, Mr. Ren's investment accounted for nearly 0.65% of the Company's total share capital.

The Shareholders' Meeting and the Representatives' Commission

The Shareholders' Meeting, the company's authoritative body, comprises two shareholders: the Union and Mr. Ren Zhengfei.

The Representatives' Commission (the "Commission") is the organization through which the Union fulfills shareholder responsibilities and exercises shareholder rights. The Commission consists of no more than 161 representatives of shareholding employees ("Representatives") and exercises rights on behalf of all shareholding employees.

In 2024, the Commission held three meetings. At the meetings, the Commission reviewed and approved matters such as the report from the Board of Directors (BOD) on the company's financial and operating results, the Supervisory Board's review report on the BOD's annual responsibility fulfillment, the annual work report of the Supervisory Board, proposals for annual profit distribution and annual capital increases, Commission election rules, and the proposal for selling a portion of Yinwang equity interest.
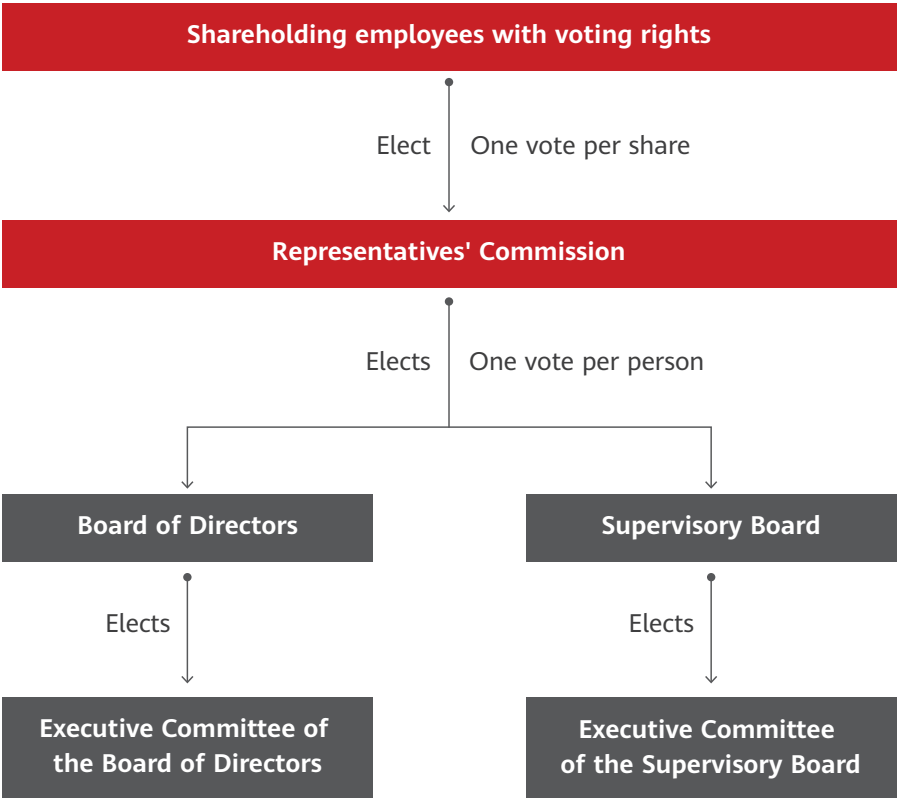

| The Commission holding a meeting in November 2024

The Representatives and Alternate Representatives are elected by the shareholding employees with voting rights, and serve for a term of five years. In the event that there is a vacancy in the Commission, the Alternate Representatives shall take up the vacancy in a predetermined sequence.

The shareholding employees with voting rights elect the Commission on a one-vote-per-share basis, after which the Commission elects the company's Board of Directors and Supervisory Board on a one-vote-per-person basis. The Commission, along with the Board of Directors and Supervisory Board, decides on, manages, and monitors major company matters.

In February 2025, the company held the election for the Fifth Commission. A total of 127,909 shareholding employees with voting rights participated in voting, producing 161 Representatives and 37 Alternate Representatives on a one-vote-per-share basis.

Shareholding employees with voting rights

Elect | One vote per share

Representatives' Commission

Elects | One vote per person

Board of Directors	Supervisory Board

Elects | Elects

Executive Committee of the Board of Directors	Executive Committee of the Supervisory Board

Members of the current Commission are:

Mr. Liang Hua, Mr. Guo Ping, Mr. Xu Zhijun,
Mr. Hu Houkun, Ms. Meng Wanzhou, Mr. Wang Tao,
Mr. Zhang Ping'an, Mr. Yu Chengdong,
Mr. Zheng Liangcai, Ms. He Tingbo, Mr. Li Jianguo,
Mr. Tao Jingwen, Mr. Peng Bo, Mr. Zha Jun,
Mr. Hou Jinlong, Mr. Yang Chaobin, Mr. Ying Weimin,
Mr. Ren Zhengfei, Mr. Li Jie, Ms. Chen Lifang,
Mr. Yao Fuhai, Mr. Li Dafeng, Mr. Li Yingtao,
Mr. Ma Qingqing, Mr. Song Liuping, Mr. Ren Shulu,
Mr. Tian Feng, Mr. Peng Zhongyang, Ms. Shi Yanli,
Ms. Yang Li, Mr. Lyu Ke, Mr. Li Peng, Ms. Zhao Minglu,
Mr. Cao Jibin, Mr. Wu Hui, Mr. Bai Limin,
Mr. Li Shen, Mr. Zhou Jianjun, Mr. Wang Jianhui,
Mr. Xiao Zhendong, Mr. Zhang Xiuzheng,
Mr. Zhang Dongya, Mr. Zhang Chunlei,
Mr. Cao Haichen, Mr. Lin Baifeng, Mr. Zheng Xiaohu,
Mr. Ma Jianhua, Mr. Yi Xiang, Mr. Zhang Dongxu,
Mr. Zhou Danjin, Mr. Cai Mengbo, Mr. Lu Yong,
Mr. Qin Bin, Mr. Zhang Zhenjun, Mr. Gao Xiang,
Mr. Meng Wei, Mr. He Tao, Mr. Hou Wei,
Mr. Yan Lida, Mr. Xu Qinsong, Mr. Li Bin,
Mr. Lyu Luping, Mr. Xiong Yan, Mr. Xie Guilei,
Mr. Ye Jinhua, Mr. Chang Sheng, Mr. Zhao Qian,
Mr. Zou Zhilei, Mr. Ma Yue, Mr. Li Junfeng,
Mr. Wu Weitao, Mr. Wang Yinfeng, Mr. Li Junwei,
Mr. Zhou Hong, Mr. Liu Shaowei, Mr. Chen Haibo,
Mr. Zhu Xiaoyong, Mr. Hu Bo, Mr. Lei Ting,
Mr. Sun Quan, Mr. Zhou Yongjie, Mr. Wang Yang,

Mr. Kuang Xiongcai, Mr. Li Xiaolong, Mr. Gong Ti,
Mr. Zheng Pingfang, Mr. Wang Yonggang,
Mr. Cao Ming, Mr. Sun Rui, Mr. Lyu Jinsong,
Mr. Wang Lei, Mr. Zhao Zhipeng, Mr. Wu Juye,
Mr. Chen Banghua, Mr. Wang Hao, Mr. Zhang Xiwei,
Mr. Zhou Yuefeng, Mr. Lu Haiou, Mr. Gao Zhiguo,
Mr. Ma Haixu, Mr. Liu Kang, Mr. Chen Hao,
Mr. Chen Lei, Mr. Xiong Lening, Mr. Shi Zhenyu,
Mr. Duan Ke, Mr. Xun Su, Mr. You Jiangtao,
Mr. Guo Dazheng, Mr. Lu Yu, Mr. Yang Yougui,
Mr. He Bo, Mr. Zhang Yuxin, Ms. Shi Jilin,
Mr. Gao Jianghai, Mr. Shang Haifeng, Mr. Jin Yuzhi,
Mr. Bian Honglin, Mr. Gao Ji, Mr. Zhu Yonggang,
Mr. Wu Yongneng, Mr. He Gang, Mr. Zhu Ping,
Mr. Jiao Jian, Mr. Chen Jinshui, Mr. Tao Ran,
Ms. Shi Qin, Ms. Zhu Jiamin, Mr. Li Zhuangshi,
Ms. Sun Ting, Mr. Lei Rungen, Mr. Zhang Guo,
Mr. Wang Hua'nan, Mr. Tian Xingpu, Mr. Zhang Wei,
Mr. Ding Ailong, Mr. Wang Yixiang, Mr. Yang Sai,
Mr. Huang Ji, Mr. Zhu Yifan, Mr. Chang Dong,
Mr. Zhou Zhiyong, Mr. Qin Gang, Mr. Luo Zhongyi,
Mr. Zhu Kechu, Mr. Tang Qibing, Ms. Li Xia,
Mr. Ran Weidong, Mr. Wu Zhenggang,
Mr. Meng Ping, Mr. Luo Wencheng, Mr. Zhang Jian,
Mr. Du Yanxin, Mr. Jiang Xisheng, Mr. Gai Gang,
Mr. Wu Qinming, Mr. Wang Jianfeng, Mr. Bai Yi,
Mr. Jiang Yafei, Mr. Bin Yunsong, and Mr. Peng Yong.

Members of the Commission

Board of Directors

The Board of Directors (BOD) is the highest body responsible for corporate strategy, operations management, and customer satisfaction. The BOD's mission is to lead the company forward. It exercises decision-making authority for corporate strategy and operations management, and ensures customer and shareholder interests are protected.

The main responsibilities of the BOD are to:

- Develop proposals for corporate governance.

- Review proposals to increase or decrease the company's registered capital, as well as proposals related to profit distribution and loss recovery.

- Review the company's stock options plan and other long-term incentive plans.

- Review or approve the company's plans for entering and exiting different industries, and approve the company's strategic plan.

- Approve major organizational restructuring, management system development, and business transformation.

- Approve major financial policies, financial plans, and business transactions.

- Approve the company's annual budget proposal, annual operations report, and annual audit report.

- Approve the appointment/removal, compensation, and long-term incentives of senior management.

- Approve major HR policies and plans at the corporate level.

- Approve proposals for managing major risks and crises, and manage major emergencies.

- Approve the development of internal control and compliance systems.

In 2024, the BOD held 13 meetings. At the meetings, the BOD reviewed and approved matters such as the company's medium-to-long-term strategic plan, the company's annual business plan, audit report, and proposals for profit distribution, capital increases, and selling a portion of Yinwang equity interest.

The BOD has 17 members, who are elected by the Commission and then voted in by the Shareholders' Meeting. In March 2023, a new BOD was elected, resulting in a new set of regular and alternate directors. The BOD elected deputy chairs and executive directors, and determined the directors who attend BOD Executive Committee meetings as non-voting attendees.

Members of the current BOD are as follows:

- Chairman: Mr. Liang Hua

- Deputy Chairs: Mr. Xu Zhijun, Mr. Hu Houkun, and Ms. Meng Wanzhou

- Executive directors: Mr. Wang Tao, Mr. Zhang Ping'an, Mr. Yu Chengdong, and Mr. Zheng Liangcai

- Directors who attend BOD Executive Committee meetings as non-voting attendees: Ms. He Tingbo and Mr. Li Jianguo

- Directors: Mr. Ren Zhengfei, Mr. Tao Jingwen, Mr. Peng Bo, Mr. Zha Jun, Mr. Hou Jinlong, Mr. Yang Chaobin, and Mr. Ying Weimin

In the event that there is a vacancy in the BOD, alternate directors will take up the vacancy in a predetermined sequence. Alternate directors are Mr. He Gang, Mr. Bai Yi, Mr. Cao Jibin, Mr. Zhou Hong, Mr. Bian Honglin, Mr. Jin Yuzhi, Mr. Lu Yong, Mr. Zou Zhilei, Mr. Jiang Yafei, Mr. Hu Kewen, and Mr. Wang Huanan.

From the left in the first row: Mr. Li Jianguo, Mr. Zhang Ping'an, Mr. Hu Houkun, Mr. Xu Zhijun, Mr. Liang Hua, Ms. Meng Wanzhou, Mr. Wang Tao, and Mr. Yu Chengdong
From the left in the second row: Mr. Yang Chaobin, Mr. Zha Jun, Mr. Zheng Liangcai, Mr. Hou Jinlong, Ms. He Tingbo, Mr. Peng Bo, Mr. Ren Zhengfei, Mr. Tao Jingwen, and Mr. Ying Weimin

Mr. Liang Hua (Howard Liang)

Chairman

Born in 1964, Mr. Liang holds a doctorate degree from Wuhan University of Technology. Mr. Liang joined Huawei in 1995 and has served as President of Supply Chain, CFO of Huawei, President of the Business Process & IT Mgmt Dept, President of the Global Technical Service Dept, Chief Supply Chain Officer, Chairman of the Audit Committee, and Chairman of the Supervisory Board. Mr. Liang is now Chairman of Huawei's Board of Directors.

Mr. Xu Zhijun (Eric Xu)

Deputy Chairman, Rotating Chairman

Mr. Xu holds a doctorate degree from Nanjing University of Science & Technology. He joined Huawei in 1993 and has served as President of the Wireless Network Product Line, Chief Strategy & Marketing Officer, Chief Products & Solutions Officer, Chairman of the Investment Review Board, Rotating CEO of Huawei, and Chairman of the Strategy & Development Committee (SDC). Currently, Mr. Xu serves as Deputy Chairman of the Board and Rotating Chairman of Huawei.

Mr. Hu Houkun (Ken Hu)

Deputy Chairman, Rotating Chairman

Born in 1968, Mr. Hu holds a bachelor's degree from Huazhong University of Science and Technology. Mr. Hu joined Huawei in 1990 and has served as President of the Marketing & Sales Dept in China, President of the Latin America Region, President of the Global Sales Dept, Chief Sales & Service Officer, Chief Strategy & Marketing Officer, Chairman of the Global Cyber Security and User Privacy Protection Committee (GSPC), Chairman of the BOD of Huawei USA, Deputy Chairman of the Board, Rotating CEO, and Chairman of the HRC. Currently, Mr. Hu serves as Deputy Chairman of the Board and Rotating Chairman of Huawei.

Ms. Meng Wanzhou (Sabrina Meng)

Deputy Chairwoman, Rotating Chairwoman

Ms. Meng holds a master's degree from Huazhong University of Science and Technology. Ms. Meng joined Huawei in 1993 and has held positions including Director of the International Accounting Dept, CFO of Huawei Hong Kong, and President of the Accounting Mgmt Dept. Ms. Meng now serves as Deputy Chairwoman of the Board, and Rotating Chairwoman and CFO of Huawei.

Since 2003, Ms. Meng has led the establishment of Huawei's globally unified finance organizational structure, processes, regulations, and IT platforms. From 2007 to 2014, Ms. Meng implemented the Integrated Financial Services (IFS) Transformation Program across the company around the world, making fine-grained management part of Huawei's DNA for sustainable growth.

