

INDUSTRY OVERVIEW

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ANALYSIS OF GLOBAL SMART HARDWARE MANUFACTURING SOLUTION INDUSTRY

On-Device AI Accelerates the Iteration and Evolution of Smart Hardware

Smart hardware refers to a category of terminal products based on electronic hardware, which enables data sensing, computing and network connectivity through embedded systems, sensors, wireless communication modules and software algorithms. It mainly includes two categories: smart terminals, represented by smartphones, tablets, and laptops, and AIoT products, covering consumer AIoT products such as smartwatches and bands, smart earphones, and smart eyewear, smart rings, desktop robots, etc., as well as enterprise AIoT products applied in areas such as smart home smart mobility, smart logistics smart finance, etc.

In recent years, with the explosive development of AI and on-device AI technologies, the smart hardware industry has entered a new phase of growth. In the relatively mature smart terminal sector, on-device AI is driving the evolution of smartphones and PCs into AI phones and AI-powered PCs, stimulating consumer upgrades. In the AIoT industry, on-device AI significantly enhances intelligence, not only boosting demand for products such as smartwatches, smart bands, and smart earphones, but also enabling the emergence of new AIoT terminals, including smart desktop robots, smart rings, and predictive AIoT products for industrial scenarios.

Categories of Smart Hardware

Categories		Products	On-device AI Enablement
Smart Terminal		- Smartphones - Tablets - Laptops	Enabling smartphones, tablets, and laptops to process data locally, providing real-time intelligence, personalized user experiences, enhanced privacy, reduced latency, and improved energy efficiency, driving smarter, more responsive, and AI-powered smart terminals.
AIoT	Consumer AIoT	- Smartwatches/Bands - Smart Earphones - Smart Eyewear - Smart Rings - Desktop Robot - Others	Enabling smartwatches/bands, earphones, and eyewear with real-time health monitoring, voice interaction, and personalized user experiences directly on the terminal.
	Enterprise AIoT	<i>AIoT products for</i> - Smart Home - Smart Mobility - Smart Logistics - Smart Finance - Smart Healthcare - Smart Payments - Smart Industrial Robotics - Others	Enabling autonomous decision-making for security systems, predictive maintenance for connected vehicles and real-time environmental adaptation—ensuring reliable operation in latency-sensitive scenarios where cloud dependency is impractical or unsafe.

Source: Frost & Sullivan

INDUSTRY OVERVIEW

Smart Hardware Manufacturing Solution Providers Face Development Opportunities and Challenges in the AI Era

Key Participants in Smart Hardware Manufacturing: In the current smart hardware manufacturing solution industry, the main participants include EMS (Electronics Manufacturing Services) providers, ODM (Original Design Manufacturing) providers, and full-stack solution providers.

EMS providers primarily focus on providing large-scale manufacturing and supply chain management services for brand owners. ODM and full-stack solution providers are deeply involved in upstream processes such as product definition and R&D design, and possess integrated hardware-software capabilities. Compared with ODM providers, full-stack solution providers typically maintain closer relationships with brand owners. The core difference between full-stack solution providers and ODM providers lies in their ability to empower brands with insights and user service capabilities. During the product development phase, full-stack providers help brands understand user needs and often proactively develop prototype products for selection. In the delivery phase, they offer integrated cloud-based operational platforms that enable ongoing user services for smart hardware products, such as firmware upgrades and user data management. Integrated cloud-based operational platforms are particularly valuable for emerging AIoT brands.

Comparison of Smart Hardware Manufacturing Solution

	EMS	ODM	Full-stack Solution
End-user insights.			✓
Product Definition.		✓	✓
Industrial Design.		✓	✓
Definition and Selection of Key Materials. . .		✓	✓
Hardware and Software Design & Development.		✓	✓
Component and Material Procurement	✓	✓	✓
Supply Chain and Logistics Management . . .	✓	✓	✓
Production and Product Testing.	✓	✓	✓
Mass Production and Delivery.	✓	✓	✓
Hardware	✓	✓	✓
Software		✓	✓
Integrated Cloud-based Operational Platforms			✓
Partial After-sales Service and Support. . . .	✓	✓	✓

Source: Frost & Sullivan

Structure of the Smart Hardware Manufacturing Solution Industry Chain: Leading smart hardware manufacturing solution providers, relying on their strong industrial synergy capabilities and supply chain integration advantages, have gradually established a comprehensive service system covering R&D, design, manufacturing, supply chain management, global delivery and other links. By building stable and close partnerships with upstream core component suppliers and downstream brand customers, industry leaders have formed a collaboratively developing industrial ecosystem, which not only improves product development efficiency but also significantly enhances market responsiveness and technological innovation capabilities.

INDUSTRY OVERVIEW

Upstream: Supply Chain Collaboration Strengthens Product Development Capabilities

In the upstream of the industrial chain, major participants include chip manufacturers, sensing and interaction module suppliers, electronic component manufacturers, software system providers, structural component suppliers, etc. ODM and full-stack solution providers usually maintain in-depth cooperation with these supply chain partners. Through collaborative R&D and technical exchanges, they accelerate the pace of product development and introduction. For example, in the selection of key semiconductor components and scheme design, leading smart hardware manufacturing solution providers often participate in advance, thereby improving the overall optimization of product solutions and facilitating faster market entry of new products.

