

INDUSTRY OVERVIEW

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OVERVIEW OF ARTIFICIAL INTELLIGENCE IN THE TRANSPORTATION SECTOR

Overview of Artificial Intelligence

Artificial intelligence (AI) is a technology framework that enables machines to simulate human cognition and enhance decision-making capabilities, evolving from unimodal perception to reinforcement-learning-based autonomy and ultimately to AI integrating large models for cross-scenario intelligent operation. Transportation represents a key application area of AI 3.0 due to its strong linkage to public life and significant market potential, where the integration of multi-source transportation data and domain knowledge through large models supports more efficient scheduling, real-time decision-making and predictive analysis, thereby enhancing travel efficiency and safety.

Overview of Transportation Sector

Transportation represents a critical component of national economic and social development. With accelerating economic growth, population increase, and urbanization, urban transportation systems have continually evolved — from manual operations and fixed signal controls to the gradual adoption of industrial automation technologies. Driven by the development of the Internet of Things, big data and artificial intelligence technologies, the transportation sector is currently transitioning toward a stage characterized by intelligence and digitalization. Enabled by cloud-edge-terminal system architectures, urban traffic management is advancing toward integrated road and rail scheduling, predictive maintenance, and full lifecycle asset management, significantly improving system safety, resilience, and efficiency.

Key Challenges in Urban Transportation Development

Traffic Congestion

Despite continuous technological progress, congestion remains a persistent challenge, particularly in central areas of large cities during peak hours. In addition, traffic congestion not only reduces traffic efficiency, but also exacerbates energy consumption and environmental pollution.

Transportation Data Silos

Transportation data is often fragmented across different departments and systems, creating “information silos” that hinder data sharing and collaboration. This limits management efficiency and constrains the advancement of intelligent transportation systems. For instance, optimizing traffic signals requires real-time flow data, yet such data is dispersed across various sensors and monitoring platforms.

Overview of AI Market in Transportation Sector

AI applications in transportation are evolving from single-function optimization toward holistic, intelligent decision-making, driving road and rail transit systems to become more efficient, safer, and smarter. Meanwhile, China’s fixed asset investment in transportation infrastructure remains substantial, with a rising proportion allocated to technologies supporting intelligent city cluster Multi-modal transportation system. This underscores the growing strategic importance of intelligent systems in transportation development.

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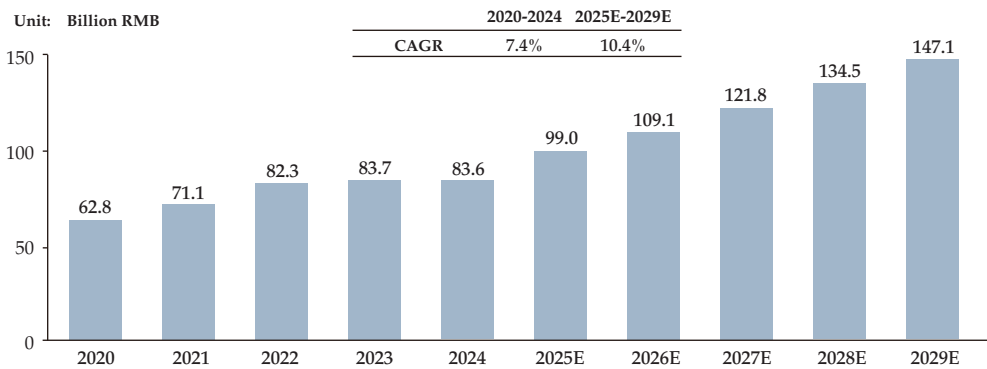
According to Frost & Sullivan, China fixed asset investment of urban transport-related municipal public facilities reached RMB1,323.1 billion in 2020, increasing to RMB1,550.0 billion in 2024, representing a CAGR of 4.0% between 2020 and 2024. It is projected to reach RMB1,619.8 billion in 2025 and RMB1,940.8 billion in 2029, with a CAGR of 4.6% between 2025 and 2029. With the continuous expansion of investment scale, the digitalization rate in fixed asset investment of urban transport-related municipal public facilities is also expected to rise from 34.3% in 2024 to 40.9% in 2029, serving as a key driver for industry upgrade.