In 2014, Ms. Meng led the company's data transformation and established a comprehensive data management system, creating a single source for data and making data a strategic asset of the company. During the same period, Ms. Meng implemented transformation programs for Internal Controls over Financial Reporting (ICFR), Consistency of Inventory Accounts and Goods (CIAG), treasury management, and tax management. This has transformed the finance team into a business partner and value integrator, and supported the rapid and stable development of the company's business worldwide. Since 2019, Ms. Meng has developed a blueprint for the digital transformation of finance based on the company's strategic vision and long-term development plan. She has led the development of key risk indicators and risk control models, making contactless risk controls a reality at Huawei. She has guided the establishment of an agile operations management system which has facilitated intelligent operations management and decision-making based on data and AI algorithms. She has also guided the establishment of an integrated management platform for key financial operations scenarios, to achieve collaborative operations and matrix management based on data sharing and real-time interactions. Under Ms. Meng's leadership, Huawei has established a world-leading digital and intelligent finance organization, laying a solid foundation for the company's operations and supporting the company's efforts to realize its strategies in the new era.

Mr. Wang Tao (David Wang)

Executive Director

Born in 1972, Mr. Wang holds a master's degree from Xi'an Jiaotong University. Mr. Wang joined Huawei in 1997 and has served as R&D Manager in Wireless, Vice President of the UMTS Technical Sales Dept, President of Technical Sales of the European Area, Managing Director of Huawei Italy and Switzerland, President of the Wireless Network Product Line, President of the Network Product Line, President of ICT Strategy & Marketing, President of ICT Products & Solutions, Chairman of the Investment Review Board, and Chairman of the ICT Infrastructure Managing Board. Currently, Mr. Wang serves as an Executive Director of the Board and Chairman of the EMT Joint Management Board.

Mr. Zhang Ping'an

Executive Director

Born in 1972, Mr. Zhang holds a master's degree from Zhejiang University. Mr. Zhang joined Huawei in 1996 and has served as Product Line President, Vice President of Strategy & Marketing, Regional Vice President, Vice President of the Global Technical Service Dept, CEO of Huawei Symantec, COO of the Enterprise BG, President of the Telecom Software Business Dept, and President of the Consumer Cloud Service Dept. Currently, Mr. Zhang serves as an Executive Director of the Board and CEO of Huawei Cloud Computing BU.

Mr. Yu Chengdong (Richard Yu)

Executive Director

Born in 1969, Mr. Yu holds a master's degree from Tsinghua University. He joined Huawei in 1993 and has served as 3G Product Director, Vice President of the Wireless Technical Sales Dept, President of the Wireless Network Product Line, President of the European Area, Chief Strategy & Marketing Officer, and CEO of the Consumer BG. Currently, Mr. Yu serves as an Executive Director of the Board, Chairman of the Board of Directors of the Consumer BG, Chairman of the Board of Directors of the Intelligent Automotive Solution BU, and Director of the Investment Review Board for Smart Devices and Intelligent Automotive Components.

Mr. Zheng Liangcai

Executive Director

Born in 1975, Mr. Zheng holds a bachelor's degree from Tsinghua University. Mr. Zheng joined Huawei in 1999 and has served as General Manager of the Rio de Janeiro Representative Office, General Manager of the Mexico Representative Office, President of the Northern Latin America Region, President of the Southern South America Region, President of the Latin America Area, and as a member of the ICT Infrastructure Managing Board, Investment Review Board (IRB), Human Resources Committee (HRC), Global Cyber Security and User Privacy Protection Committee (GSPC), Business Transformation Executive Steering Committee, and Disciplinary and Supervisory Committee. Currently, Mr. Zheng serves as an Executive Director of the Board and President of the Human Resource Mgmt Dept.

Ms. He Tingbo

Director

Born in 1969, Ms. He holds a bachelor's degree in semiconductor physics, a bachelor's degree in communications engineering, and a master's degree from Beijing University of Posts and Telecommunications. Ms. He joined Huawei in 1996 and has held positions in the chip business (development, research, architecture, and supply chain). She has served as R&D Director, President of HiSilicon, and President of the 2012 Laboratories. Currently, Ms. He serves as Chair of Huawei Scientist Committee, ITMT Director, and President of the Semiconductor Business Dept.

Mr. Li Jianguo

Director

Born in 1964, Mr. Li holds a master's degree in engineering from Huazhong University of Science and Technology. Mr. Li joined Huawei in 1993 and has served as a product R&D engineer, Deputy Manager of the Development and Pilot (D&P) Dept, Manager of the Manufacturing Dept, Executive Vice President of Huawei Electric, Director of the Electronics Assembly Business Dept, Deputy Director of the Supply Chain Mgmt Dept, Director of the Product Engineering & Process Development Dept under the Central Research & Development Unit (CRDU), Director of the PDT/TDT Leaders Mgmt Dept under the CRDU, President of the Manufacturing SBG, an executive member of the Supervisory Board, a member of the Board, and an Executive Director of the Board. Currently, Mr. Li serves as a member of the Board, a member of the Board who attends BOD Executive Committee meetings as a non-voting attendee, and President of the Manufacturing Dept.

Mr. Ren Zhengfei
Director

Born on October 25, 1944 into a rural family where both parents were school teachers, Mr. Ren Zhengfei spent his primary and middle school years in a remote mountainous town in Guizhou Province. In 1963, he studied at the Chongqing Institute of Civil Engineering and Architecture. After graduation, he was employed in the civil engineering industry until 1974 when he joined the military's Engineering Corps as a soldier tasked to establish the Liao Yang Chemical Fiber Factory. Subsequently, Mr. Ren had taken positions as a Technician, an Engineer, and was lastly promoted as a Deputy Director, which was a professional role equivalent to a Deputy Regimental Chief, but without military rank. Because of his outstanding performance, Mr. Ren was invited to attend the National Science Conference in 1978 and the 12th National Congress of the Communist Party of China in 1982. Mr. Ren retired from the army in 1983 when the Chinese government disbanded the entire Engineering Corps. He then worked in the logistics service base of the Shenzhen South Sea Oil Corporation. As he was dissatisfied with his job, he decided to establish Huawei with a capital of CNY21,000 in 1987. He became the CEO of Huawei in 1988 and has held the title ever since.

Mr. Tao Jingwen
Director

Born in 1971, Mr. Tao graduated from Beijing University of Posts and Telecommunications. Mr. Tao joined Huawei in 1996 and has served as a product development engineer, Deputy General Manager of the Market Technology Section, Executive Deputy Director of the International Technical Sales Dept, Executive Vice President and President of the Sub-Sahara Region, President of the Global Technical Sales & Marketing Dept, President of Huawei Device, President of the West European Region, and President of the Quality, Business Process & IT Mgmt Dept.

Mr. Peng Bo
(Vincent Peng)
Director

Born in 1976, Mr. Peng holds a bachelor's degree in engineering from Harbin Institute of Technology. Mr. Peng joined Huawei in 1999 and has served as Director of the Vodafone Account Dept, Vice President of the European Area, President of the Carrier BG Global Sales Dept, President of the Global Sales & Accounts Business Dept, and President of the West European Region, Vice President of the Public Affairs and Communications Dept, and President of the Corporate Communications Dept. Currently, Mr. Peng serves as a member of the Board and President of the Global Procurement Qualification Mgmt Dept.

Mr. Zha Jun
Director

Born in 1971, Mr. Zha holds a master's degree from Zhejiang University. Mr. Zha joined Huawei in 1997 and has served as A8010 Development Manager, UMG SPDT Leader, Director of the IMS Product Family, President of the Router & Cyber Security Product Line, President of the Fixed Network Product Line, and President of the Central Research Institute. Currently, Mr. Zha serves as President of the 2012 Laboratories and Chairman of the Research and Innovation Management Committee.

Mr. Hou Jinlong
Director

Born in 1970, Mr. Hou holds a bachelor's degree from Shanghai Jiao Tong University. Mr. Hou joined Huawei in 1996 and has served as Wireless GSM R&D Product Director, Chief Engineer of the Wireless Account Dept, Wireless MSC 6.0 Pilot PDT Leader, Wireless Technical Sales Director, Director of the Wireless Network Marketing Dept, CEO of TD Tech, President of the Network Energy Product Line, President of the IT Product Line, President of Cloud & AI Products & Services, and President of the Cloud & AI BG. Currently, Mr. Hou serves as President of the Digital Power BU.

Mr. Yang Chaobin
Director

Born in 1972, Mr. Yang holds a master's degree from University of Science and Technology of China. Mr. Yang joined Huawei in 1998 and has served as Director of the Wireless Network Research Dept, President of the LTE Product Line, Chief of the Sweden Research Center, Director of the Wireless Network Solutions Dept, Director of the Wireless Network Marketing Dept, President of the 5G Product Line, and President of the Wireless Network Product Line. Currently, Mr. Yang serves as a member of the Board, Chairman of the Investment Review Board, CEO of the ICT Business Group, and President of ICT Products & Solutions.

Mr. Ying Weimin

Director

Born in 1973, Mr. Ying holds a master's degree from Shanghai Institute of Technical Physics of the Chinese Academy of Sciences. Mr. Ying joined Huawei in 1998 and has served as President of the LTE Product Line, President of the GSM & UMTS & LTE Product Line, Director of the Wireless R&D Mgmt Dept, and President of the Global Procurement Qualification Mgmt Dept. Currently, Mr. Ying serves as a member of the Board, Chief Supply Chain Officer, and Director of the Group Procurement Management Committee.

Executive Committee

The BOD has established the Executive Committee, which acts as the standing executive body of the BOD. Entrusted by the BOD, the Executive Committee examines and reflects on major issues within the company, decides on issues authorized by the BOD, and oversees their execution. In 2024, the BOD Executive Committee held 17 meetings.

Members of the current BOD Executive Committee are Mr. Xu Zhijun, Mr. Hu Houkun, Ms. Meng Wanzhou, Mr. Wang Tao, Mr. Zhang Ping'an, Mr. Yu Chengdong, and Mr. Zheng Liangcai.

Rotating chairs

The BOD and its Executive Committee are led by rotating chairs. The term of each rotating chair lasts six months.

Audit Committee

The Audit Committee (AC) operates under the BOD to oversee internal controls, including the internal control system, internal and external audits, corporate processes, legal compliance, and adherence to the *Business Conduct Guidelines* (BCGs).

The main responsibilities of the AC are to:

■ Approve the annual internal audit plan, and review its scope, required resources, and audit outputs.

■ Approve corporate policies for internal controls; approve the corporate development plan for internal controls and the plan's key milestones; and regularly assess the company's internal control status.

■ Evaluate the effectiveness of the ethics and compliance function, legal compliance, and adherence to corporate policies.

■ Approve the selection of the external auditor, notify the BOD of any proposed change to the external auditor for approval, approve related budgets, and evaluate the work of the external auditor.

■ Supervise the completeness, accuracy, and legal compliance of the company's financial statements; and review compliance with and application of accounting policies as well as financial disclosures.

■ Approve internal control Key Performance Indicators (KPIs), and instruct Global Process Owners (GPOs) and business executives to report internal control results.

The AC shall hold at least four meetings a year and can convene ad-hoc meetings when necessary. Business executives and various experts can be invited to attend as non-voting participants.

In 2024, the committee held eight meetings, focusing on topics such as anti-corruption, internal controls, internal and external audits, and oversight of business units. At the meetings, the AC reviewed and approved the company's annual internal control plans, internal and external audit plans, and the annual oversight plans of ICT Infrastructure, Consumer, Digital Power, Cloud Computing, and other business units. The AC regularly reviewed the progress and execution results of the above-mentioned plans, and instructed process owners and business managers who failed to deliver the expected results regarding internal control improvement to report on their internal controls.

Supervisory Board

As Huawei's highest oversight body, the Supervisory Board exercises the authority of oversight on behalf of the company's shareholders. The Supervisory Board is responsible for the company's survival, development, and long-term prospects. Its core authorities are reflected in leader management, business reviews, and strategic vision. Through the observation of managers and cultivation of managerial candidates, the Supervisory Board promotes the development of leadership pipelines, aiming to ensure that the company has qualified successors. By establishing a rule-based, systematic oversight framework, the Supervisory Board comprehensively oversees matters such as the responsibility fulfillment of BOD directors and other executives, the company's operating and financial status, and compliance and internal control systems, gradually guiding the company to change from experience-based management to rule-based management and enabling businesses to operate freely within preset boundaries.

In 2024, the Supervisory Board improved its basic institutions and organization, observed managers, managed the resource pool of managerial candidates, inspected and examined major areas with potential risks, oversaw the company's operations management, and guided and managed the development of subsidiary boards. In 2024, the Supervisory Board held 17 meetings, and its members attended all BOD meetings as non-voting participants, overseeing and reviewing BOD responsibility fulfillment, and overseeing and assessing the responsibility fulfillment of BOD directors and other executives.

The Supervisory Board has 15 members, who are elected by the Commission and then voted in by the Shareholders' Meeting. On March 29, 2022, a new Supervisory Board was elected, resulting in a new set of regular and alternate members.

Members of the new Supervisory Board are as follows:

- Chairman: Mr. Guo Ping

- Deputy Chairman: Mr. Li Jie

- Executive members: Ms. Chen Lifang, Mr. Yao Fuhai, Mr. Li Dafeng, Mr. Li Yingtao, and Mr. Ma Qingqing

- Members: Mr. Song Liuping, Mr. Ren Shulu, Mr. Tian Feng, Mr. Peng Zhongyang, Ms. Shi Yanli, Ms. Yang Li, Mr. Lyu Ke, and Mr. Li Peng

In the event that there is a vacancy in the Supervisory Board, its alternate members will take up the vacancy in a predetermined sequence. Currently, the Supervisory Board has four alternate members: Mr. Wei Chengmin, Mr. Xu Qinsong, Mr. Wu Qinming, and Mr. Gao Ji.

The Supervisory Board has established the Executive Committee, which acts as the standing executive body of the Supervisory Board. Entrusted by the Supervisory Board, the Executive Committee examines and reflects on major issues within the company, decides on issues authorized by the Supervisory Board, and oversees their execution. In 2024, the Executive Committee of the Supervisory Board held 21 meetings.

Members of the Executive Committee of the Supervisory Board are Mr. Guo Ping, Mr. Li Jie, Ms. Chen Lifang, Mr. Yao Fuhai, Mr. Li Dafeng, Mr. Li Yingtao, and Mr. Ma Qingqing.