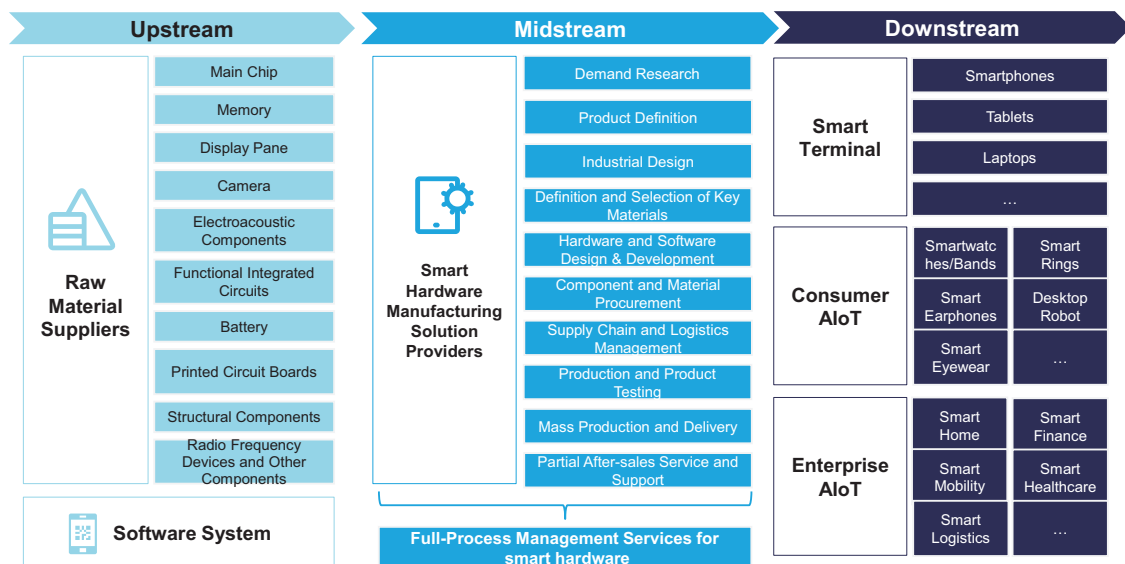
Midstream: Intelligent Manufacturing Systems Improve Production Efficiency

In the midstream of the industrial chain, smart hardware manufacturing solution providers, especially ODM and full-stack solution providers, offer customers with comprehensive services throughout the entire product life cycle, including product planning and definition, structural and industrial design, circuit system development, embedded software design, material selection and component procurement, testing and verification, production and manufacturing, supply chain management and other links. Relying on mature intelligent manufacturing platforms and digital supply chain management systems, industry-leading enterprises can realize large-scale production of multi-brand and multi-category products. Meanwhile, through refined manufacturing processes and strict quality management systems, smart hardware manufacturing solution providers can maintain high product yields and effectively shorten product delivery cycles.

Downstream: Product Innovation Drives Continuous Expansion of Application Scenarios

In the downstream segment of the industry chain, major customers include smart hardware brands covering a wide range of product types, such as smartphones, tablets, laptops, and consumer AIoT products, as well as business customers that deploy enterprise AIoT products across various application scenarios.

Smart Hardware Manufacturing Solution Industry Chain



Source: Frost & Sullivan

INDUSTRY OVERVIEW

Development Opportunities for Smart Hardware Manufacturing Solution Providers in the AI Era

New product cycle driven by on-device AI. The advancement of on-device AI capabilities has propelled smart hardware into a new round of innovation cycles. The deployment of AI models on smart hardware products has driven upgrades in smartphones, smart earphones and other products, resulting in a surge in market demand for terminals equipped with AI computing power and intelligent interaction capabilities. This imposes higher requirements on the computing architecture, thermal design and other capabilities of smart hardware manufacturing solution providers. Manufacturers with early deployment of AI technology solutions can deeply participate in customer projects and seize growth opportunities brought by terminal upgrades.

Growing product complexity. AI technologies have rendered the functions and architecture of smart hardware increasingly complex, requiring the integration of high-performance processors, AI acceleration units and various sensors while balancing power consumption, thermal management and structural optimization. Higher barriers to product development have made brand owners more reliant on solution providers with comprehensive R&D and manufacturing capabilities. Leading manufacturers can leverage their expertise in hardware design and system integration to help customers shorten development cycles, improve product stability and strengthen their core position in the industrial chain.

Expanding application scenarios. Driven by AI, the application scenarios of smart hardware have expanded from traditional consumer electronics to multiple industries. Beyond the mature smartphone and PC markets, emerging markets such as consumer AIoT and enterprise AIoT continue to emerge. Differentiated demands across various scenarios provide broad development space for solution providers. Manufacturers with cross-category development experience can reuse R&D and supply chain resources to efficiently enter new fields and build a diversified business layout.

Intelligent upgrading of manufacturing models. The AI era has accelerated the digital and intelligent upgrading of manufacturing systems. Solution providers have improved production efficiency and quality stability by adopting automated equipment, digital supply chains and data-driven decision-making. Meanwhile, intelligent manufacturing enables flexible production, supporting rapid switching between multi-brand and multi-model products to adapt to the fast iteration of AI terminals, forming a core competitive advantage.