AI-Driven the Development of City Cluster Multi-modal Transit System

The City Cluster Multi-modal Transit System refers to a comprehensive transportation network formed within a regional city cluster through multi-level and multi-dimensional transportation modes, aiming to achieve efficient connection and coordination among different transportation modes. It not only focuses on the operational efficiency of a single transport mode, but also emphasizes the interconnectivity and the optimization of resource allocation of the overall transportation system. Among them, the Intelligent City Cluster Multi-modal Transit System primarily includes the Urban Intelligent Rail Transit System and the Urban Intelligent Transportation System. It realizes the intelligent upgrading of the transportation system through new-generation information technologies and introduces cutting-edge technologies such as AI to provide more intelligent decision support for transportation management and operation.

Driven by accelerating urbanization, increasing complexity of transportation networks across city clusters, and the continued application of AI and digital technologies in transportation governance, the China Intelligent City Cluster Multi-modal Transit System market has experienced steady expansion in recent years. From 2020 to 2024, the market size increased from RMB62.8 billion to RMB83.6 billion, representing a CAGR of 7.4%, with its penetration rate of China fixed assets investment of urban transport-related Municipal public facilities rising from 4.7% to 5.4% over the same period. Looking ahead, supported by ongoing intelligent upgrades of urban transport infrastructure, expansion of integrated transportation platforms, and continued policy support for modern integrated transportation systems, the market is expected to grow from RMB99.0 billion in 2025 to RMB147.1 billion in 2029, with its penetration rate to 7.6%, achieving a CAGR of 10.4% over the forecast period.

Market Size of China Intelligent City Cluster Multi-modal Transit System, by revenue, 2020-2029E



Source: China Association of Metros (CAMET), China Intelligent Transportation Systems Association

China Intelligent City Cluster Multi-modal Transit System market reached RMB83.6 billion in 2024, with the top five players accounting for 28.0% of the market. The following table illustrates the ranking of participants in China Intelligent City Cluster Multi-modal Transit System market by revenue in 2024.

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Ranking of China Intelligent City Cluster Multi-modal Transit System Market

Ranking	Company	Whether focus on Vehicle Operation Control System	Whether focus on Station Operation and Management System	Whether focus on Urban Intelligent Transportation System	Market Share in 2024
1	Company E ⁽²⁾			√	8.7%
2	Company F ⁽³⁾			√	7.5%
3	Company G ⁽⁴⁾			√	5.2%
4	Company S ⁽⁵⁾	√			3.6%
5	The Company		√	√	3.0%

Source: Annual Report, Expert Interview, Frost & Sullivan

- (1) The ranking is based on revenue from China Intelligent City Cluster Multi-modal Transit System in 2024.
- (2) Company E was established in 1995 and is headquartered in Beijing. Listed on HKEx and SSE, its business focuses on providing comprehensive information services such as mobile communications, internet access and applications, fixed-line telephony, satellite communications, and ICT integration.
- (3) Company F was established in 1997 and is headquartered in Beijing. Listed on HKEx and SSE, its business focuses on providing mobile communications, computing power services, as well as platforms, applications, and solutions based on next-generation information technology capabilities.
- (4) Company G was established in 1994 and is headquartered in Beijing. Listed on HKEx and SSE, its business is divided into networked communications and integrated computing-network intelligence.
- (5) Company S was established in 1986 and is headquartered in Shanghai. Its business focuses on the research and development of safety-critical signaling technologies for railway and urban rail transit and the provision of core train control systems.

The China Intelligent City Cluster Multi-modal Transit System market is characterized by a high degree of specialization among providers. Market participants typically focus on either urban intelligent transportation systems or urban intelligent rail transit systems. Based on market rankings, leading urban intelligent rail transit systems market providers are not represented among the top competitors in the urban intelligent transportation systems market, indicating limited direct competition between the two groups. This separation is mainly driven by differences in technical standards, system complexity, differentiation applications scenario, leading to competition that remains largely segmented by sub-sector.