From the left in the first row: Mr. Ren Shulu, Mr. Yao Fuhai, Mr. Guo Ping, Mr. Li Jie, and Mr. Li Yingtao
From the left in the second row: Mr. Song Liuping, Mr. Lyu Ke, Ms. Chen Lifang, Mr. Tian Feng, Ms. Shi Yanli, Mr. Peng Zhongyang, Ms. Yang Li, Mr. Li Peng, Mr. Li Dafeng, and Mr. Ma Qingqing

Mr. Guo Ping

Chairman of the
Supervisory Board

Born in 1966, Mr. Guo holds a master's degree from Huazhong University of Science and Technology. Mr. Guo joined Huawei in 1988 and has served as R&D Project Manager, General Manager of Supply Chain, Director of Huawei Executive Office, Chief Legal Officer, President of the Business Process & IT Mgmt Dept, President of the Corporate Development Dept, Chairman and President of Huawei Device, Rotating CEO of Huawei, Chairman of the Finance Committee, Deputy Chairman of the Board of Directors, and Rotating Chairman of Huawei. Currently, Mr. Guo serves as Chairman of the Supervisory Board.

Mr. Li Jie

Deputy Chairman of
the Supervisory Board

Born in 1967, Mr. Li holds a bachelor's degree in wireless communications and a master's degree in computer image processing from Xi'an Jiaotong University. Mr. Li joined Huawei in 1992 and has served as an R&D engineer, General Manager of a representative office in China, General Manager of the Moscow Representative Office, President of the Commonwealth of Independent States Region, President of the Global Technical Sales Dept, President of the Global Technical Service Dept, President of the Human Resource Mgmt Dept, President of Huawei University, President of the Joint Committee of Regions, and President of the Corporate Leadership Mgmt Dept. From 2018 to 2022, Mr. Li held positions including Chairman of the Supervisory Board and Chairman of the Audit Committee. Currently, Mr. Li serves as Deputy Chairman of the Supervisory Board.

Ms. Chen Lifang
(Catherine Chen)

Executive Member of
the Supervisory Board

Born in 1971, Ms. Catherine Chen graduated from Northwest University in China. She joined Huawei in 1995 and has served as Chief Representative of the Beijing Representative Office, Vice President of the International Marketing Dept, Deputy Director of the Domestic Marketing Management Office, President of the Public Affairs and Communications Dept, and a member of the Board of Directors. Currently, Ms. Catherine Chen serves as an executive member of the Supervisory Board and Chairwoman of the Subsidiary Board Directors Resources Bureau.

Mr. Yao Fuhai

Executive Member of
the Supervisory Board

Born in 1968, Mr. Yao holds a bachelor's degree from University of Electronic Science and Technology of China. Mr. Yao joined Huawei in 1997 and has served as Director of the Pricing Center, Vice President of the Business Process & IT Mgmt Dept, Vice President of the Strategy Cooperation Dept, Vice President of the Global Technical Sales Dept, President of the Global Technical Service Dept, President of the Global Procurement Qualification Mgmt Dept, Chief Supply Chain Officer, Director of the Group Procurement Management Committee, a member of the Supervisory Board, and a member of the Board of Directors. Currently, Mr. Yao serves as an executive member of the Supervisory Board, Chair of the Supervisory Board Lower House, and Director of the Disciplinary and Supervisory Committee.

Mr. Li Dafeng

Executive Member of
the Supervisory Board

Born in 1966, Mr. Li holds a bachelor's degree from the Department of Radio Engineering, Changchun Institute of Posts and Telecommunications, and a master's degree in signal and information processing, Harbin Institute of Technology. Mr. Li joined Huawei in 1996 and has served as Deputy Sales Director of the Beijing Office, General Manager of the Tianjin Office, General Manager of the Shijiazhuang Office, Director of the China Telecom Account Dept, Vice President of the Eastern and Southern Africa Region, Director of the MTN Account Dept, President of the Eastern and Southern Africa Region, President of the Middle East and Africa Area, President of the Sales & Delivery Finance Mgmt Dept, and Director of the ICT Infrastructure Managing Board Office. Currently, Mr. Li serves as an executive member of the Supervisory Board and Chief Compliance Officer.

Mr. Li Yingtao

Executive Member of
the Supervisory Board

Born in 1969, Mr. Li holds a doctorate degree from Harbin Institute of Technology. Mr. Li joined Huawei in 1997 and has served as Chief of the Sweden Research Center, Director of the Product Mgmt Dept of Wireless Marketing, Director of the Research Dept of Products & Solutions, Director of the General Technology Office of Products & Solutions, President of the Central Research & Development Unit, President of the 2012 Laboratories, President of Products & Solutions, President of Network Products & Solutions, and President of Administration of the 2012 Laboratories. Currently, Mr. Li serves as an executive member of the Supervisory Board.

Mr. Ma Qingqing

Executive Member of
the Supervisory Board

Born in 1973, Mr. Ma holds a master's degree in system engineering from Northwestern Polytechnical University. Mr. Ma joined Huawei in 1997 and has served as an R&D engineer, Senior Product Manager of the Marketing & Sales Dept, Overseas Marketing Director, Director of the Human Resource Dept of Strategy & Marketing, and Director of the Consumer BG Human Resource Dept. Currently, Mr. Ma serves as an executive member of the Supervisory Board, President of the Corporate Leadership Mgmt Dept, Vice President of the Consumer BG, and Vice President of the Intelligent Automotive Solution BU.

Mr. Song Liuping

Member of the Supervisory Board

Born in 1966, Mr. Song completed his postdoctoral research at Beijing Institute of Technology in 1996. Mr. Song joined Huawei in 1996 and has served as Manager of the Product Strategy Planning Dept, Director of the IPR Dept, Director of the External Cooperation Dept, PSST member, President of the Legal Affairs Dept, President of the Patent Review Board, Director of the Trade and Customs Compliance Committee, a member of the Disciplinary and Supervisory Sub-committee of the Human Resources Committee, a member of the Platform Coordination Committee, and Chief Compliance Officer. Currently, Mr. Song serves as a member of the Supervisory Board and Chief Legal Officer.

Mr. Ren Shulu
(Steven Ren)

Member of the
Supervisory Board

Mr. Ren holds a bachelor's degree from Yunnan University. Mr. Ren joined Huawei in 1992 and has served as General Manager at the Lanzhou Office, the Guangzhou Office, and the Fuzhou Office, Director of the Customer Relationship Mgmt Dept, Director of the Internal Service Mgmt Dept, and President of the Capital Construction Mgmt Dept. Currently, Mr. Ren serves as a member of the Supervisory Board and Chief Logistics Officer.

Mr. Tian Feng

Member of the Supervisory Board

Born in 1969, Mr. Tian holds a bachelor's degree from Xidian University. Mr. Tian joined Huawei in 1995 and has served as General Manager of the Shijiazhuang Office, HR Director of the Domestic Marketing Dept, Director of the Market Finance Dept, EVP of the Middle East and Northern Africa Area, President of the Middle East Region, President of the China Region, CEO of Huawei Agisson, Vice President (Acting) of the Human Resource Mgmt Dept, EVP of Huawei University, Director of the Institute of Education of Huawei University, Director of the Disciplinary and Supervisory Sub-committee of the Human Resources Committee, an executive member of the Management Team of the Joint Committee of Regions, Director of the Subsidiary Board Directors Resources Bureau, President of the Central Asia and Russia Area, a member of the Management Team of the Corporate Leadership Mgmt Dept, a member of the Audit Committee, a member of the ICT Infrastructure Managing Board, Director of the Disciplinary and Supervisory Committee, President of the Asia Pacific Area, President of the Internal Audit Dept, and a member of the Supervisory Board. Currently, Mr. Tian serves as a member of the Supervisory Board, Director of the Audit Committee, and Deputy Chairman of the Supervisory Board Lower House.

Mr. Peng Zhongyang

Member of the
Supervisory Board

Born in 1968, Mr. Peng holds a bachelor's degree from Huazhong University of Science and Technology. Mr. Peng joined Huawei in 1997 and has served as Technical Service Engineer of the South China Area, Transmission Project Manager and Development Engineer of the Russia Representative Office, General Manager of the Yemen Representative Office, Assistant to President of the Middle East and Northern Africa Region, President of the Northern Africa Region, President of the China Region, President of the Corporate Leadership Mgmt Dept, and President of the Enterprise BG. Currently, Mr. Peng serves as a member of the Supervisory Board and the Lead of the Strategic Reserve.

Ms. Shi Yanli

Member of the
Supervisory Board

Born in 1974, Ms. Shi holds a master's degree from Central University of Finance and Economics. Ms. Shi joined Huawei in 2000 and has served as Director of the China Accounting Shared Service Center, Director of the Argentina Accounting Shared Service Center, Director of the Revenue Business Center, Director of the Accounting Solution Business Center, CFO of the West European Region, Vice President of the Accounting Mgmt Dept, President of the Accounting Mgmt Dept, and President of the Subsidiary Mgmt Dept. Currently, Ms. Shi serves as a member of the Supervisory Board and Deputy CFO of the Group Finance Mgmt Dept.

Ms. Yang Li

Member of the
Supervisory Board

Born in 1963, Ms. Yang holds a master's degree from Huazhong University of Science and Technology. Ms. Yang joined Huawei in 1998 and has served as Head of the HR Director Office, Assistant to HR Director of Sales & Services, Deputy HR Director of the Commonwealth of Independent States Area, Director of the Talent Mgmt Dept of the Human Resource Mgmt Dept, HR Director of the CEE & Nordic European Region, and Director of the HR Section of the Human Resources Committee. Currently, Ms. Yang serves as a member of the Supervisory Board, Chief Ethics & Compliance Officer, and Director of the Committee of Ethics and Compliance.

Mr. Lyu Ke
(Jack Lyu)

Member of the
Supervisory Board

Born in 1968, Mr. Lyu holds a master's degree in information and electronics engineering from Zhejiang University, and an EMBA from China Europe International Business School. Mr. Lyu joined Huawei in 1993 and has served as a software engineer, project manager, Director of the Corporate Technical Cooperation Dept, Chief Operating Officer of Huawei Technologies India Private Limited (HTIPL), HR Director of R&D, President of the Human Resource Mgmt Dept, President of Huawei University, Lead of the Strategic Reserve, President of the Corporate Leadership Mgmt Dept, and Chairman of the Corporate Advisory Committee. Currently, Mr. Lyu serves as a member of the Supervisory Board, a member of the Supervisory Board Upper House, and the Leader of the Supervisory Board Upper House Secretary Team.

Mr. Li Peng
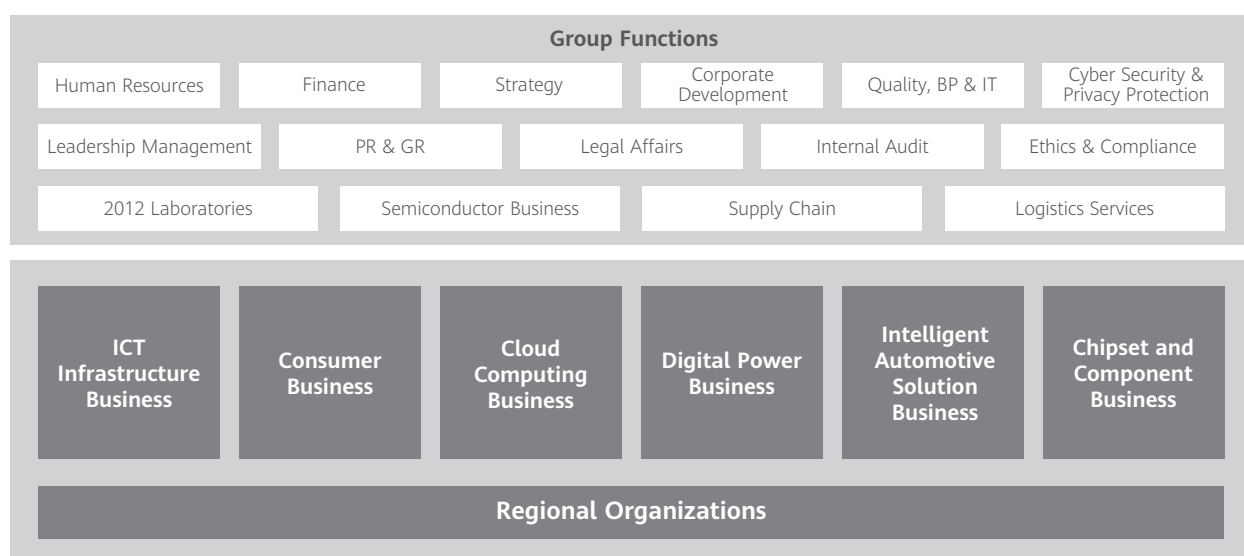
Member of the Supervisory Board

Born in 1977, Mr. Li holds a bachelor's degree from Tongji University. Mr. Li joined Huawei in 1999 and has served as General Manager of the Xi'an Representative Office, Assistant to the President of the China Region, President of the Eastern and Southern Africa Region, President of the Southern Africa Region, President of the West European Region, and President of the Carrier BG. Currently, Mr. Li serves as a member of the Supervisory Board and President of ICT Sales & Service.

Independent Auditor

An independent auditor is responsible for auditing a company's annual financial statements. In accordance with applicable accounting standards and audit procedures, the independent auditor expresses an opinion as to whether the financial statements are true and fair.

The scope of the financial audit and the annual audit results are subject to review by the Audit Committee. Any relationship or service that may potentially affect the objectivity and independence of the independent auditor must be discussed with the Audit Committee. The independent auditor may discuss any issues identified or any difficulties encountered during the course of the financial audits with the Audit Committee. KPMG has been Huawei's independent auditor since 2000.

Business Structure

Group Functions					
Human Resources	Finance	Strategy	Corporate Development	Quality, BP & IT	Cyber Security & Privacy Protection
Leadership Management	PR & GR		Legal Affairs	Internal Audit	Ethics & Compliance
2012 Laboratories	Semiconductor Business		Supply Chain		Logistics Services

ICT Infrastructure Business	Consumer Business	Cloud Computing Business	Digital Power Business	Intelligent Automotive Solution Business	Chipset and Component Business

Regional Organizations

As one of Huawei's core businesses, the ICT Infrastructure Business comprises the Carrier Business, the Enterprise Business, and ICT Infrastructure. By working on information distribution, interaction, transmission, processing, and storage, Huawei helps customers build CT and IT infrastructure with its leading, innovative products, solutions, and services.

- In the carrier market, Huawei continuously innovates with leading carriers, to explore business scenarios and verify key technologies, helping carriers constantly enhance their core digital information infrastructure capabilities and serving as an enabler of carriers' digital and intelligent transformation.

- In the enterprise market, Huawei works to build a "partner + Huawei" open cooperation system for NAs and the commercial and distribution segments. With a focus on industries' valued scenarios, Huawei works with its partners to provide integrated solutions to accelerate the digital and intelligent transformation of industries, and creates new value together with them.