Key Success Factors Required by Smart Hardware Manufacturing Solution Providers in the AI Era

Building on-device AI technology integration capabilities. On-device AI serves as the core driving force for the iteration of smart hardware. For smart hardware manufacturing solution providers, integration capability constitutes a key competitive factor. This includes in-depth understanding of AI chip platforms, computing architectures and sensor systems, as well as capabilities in algorithm adaptation, software-hardware collaborative optimization and system-level performance tuning. Leading manufacturers shall cooperate closely with chip suppliers and brand customers during the development stage, participate in solution design and technical verification at an early stage, strengthen AI hardware architecture design and system integration capabilities, and support the rapid development and iteration of AI terminals.

Strengthening R&D and engineering capabilities for complex systems. The application of AI has increased the complexity of system architecture, functional design and engineering implementation of smart hardware. AI terminals require the integration of multiple core components while balancing key indicators such as power consumption and thermal management. Smart hardware manufacturing solution providers need to enhance system-level R&D and engineering capabilities, establish a comprehensive

INDUSTRY OVERVIEW

technical system covering structural design, circuit development, embedded software and testing verification, and help customers reduce development risks and shorten mass production cycles based on sound R&D platforms and project experience.

Deepening supply chain collaboration and ecological cooperation. In the AI era, smart hardware has become more dependent on core components and technologies. Smart terminal manufacturing solution providers need to establish close cooperation with upstream core suppliers, participate in key component selection and solution design, optimize system architecture and accelerate the adoption of new technologies. Meanwhile, they should build collaborative innovation mechanisms with chip manufacturers, operating system and software ecosystem partners, continuously improve product technical capabilities, and provide customers with more competitive solutions.

Developing flexible intelligent manufacturing and global delivery capabilities. The upgrade cycle of smart hardware has been shortened and application scenarios expanded, raising higher requirements of brand customers for production, quality and delivery. Smart terminal manufacturing solution providers shall promote the intelligent upgrading of manufacturing systems, achieve efficient production coordination through automated equipment and digital management systems, meet diversified customer demands with flexible manufacturing capabilities, and establish a sound global manufacturing and logistics network to provide stable and efficient global delivery services.

ANALYSIS OF GLOBAL SMART TERMINAL MANUFACTURING SOLUTION INDUSTRY

Smart terminals are consumer-facing electronic products for personal computing and digital interaction, covering three core categories: smartphones, consumer tablets and laptops. Featuring easy operation, portability and strong interactive functions, they serve as the core carrier linking digital ecosystems and end users, evolving toward higher intelligence driven by advanced communication and AI technologies.

The industry is inherently technology-driven, with short product iteration cycles and dynamic end-user demand. Core technological breakthroughs have repeatedly spurred industry growth, and recent advances in On-Device AI computing power have opened a new innovation cycle for AI smartphones and AI PCs.

Affected by the macroeconomic environment and industrial policies, mainstream products have a 3-5 year replacement cycle. Driven by technological innovation and consumer demand, the industry maintains strong vitality and continues to optimize the integrated ecosystem centered on its three core categories.

Market Size of Global Smart Terminal Industry

From 2021 to 2023, the global smart terminal market went through a continuous adjustment phase, with total shipments of smart terminal products falling from 1,773.9 million units to 1,485.3 million units. This trend was mainly driven by shifts in the global macroeconomic environment that weakened end-user demand, coupled with post-pandemic supply chain fluctuations and phased core chip shortages. Shipments of all three core categories, smartphones, consumer-grade tablets and laptops, saw declines over the period. Smartphone shipments fell from 1,354.8 million units in 2021 to 1,164.1 million units in 2023, laptop shipments dropped from 250.3 million units to 192.7 million units, and tablet shipments decreased from 168.8 million units to 128.5 million units.

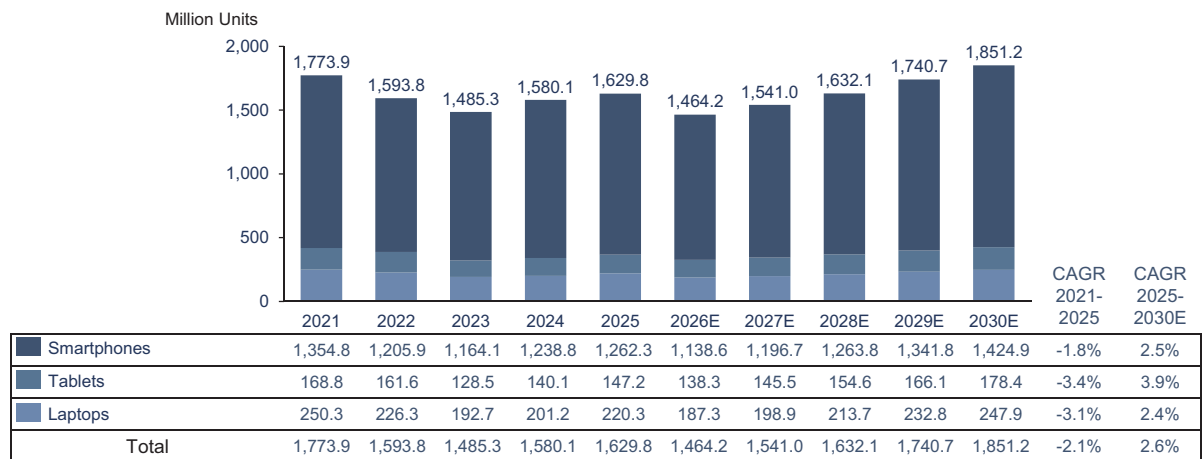
The market showed clear recovery signs in 2024 and resumed steady growth in 2025, with total global shipments rising from 1,580.1 million units to 1,629.8 million units. The rapid development of On-Device AI technology has become the core driver of industry recovery, accelerating product iteration and enabling large-scale deployment of innovative products including AI smartphones and AI PCs.

