GSMA

# Mobile AI Era: a paradigm shift

The speed of technological change is often faster than people think.

ChatGPT launched just over three years ago in November 2022, and even more recently China fully commercialised 5G-A in 2024. In this small space of time, with the significant acceleration of 5G-A and the explosive growth of mobile AI terminals, **a brand-new era has begun – the Mobile AI Era.**

Market data confirms the speed of this new trend. **In 2024, China's AI phone shipments surged by 591% year-on-year, with the penetration rate jumping from 3% the previous year to 22%.** In the first quarter of 2025, AI phone shipments surpassed traditional smartphones for the first time, marking an industry turning point that arrived faster than anyone imagined.

Behind this dramatically quick adoption is the historical convergence of two major technologies: mobile communication and AI. This is enabling a leap from **"connecting everything" to "understanding everything".**

The inaugural year of 5G-A commercial use and the year mobile terminals became AI-driven happened simultaneously in 2024, as the mobile industry officially transitioned from the **“Connectivity Era” to the “Intelligent Era”.** IDC predicted that in 2025, global shipments of smartphones supporting generative AI would exceed 370 million units, accounting for 30% of market share. It is expected that by 2029, this proportion will exceed 70%[1].

On this trillion-level track, mobile AI terminals are becoming the most important devices for mobile network operators. This isn't simply referring to AI phones but other intelligent devices equipped with networking and computing capabilities that can be used on the move. Such as AI glasses, smart cars, robots, AI toys, etc. A new era of AI - driven mobile intelligence is accelerating.

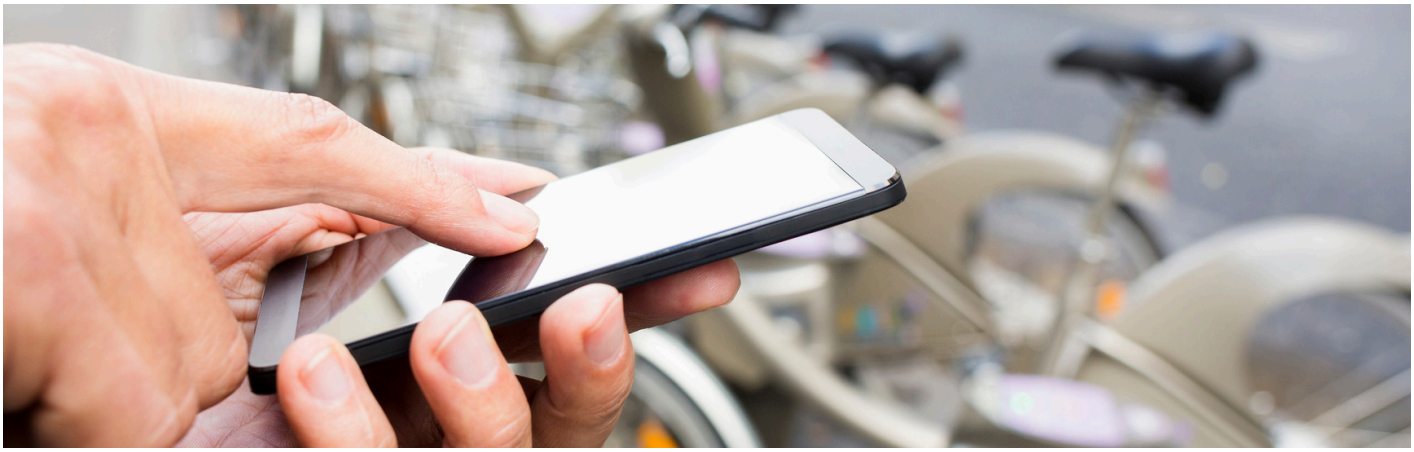
# Mobile AI:
# a new technological paradigm

Mobile AI refers to a technological paradigm that uses mobile AI terminals to achieve the ubiquity and real-time capabilities of AI, supported by mobile networks. [2]. Unlike the traditional mobile internet era's simple “connectivity”, **the mobile AI era has achieved a deep integration of “connectivity and intelligence”.** Its core features are reflected in three dimensions: **intelligent processing through end-cloud collaboration, multi-modal interaction methods** and proactive services based on intent recognition.

Connectivity is the bridge, intelligence is the driving force.

Huawei's Executive Director, Wang Tao, pointed out in his MWC24 Shanghai keynote that the era of mobile AI will bring significant changes to three areas: **human-computer interaction, content production and mobile terminals**[3].

The underlying reason for this transformation is that AI technology has evolved from a **“tool attribute” to a “fundamental capability”**, shifting from an auxiliary function to the core driving force of operating systems and application ecosystems.