- ICT Infrastructure comprises Connectivity, Computing, Data Storage, and Carrier Software and Service. In Connectivity, Huawei proactively works with industry partners to advance the development of 5.5G and build leading, innovative network infrastructure based on wireless, optical, intelligent IP, and cloud core networks, as part of the effort to continuously inject new vitality into industry development. In Computing, Huawei works alongside its partners around the world to develop digital and intelligent infrastructure ecosystems

based on Kunpeng, Ascend, and foundational software like Euler, CANN, and MindSpore, establishing the computing backbone for the digital and intelligent world. In Data Storage, Huawei proactively embraces all-flash storage and explores new applications of storage media, and builds a secure, reliable, green, and efficient storage pedestal for a rich variety of application scenarios. In Carrier Software and Service, by focusing on the entire lifecycle of ICT infrastructure, including planning, construction, network O&M, optimization, and operations, Huawei works with its partners to deliver users better service experience and facilitate customers' business success.

The Consumer Business continues to put consumers at the center of everything it does. By focusing on quality products, the Business has made key breakthroughs in HarmonyOS and AI, while remaining dedicated to creating an unparalleled intelligent experience across all scenarios and building a brand that has a human touch and is liked and trusted by consumers. The Business also works with partners to build a robust supply chain, a powerful channel retail system, and a prosperous HarmonyOS ecosystem, to ensure consumer satisfaction, partner success, and shared business success.

The Cloud Computing Business provides stable, reliable, secure, trustworthy, and innovative cloud services to customers. The Business aims to deliver Everything as a Service, accelerate intelligence, reshape industries, and build the cloud foundation for an intelligent world with ubiquitous cloud and pervasive intelligence.

The Digital Power Business offers enterprise and industry customers products and solutions like smart PV, smart charging networks, data center facility, critical power supply, and DriveONE. The Business is committed to integrating digital and power electronics technologies to provide customers with high-quality, highly-efficient, green, and low-carbon power electronics products, facilitating customers' business success.

The Intelligent Automotive Solution Business has brought Huawei's expertise in ICT to the intelligent automotive sector, providing new components for intelligent connected vehicles and helping car OEMs build better vehicles with ICT technologies.

The Chipset and Component Business provides board-level chipsets, components, and module solutions to sectors like smart devices, home appliances, and automotive electronics. It offers end-to-end technological capabilities like sensing, connectivity, computing, and display to help devices go digital, connected, intelligent, and low-carbon. Based on chipsets and components, the Business works to empower connected smart devices, enable innovations across different sectors, and help customers achieve business success.

To gradually build a shared service platform to support the development of our multiple businesses and create an anchor for corporate policy execution, the company operates a Platform Coordination Committee. This committee is designed to drive group functions to optimize their execution and operations, simplify cross-function operations, and strengthen collaboration, so that group functions will become the best service organizations available to support and promote business operations. Group functions provide business support, services, and oversight. They are positioned to offer accurate, timely, and effective services to field offices and strengthen oversight while delegating sufficient authority to them.

Improving the Internal Control System

Huawei continued to design and implement an internal control system based on its organizational structure and operating model. The internal control framework and its management system apply to all business and financial processes of the company and its subsidiaries and business units. The internal control system is based on the five components of the COSO framework: Control Environment, Risk Assessment, Control Activities, Information & Communication, and Monitoring. It also covers internal controls of financial statements to ensure their truthfulness, integrity, and accuracy.

Control Environment

A control environment is the foundation of an internal control system. Huawei is committed to a corporate culture of integrity, business ethics, and compliance with laws and regulations. Huawei has issued the BCGs to identify acceptable business conduct. The BCGs must be observed by all employees, including senior executives. Regular training programs are offered, and all employees are requested to sign the BCGs to ensure that the BCGs have been read, understood, and observed.

Huawei has implemented a mature governance structure, with clearly defined authorization and accountability mechanisms. The governance structure comprises the Board of Directors (BOD), its committees, group functions, and multi-level management teams. Huawei clearly defines the roles and responsibilities of its organizations to ensure the effective separation of authority and responsibilities as well as checks and balances through mutual oversight. The company designates a BOD Executive Committee member to act as the internal control owner. The internal control COE is responsible for overall internal control management and regularly reports its findings and proposals regarding internal controls to the company. The internal control owner guides the direction for the internal control COE and assists the COE in building the internal control environment. The internal audit department independently monitors and assesses the status of internal controls for all business operations.

Risk Assessment

Huawei has a department dedicated to internal controls and risk management to regularly assess risks to the company's global business processes. This department identifies, manages, and monitors significant risks, forecasts potential risks caused by changes to the internal and external environments, and submits risk management strategies along with risk mitigation measures for decision making. All process owners are responsible for identifying, assessing, and managing business risks and taking necessary internal control measures. Huawei has instituted a mechanism for improving internal controls and risk controls to efficiently manage critical risks.

Control Activities

Huawei has established the Global Process Management System and the Business Transformation Management System, released the global Business Process Architecture (BPA), and appointed Global Process Owners (GPOs) in line with the BPA.

Responsible for building processes and internal controls, GPOs:

- Identify key control points and the Separation of Duties Matrix for each process, and apply these to all regional offices, subsidiaries, and BUs.

- Conduct compliance tests on key control points and issue test reports to ensure the effectiveness of internal controls is continuously monitored.

- Optimize processes and internal controls based on business pain points and key requirements for financial statements. The aim is to improve operating efficiency and financial results, ensure compliance and the accuracy and reliability of financial statements, and help achieve business objectives.

- Perform annual assessments of internal controls, comprehensively assess overall process design and process execution within each business unit, and then report the results to the Audit Committee (AC).

Information & Communication

Huawei has developed multi-dimensional information and communication channels to ensure the timely acquisition of external information from customers, suppliers, and other parties. It has also created formal channels for transferring internal information, and offered an online space, the *Xinsheng Community*, for employees to freely communicate their thoughts and ideas. Corporate management holds regular meetings with departments at all levels to effectively communicate management orientation to employees and ensure effective implementation of management decisions. All business policies and processes are available on the company's Intranet.

Managers and process owners regularly organize training programs on business processes and internal controls to ensure that up-to-date information is made available to all employees. The company has established a mechanism for process owners at all levels to regularly communicate with each other, review the execution of internal controls, follow up on internal control issues, and implement improvement plans.

Monitoring

Huawei has established an internal complaint channel, an investigation mechanism, an anti-corruption mechanism, and an accountability system. The *Agreement on Honesty and Integrity* that Huawei has signed with its suppliers clearly stipulates that suppliers may report improper conduct by Huawei employees through the channels stipulated in the *Agreement* to assist the company in monitoring the integrity of its employees. The internal audit department independently assesses the overall status of the company's internal controls, investigates any suspected violations of the BCGs, and reports the audit and investigation results to the AC and senior management. Huawei has also implemented a mechanism for internal control appraisals of GPOs and regional managers, holding them accountable and pursuing impeachment when and where necessary. The AC and the CFO regularly review the company's internal control status, and listen to and review reports on action plans for improving internal controls and plan execution progress. Both have the authority to request the relevant GPOs or business executives to explain their internal control issues and take corrective actions.
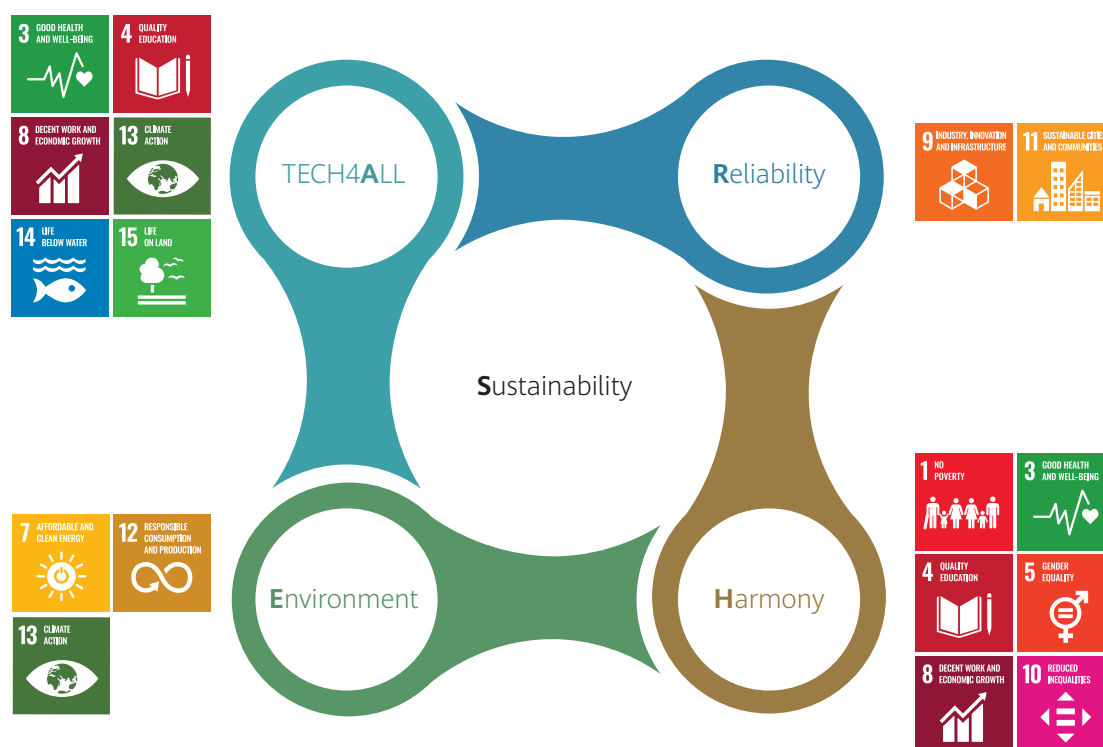
Sustainable
Development

Introduction

The UN Sustainable Development Goals (SDGs) are a universal call to action to end poverty, protect the planet, and improve the lives and prospects of everyone, everywhere. As a leading global provider of ICT infrastructure and smart devices, Huawei is committed to using technological innovation to find new solutions to the sustainability challenges facing humanity. Underlying our efforts to contribute to the achievement of the SDGs is our S.H.A.R.E. concept, which has four pillars: digital inclusion, security and trustworthiness, environmental protection, and a healthy and harmonious ecosystem.

Huawei's four sustainability strategies

Sustainability strategies and progress

Digital Inclusion

TECH4ALL: Since the launch of our TECH4ALL digital inclusion initiative in 2019, we have worked closely with global and local partners in four key areas: education, environment, health, and development. We aim to enable an inclusive and sustainable world using digital technologies.

510,000

Our TECH4ALL education programs have been implemented in more than 850 schools worldwide, benefiting over 510,000 people, with a focus on K–12 teachers and students, unemployed young people, senior citizens, and remote and rural communities.

58

Huawei's digital technologies have improved the efficiency of biodiversity conservation and the sustainable use and management of natural resources in 58 of the world's protected areas.

8 million

Our device products offer accessibility features for people with visual or hearing impairments, benefiting more than 8 million users every month.

120 million

Huawei's ICT solutions have brought over 120 million people in remote and rural areas across more than 80 countries into the digital world.

Security and Trustworthiness

Taking responsibility to build trust: Huawei guarantees that its commitment to cyber security will never be outweighed by the consideration of commercial interests, and continues to invest and remain transparent in this area. We have worked to improve our software engineering capabilities and practices, build resilient networks, develop trustworthy and high-quality products, and support stable network operations.

600
Huawei has been awarded more than 600 security and privacy certificates, giving our customers internationally recognized security assurances.

25,000
We promptly and effectively handled over 25,000 requests from personal data subjects to protect their rights.

80
We conducted over 80 internal inspections and audits worldwide to ensure that our governance system works effectively and continues to improve.

300
Huawei provided rapid response and communications support for over 300 natural disasters and major events worldwide.

Environmental Protection

Contributing to a clean, efficient, low-carbon, and circular economy: Huawei aims to continuously explore the optimal way to build a low-carbon, circular economy and develop innovative solutions that make our own value chain greener. As part of these efforts, we have integrated requirements including compliance with environmental laws and regulations, energy and resource efficiency, and environmental benefits into our business activities, such as R&D, operations, procurement, manufacturing, and supply chain.

1.4113 trillion kWh
Huawei's digital power solutions have helped customers generate 1.4113 trillion kWh of green power, driving the transition to renewable energy.

3x
The average energy efficiency of Huawei's main products in 2024 was 3 times as high as in 2019 (base year).

3 billion kWh
Huawei used more than 3 billion kWh of clean energy in its own operations.

1 million
Nearly 1 million devices have extended their lifespan through our trade-in program.

Healthy and Harmonious Ecosystem

Collaborating for the common good: Huawei is committed to operating with integrity and complying with applicable laws and regulations. We value employee development and help employees realize their full potential. We conduct sustainability due diligence on our global supply chain and actively contribute to the communities we operate in. Our goal is to work with all industry partners to build a healthy and harmonious business ecosystem.

166
We welcome talent from around the world and our employees are from 166 countries and regions.

65.5 hours
Huawei employees spent an average of 65.5 hours in training in 2024.

1.3 million
Huawei ICT Academy covers more than 110 countries and regions and has trained over 1.3 million students.

1,600
Huawei assessed the sustainability performance of more than 1,600 suppliers, which made up over 90% of our procurement spending.