INDUSTRY OVERVIEW

Short-term cyclical market fluctuations do not mean a sustained decline in long-term demand. Driven by technological innovation and policy support, the market is expected to maintain steady growth. Total shipments will grow from 1,629.8 million units in 2025 to 1,851.2 million units in 2030, with a compound annual growth rate of approximately 2.6% over the forecast period. Smartphones will remain the largest product segment, with a compound annual growth rate of 2.5%. The tablet market will register the highest compound annual growth rate of 3.9%, and the laptop market will maintain a compound annual growth rate of 2.4%.

The competitive landscape of the global smart terminal market is evolving dynamically. Leading global brand vendors hold a dominant market position, and industry concentration is expected to rise further as leading enterprises continue to increase investment in core technology R&D and integrated ecosystem construction.

Smart Terminal Shipments (by Product Type), Global, 2021-2030E

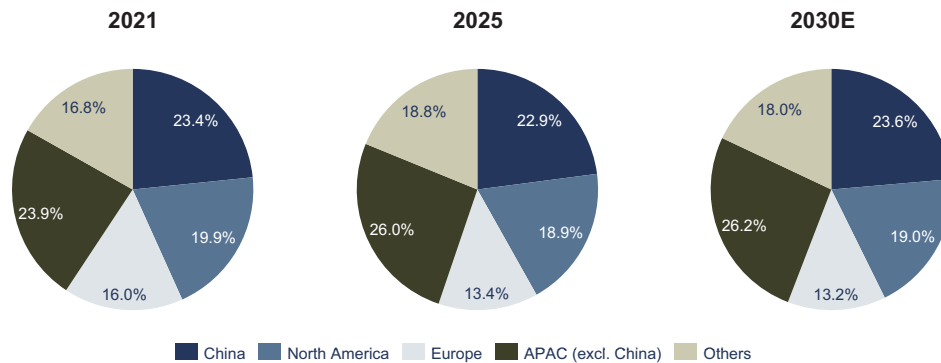


Source: GSMA, CEA (Consumer Electronics Association), Ministry of Industry and Information Technology, Frost & Sullivan

From a regional perspective, the global smart terminal market structure is relatively stable. In 2025, the market share of smart terminal shipments in China, North America, Europe, Asia Pacific (excluding China), and other regions was 22.9%, 18.9%, 13.4%, 26.0%, and 18.8%, respectively. By 2030, the overall regional structure is expected to remain stable, with China’s market share further increasing. The market share of smart terminal shipments in China, North America, Europe, Asia Pacific (excluding China), and other regions is expected to be 23.6%, 19.0%, 13.2%, 26.2%, and 18.0%, respectively.

INDUSTRY OVERVIEW

Smart Terminal Shipments (by Region), Global, 2021-2030E



Source: Frost & Sullivan

Overview of the Smart Terminal Manufacturing Solution Industry

Smart terminal manufacturing solution providers are comprehensive market entities serving the global Smart terminal sector, with core capabilities covering two major dimensions: full-process product R&D and design matched with precision large-scale production, and standardized, highly flexible mass manufacturing paired with end-to-end supply chain supporting services. Providers with full-stack R&D and design capabilities can independently complete the entire closed-loop process from product definition, industrial design, software and hardware development to mass production and delivery, and can also undertake standalone professional manufacturing and delivery services according to client needs. Meanwhile, providers focusing on professional manufacturing services take on the core business of completing professional manufacturing and delivery in strict accordance with the established design schemes and production standards provided by clients. Currently, smart terminal manufacturing solution providers mainly consist of ODM and EMS providers.

Market Size of Global Smart Terminal Manufacturing Solution Industry

Global shipments of smart terminal products fulfilled by manufacturing solution providers decreased from 1,405.4 million units in 2021 to 1,320.4 million units in 2025, registering a CAGR of -1.5% during the period. This trend was mainly driven by the phased adjustment of the global smart terminal market: from 2021 to 2023, the market experienced continuous contraction affected by the volatile macroeconomic environment, weakened consumer confidence, and post-pandemic demand digestion; while in 2024 and 2025, the market gradually stabilized and recovered, supported by the rebound in end-user demand and the technology iteration of core smart terminal categories. Looking ahead, driven by the accelerated iteration of on-device AI technology, the continuous upgrade of core product categories, and the increasing willingness of brand manufacturers to cooperate with manufacturing solution providers, the global smart terminal manufacturing solution market is expected to maintain steady growth. It is projected that the corresponding total shipments will increase from 1,320.4 million units in 2025 to 1,517.5 million units in 2030, representing a CAGR of 2.8% between 2025 and 2030.