AI-Driven Empowerment of Urban Transportation Systems

Continuous advances in artificial intelligence are driving urban transportation systems toward higher levels of intelligence. AI applications are evolving from single-function tools to integrated services, supporting smarter traffic management, intelligent rail operation and more data-informed decision-making. Supported by large transportation models, the industry is shifting toward more autonomous and advanced intelligent decision-making through predictive analysis and dynamic optimization. The combination of AI with distributed architectures and emerging operating systems such as OpenHarmony also enhances cross-system compatibility and coordinated system operation. In terms of operations, AI enables more precise management by facilitating continuous equipment monitoring, optimizing energy consumption, spare parts management and train scheduling, thereby improving overall efficiency while reducing operating costs.

The implementation of AI in urban transportation relies on an enabling ICT stack, including devices, networks, computing infrastructure and software platforms. This ICT foundation supports data flow, system integration and secure model deployment, thereby allowing AI capabilities to be delivered as practical solutions across rail and road transportation scenarios.

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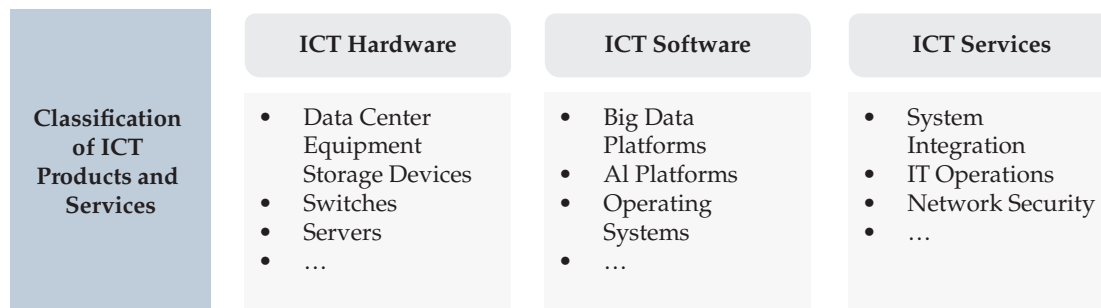
OVERVIEW OF CHINA'S INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) PRODUCTS AND SERVICES MARKET

Definition and Main Categories of the China ICT Products and Services Market

Information and Communication Technology (ICT) products and services encompass software, hardware, integrated systems, and technical services that support the full cycle of data collection, processing, transmission, storage, and application. As a core enabler of digital transformation, ICT is widely adopted in sectors such as transportation, healthcare, and energy. In the transportation sector, it facilitates intelligent traffic control, intelligent dispatching, and data-driven operations, driving the modernization of road and rail infrastructure.

Classification of ICT Products and Services

The ICT industry encompasses a wide range of products and services that integrate information and communication technologies. These offerings include hardware, software, and value-added services, collectively supporting the digital transformation and intelligent infrastructure of various sectors such as transportation, urban governance, manufacturing, and enterprise operations. ICT products can generally be categorized into three main segments:



Source: Ministry of Industry and Information Technology, CAICT, Frost & Sullivan

Value Chain of the ICT Products and Services Industry

The ICT industry value chain consists of upstream components, midstream equipment & system design and production, and downstream sales and applications. When equipment and system flow from the midstream to the downstream, they are delivered through two sales models, namely direct sales and distribution.

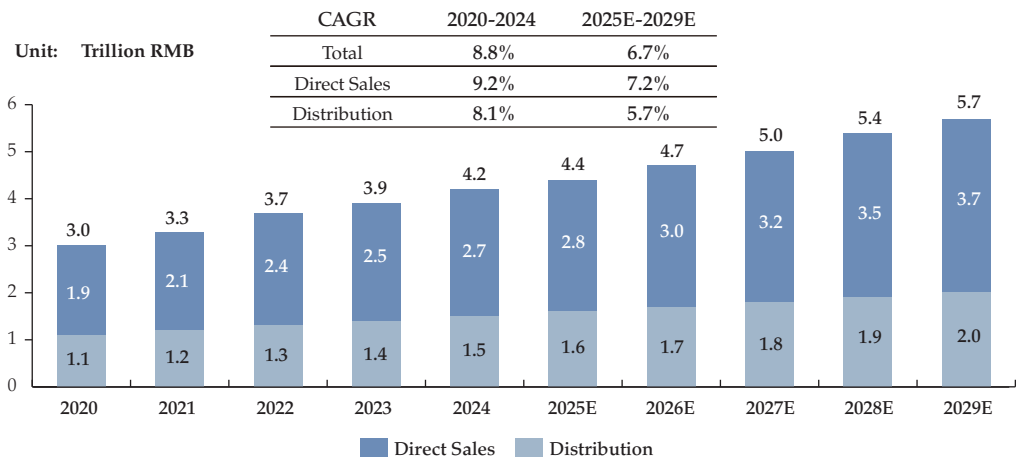
In addition, distributors (including primary distributors and sub-distributors) are usually not engaged in distribution business only, they often also provide value-added services such as system integration to their customers to enlarge their business scale and procure the relevant equipment and systems from certain same upstream suppliers. As a result, from the perspective of upstream suppliers, it is generally difficult to clearly identify the ultimate sales routes to their downstream customers, i.e., whether products eventually reach the market through distribution channels or be used by downstream distributors directly in their value-added services such as system integration.