2024 sustainability honors and awards

Honor/Award	Issued By
GSMA GLOMO's "Best Mobile Technology Breakthrough" award for Huawei's "0 Bit 0 Watt" solution	GSMA
GSMA GLOMO's "Outstanding Mobile Contribution to the UN SDGs" award for a TECH4ALL project designed to protect Norway's salmon	GSMA
Excellence Certificate at the World Summit on the Information Society (WSIS) for the SmartTruck project in Saudi Arabia, part of the TECH4ALL initiative	ITU
Energy Globe World Award in Category Fire for the Yancheng Low-Carbon & Smart Energy Industrial Park project	Energy Globe Foundation
Excellence Awards 2024: Excellence in innovation for people & planet – Green Network and Ocean Care to Create a Clean, Safe Environment and Wellbeing for the People of Jiangsu	TM Forum
Top Employer in Europe	Top Employers Institute
Huawei Thailand: HR Asia Best Companies to Work for in Asia	HR Asia
Huawei Vietnam: HR Asia Most Caring Company Awards	HR Asia
Eastern Africa Cybersecurity Leadership and Innovation Award	East Africa Internet Governance Forum (EAIGF)
Most Valuable Partner	UAE Cyber Security Council
Prime Minister Award – Thailand Cybersecurity Excellence Award	Thai National Cyber Security Agency

Sustainability management

Huawei has established a systematic sustainability management system based on international standards such as ISO 26000 and the *Responsible Business Alliance (RBA) Code of Conduct*. We fully consider both our internal and external environments to promptly identify and assess sustainability impacts, risks, and opportunities. We are also working to align with external regulations and pursue digital operations to continuously improve our management system. Our goal is to support the closed-loop management of our sustainability strategies, ensure operational compliance, and continuously improve stakeholder satisfaction.
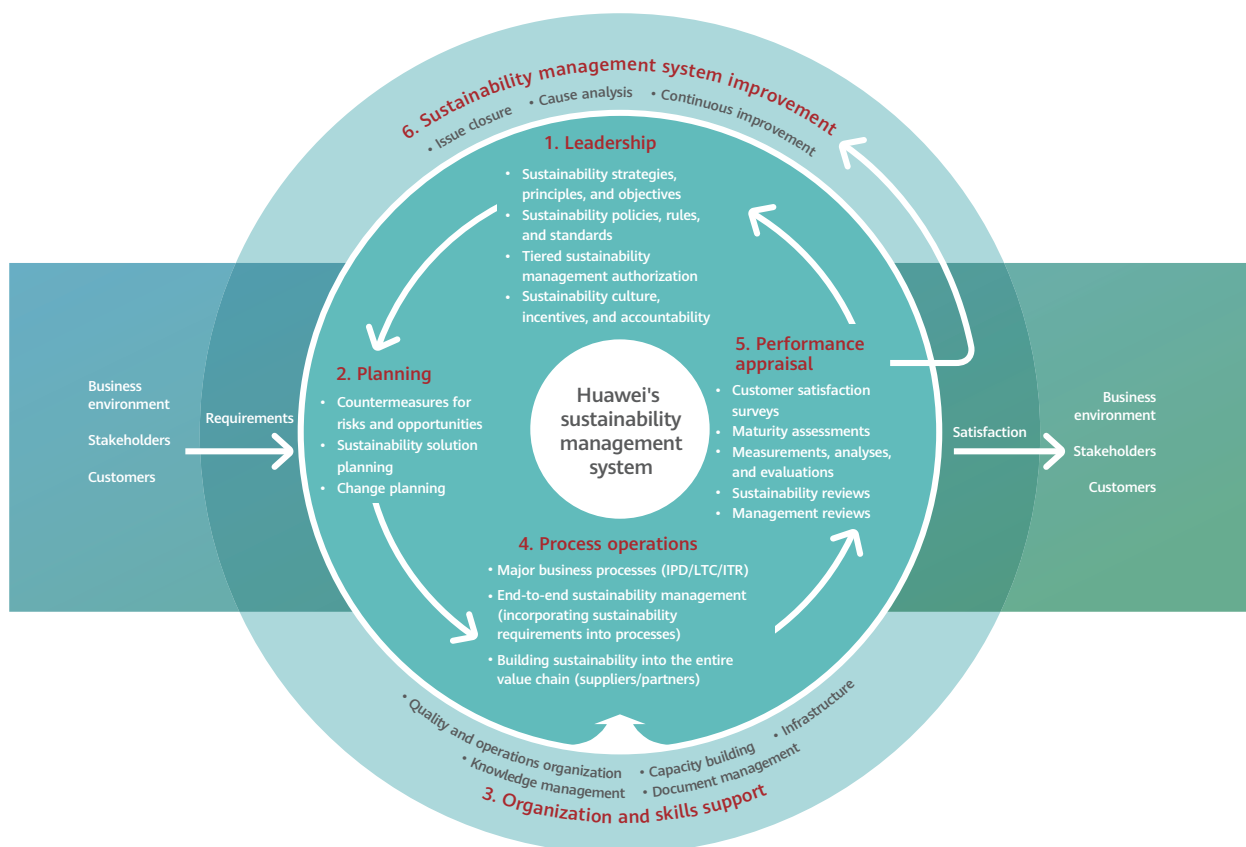
Framework of Huawei's sustainability management system

Huawei's Corporate Sustainable Development (CSD) Committee works under the authorization of the Board of Directors. The Committee develops sustainability strategies and guides the CSD sub-committees of functional domains, business domains, and regional offices as they develop sustainability goals and solutions, and monitors their implementation. The Committee meets each quarter, convenes special meetings as necessary to discuss and decide on sustainability topics, and escalates important topics to the Board of Directors for discussion and decision making. In 2024, major topics discussed by the Committee included compliance with the EU's Corporate Sustainability Reporting Directive (CSRD), plastic reduction and elimination, supplier carbon emissions management, digital carbon management, community responsibilities, and digital inclusion.

More than ten senior executives serve on the Committee, representing a wide variety of departments, including HR, manufacturing, logistics service, procurement, and R&D. Four of the current committee members are also members of the Board of Directors. The CSD Committee is chaired by Tao Jingwen, a board member and the President of the Quality, Business Process & IT Department.

We have appointed a CSD working group to support the effective operations of the CSD Committee. This working group is responsible for coordinating and implementing routine sustainability tasks, following up on the achievement of strategic sustainability goals, and preparing or providing guidance on sustainability reports.

For more details about Huawei's sustainability management, visit:
https://www.huawei.com/en/sustainability/management

Focusing on material topics

Material topic analysis is the basis for corporate sustainability governance and management. It helps us define the priorities of sustainability management. In 2024, we reviewed our material topic matrix based on applicable international standards, industry developments, and our business characteristics. Our methods included stakeholder

surveys and interviews, external consulting and insights, engagement with the media and the public, as well as internal risk assessment and strategic alignment. Following the review, we raised the priority of "cyber security and privacy protection", "supporting stable communications", and "stakeholder engagement" and incorporated "information accessibility" into "TECH4ALL".
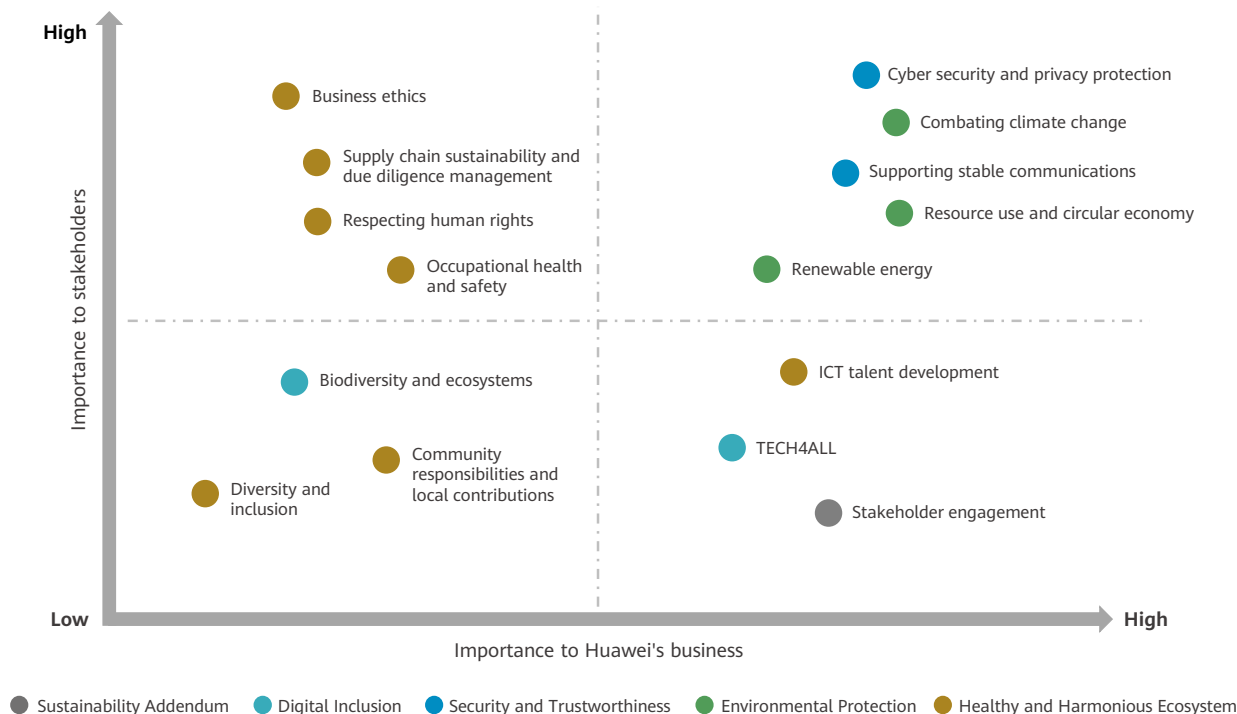
Huawei's material sustainability topics identified in 2024

Digital Inclusion

The rapid development of digital and intelligent technologies is bringing huge opportunities to individuals, communities, and industries. Since the launch of the TECH4ALL initiative in 2019, we have leveraged technologies and multi-stakeholder partnerships to make the world more inclusive and sustainable so that no one is left behind in the digital world.

To date, we have worked with more than 60 partners from around the world to implement digital inclusion projects, focusing on four areas: education, environment, health, and development. Through these efforts, we are committed to bridging the digital divide and promoting social inclusion and sustainable development.

Driving equity and quality in education

UNESCO advocates for leveraging digital technologies to support the holistic development of individuals, enhance learning outcomes, and foster education inclusion. This means we must actively steer the digital revolution in education. UNESCO Member States designated March 19 International Day for Digital Learning which was celebrated for the first time in 2024.

Huawei has continued to deepen cooperation with partners such as UNESCO, national ministries of education, non-governmental organizations (NGOs), carriers, and third-party education institutions. By leveraging digital technologies, we have worked hard to help more remote and rural areas, as well as underserved communities, gain equal access to quality education.

In support of UNESCO's initiatives for "greening education", Huawei has also been exploring how to make education greener and raise sustainability awareness among young people.

By the end of 2024, Huawei's TECH4ALL education projects had been implemented in more than 850 schools worldwide, benefiting over 510,000 people, with a focus on K–12 teachers and students, unemployed young people, senior citizens, and remote and rural communities.

Technology-enabled Open Schools for All

Strong interconnection between schools can enhance the resilience of education systems and help address challenges related to digital transformation in education. In 2020, Huawei and UNESCO jointly launched the Technology-enabled Open Schools for All (Open Schools) project, and implemented the first phase of this project alongside local ministries of education in Egypt, Ethiopia, and Ghana. Through actions such as providing digital devices, expanding network coverage, and deploying cloud-based education platforms in schools, the project aims to implement and promote a new model of open learning.

The Open Schools project introduces STEAM[1] education to pilot primary schools in Egypt.

In Egypt, the Open Schools project established the National Distance Learning Centre, helping 950,000 K–12 educators nationwide improve their distance education capabilities. In Ethiopia and Ghana, the project upgraded existing national education platforms to provide 120 digital curricula for 18,714 teachers and students in 34 pilot schools.

Following the success of the first phase, UNESCO and Huawei announced in April 2024 that the second phase of the project would be launched in Thailand, Brazil, and Egypt from 2024 to 2027.

DigiSchool in China: Improving scientific and technological literacy in rural K–12 schools

In 2021, Huawei launched the DigiSchool project in China, aiming to further integrate science and technology into rural education. The project has developed a series of inquiry-based and multidisciplinary science and technology courses based on the STEAM education approach, K–12 education curriculum guide, and cutting-edge ICT know-how and practices. The courses cover a range of fields, including sorting-robot command simulation, smart agriculture, and smart hives. Project-based learning gives rural students the opportunity to engage in cooperative and hands-on activities, while enhancing their computing capabilities.

Children are examining sorting-robot commands in class as part of the DigiSchool project.

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[1] STEAM education is a learning approach that integrates science, technology, engineering, arts, and mathematics, aiming to guide student inquiries, discussions, and problem solving in these fields.

By the end of 2024, more than 8,700 teachers and students from over 60 primary and middle schools in rural areas of Jiangxi, Ningxia, Hebei, Gansu, and Yunnan in China had benefited from this project. Our efforts have helped the teachers improve their digital literacy and inspired the students' curiosity about science and technology.

Skills on Wheels: Benefiting over 110,000 people in 20 countries

In 2019, Huawei worked with partners to launch the DigiTruck project in Kenya, providing digital training for remote and rural areas across the country. Over the past five years, we have worked with local government agencies, carriers, education institutions, and NGOs to launch Skills on Wheels projects like DigiTruck, SmartBus, and Digital Bus in multiple countries.

These projects have provided digital skills training for students, unemployed young people, remote and rural communities, and senior citizens, reaching people that are not covered by traditional classrooms or training facilities.

The DigiTruck project provides basic digital training for children in Tanzania's remote and rural areas.

In 2024, Skills on Wheels projects were implemented in Tanzania, Nigeria, Zimbabwe, Thailand, and other countries. By the end of 2024, these mobile classrooms had traveled a total of over 50,000 kilometers, benefiting more than 110,000 people across 20 countries in Africa, the Middle East, Europe, Latin America, and Asia Pacific.

Conserving nature with technology

Biodiversity is the very foundation of human survival and development. Huawei has been working with customers and partners around the world to provide smarter, more comprehensive, and more efficient monitoring and management solutions for protected areas using digital technologies.

By the end of 2024, TECH4ALL projects had improved the efficiency of biodiversity conservation and the sustainable use and management of natural resources in 58 of the world's protected areas. These projects currently cover Asia, Europe, Latin America, and Africa, protecting ecosystems such as forests, wetlands, and oceans.

Tech4Nature

In 2020, Huawei and the International Union for Conservation of Nature (IUCN) jointly launched the Tech4Nature global partnership. Through Tech4Nature, we have been working with local governments, customers, and NGOs to employ technologies such as 5G, AI, cloud computing, and IoT to protect ecosystems and endangered species in protected areas. The first phase of the initiative covered five countries: Spain, Mexico, Mauritius, Switzerland, and China. In 2024, the second phase of the initiative expanded to include Türkiye, Brazil, Kenya, and the Maldives. Through these efforts, we have continuously explored how to develop applicable digital technologies to better protect biodiversity in different environment and nature conservation scenarios.

In 2024, the Tech4Nature project in Mexico used video and audio AI algorithms to identify 60 species, including eight wild jaguars, in the country's Dzilam State Reserve.

In February 2023, another Tech4Nature project was launched in Sant Llorenç del Munt i l'Obac Natural Park, Spain. This project has used cameras to identify and protect wild Bonelli's eagles in the park. By the end of 2024, more than 30,000 activity locations and movement patterns of the eagles had been identified. This has helped park administrators better analyze and reduce the impact of human activities on Bonelli's eagles, quickly and effectively handle potential environmental risks, and take protective measures.

Norwegian river conservation: An AI-powered system helping capture invasive salmon

Since 2021, Huawei has been working with BJFF, an association of hunters and anglers in Norway, to protect the nation's native wild salmon (Atlantic salmon). This project uses an AI-powered system comprising underwater cameras and an automated gate to identify and filter out invasive salmon, while allowing native fish to continue swimming upstream to spawn. In 2024, a second tunnel for sorting was added to the system in Kongsfjord River, allowing the solution to accurately and efficiently identify and filter out large numbers of invasive salmon.

In the summer of 2024, a second tunnel for sorting was added in Kongsfjord River in the North of Norway, allowing the AI-powered system to more accurately filter out invasive salmon.