Smartphones are the core and largest category in the global smart terminal manufacturing solution market. In 2025, shipments of smartphones fulfilled by manufacturing solution providers reached 986.4 million units, down slightly from 1,026.7 million units in 2021, accounting for 74.7% of the total market shipments, with a CAGR of -1.0% during the 2021-2025 period. After undergoing market adjustments in 2022 and 2023, this category achieved a steady rebound in 2024 and 2025, supported by the stabilization of the macro environment and the renewal demand of the consumer market. With the

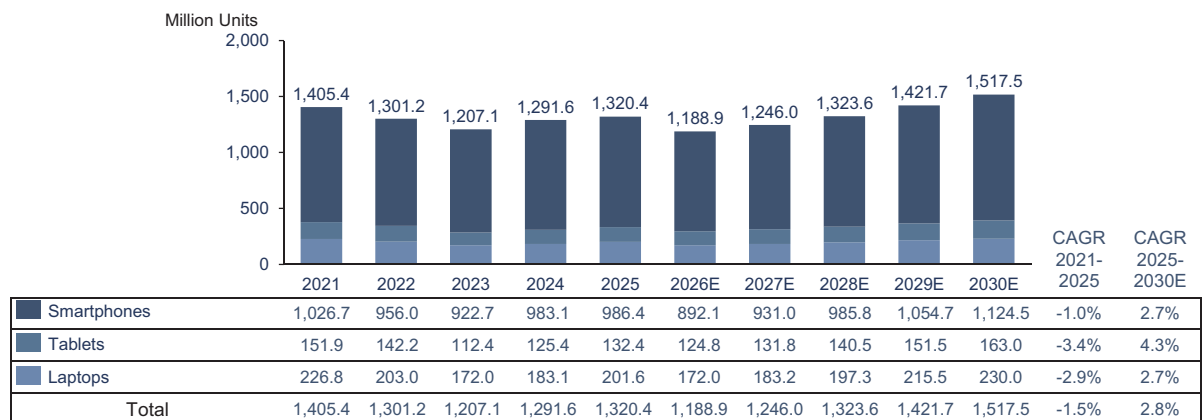
INDUSTRY OVERVIEW

in-depth popularization of on-device AI technology and the large-scale deployment of AI smartphones, this product category is expected to maintain a CAGR of 2.7% from 2025 to 2030, reaching a shipment volume of 1,124.5 million units in 2030, and will continue to be the core pillar of the market.

Tablets, as a core mobile computing category, have shown a clear recovery trend after phased market adjustment. In 2025, shipments of tablets fulfilled by manufacturing solution providers stood at 132.4 million units, compared with 151.9 million units in 2021, with a CAGR of -3.4% during the 2021-2025 period. The contraction in the early stage was mainly affected by the saturation of the consumer market and the digestion of post-pandemic demand, while the subsequent recovery was driven by the increasing demand for mobile office, home learning and digital entertainment scenarios. Driven by the continuous enrichment of application scenarios and the iterative upgrade of product functions, this category is expected to achieve the fastest growth among the three core categories, with a CAGR of 4.3% from 2025 to 2030, and its shipments are projected to reach 163.0 million units in 2030.

Laptops, as the core product of mobile office and productivity scenarios, maintain a stable position in the global smart terminal manufacturing solution market. In 2025, shipments of laptops fulfilled by professional manufacturing solution providers reached 201.6 million units, down from 226.8 million units in 2021, with a CAGR of -2.9% during the 2021-2025 period. After the market adjustment from 2021 to 2023, this category resumed steady growth in 2024 and 2025, driven by the recovery of commercial procurement demand and the renewal demand of consumer-side productivity tools. With the accelerated iteration of AI PC technology and the continuous release of demand for mobile office and hybrid learning, this product category is expected to maintain a CAGR of 2.7% from 2025 to 2030, with shipments reaching 230.0 million units in 2030, contributing stable growth momentum to the market.

Smart Terminal Shipments by Manufacturing Solution Providers (by Product Type), Global, 2021-2030E



Source: Frost & Sullivan

INDUSTRY OVERVIEW

Drivers and Development Trends of Global Smart Terminal Manufacturing Solution Industry

AI technology wave drives replacement demand

The rapid development of AI technology is profoundly reshaping the innovation cycle of smart terminal. Core categories including smartphones, tablets and laptops are shifting from hardware-driven to intelligent experience-driven. The rollout of AI smartphones and AI PCs accelerates product iteration, pushing brands to demand full-stack solutions from manufacturing providers. This wave not only boosts order volume, but also lifts providers’ value chain position, with AI-enabled terminals set to be the industry’s core growth engine in the next five years.

Economies of scale build cost competitive advantage

The smart terminal Manufacturing Solution industry features prominent economies of scale. Leading providers optimize supply chain management and manufacturing processes through large-volume stable orders, forming irreplicable cost advantages. Large shipment scale brings an edge in component procurement, capacity utilization and automation upgrade, while effectively diluting R&D investment. This cost competitiveness will become the core moat for providers in the price-sensitive consumer market.