# Foundation of technology: 5G-A and cloud-network-edge-end collaboration.

The arrival of the AI Mobile Era is not accidental - it's built on a solid foundation of technological evolution. 5G-A has laid the information superhighway, while AI is the first self-driving car on the road.

In June 2024, the 3GPP Release 18 standard was officially frozen, marking the entry of 5G-A onto the commercial stage. 5G-A, as an enhanced version of 5G, offers uplink speeds of gigabits and downlink speeds of tens of gigabits, **increasing the rate by 10 times compared to 5G -** providing large bandwidth, low latency and high reliability network support for AI applications.

At the same time, the leap in performance of mobile terminal chips has laid the computational foundation for edge-side AI. Qualcomm Snapdragon 8 Elite and MediaTek Dimensity 9500 flagship chips integrate dedicated Neural Network Processing Units (NPU), enabling large model inference to be completed collaboratively both locally and in the cloud, ensuring real-time performance and addressing privacy and security issues.

**“Cloud-network-edge-device” collaborative architecture has become the technical standard in the Mobile AI Era.**

This is not a simple aggregation of technology, but rather the natural form of computing power following the flow of data, optimising overall performance by allocating computing tasks to the most suitable levels. End devices handle data collection and immediate response, edge nodes complete rapid inference and regional decision making, 5G networks provide low-latency connectivity and the cloud conducts model training and global optimisation.

Taking autonomous driving as an example: in-vehicle sensors collect road condition data in real-time and complete emergency obstacle avoidance decisions within 100 milliseconds. Roadside equipment integrates multi-vehicle data to warn of dangerous road sections. 5G networks transmit collaborative information, while the cloud analyses city-wide traffic patterns and optimises route planning algorithms.

This full-chain computing power deployment from data centres to edge nodes and then to mobile terminals, allows AI services to be flexibly scheduled according to scenario requirements - **heavy tasks are processed in the cloud, while lightweight tasks are completed on the terminal side.** When computing power becomes as readily available as electricity, artificial intelligence will be like air: invisible yet ubiquitous, imperceptible yet indispensable.

# Five major platforms: the diversified evolution of smart terminals

## 01 Platform for the popularisation of personalised intelligence: the AI mobile phone

As the most widespread mobile computing platform, smartphones integrating large model capabilities are becoming personalised, all-weather personal assistants. Mobile phones will no longer be cold tools, but rather digital organs evolved outside the body.

They will understand you better than you do and love you more than you do.

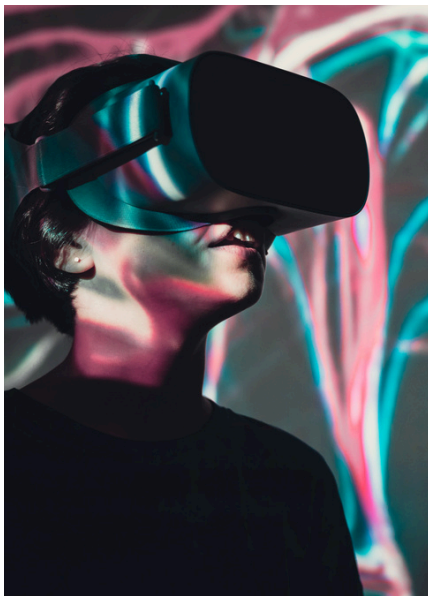
**In the year 2024, defined by the industry as the "first year of the AI smartphone",** leading manufacturers such as Huawei, Xiaomi, OPPO and vivo launched smartphones with deeply integrated generative AI.

Huawei deeply integrated the Pangu Big Model into its HarmonyOS ecosystem to enable functions such as AI image cutout, document summarisation and intelligent search on mobile devices. Xiaomi's Surge OS integrated its self-developed Big Model to enhance the dialogue and creation capabilities of Xiao Ai (Xiaomi's AI assistant). The popularity of Doubao Mobile Assistant in 2025 revealed the new user demands and business models of the intelligent era.

According to Counterpoint's forecast, **in 2025 the global AI smartphone penetration rate will increase from 2024 's 20% to 33%, with shipments approaching 400 million units**[4].

## 02 Interactive gateway to a new lifestyle: smart glasses

Smart glasses are moving from concept to reality, becoming an important device for AI in the field of Augmented Reality (AR). Glasses are no longer just tools for vision correction but filters for the real world, through which we see a new one.



IDC predicts that by 2025, **the total shipments of AR/VR headsets and screenless smart glasses worldwide will increase by 39.2%, reaching 14.3 million units.** With the emergence of more brands, channels and products, hardware shipments will reach 43.1 million units in 2029. [5] .