AI-powered conservation for China's white-headed langurs

The white-headed langur is a class-one state protected species in China and categorized as critically endangered on the IUCN Red List. Furthermore, white-headed langurs can only be found in the karst stone mountains of Chongzuo, Guangxi. In 2024, Huawei teamed up with the Guangxi Chongzuo White-headed Langur National Nature Reserve to pilot a smart monitoring solution. The solution uses AI to identify and analyze video clips in real time, improving both monitoring efficiency and accuracy. This solution has significantly increased data processing efficiency, and enhanced the management and scientific research capabilities of the nature reserve. By the end of 2024, the system had detected white-headed langurs more than 17,300 times, promoting smart biodiversity conservation in the nature reserve.
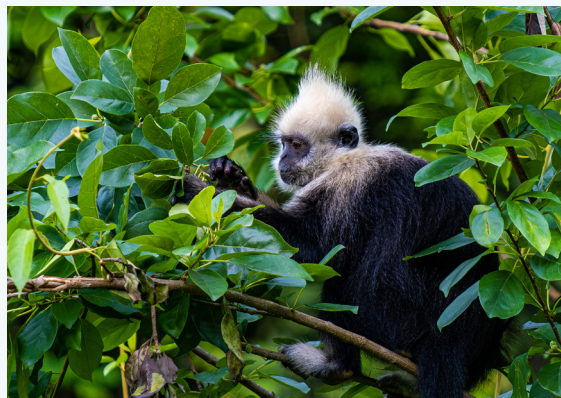
The smart monitoring solution piloted in Chongzuo, Guangxi has promoted smart biodiversity conservation in the nature reserve.

Enabling inclusive health and well-being

Huawei is committed to enabling everyone to have equal and easy access to technology and the benefits it can bring. We are working hard to bridge the digital divide and leave no one behind in the digital world. Our TECH4ALL projects in this area focus on helping senior citizens better adapt to the digital world, facilitating smooth communication for people with disabilities, and addressing the digital inequalities faced by underserved communities.

Celia Voice Enhancement: Helping people with speech disorders communicate through AI

The HarmonyOS 5 Celia Voice Enhancement feature can enhance voice clarity using an algorithm developed based on deep learning. This feature is specifically designed for people with level-3 and level-4 speech disorders. Using AI to recreate their speech, the feature can help these people more clearly and easily express themselves in daily life, giving them more confidence in fully integrating into an inclusive society.

The HarmonyOS 5 Celia Voice Enhancement feature helps users communicate more clearly and confidently in a wet market.

The accessibility features of Huawei devices, such as ScreenReader, AI Subtitle, Smart Q&A, Celia Call, and Simple mode, currently benefit more than eight million users each month, helping them easily make calls, send messages, shop, date, and learn new skills.

Driving inclusive digital development

According to the ITU, about one third of the global population remained offline in 2024, with 1.8 billion of those living in rural areas. Huawei is committed to connecting the unconnected and helping people in remote and rural areas connect with the outside world. By the end of 2024, Huawei's ICT solutions had brought over 120 million people in remote and rural areas across more than 80 countries into the digital world.

Smart Villages in Zambia: Providing digital connectivity in remote and rural areas

Muchila, situated in a remote and rural part of southern Zambia, consists of approximately 100 households, along with a school and a clinic. The village suffered persistent electricity shortages, and lacked quality Internet, education, and healthcare services.

In 2024, Huawei used its RuralStar solution to build an easy-to-deploy mobile network that provides affordable services in the village, giving villagers a reliable way to communicate with the outside world for the first time. We also helped the local school build smart classrooms to improve teaching conditions, and a solar power station was established to help address electricity shortages in the village.

In Zambia, Huawei's RuralStar solution has helped remote villages take the first step in improving lives through digital technologies. Moving forward, as digital technologies continue to evolve, they will play a bigger role in cultivating digital talent and driving economic development. As part of the government's mid- and long-term goal, Zambia will replicate the smart village project in Muchila to 100 more villages across the country to benefit more people in remote and rural areas.
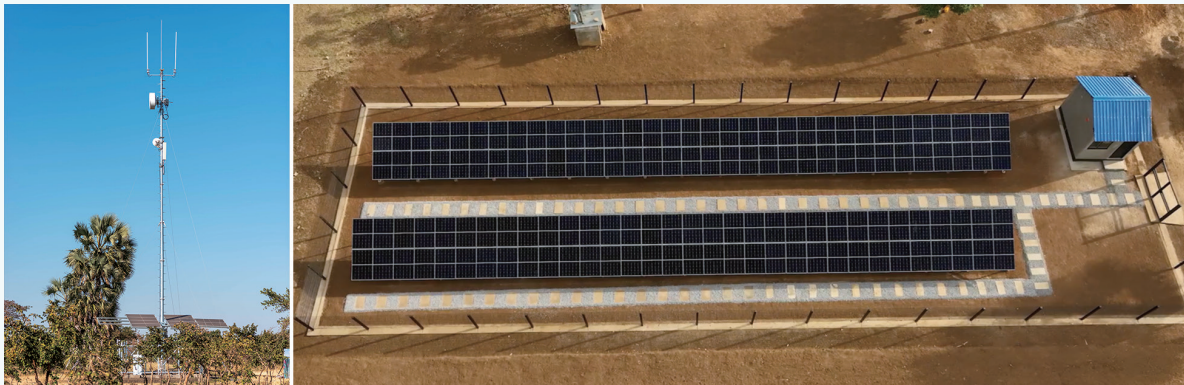
Huawei used its RuralStar solution to build an easy-to-deploy mobile network that provides affordable services in Muchila Village. The solar power station supplies electricity to the village's school, clinic, and households, lighting up the smart village.

For more information about the TECH4ALL digital inclusion initiative, visit: https://www.huawei.com/en/tech4all

Security and Trustworthiness

Over the past year, cutting-edge technologies such as AI, 5.5G, and quantum computing have accelerated digital and intelligent transformation across industries. While these advancements boost economic growth, the rapid expansion of digital assets has increased network exposure, heightening cyber security and privacy risks. Emerging technologies introduce new threat vectors, and the complexity of hardware and software supply chains continues to grow. As a result, ensuring cyber security and privacy protection remains an ongoing challenge. In addition, it is vital to ensure stable information and communications services during emergencies such as natural disasters. This is a major responsibility of Huawei as an ICT infrastructure provider.

Cyber security and privacy protection

In the past 30-plus years, Huawei has worked with carriers to build over 1,500 networks and helped millions of enterprises go digital. In addition, we have shipped tens of millions of sets of intelligent automotive components, and HarmonyOS is now running on over one billion devices. Whether for connectivity or devices, we have always maintained a solid track record in security.

At Huawei, we believe that cyber security and privacy protection are the cornerstones of the digital and intelligent world. We strive to tackle the challenges and seize the opportunities that accompany technological transformations through managerial improvement, technological innovation, and open collaboration. We work hard to hone our competitive edge in security, take concrete steps to manage related risks, and work alongside our customers, suppliers, and partners to strengthen cyber security and privacy protection capabilities. Through these actions, we are committed to creating a better life for all in the future digital and intelligent world.

Openness and transparency

Huawei remains committed to an open, collaborative, and responsible approach throughout digital and intelligent transformation. We communicate and work closely with stakeholders while offering secure and trustworthy technologies, products, solutions, and services. We also strive to comply with all applicable laws and regulations and fully respect privacy and data sovereignty. We are more than willing to work alongside all stakeholders to build a secure and trustworthy cyberspace.

Supporting stable communications

ICT networks are the cornerstone of a digital and intelligent world, and are critical to the economy, people's livelihoods, and social development. They do more than just enrich communications and day-to-day life, but are crucial for disaster relief and major event support. As an ICT infrastructure provider, Huawei's primary responsibility is to support the stable operations of customer networks and services.

In 2024, more than 6,000 of our professional engineers worked side by side with customers and partners to safeguard global ICT networks 24/7 and provide rapid support and response for over 300 major events and natural disasters.

Restoring communications services to assist rescue efforts after the severe floods in Valencia, Spain

On October 29, 2024, the city of Valencia, Spain, was hit by severe floods, resulting in bridge collapses, road closures, and the suspension of high-speed rail operations, which left many stranded.

To restore communications services and help people in the affected areas get rescued without delay, Huawei Spain Representative Office immediately activated its natural disaster contingency plan and set up a dedicated network support team.

Huawei engineers located service faults as quickly as possible, provided a fast recovery solution, and visited sites to provide support for our customers in capacity expansion and optimization. Within one week, we had helped our customers get more than 100 sites back online, restore communications services, and improve signal coverage. We provided communications support that was essential to the government's rescue operations.


Huawei reacted immediately to the severe floods in Valencia and helped recover communications services quickly.

Providing communications support for four million pilgrims during the Hajj in Saudi Arabia

In June 2024, around four million Muslims participated in the Hajj in Saudi Arabia. From a networking perspective, this means a surge of data from four million sources all at the same time. A gathering of this scale and the extreme pressure it puts on data traffic models are rarely seen anywhere in the world.

On June 11, Huawei engineers set off to Mecca to ensure the stable operations of Huawei-built wireless and microwave sites in areas along the pilgrimage route. Their first stop was a valley called Mina. Due to strict traffic controls in the valley, the engineers had to get out of the car and walk. From mobile sites on mountain peaks to those scattered around tents, they worked from dawn to dusk, checking sites one by one in temperatures that could exceed 50°C. On June 15, our engineers headed to their next destination as the sun set, despite an already busy day of work. They walked about 10 kilometers alongside millions of pilgrims to ensure network availability along the way.
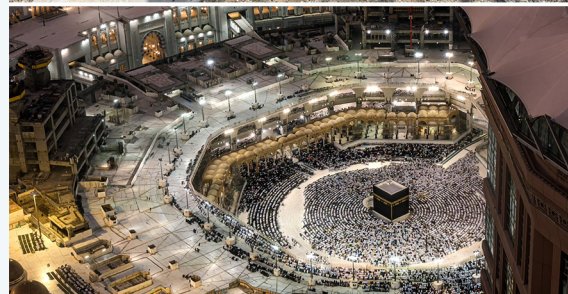
Huawei provided communications support for the Hajj.

Huawei won wide acclaim for the superior network quality and user experience we provided during the Hajj. This was the 20th year that Huawei had successfully supported the event since 2005.

Environmental Protection

We believe that scientific exploration and technological innovation are key drivers of human advancement and social development. As a leading global provider of ICT infrastructure and smart devices, Huawei works continually to address environmental challenges through technological innovation, while promoting harmonious coexistence between people and nature. Our efforts focus on three key areas: advancing energy conservation and emissions reduction, promoting renewable energy, and contributing to a circular economy.

Advancing energy conservation and emissions reduction	Promoting renewable energy	Contributing to a circular economy
We continue to take managerial and technical measures to drive green innovation and practices. We also engage with upstream and downstream partners to reduce environmental impacts and work together to build a greener supply chain. Our innovative ICT solutions can help other industries reduce their carbon emissions, and we take every responsible step possible to minimize carbon emissions.	Regarding energy consumption, we prioritize renewable and low-carbon energy in our own operations. Regarding energy supply, we are committed to integrating digital and power electronics technologies, developing clean energy, driving energy digitalization, and helping customers produce and use renewable energy more efficiently. Our ultimate goal is to facilitate energy transition and provide green power for the intelligent world.	We are moving to a less resource-intensive and more sustainable mode of development. Our actions include selecting more eco-friendly materials, minimizing the use of raw materials and single-use plastics, making products more durable and easier to disassemble, and improving our product recycling system.

Advancing energy conservation and emissions reduction

Huawei strives to reduce the carbon footprints of its products throughout their lifecycles, and advance energy conservation and emissions reduction across the board. To that end, we have integrated environmental protection requirements into our product planning, design, R&D, manufacturing, delivery, and service processes. Through ongoing technological innovation, we continuously improve the resource efficiency of our products and solutions and are helping various industries go green. In 2024, the average energy efficiency of our main products was three times as high as in 2019.

Building green networks with the "0 Bit 0 Watt" solution

Huawei and a Chinese carrier have jointly rolled out the "0 Bit 0 Watt" energy conservation solution at the equipment and network levels. This solution is an industry first in a number of ways: It allows equipment to enter super-deep dormancy and wake up immediately when needed, while increasing the shutdown ratio of equipment's radio frequency (RF) modules to 99%, the highest in the industry. It also realizes intent-driven intelligent energy saving for networks, maximizing the energy efficiency of multiple-frequency networks by applying the optimal policy to each site every time.

Huawei also helped the carrier complete the field verification of next-generation green antennas in China. These antennas have a unique cable-free architecture, eliminating the feeder loss that conventional antennas often suffer from as they typically have around 100 meters of cabling. The architecture also improves the end-to-end energy efficiency of RF systems. According to verification results, the deployment of green antennas can cut network energy consumption by 17% and reduce carbon emissions by 5.07 metric tons per site every year.

Building fast, ubiquitous, and more energy-efficient green networks for resorts

Line attenuation is a common problem seen in conventional copper networks, which results in a lot of additional power consumption. In contrast, all-optical networks have far less line attenuation as they transmit optical signals via optical fibers, and thus consume much less power. For example, in home and campus scenarios, a copper network uses about 0.03 kWh of electricity to process one terabyte of data. If we upgrade the copper network to an all-optical network, the average power consumption will fall to 0.006 kWh, which is 80% less than that of the copper network.

A real-world example of this is the deployment of the Huawei Fiber to the Office (FTTO) Solution at a European resort. The solution uses an innovative and simplified 2-layer network architecture, and replaces active aggregation switches with passive optical splitters that do not need a dedicated power supply. This has reduced the number of weak-current equipment rooms in the resort from 10 to 1, decreased the required equipment room space by 90%, and cut energy consumption from air conditioners by 60%. With this solution, the resort has cut its carbon dioxide emissions by 6,500 kg per year, the equivalent of planting 300 trees.

Promoting renewable energy

Huawei prioritizes low consumption, low pollution, and high efficiency throughout its own operations. We regularly have our energy management system certified to the ISO 50001 standard. We use clean energy (including renewable energy) wherever possible, and improve energy and resource efficiency through both technical and managerial measures. These efforts have enabled us to achieve more efficient, sustainable, and low-carbon campus operations.

Our digital power business focuses on areas like clean power generation, mobility electrification, and green ICT energy infrastructure to drive the transition to green energy and the quality development of renewable energy. By the end of 2024, our digital power solutions had helped customers generate 1.4113 trillion kWh of green power and save 81.8 billion kWh of electricity, which was equivalent to cutting carbon dioxide emissions by more than 710 million metric tons.