Vertical integration enhances one-stop service capabilities

To shorten product launch cycles and simplify supply chain management, smart terminal brands increasingly prefer partners with vertical integration capabilities. Leading providers extend upstream to master R&D and production of core components, which shortens supply chains, improves quality control, and enhances customized response capacity. This full-chain one-stop service boosts customer stickiness, and helps providers upgrade from basic manufacturers to core R&D and manufacturing partners of brands.

Mergers and acquisitions drive industry concentration

The global smart terminal manufacturing solution industry is undergoing profound competitive landscape reshaping. Leading manufacturers expand capacity, acquire core technologies and enrich customer resources through horizontal M&A of small and medium-sized enterprises. Brands tend to form long-term partnerships with a handful of leading providers, further forcing industry resource integration. Industry concentration is expected to rise continuously, with leading players gaining stronger synergy and market voice.

Competitive Landscape of the Global Smart Terminal Manufacturing Solution Industry

In the global smart terminal manufacturing solution industry, Chinese companies occupy a dominant position due to their core capabilities such as agile R&D systems, extreme cost control, and global delivery networks. In 2025, global shipments of smartphones by smart terminal manufacturing solution providers reached 986.4 million units. The Company shipped 12.0 million smartphones in 2025, ranking tenth among all providers and sixth among ODM suppliers globally, with a market share of 1.2%. The Company’s shipment CAGR of smartphones from 2023 to 2025 was the highest among the top ten manufacturing solution providers.

INDUSTRY OVERVIEW

Smartphone Manufacturing Solution Provider Ranking (by Shipments), Global, 2025

Ranking	Company Name	Shipments (Million Units)	Market Share	Shipment CAGR (2023-2025)	Major Business Model
1	Company A	177.8	18.0%	19.1%	ODM
2	Company B	154.7	15.7%	10.4%	ODM
3	Company C	140.0	14.2%	7.8%	ODM
4	Company D	132.4	13.4%	3.2%	EMS
5	Company E	56.6	5.7%	12.6%	EMS
6	Company F	52.9	5.4%	5.4%	ODM
7	Company G	30.7	3.1%	13.2%	ODM
8	Company H	22.8	2.3%	2.1%	EMS
9	Company I	14.9	1.5%	-1.8%	EMS
10	The Company	12.0	1.2%	21.9%	ODM
	Others	191.5	19.4%		
	Total	986.4	100.0%		

Note:

Company A is a listed company on the Shanghai Stock Exchange and the Stock Exchange of Hong Kong, founded in 2004 and headquartered in Shanghai, China.

Company B is a listed company on the Shanghai Stock Exchange, founded in 2005 and headquartered in Shanghai, China.

Company C is a listed company on the Shenzhen Stock Exchange, founded in 2004 and headquartered in Guangdong, China.

Company D is a listed company on the Taiwan Stock Exchange, founded in 1974 and headquartered in Taiwan, China.

Company E is a listed company on the Hong Kong Stock Exchange, founded in 2007 and headquartered in Guangdong, China.

Company F is a listed company listed on the National Equities Exchange and Quotations (NEEQ), founded in 1993 and headquartered in Guangdong, China.

Company G is a private company, founded in 2002 and headquartered in Zhejiang, China.

Company H is a listed company on the Taiwan Stock Exchange, founded in 2008 and headquartered in Taiwan, China.

Company I is a listed company on the NASDAQ Stock Market, founded in 1969 and headquartered in the United States.

Source: Company Reports, Frost & Sullivan

Analysis of Entry Barriers to the Global Smart Terminal Manufacturing Solution Market

R&D and technological barrier

The smart terminal manufacturing solution industry is R&D-driven, with high technological accumulation barriers for new entrants. R&D for smartphones, tablets and laptops involves complex fields such as structural design, RF debugging, power management and software-hardware integration. Leading manufacturers have accumulated massive patents and technical know-how through years of investment, and built platform-based modular design to cut costs. New entrants lacking core technologies can hardly meet brands’ rapid iteration demands, and will lose cooperation opportunities due to failed product verification.

INDUSTRY OVERVIEW

Smart manufacturing barrier

This industry is a typical scale-driven sector, with core competitive advantages rooted in extreme unit cost control, which highly relies on automation level, production line flexibility and yield management capabilities. Leading manufacturers with annual shipments of hundreds of millions of units have strong supply chain bargaining power and stable yields above 98%. New entrants face long production ramp-up cycles, high cost losses, and cannot build a smart manufacturing system matching leading brands’ large-scale delivery needs in the short term.

Customer resource barrier

The cooperation between smart terminal brands and manufacturing solution providers is a deep strategic partnership, rather than a simple procurement relationship. As products involve core designs and trade secrets, brands prefer to cooperate with a few long-term trusted providers, forming highly exclusive and sticky partnerships once established. New entrants can hardly gain mainstream brands’ trust without proven track records. Leading players have locked up major brand shares, leaving new entrants with low-margin long-tail orders that cannot form a virtuous cycle.