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Market Size of ICT Products and Services in China by Sales Model

Driven by the digital transformation of major industries, China’s ICT products and services market has maintained strong growth. According to Frost & Sullivan, the market expanded from RMB3.0 trillion in 2020 to RMB4.2 trillion in 2024, representing a CAGR of 8.8%, and is expected to further increase from RMB4.4 trillion in 2025 to RMB5.7 trillion in 2029, with a CAGR of 6.7%.

Market Size of ICT Products and Services in China by Sales Model



Source: China Association of Communications Enterprises, CAICT, Frost & Sullivan

Competitive Landscape of China ICT Products and Services Distribution Market

In the ICT products and services market, distribution can generally be categorized into two models: large-scale distribution, which focuses on supplying hardware and software products through extensive sales channels; and value-added distribution, which integrates services such as system integration, maintenance, and customized solutions to deliver greater customer value. Compared with pure large-scale distributors, value-added distributors play a more critical role in digital transformation by providing tailored solutions and ongoing technical support. The Company ranked ninth in China’s ICT products and services distribution market in 2024 with a market share of 0.3% in terms of revenue.

Market Size of China ICT Products and Services Distribution Industry in the Transportation Sector

While China’s overall ICT market is expected to grow at a moderate pace during 2025 to 2029, the transportation ICT segment is projected to record a relatively higher CAGR. This outlook is supported by national equipment-renewal policies that promote the digital upgrading of transport management centres and roadside infrastructure. The expansion of Vehicle–Road–Cloud collaboration is also driving wider deployment of sensing, communication and cloud-control systems. In addition, government initiatives to reduce logistics costs and improve operational efficiency are accelerating the digitalisation of freight and multimodal transport. Collectively, these factors are expected to generate stronger demand for ICT-related upgrades in the transportation sector and support a higher growth trajectory for the transportation ICT segment relative to the overall ICT market.

According to Frost & Sullivan, driven by the digital transformation of transportation infrastructure, China’s ICT distribution market in the transportation sector expanded steadily from RMB81.1 billion in 2020 to RMB109.3 billion in 2024, representing a CAGR of 7.7%. Looking ahead, the market is expected to grow from RMB117.3 billion in 2025 to RMB164.4 billion in 2029, representing a CAGR of 8.8%, supported by ongoing urbanization, AI-powered traffic optimization, and the national push for digital city development.

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Growth Trends and Future Drivers of China ICT Products and Services Market

Transportation Sector Emerging as a Key Growth Driver

Amid the continued expansion of the overall ICT market, the transportation industry, as one of the major downstream application sectors, is demonstrating stronger growth momentum. With accelerating urbanization and the ongoing development of intelligent cities, the digital transformation of infrastructure such as urban rail transit, road transportation, and transport hubs has deepened, driving systematic and integrated demand for ICT products and services. In particular, ICT solutions have become essential tools for enhancing operational efficiency, ensuring public safety, and optimizing resource allocation in scenarios such as intelligent transportation systems, signal control, data platforms, edge computing, and vehicle-to-everything (V2X) collaboration.