Helping China Three Gorges Corporation build a "Great Wall" of PV panels

China Three Gorges Corporation is currently building a wind and solar power base in the Kubuqi Desert, Ordos, Inner Mongolia. When finished, the base will have a total capacity of over 10 GW, making it the first of its kind in China. A 1-GW solar power plant, which is a pilot project for this base, has already been fully connected to the grid. The project uses Huawei's FusionSolar Smart PV Solution, which includes Huawei's smart string inverters that have system availability of over 99.99% and an IP66 protection rating. The inverters use a fully-sealed design and have no wear parts, which make them able to withstand high temperatures, dust, and other harsh environmental conditions. The project combines solar power generation with sand control to fully utilize the rich land and solar resources in the Kubuqi Desert. The installed PV panels can weaken the sun's radiation on the ground surface, and thus reduce local wind speeds and water evaporation, helping improve the local environment. By generating green power, the project is expected to help reduce carbon dioxide emissions by about 3.19 million metric tons every year.
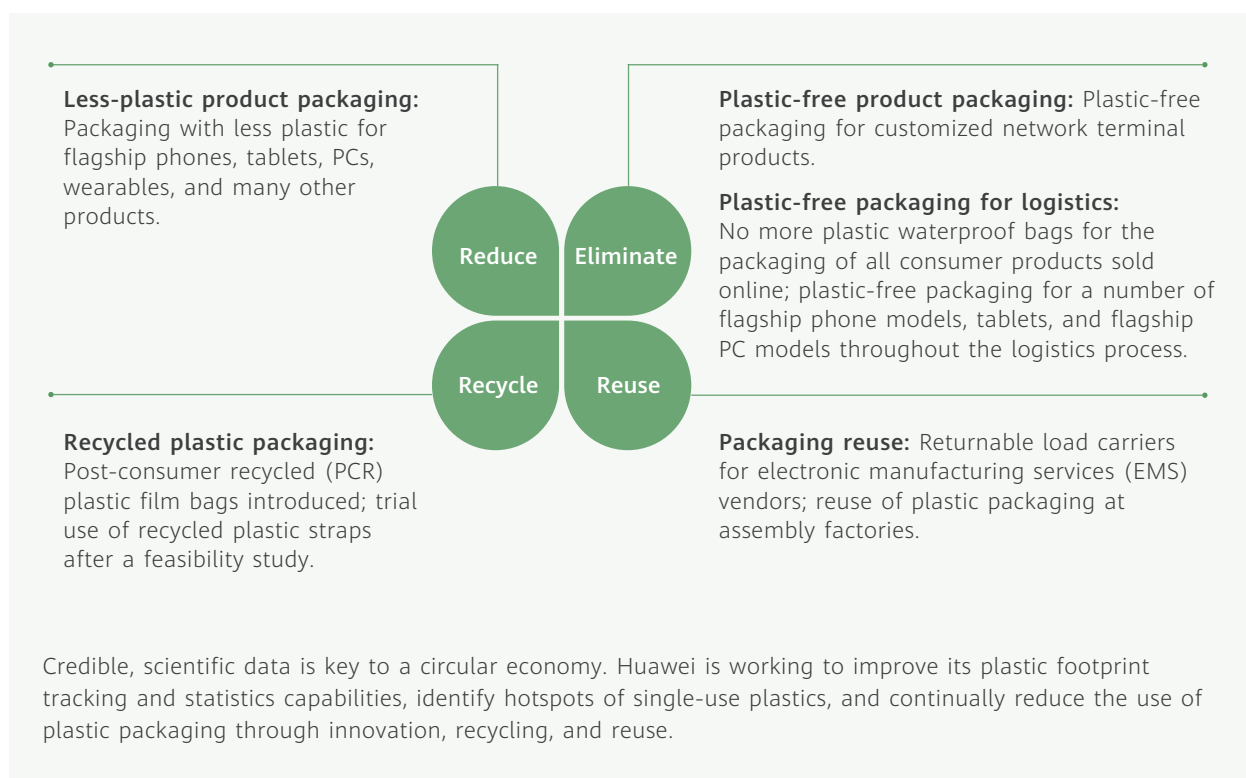
Contributing to a circular economy

Huawei is committed to building a business model that incorporates circular economy practices and a closed-loop value chain. We consistently pursue more eco-friendly materials, greener processes, more durable products, and less waste throughout our product lifecycles in order to reduce the exploitation and consumption of natural resources and protect the ecosystem.

Optimizing product packaging to promote a circular economy for plastics

In 2024, Huawei introduced a special program to reduce plastic use in packaging, helping tackle global plastic pollution. We adopted a "Reduce, Eliminate, Reuse, and Recycle" strategy to promote a circular economy for plastics. We have also made reducing and eliminating plastic packaging a quality requirement, and incorporated this into our product design, procurement, manufacturing, logistics, and campus operations processes. Furthermore, we have identified all packaging components that contain plastic, and are working with partners to explore innovative technical solutions and recycling models to further reduce the use of virgin plastic, while guaranteeing packaging reliability and material availability. We also employ methods including materials science, specification design, packaging simulation, intelligent stacking, and fulfillment model optimization to reduce or even eliminate plastic packaging for our products. In 2024, we cut the amount of plastic used in packaging by over 1,000 metric tons through a number of measures.

Less-plastic product packaging: Packaging with less plastic for flagship phones, tablets, PCs, wearables, and many other products.

Plastic-free product packaging: Plastic-free packaging for customized network terminal products.

Plastic-free packaging for logistics: No more plastic waterproof bags for the packaging of all consumer products sold online; plastic-free packaging for a number of flagship phone models, tablets, and flagship PC models throughout the logistics process.

Reduce　Eliminate

Recycle　Reuse

Recycled plastic packaging: Post-consumer recycled (PCR) plastic film bags introduced; trial use of recycled plastic straps after a feasibility study.

Packaging reuse: Returnable load carriers for electronic manufacturing services (EMS) vendors; reuse of plastic packaging at assembly factories.

Credible, scientific data is key to a circular economy. Huawei is working to improve its plastic footprint tracking and statistics capabilities, identify hotspots of single-use plastics, and continually reduce the use of plastic packaging through innovation, recycling, and reuse.

Healthy and Harmonious Ecosystem

A healthy and harmonious business ecosystem is critical to enterprise growth and social progress. Huawei takes a positive, open, and diverse approach to human resource management. We are committed to providing employees with a first-class work environment and work experience. We uphold business ethics standards and have worked for years to build a compliance management system that aligns with industry best practices. We value the sustainable development of the value chain, so we work with upstream and downstream partners to jointly create business and social value. We actively fulfill our social responsibilities through a range of initiatives that benefit local communities. These include developing ICT talent, supporting SME innovation, offering devices with accessibility features, and providing clean power solutions. Through these efforts, we are contributing to a sustainable world.

Caring for employees

At Huawei, employees are the heart of our organization. We are committed to creating a safe, healthy workplace for our employees. We continue to invest in employee benefits, and work hard to create a positive, lively, equal, and inclusive organizational climate, allowing employees to achieve a healthy work-life balance. Huawei welcomes talent from across the globe, provides them with promising career development paths, and offers a broad platform that fully empowers our employees to grow.

Huawei Thailand was honored with the HR Asia Best Companies to Work for in Asia award for the second consecutive year

Huawei Thailand is committed to fostering a diverse and vibrant workplace environment. On September 27, 2024, the subsidiary was honored with the HR Asia Best Companies to Work for in Asia award for the second consecutive year at the annual HR Asia banquet and awards ceremony in Bangkok.

HR Asia Best Companies to Work for in Asia is an esteemed award in the field of human resource management in Asia. It recognizes companies with the best HR practices and which demonstrate high levels of employee engagement and excellent workplace cultures.

Business ethics

Huawei is committed to conducting its business with integrity and conforming to business ethics standards and all applicable laws and regulations. We have worked for years to build a compliance management system that aligns with industry best practices and embed compliance management into every aspect of our business activities and processes, and these efforts continue to this day. Huawei emphasizes a culture of integrity and invests heavily to make it a reality. As such, every Huawei employee is required to strictly adhere to our *Business Conduct Guidelines.*

Supply chain responsibilities

Huawei is committed to the *UN Guiding Principles on Business and Human Rights* and is serious about the societal and environmental impact of our global procurement and supply chain. We have teamed up with customers and suppliers to further the sustainable development of our global supply chain. We have incorporated corporate social responsibility (CSR) requirements into both our Quality First strategy and activities that take place across the entire value chain. We offer premium prices to suppliers that offer higher quality in a bid to encourage them to improve their CSR performance. We have also integrated CSR requirements into our global procurement processes, from material and supplier qualification, selection, and appraisal to performance management and procurement fulfillment.

Huawei has established its procurement CSR management system based on the *OECD Due Diligence Guidance for Responsible Business Conduct* and the IPC-1401 *Corporate Social Responsibility Management System Standard.* We require all of our suppliers to comply with all applicable laws and regulations. We encourage them to adopt globally recognized industry standards and promote diversity so as to improve their own CSR management.

We have drafted the *Huawei Supplier Social Responsibility Code of Conduct* and the supplier CSR agreement in accordance with the *RBA Code of Conduct* and the *Joint Alliance for CSR (JAC) Supply Chain Sustainability Guidelines,* which must be followed by all Huawei suppliers. These documents cover labor standards, health

Procurement CSR management system

and safety, environmental protection, business ethics, and management systems. Huawei also requires its suppliers to convey the same requirements to their own suppliers. We see the use of child labor or forced labor as red-line issues, and have zero tolerance for any behavior that crosses CSR red lines. In 2024, none of our suppliers were found to have crossed any CSR red lines regarding the use of child labor or forced labor.

In accordance with the latest *RBA Code of Conduct 8.0,* we updated the *Huawei Supplier Social Responsibility Code of Conduct* and the supplier CSR agreement in 2024 to strengthen our management requirements for forced labor and due diligence.

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

Improving due diligence capabilities in procurement to keep up with customer and industry requirements

In 2024, to better meet customer and industry requirements and manage supply chain sustainability, Huawei invited a specialist third-party organization to provide training on supplier due diligence management methods for our procurement staff. This training, along with assessments and audits, has helped us develop and certify 37 "Golden Seeds" for supplier due diligence. These "Golden Seeds" will conduct supplier due diligence and provide related training to other procurement staff and suppliers in their respective domains so as to jointly improve our supply chain due diligence capabilities.

Community responsibilities

Huawei is committed to serving as an active and productive member of the communities where it operates. We actively fulfill our corporate social responsibilities, and continually innovate in digital technologies to make a positive impact. Our efforts are helping an increasing number of people access the digital world, and driving the digital transformation and sustainable development of local communities.

Singapore: Tech4City Competition winner going to the market

The Huawei Tech4City Competition aims to empower young people to innovate for a more livable and sustainable Singapore. This event in Singapore has been held for three consecutive years, garnering over one thousand participants. The team that won the 2022 grand prize with their AI sign language translation application established a startup called FingerDance and joined the Huawei Cloud Incubator program after the competition. In 2024, FingerDance and SBS Transit, a leading public transport operator in Singapore, jointly launched the AI-powered Sign Language Virtual Assistant SiLViA. This virtual avatar uses advanced AI sign language models to translate spoken or written languages into sign language. SiLViA is being trialed at the North East Line Chinatown MRT Station in Singapore, helping hard-of-hearing commuters travel independently and safely on public transport.
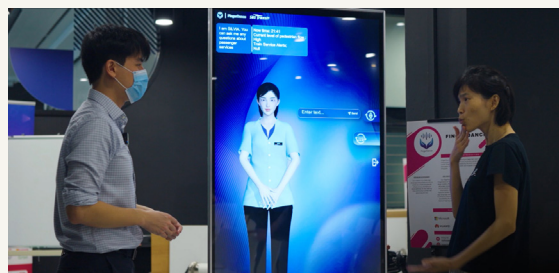
The AI-powered Sign Language Virtual Assistant SiLViA, which is being trialed at the North East Line Chinatown MRT Station in Singapore, helps hard-of-hearing commuters travel independently and safely on public transport.

Europe: Supporting SME innovation

SMEs are essential to economic development and technological innovation in Europe. In France, Huawei has been holding the Digital InPulse startup contest since 2014, through which we provide 8 to 10 winning teams with technical and financial support each year. To date, 105 startups have benefited from this program. In Italy, we launched the Founders Academy alongside a local incubator in 2024, looking to help high-potential participating startup entrepreneurs acquire new skills and technologies. In Poland, through the Huawei Startup Challenge that aims to empower young entrepreneurs, we identified a promising application called Wheelstair and supported its wider deployment. So far, this application has improved accessibility for 570,000 wheelchair users. We are also running similar programs and events in other countries such as Ireland, Spain, and Finland.

The Founders Academy launched by Huawei and a local partner helps high-potential participating startup entrepreneurs acquire new skills and technologies.

For more than a decade, Huawei has worked with over 40,000 partners worldwide to provide technical solutions and services to SMEs and share our practices and experience in digitalization. By offering technical support, expertise, and competition awards, we have already helped over 3,000 European enterprises and 4.6 million global developers accelerate digitalization and improve competitiveness.

Japan: Improving the resilience of Kuma Village with clean energy solutions

Kuma Village, located in Kyushu, Japan, was hit hard by severe floods caused by heavy rain several years ago. This ruined more than half of the village's power supply systems, with some power outages lasting for more than one month. The disaster caused the village to suffer significant economic losses, forcing many villagers to leave.

The local government therefore decided to deploy stable power supply systems across the village to make it more resilient to disasters and revitalize the local economy. Kumamura Shindenryoku Inc., the local government, and the local forest association jointly introduced Huawei's Smart PV and ESS Solution. Using the region's rich solar energy resources, the solution can provide Kuma Village with reliable power supply during emergencies like natural disasters. The solution has been first deployed in public facilities and tourist attractions, and the whole village is expected to be 100% solar powered by 2029.

Huawei's Smart PV and ESS Solution uses solar energy to provide Kuma Village with reliable power supply during emergencies, improving the village's resilience.

This project was selected as a Decarbonization Leading Area by the Ministry of Environment of Japan, and won the Solar Week 2023 Grand Prize from the Japan Photovoltaic Energy Association (JPEA). In 2024, the project was included in the *Regional Revitalization Guidebook* as an example of advanced policy.

Panama: Empowering youth with free online learning

Supported by Panama's Ministry of Education, Ayudinga Foundation runs a quality digital learning platform in Spanish based on Huawei Cloud, providing free courses for students in Panama and neighboring countries. Today, Ayudinga has become one of Latin America's major free online learning platforms, with more than 16 million users. Many volunteers jointly create learning content on the platform, and intelligent algorithms are used to push the right content to the right users.
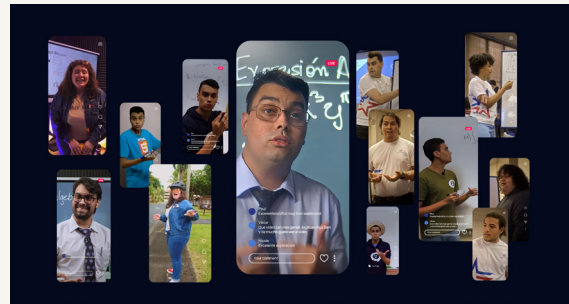
The Ayudinga online learning platform based on Huawei Cloud provides free courses for students in Panama and neighboring countries.

Madagascar: Earlier extreme weather warnings for fishermen with the Pangu-Weather Model

In Madagascar, many fishermen have lost their lives over the years due to a lack of access to early warnings for extreme weather events like hurricanes and floods.