Capital barrier

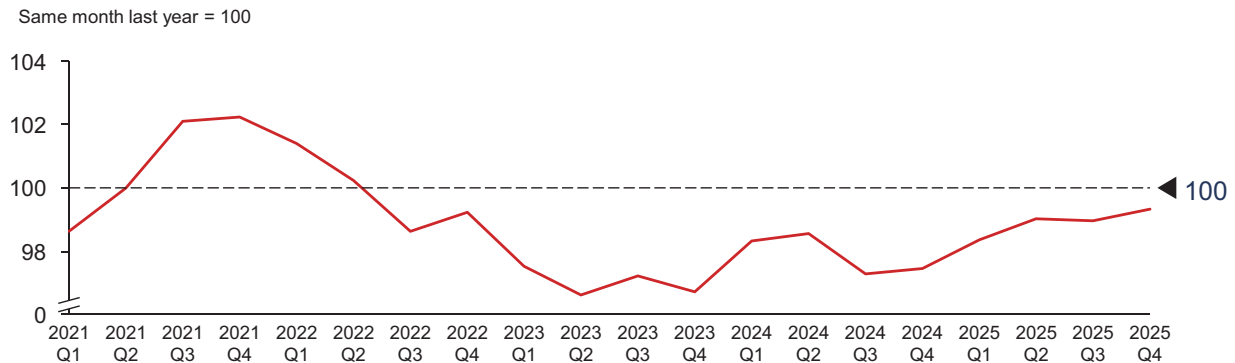
The smart terminal manufacturing solution industry is highly capital-intensive, with dual barriers of upfront equipment investment and long-term cash flow management. Building a modern smart factory requires huge investment in SMT placement lines, automated assembly and testing equipment. In addition, the 3-6 month accounts receivable cycle requires providers to advance massive funds for raw materials and labor, while bearing exchange rate and inventory depreciation risks. Insufficient capital support will make it difficult for new entrants to survive continuous market volatility.

Analysis of Major Raw Material Prices

The Producer Price Index (PPI) for the Electronic Components Manufacturing Industry is a relative number reflecting the trend and degree of change in the overall level of ex-factory prices of industrial enterprises’ products when they are sold for the first time within the electronic components manufacturing industry. China’s PPI for the Electronic Components Manufacturing Industry is a comprehensive reflection of changes in raw material prices for consumer electronics Manufacturing Solution providers. Looking at past trends, except for the period from the third quarter of 2021 to the second quarter of 2022 when semiconductor prices rose due to insufficient capacity, domestic electronic component prices have generally shown a downward trend.

INDUSTRY OVERVIEW

PPI for the Electronic Components Manufacturing Industry, China, 2021-2025



Source: National Bureau of Statistics, Frost & Sullivan

ANALYSIS OF GLOBAL AIOT MANUFACTURING SOLUTION INDUSTRY

AIoT integrates artificial intelligence technologies including machine learning, computer vision, speech recognition and large models into the Internet of Things (IoT) framework, endowing terminal devices with perception, cognition, decision-making and execution capabilities. Related products feature strong scenario adaptability covering consumer wearable, smart home to enterprise smart travel vertical scenarios, low-latency fast end-side intelligent response via localized computing, and flexible function iteration to match evolving user and market demands.

In essence, AIoT empowers the full “perception-connectivity-platform-application” IoT value chain with AI, driving the upgrade from basic data acquisition to intelligent autonomous decision-making, and is a core direction for the advanced development of IoT.

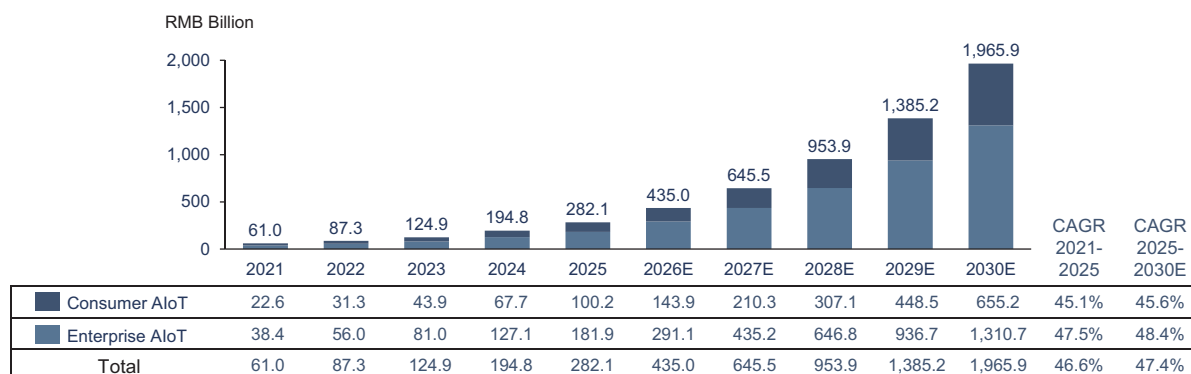
In terms of market structure, AIoT products can be broadly categorized into consumer and enterprise segments. In 2025, measured by product sales value, the global AIoT products market reached RMB729.2 billion, of which consumer AIoT and enterprise AIoT accounted for approximately RMB267.2 billion and RMB462.0 billion, respectively.