Integrated “Product + Service” Solutions Becoming Mainstream

With the acceleration of digital transformation, enterprise customers are shifting away from standalone hardware procurement towards end-to-end ICT solutions that combine products, system integration, and ongoing maintenance. In key sectors such as city governance, rail transit, and road transportation, clients increasingly demand full-lifecycle technical support. Projects such as transportation information platforms and intelligent station systems are placing greater reliance on integrated delivery. This trend is driving both ICT vendors and distributors to adopt integrated service delivery models.

Entry barriers of China ICT Products and Services Market

Technological Barriers

The industry requires substantial upfront investment in infrastructure such as data centres, optical fibre networks and advanced wireless systems, as well as continuous research and development to keep pace with rapid advances in next-generation communications, artificial intelligence and edge computing, which collectively raise capital and technical thresholds for new entrants.

Regulatory Barriers

Market access further depends on multiple regulatory approvals and evolving technical standards, often lengthening product research and development and increasing compliance costs.

Customer Barriers

Strong network effects and ecosystem stickiness in ICT hardware and platform services reinforce the advantages of established players, making it difficult for new entrants to attract users, build partnerships and overcome high switching costs.

Threats and Challenges of China ICT Products and Services Market

Network and Communication Limitations

China’s ICT architecture is shifting from a traditional “connectivity-first” approach toward a new model that requires coordinated design of computing and networking resources. In this model, traffic needs to be routed not only based on network quality but also on the availability of computing, storage and AI-processing capacity across edge, region and cloud facilities. This transition increases operational complexity, including multi-domain coordination, interoperability management and strict timing and synchronisation requirements. Looking forward, the vision for 6G involves deeper integration of sensing, communication and computing, which will require new system architectures for deployment.

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Cybersecurity Threats

Enterprises face a dense, evolving threat surface: high volumes of persistent attacks, blurred security perimeters, and increasingly complex obligations for data protection, security controls, and cross-border handling. Modern operations should move beyond perimeter defense to continuous monitoring, threat intelligence, and automated detection-response. At the same time, new workloads like edge, IoT, and AI expand attack pathways and require coordinated controls across endpoints, networks, and applications.

OVERVIEW OF CHINA URBAN INTELLIGENT RAIL TRANSIT SYSTEM MARKET

Introduction of Urban Intelligent Rail Transit System

As a core component of the urban public transportation system, rail transit plays a pivotal role in alleviating traffic congestion and improving travel efficiency. China Urban intelligent rail transit systems are based on new information technologies driven by AI, enabling the full-lifecycle management and efficient scheduling of urban rail systems. Classified by functional type, they mainly fall into two categories: one is the Vehicle Operation Control System, represented by signaling system solutions; the other is the Station Operation and Management System, encompassing the Automatic Fare Collection (AFC) System, Platform Screen Door (PSD) System, Integrated Supervisory Control System (ISCS), and Communication Systems.

The Station Operation and Management System centers on station operation and maintenance, encompassing environmental control and passenger services. It emphasizes automation and intelligent technology applications, with its primary scope covering professional equipment control and multi-system integration. Unlike the signaling system, which provides safety-critical movement authority, the Station Operation and Management System focuses on station-level services, operational management and resource efficiency, enhancing passenger experience, energy efficiency and maintenance responsiveness, thereby supporting safe, reliable and cost-effective network operations.

Automatic Fare Collection (AFC)

The AFC system manages the entire ticketing cycle from ticket sales, validation at entry and exit gates, to clearing and settlement of fare revenues. It ensures fare accuracy, improves passenger convenience through diverse media, and generates passenger-flow data for forecasting and operational planning.

Platform Screen Door (PSD) System:

PSD provides physical segregation between trains and platforms, preventing falls and other accidents, while contributing to environmental control of the platform area. Modern PSDs incorporate sensors and monitoring functions that support predictive maintenance, helping to enhance passenger safety and reduce service disruptions.

Integrated Supervisory Control System (ISCS)

The ISCS acts as the central hub for monitoring and managing station subsystems, such as HVAC, lighting, elevators and escalators, fire protection, power supply, and security equipment. It provides centralized control, remote operation, and automated alarms, enabling efficient daily operations and rapid cross-system response in emergencies.