At CES (Consumer Electronics Show) in January 2026, Chinese manufacturers such as Rokid, Xrealand Mo Jie (Meta-Bounds) showcased several lightweight AI and AR glasses products. Moji's 25 - gram ultralight AR glasses won the CES Global Innovation Award, enabling real-time translation, AR navigation, and other functions. Rokid 's $ 299 AI glasses integrate a camera, microphone and speaker,

supporting multiple AI engines such as ChatGPT and DeepSeek. Xreal 's R1 gaming glasses, developed in collaboration with ASUS ROG, can project a 171- inch virtual screen with a 240Hz refresh rate.

In the B-end application scenarios, such as industrial remote expert guidance, medical surgery assistance and on-site service support, smart glasses are being deployed on a large scale. They enable on-site technicians to connect with remote experts **in real time**, using first-person-view video collaboration to solve complex issues, reducing repair response time from days to minutes, effectively bridging the skills gap in the manufacturing and field service sectors.

## 03 The intelligent hub of mobile space: smart cars

As an "intelligent mobile space", smart cars will integrate environmental perception and on-board computing power, becoming the core nodes of autonomous driving, intelligent cockpits and vehicle-road collaboration.

Compared to traditional cars, smart cars possess **real-time perception and decision-making capabilities** (millisecond-level danger warning and autonomous obstacle avoidance), **personalised learning capabilities** (adaptive driving preferences and cabin environment), **multi-device collaboration capabilities** (seamless interconnection between car-home-phone), **predictive maintenance capabilities** (early fault diagnosis to reduce maintenance costs) and **continuous evolution capabilities** (OTA remote upgrades to achieve function iteration).

**In terms of the full-stack technology route,** Huawei offers a complete solution from the intelligent driving computing platform (MDC) and the HarmonyOS intelligent cockpit (HarmonyOS Cockpit) to vehicle cloud services. The HarmonyOS cockpit L3 system has served over 1.34 million users, achieving seamless coordination between car-home-phone through distributed technology, supporting scenarios such as cross-device scheduling with a voice assistant and remote vehicle preheating.

**In 2024, BYD released their intelligent vehicle architecture strategy,** “Whole Vehicle Intelligence”, launching the Xuanzhi architecture as the vehicle's “brain and neural networks”, achieving millisecond-level environmental perception and decision making. At the same time, the world's first in-car dual-cycle multimodal AI, Xuanji AI Large Model, was released, based on massive data and computing power covering more than 300 driving scenarios to enable continuous evolution of vehicle intelligence.

**The standardisation progress of the network layer is equally crucial for the transformation to smart cars.** GSMA Open Gateway provides automotive APIs to provide continuous services across network boundaries, quality assurance (QoD) and edge computing capabilities for smart vehicles, ensuring low latency and high reliability for vehicle network applications.

## 04 The physical pioneer of industrial intelligence: embodied intelligence

Embodied intelligence is moving from the laboratory to industrial applications at an unexpectedly rapid pace. When large models step out of the cloud and don mechanical attire, artificial intelligence begins to touch the world with its fingertips. **This marks a crucial leap from silicon-based intelligence to carbon-silicon symbiosis.**

The so-called embodied intelligence refers to intelligent systems that possess a physical form and can perceive, act and interact in real environments. It deeply integrates the cognitive abilities of large models with mechanical bodies, sensors and actuators, forming an integrated robotic form that “can see, hear, move and think”. Morgan Stanley predicts that by 2050, the humanoid robot market will reach 5 trillion dollars, becoming the next super platform after smartphones.

From 2B to 2C, embodied intelligence is forming differentiated paths. **In the 2B sector,** the focus is on enhancing efficiency and safety, such as industrial robots, inspection robots, logistics robots and security patrol robots. **In the 2C sector,** there is more emphasis on interactive experience and service capability, including home service robots, companion robots, educational and rehabilitation training robots.

## 05 Intelligent companion for emotional interaction: AI toys

AI toys are becoming the warmest application scenario in the mobile AI field, deeply integrating the cognitive abilities of large models with psychology and affective computing to create "silicon-based companions" with long-term memory, personality development and emotional feedback capabilities.