In the course of rapid development of the AIoT industry, manufacturing solution providers, especially ODM and full-stack solution providers, play a critical role in facilitating large-scale deployment of terminal devices and the widespread adoption of technologies. On the one hand, AIoT products are highly diversified, covering smart wearables, AI glasses, robotic industry, and various enterprise terminal devices, which impose higher requirements on hardware design capabilities, embedded system integration, and supply chain coordination. Leveraging their mature platform-based development capabilities and large-scale manufacturing experience, ODM and full-stack solution providers are able to significantly shorten product development cycles and reduce unit costs, thereby accelerating the commercialization of innovative products. On the other hand, with the deep integration of AI algorithms and hardware, ODM and full-stack solution providers are transforming from traditional contract manufacturers into providers of “design + manufacturing + solutions,” continuously enhancing capabilities in modular design, edge computing optimization, and hardware-software integration, and serving as a key bridge between upstream chip vendors and downstream brand owners.

INDUSTRY OVERVIEW

In 2025, market size of AIoT products manufacturing solution was approximately RMB282.1 billion, which is expected to further increase to RMB1,965.9 billion by 2030, representing a CAGR of approximately 47.4%. Among which, the consumer AIoT segment is projected to reach approximately RMB655.3 billion by 2030, representing a CAGR of approximately 45.6%, while the enterprise AIoT segment is expected to reach approximately RMB1,310.7 billion, representing a CAGR of approximately 48.4%.

Market Size of AIoT Products Manufacturing Solution (by Revenue), Global, 2021-2030E



Source: Frost & Sullivan

The consumer AIoT and enterprise AIoT sectors differ significantly from traditional smart terminal markets in demand characteristics and market rules. Traditional EMS/ODM providers and full-stack AIoT manufacturing solution providers have formed clear differentiated positioning in these two sectors, with divergences in core operation strategies, service focuses and delivered value in both consumer and enterprise-level scenarios.

	EMS/ODM Provider	Full-stack Solution Provider
Consumer AIoT	A scale-driven operation strategy, focusing on mature and standardized categories like smart headphones, smart watches and smart bands, and mainly serves well-established head brands such as global mainstream consumer electronics brands.	A full-link end-to-end service strategy, focusing on emerging segmented categories like smart AR glasses and innovative wearable devices, and mainly serves emerging and growing consumer electronics brands.
	Undertaking large-volume standardized mass production orders, optimizing cost and delivery via mass production	Providing integrated R&D and production services, shortening product time-to-market via mature reference designs, and supporting rapid iteration and differentiated functions through flexible small-batch customization

INDUSTRY OVERVIEW

	EMS/ODM Provider	Full-stack Solution Provider
Enterprise AIoT	A standardized scale delivery strategy, focusing on mature categories like smart home central control terminals, general in-vehicle smart hardware for smart travel terminals, and mainly undertakes stable large-volume standardized orders from enterprise clients.	A deeply customized full-stack service strategy, focusing on vertical scenario categories like customized smart travel in-vehicle terminals and smart retail interactive devices, and mainly undertakes scenario-based customized orders from enterprise clients.
	Relying on large-scale production lines to achieve compliant and stable batch delivery, with the core value of a mature quality control system, stable supply chain support and large-scale cost advantages.	Providing full-process services from demand disassembly to customized mass production, meeting fragmented customization needs via flexible production, with the core value of vertical scenario adaptation and rapid demand response

It is worth emphasizing that the core capabilities of flexible manufacturing and small-batch customization possessed by full-stack AIoT manufacturing solution providers are unachievable for other enterprises driven mainly by large-scale production. Large-scale oriented players rely on high-volume standardized orders to reduce costs and optimize efficiency, which is inherently incompatible with the fragmented, highly customized, scenario-driven demands of enterprise AIoT verticals such as smart energy, industrial IoT and smart city. These customers require not only reliable hardware manufacturing, but also system-level integration and long lifecycle support. Full-stack providers precisely address these needs with their flexible production capabilities, delivering end-to-end solutions covering device design, manufacturing, and cloud-based device management, data analytics and remote maintenance services, bridging capability gaps to empower emerging AIoT brands, accelerate innovation and support sustainable scalable growth.

SOURCE OF INFORMATION

We commissioned Frost & Sullivan to conduct market research on global smart hardware manufacturing solution and prepare the Frost & Sullivan Report. Frost & Sullivan is an independent global consulting firm founded in 1961 in New York that offers industry research and market strategies. We have contracted to pay RMB430,000 to Frost & Sullivan for compiling the Frost & Sullivan Report.

In preparing the Frost & Sullivan Report, Frost & Sullivan conducted detailed primary research which involved discussing the status of the industry with certain leading industry participants and conducting interviews with relevant parties. Frost & Sullivan also conducted secondary research which involved reviewing company reports, independent research reports and data based on its own research database. Frost & Sullivan obtained the figures for the estimated total market size from historical data analysis plotted against macroeconomic data as well as considered the above-mentioned industry key drivers. Its market engineering forecasting methodology integrates several forecasting techniques with the market engineering measurement-based system and relies on the expertise of the analyst team in integrating the critical market elements investigated during the research phase of the project. These elements primarily include expert-opinion forecasting methodology, integration of market drivers and restraints, integration with the market challenges, integration of the market engineering measurement trends and integration of econometric variables.

The Frost & Sullivan Report is compiled based on the following assumptions: (i) the social, economic and political environment of the globe and Chinese mainland is likely to remain stable in the forecast period; and (ii) related industry key drivers are likely to drive the market in the forecast period.