Communication System

The communication system underpins both daily station management and emergency command. It includes dedicated wireless networks, optical transmission, and switching platforms that ensure voice, data, and video connectivity. It also provides the backbone for interconnection among AFC, PSD, and ISCS systems, supporting real-time data exchange and coordinated management.

China Urban Intelligent Rail Transit System Market Size

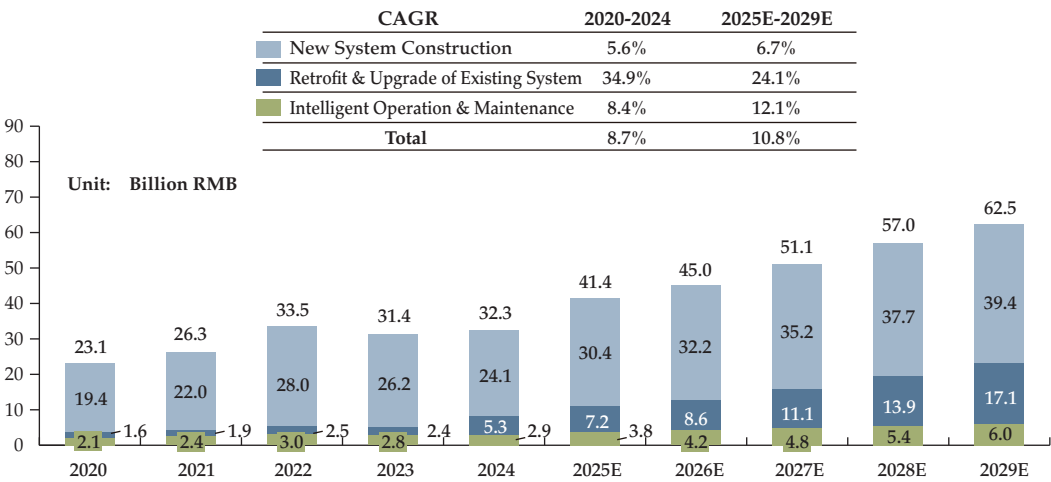
Supported by strong policy support and growing demand for upgrades to existing urban rail infrastructure equipment in China, the urban intelligent rail transit market is expected to

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maintain robust growth in the future. According to Frost & Sullivan, China urban intelligent rail transit system market grew from RMB23.1 billion in 2020 to RMB32.3 billion in 2024, representing a CAGR of 8.7%, and is expected to reach RMB62.5 billion in 2029, representing a CAGR of 10.8% from 2025 to 2029.

Driven by operating mileage of urban rail transit continues to grow and new generation of intelligent and automated equipment, the retrofitting and upgrading existing urban intelligent rail transit systems market is expected to maintain growth in the future. According to Frost & Sullivan, the market size for retrofitting and upgrading existing urban intelligent rail transit systems in China was RMB5.3 billion in 2024 and is expected to reach RMB17.1 billion by 2029, representing a CAGR of 24.1% from 2025 to 2029.

China Urban Intelligent Rail Transit System Market Size



Source: China Association of Metros (CAMET), Expert Interview, Frost & Sullivan

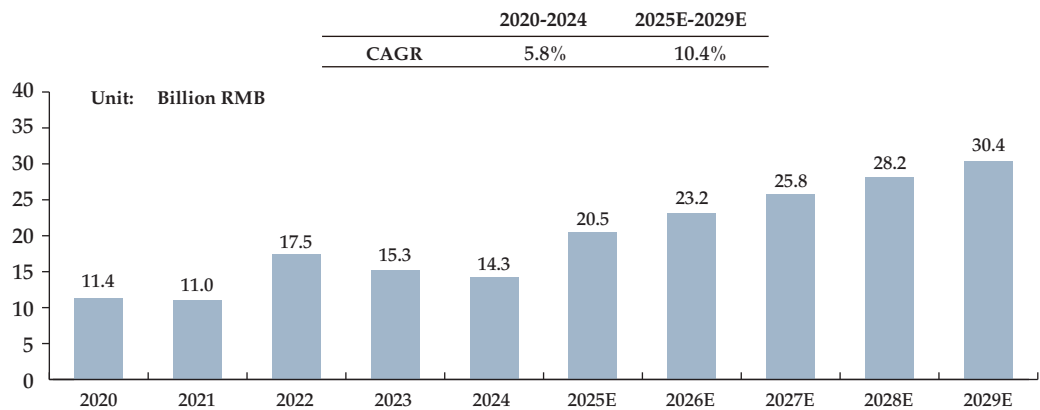
China Urban Rail Station Operation and Management System Market Size