To help prevent such tragedies, Mitao Forecast, a local non-profit organization, has used Huawei Cloud's Pangu-Weather Model to enable 10-day weather forecasts, seven days longer than those provided in the past, which gives fishermen more time to prepare.

In 2024, two tropical cyclones, Alvaro and Gamane, raged across Madagascar. Thanks to the accurate trajectory prediction provided by the Pangu-Weather Model, Mitao Forecast precisely predicted where the cyclones would make landfall and which areas would be severely affected by strong winds and heavy rain. The early warnings sent out helped many fishermen stay safe and avoid property losses.

Fishermen in Madagascar can receive extreme weather warnings earlier with Huawei Cloud's Pangu-Weather Model.

Supported by more than 3,000 seaside weatherboards, the Pangu-Weather Model fights against storms to guard the safety of fishermen in Madagascar.

ICT talent development

As digital and intelligent transformation ramps up, demand for diverse talent continues to grow. Huawei works closely with universities, academic associations, and research institutes to cultivate digital talent that possesses global perspectives, hands-on experience, and capabilities to engage in interdisciplinary innovation. Through diverse initiatives such as partnerships with universities, intensive training, technology competitions, and developer activities, we strive to create a sustainable pipeline of skilled professionals for a digital and intelligent future.

Huawei ICT Academy: Cultivating new talent with strong technical skills and hands-on experience

At Huawei, we believe it is important to develop talent with strong technical skills and hands-on experience. We therefore work hard to enable teachers, students, industry professionals, and lifelong learners. We aim to cultivate high-caliber, interdisciplinary talent that possesses digital and intelligent skills who will promote enterprise innovation and drive the industry forward, and thus develop the workforce needed for the new era.

With this goal in mind, we have worked alongside more than 3,000 colleges and universities in over 110 countries and regions to train more than 1.3 million students through the Huawei ICT Academy. We also hold the Huawei ICT Competition, providing an international platform for university students to compete and share ideas. The Huawei ICT Academy and Huawei ICT Competition have both been listed as key partner flagship programs by UNESCO's Global Skills Academy.

We also provide Huawei ICT Academy instructors and students with general courses, professional courses, and certification courses that allow them to stay up to date with the latest technology trends and industry applications. By the end of 2024, Huawei had released 76 online courses for university partners, all of which can be accessed through Huawei Talent, our online learning platform. These courses are available to users from more than 170 countries and regions, and we constantly refine them as part of our commitment to a thriving talent ecosystem.

Huawei ICT Competition 2023–2024 Global Final Closing & Award Ceremony

Huawei Developer Advocate Program and Huawei AI 100 Schools Plan: Connecting industry and academia and empowering cutting-edge research and innovation at universities

Since June 2024, Huawei has launched the Huawei Developer Advocate Program and the Huawei AI 100 Schools Plan. These initiatives primarily target universities and are designed to integrate Huawei's industry know-how and technical expertise into universities' talent development systems. As part of these initiatives, Huawei provides computing power to and shares state-of-the-art technologies with universities, aiming to facilitate the sharing of results and best practices from industry-academia partnerships.

The Huawei Developer Advocate Program focuses on fostering a sound developer ecosystem. As part of this program, we organize activities such as Developer Advocate live broadcasts and technical salons to facilitate deeper engagement with developers within Huawei's technology ecosystem. By the end of 2024, the program had certified over 240 Developer Advocates across eight specialized fields, including Huawei Cloud, Kunpeng, Ascend, HarmonyOS, HiSilicon, and Cangjie. Under the Huawei AI 100 Schools Plan, we provide universities with computing power to support their scientific research and talent cultivation in the field of AI. By the end of 2024, 61 AI projects from 33 universities had received computing power support from Huawei.

In November 2024, the Huawei Developer Advocate Salon was held in Xi'an, China, bringing together more than 200 university faculty members and students from the city and surrounding areas. The event provided a platform for sharing experience and exchanging ideas regarding curriculum reforms, competitions, and achievements of industry-academia projects.

Technology competitions: Empowering young innovators to push the boundaries of technology and spark new ideas

Technology competitions act as incubators where enterprises, universities, and wider society can collaborate to nurture future digital talent. Such competitions give young people the opportunity to deal with real-world industry challenges and explore the latest cutting-edge technologies. Huawei continues to open up its resources and build platforms by sponsoring scientific and technological competitions organized by academic associations, top universities, and renowned international competition organizers. Through such efforts, we strengthen our partnerships with universities and academic associations and jointly develop the next generation of technology leaders.

The 2024 ICPC Challenge Championship powered by Huawei was held in Shenzhen, China, with over 90 outstanding coaches and contestants from 35 countries and regions participating in person.

In 2024, Huawei deepened its collaboration with academic associations worldwide in a bid to push the frontiers of technology, contribute industry know-how, and upskill young talent. By sponsoring competitions, such as the European Conference on Computer Vision (ECCV), and sharing research topics, Huawei contributed more than 80 industry challenges and attracted over 1,000 talented participants from academia.

Since 2017, Huawei has been a steadfast supporter of numerous international competitions, including the International Collegiate Programming Contest (ICPC) and the International Mathematics Competition (IMC). Our involvement includes sponsorships and the provision of challenges, expert-led lectures, and bootcamps. Additionally, we co-organize challenges that give students worldwide the opportunity to enhance their technical knowledge and gain hands-on industry experience through competition and the exchange of ideas. Over the past year, Huawei has contributed 87 software algorithm challenges to world-renowned competitions such as ICPC and IMC, attracting more than 150,000 participants globally.

Chaspark: Pooling global wisdom for a thriving science and technology ecosystem

Chaspark is a technology website designed to facilitate global academic and technical exchanges. It brings together researchers, technical experts, and academic talent to create an engaging platform for connecting and sharing ideas. Since its launch about three years ago, the website has seen significant growth, with its user base surpassing 800,000 in 2024. The website now hosts extensive resources that provide its users with comprehensive services.

With access to more than 190 million patent records free of charge, over 40,000 trending academic topics and research papers, and more than 8,000 academic conferences available online, Chaspark keeps researchers informed of the latest academic advancements and helps them develop a strong knowledge base.

More than 570 industry challenges have been published on the website, and talented individuals are invited to contribute their solutions. Notably, more than 30,000 students have contributed solutions to over 300 challenges and participated in nearly 50 international technology competitions. The competitions themselves have been crucial for identifying innovative talent, providing them with a stage to showcase their skills and fueling their passion for scientific and technological exploration.

Chaspark provides over 200 carefully-curated online courses that cover topics including mathematics, AI, and open source technologies. These resources enable users to systematically grow their expertise and continuously hone their skills.

The "Chaspark with Master" program has conducted over 40 video interviews with top scientists, helping build bridges between users and academic luminaries. These sessions provide firsthand exposure to cutting-edge academic ideas and broaden users' knowledge base and perspectives.

Chaspark serves as a dynamic platform through which young scholars can showcase their talent, pursue their ambitions, and access a wealth of academic resources to advance their growth in science and technology.

Chaspark website: https://www.chaspark.com

As part of the "Chaspark with Master" program, distinguished experts, including Fields medalists, mathematics professors from top universities, Sophie Germain Prize winners, and Huawei scientists, have been invited to discuss how mathematics and engineering practices can be combined to spur innovation.

Developer competitions: Working with developers to nurture foundational technology ecosystems

As a premier ecosystem development platform, the Huawei Developer Competition is our flagship event for global developers (including those from universities and enterprises and individual developers) across multiple fields. Since its launch in 2017, the event has attracted 800,000 developers from over 3,000 universities in more than 50 countries. Themed "Spark Infinity", the competition features diverse tracks, including algorithms, programming, and applications, providing participants with access to Huawei's ICT solutions and practical experience. Through this event, we aim to help participants acquire essential knowledge and skills while fostering industry-academia collaboration. We also look to drive innovation, find new solutions to real-world problems, and incubate startups that create real social value. Using Huawei's platforms, computing power, and data, the competition supports AI talent development and helps developers and Huawei jointly build thriving foundational technology ecosystems, such as Kunpeng, Ascend, HarmonyOS, and cloud-native ecosystems.

16 teams from China competing for the championship at the Huawei Dongguan campus during the 2024 Huawei Developer Competition (University Track) Final.

The HarmonyOS Developer Contest, also known as the HarmonyOS Innovation Contest, encourages developers to innovate based on the latest HarmonyOS technologies and develop cross-device HarmonyOS applications and atomic services that can offer brand-new interactive experiences and provide consumers with a more secure, smooth, and intelligent service experience. Since its launch in 2019, over 50,000 applicants have signed up for the contest, generating more than 10,000 innovative solutions. Furthermore, Huawei has provided these developers with rewards worth more than CNY35 million in total.

The HarmonyOS Innovation Contest 2024 attracted more than 5,000 developers across China, with 29 teams standing out for their HarmonyOS applications. This image shows contestants commissioning their solutions in the final.

Seeds for the Future: Intensive training and outstanding alumni's digital trip in China

Launched in 2008, Huawei's Seeds for the Future program takes many different forms, including short-term intensive training, global competitions, and alumni reunions. The program aims to develop the digital talent required by the intelligent world and nurture local digital communities.

In 2024, the program was held in Europe, the Middle East & Central Asia, Latin America, Asia Pacific, and Africa, with short-term intensive training sessions taking place in Rome, Agadir, San Salvador, Nanning, Tashkent, and Shenzhen. During these events, young people from around the world had in-depth discussions with local carriers, international organizations, and start-up entrepreneurs. They were also invited to workshops on topics like green and digital development in the 21st century, AI, and career planning. This greatly expanded their vision regarding both their careers and what is possible with technology.

In 2024, the program invited more than 150 outstanding alumni to embark on a digital trip in China. This trip included activities like knowledge transfers (e.g., ICT training), field visits (e.g., visits to industry 5G showcases), and visits to leading tech companies. These alumni also had the chance to attend large international events, such as MWC Shanghai and the China-ASEAN Expo, allowing them to better understand the real-world applications and future trends of digital technologies.

In June 2024, outstanding Seeds for the Future alumni from the Middle East & Central Asia, Latin America, and Southern Africa visited the Caohejing Hi-Tech Park in Shanghai, where they interacted with a humanoid robot that can speak more than 20 languages.

Respecting Human Rights

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

Huawei is committed to adhering to all applicable international conventions and national laws and policies, and respects all basic human rights as promoted by the *Universal Declaration of Human Rights*. We develop products and services in compliance with international standards and certifications. We strive to prevent our business activities from causing or contributing to any adverse impacts on human rights. Huawei has been a member of the United Nations Global Compact (UNGC) since 2004, and a member of the Responsible Business Alliance (RBA) since 2018. In addition, Huawei is committed to the *UN Guiding Principles on Business and Human Rights* (UNGPs) and standards released by the International Labour Organization.

Key areas

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

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

- **Protecting privacy:** Huawei attaches great importance to privacy protection, and we take our responsibilities seriously. We are committed to complying with applicable privacy laws worldwide, including China's *Personal Information Protection Law* and the EU's *General Data Protection Regulation* (GDPR). Huawei has

embedded privacy protection requirements into our corporate governance and every phase of our personal data processing lifecycle. We follow the principles of privacy and security by design and by default and conduct privacy impact assessments before the release of any product or service, paying careful attention to sensitive personal data and sensitive usage. Huawei also requires its suppliers to comply with requirements for personal data protection. In addition, Huawei requires all of its employees to receive privacy training to enhance their understanding of the domain.

- **Safeguarding labor rights:** Huawei supports and protects the rights of its employees through detailed, equitable regulations that cover all stages of an employee's relationship with the company, including recruitment, employment, and exit. We are committed to providing equal opportunities to all employees. When it comes to employee recruitment, promotion, and compensation, we do not discriminate against anyone on the basis of race, religion, gender, sexual orientation, nationality, age, or disability. We prohibit all use of forced labor, whether overt or covert, and all use of child labor.

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

Respecting human rights has been a long-standing focus for Huawei. While remaining committed to observing applicable laws, regulations, and standards, we actively communicate with international organizations, governments, and industry institutions to develop human rights standards and guidelines for the use of new technologies. At the same time, we will continue to optimize management mechanisms and work with our suppliers, partners, and customers to promptly identify, manage, and mitigate any human rights risks or adverse impacts.

For more details about sustainability at Huawei, visit the Sustainability Addendum at:
https://www.huawei.com/en/sustainability/sustainability-report

or scan the QR code:

Abbreviations, Financial Terminology, and Exchange Rates

Abbreviation	Full Name
3GPP	3rd Generation Partnership Project
AI	Artificial Intelligence
BCGs	Business Conduct Guidelines
BG	Business Group
CAGR	Compound Annual Growth Rate
CANN	Compute Architecture for Neural Networks
CFO	Chief Financial Officer
CSD	Corporate Sustainable Development
CSR	Corporate Social Responsibility
DC	Data Center
DOU	Dataflow of Usage
ESS	Energy Storage System
FVOCI	Fair Value Through Other Comprehensive Income
FVPL	Fair Value Through Profit or Loss
FWA	Fixed Wireless Access
GSMA	Global System for Mobile Communications Association
HD	High Definition
HDR	High Dynamic Range
HIMA	Harmony Intelligent Mobility Alliance
IAS	International Accounting Standards
ICPC	International Collegiate Programming Contest
ICT	Information and Communications Technology
IEC	International Electrotechnical Commission
IFRS	International Financial Reporting Standards

Abbreviation	Full Name
IoT	Internet of Things
IP	Internet Protocol
IPD	Integrated Product Development
ISO	International Organization for Standardization
ISP	Internet Service Provider
ITR	Issue to Resolution
ITU	International Telecommunication Union
LTC	Lead to Cash
MIMO	Multiple-Input Multiple-Output
NEV	New Electric Vehicle
NGO	Non-Governmental Organization
O&M	Operations and Maintenance
OEM	Original Equipment Manufacturer
OS	Operating System
PC	Personal Computer
POB	Performance Obligation
PON	Passive Optical Network
PV	Photovoltaics
R&D	Research and Development
RF	Radio Frequency
SASE	Secure Access Service Edge
SME	Small- and Medium-sized Enterprise
SSP	Stand-alone Selling Price
SUV	Sport Utility Vehicle
TWS	True Wireless Stereo
WAN	Wide Area Network

Financial Terminology

Operating profit

Gross profit less research and development expenses, selling and administrative expenses, plus other (expenses)/income, net

Cash and short-term investments

Cash and cash equivalents plus other current investments

Working capital

Current assets less current liabilities

Liability ratio

Total liabilities expressed as a percentage of total assets

Cash flow before change in operating assets and liabilities

Net profit plus depreciation, amortization, impairment, exchange loss, interest expense, loss on disposal of property, plant and equipment and intangible assets, and other non-operating expense, less exchange gain, investment income, gain on disposal of property, plant and equipment and intangible assets, and other non-operating income

Exchange Rates

CNY/USD	2024	2023
Average rate	7.1942	7.0884
Closing rate	7.2957	7.0808

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