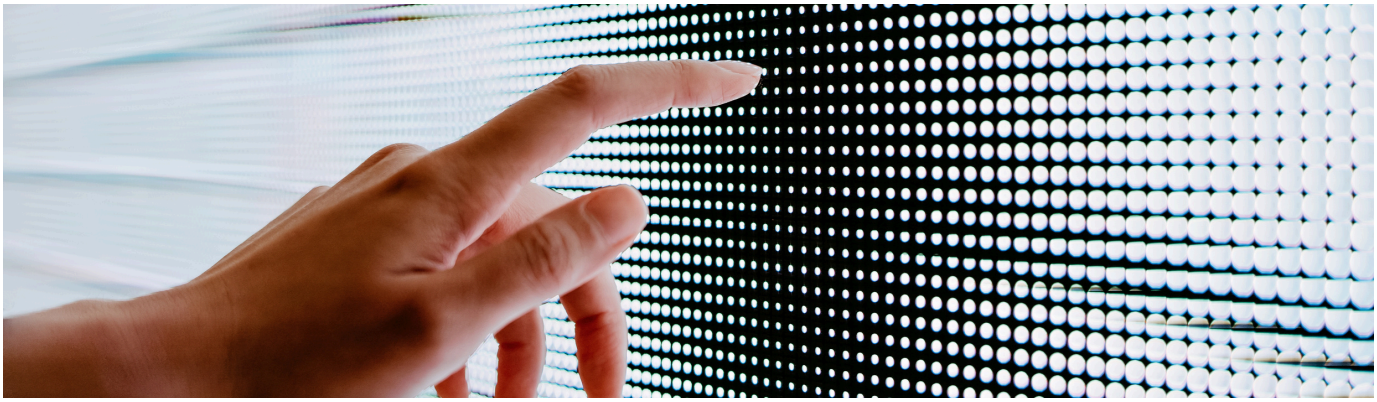
Unlike the passive response of smart speakers, the new generation of AI toys, such as Haivivi's BubblePal, achieve **multimodal emotional interaction** (voice recognition, emotion recognition, micro-expression capture, tactile feedback, etc.), **continuous personality development** (remembering user preferences, story progress and emotional states to form a unique "character" or "personality"), and **educational content generation** ( can dynamically adjust story difficulty and knowledge density) through the collaboration of edge models and cloud-based large models.

In an era of excess computing power, AI toys teach us the most valuable lesson: the stronger the technology, the more gentleness is needed. This is, perhaps, the best lesson from silicon-based life to carbon-based life: not to replace, but to accompany, to grow together and never to abandon.

In addition, **wearables** (smart watches, health monitors) and **smart home terminals** are also important devices for mobile AI, providing personalised health

managementand living environment adjustment services through continuous monitoring and contextual understanding.

## Industry collaboration: the open ecosystem of operators' network capabilities



The Mobile AI Era's realisation relies on the deep collaboration of all links in the industrial chain. **Terminal manufacturers, operators, chip suppliers, cloud service providers and application developers need to work together in areas such as technical standards, data sharing and capability openness.**

**The GSMA Open Gateway initiative plays a crucial role in this process.** The programme enables developers to easily access the capabilities of global mobile operators' networks through a unified API framework. As of mid-2025, 73 operator groups representing 285 networks have joined, covering 79% of the global mobile market share[6]. Through standardised API interfaces, network capabilities such as identity authentication, location services, network slicing and edge computing are encapsulated into developer-friendly services, significantly reducing the complexity of cross-operator and cross-regional application development.

At MWC25 Barcelona, China Mobile General Manager He Biao stated that they will collaborate with the GSMA and industry partners to explore a new model of "AI+Open Gateway" based on open-source large models [7]. According to McKinsey research, by 2030, the network API market will present operators with revenue opportunities of up to 300 billion US dollars in connectivity and edge computing.

# Looking ahead: the accelerated arrival of intelligent connectivity

The MobileAI Era is reshaping the digital economy. From the consumer internet to the industrial internet, single-point applications to full-scenario intelligence, the deep integration of AI and mobile communications will unleash unprecedented innovative vitality.

This transformation is both a challenge and an opportunity. **For enterprises**, it requires continuous innovation in technology pathways, business models and ecosystem construction. **For consumers,** it will provide more intelligent, convenient and personalised digital services. **In terms of industry**, mobile AI will become the core driving force for boosting productivity and promoting industrial upgrading.

**MWC26 Shanghai, June 24-26, Shanghai New International Expo Centre**. As the most influential event in the Asian connectivity ecosystem, MWC26 Shanghai will focus on cutting-edge technological innovations such as mobile AI, humanoid robots/embodied intelligence, direct satellite connectivity for terminals and non-terrestrial networks. It will also launch the Mobile AI Innovation Frontiers Zone.

This will be an important window to observe the development of the Mobile AI Era for industry and a stage for global innovators to shape the future of these technologies together.

The era of Mobile AI has begun and a future of ubiquitous, intelligent connectivity is rapidly approaching.

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