As a key component of the overall urban intelligent rail transit system, the Station Operation and Management System plays a vital role in enhancing operational efficiency and passenger experience. China’s urban rail station operation and management system market declined in 2023 due to slower project development and extended implementation cycles. Construction investment fell to RMB521.4 billion, representing a 4.22% year-on-year decrease, while newly commissioned metro mileage declined and the length of underground lines under construction also contracted. Meanwhile, stricter post-pandemic requirements for safety assessments, joint commissioning and data governance lengthened verification and acceptance processes. These factors collectively slowed procurement for AFC, PSD, ISCS and communication systems, resulting in lower bidding volumes and a reduced market size. Looking ahead, the market is expected to resume growth, supported by national policy emphasis on intelligent rail development and the retrofit of existing systems, which is driving sustained demand for upgrades, intelligent operation and maintenance. According to the Guiding Opinions on the Renovation and Upgrading of Existing Urban Rail Transit Lines in China (《中國城市軌道交通既有線改造指導意見》) issued by the China Association of Metros (CAMET) in June 2024, renovation projects may require approximately RMB9.4 billion per year during the initial three-year phase, and the estimated annual investment may increase to approximately RMB15.4 billion in the subsequent five-year period.

According to Frost & Sullivan, China Urban Rail Station Operation and Management System market reached RMB14.3 billion in 2024, and is expected to reach RMB30.4 billion in 2029, representing a CAGR of 10.4% from 2025 to 2029.

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China Urban Rail Station Operation and Management System Market Size



Source: China Association of Metros (CAMET), Expert Interview, Frost & Sullivan

Competitive Landscape of China Urban Rail Station Operation and Management System

According to Frost & Sullivan, China Urban Rail Station Operation and Management System market reached RMB14.3 billion in 2024, with the top five players accounting for 39.4% of the market. In terms of revenue in 2024, we ranked first in China Urban Rail Station Operation and Management System market, holding a 15.5% share.

Entry Barriers of China Urban Intelligent Rail Transit System Market

Technological Barriers of AI Foundation Model and System Development

As urban intelligent rail transit systems demand increasingly higher levels of intelligence, AI foundation models are becoming a critical underlying technology in solution architectures. Companies must possess not only cutting-edge algorithmic capabilities but also the ability to deeply integrate these algorithms into core rail transit scenarios. AI foundation models must process vast volumes of multimodal data while ensuring both reliability and real-time responsiveness.

Barrier of Qualifications and Project Admission

To enter the urban rail transit market, companies must meet a comprehensive set of specialized and regulatory qualification requirements. These qualifications are not only difficult to obtain and time-consuming, but also serve as mandatory thresholds in government-led bidding processes. For new entrants lacking the necessary qualifications or relevant project experience, it is extremely difficult to access core segments of the urban rail transit business in the short term.

Drivers and Trends of China Urban Intelligent Rail Transit System Market

The Retrofit and Upgrading of Existing Systems, Along with Intelligent Operation and Maintenance, are Key Drivers of Industry Development

With the rapid expansion of China’s urban rail transit network, early-stage urban intelligent rail transit systems are gradually entering their equipment renewal cycle, releasing continuous demand for retrofitting and significant market potential. Meanwhile, operation and maintenance models are also evolving. Previously dominated by government-led metro operators, they are now shifting as increasing system complexity and higher efficiency requirements drive robust growth in intelligent operation and maintenance demand, and the proportion of self-operation has gradually decreased. The rising share of outsourcing services further accelerates the intelligent operation and maintenance market.

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Overseas Expansion as a Key Growth Driver

As China’s intelligent rail transit technologies mature, an increasing number of Chinese companies are expanding into overseas markets. Under the Belt and Road Initiative, regions such as Southeast Asia and the Middle East are experiencing a surge in rail infrastructure demand, creating significant opportunities for Chinese intelligent rail solutions. With accumulated experience in urban intelligent rail transit systems, Chinese companies are well-positioned to compete internationally. In the future, a combination of “technology export + localized services” is expected to become a major growth engine for intelligent rail transit providers.

OVERVIEW OF CHINA URBAN INTELLIGENT TRANSPORTATION SYSTEM MARKET

Introduction of Urban Intelligent Transportation System

Urban transportation is a fundamental support system for urban operations and a key guarantee for residents’ mobility and economic activities. Urban intelligent transportation systems are integrated solutions based on advanced information technologies that enable dynamic sensing, intelligent control and efficient operation of urban road traffic. In the context of ongoing urbanization, these systems aim to alleviate congestion, enhance travel efficiency and road safety, and support refined management and dynamic control of urban traffic, primarily covering intelligent traffic management, intelligent parking and vehicle road collaboration.

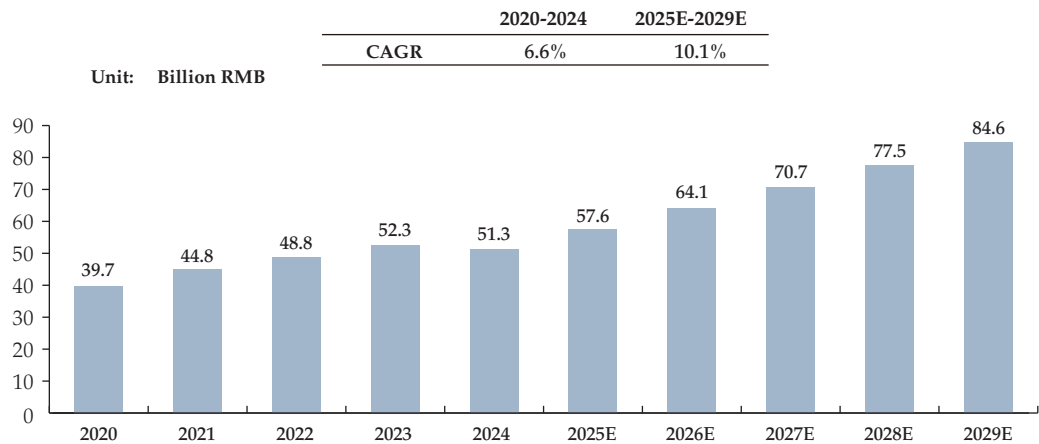
China Urban Intelligent Transportation System Market Size

China urban intelligent transportation system market experienced a temporary decline from 2023 to 2024, mainly due to weaker investment momentum and tighter project-approval conditions. Nationwide transport fixed asset investment growth slowed amid tighter local fiscal capacity and stricter controls on new government spending, prompting many cities to postpone or scale down intelligent-transportation deployments. Industry participants including traditional ITS integrators, internet companies and major state-owned companies also adopted more cautious business strategies and selective bidding in response to the softer investment environment. China’s urban intelligent transportation is currently in a phase of accelerated development and deepening application. Local governments are actively promoting the intelligent transformation of transportation systems, aiming to achieve real-time monitoring, precise scheduling, and systematic optimization of urban traffic operations. Looking ahead, national policies on large-scale equipment renewal, digital transport and logistics cost reduction are expected to support a recovery in investment in urban intelligent transportation. As these policies are implemented, the market is expected to resume growth and record a higher CAGR over 2025 to 2029.

According to Frost & Sullivan, China urban intelligent transportation system market grew from RMB39.7 billion in 2020 to RMB51.3 billion in 2024, representing a CAGR of 6.6%. Driven by government policy support, accelerating urbanization, and technological advancements, China’s urban intelligent transportation system market is expected to maintain consistent growth in the future. According to Frost & Sullivan, it is projected that China urban intelligent transportation system market would reach RMB84.6 billion in 2029, representing a CAGR of 10.1% from 2025 to 2029.

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China Urban Intelligent Transportation System Market Size



Source: China Intelligent Transportation Systems Association, Frost & Sullivan

Competitive Landscape of China Urban Intelligent Transportation System Market

According to Frost & Sullivan, China urban intelligent transportation system market reached RMB51.3 billion in 2024. As an AI-driven system integrator specializing in the transportation sector, we ranked 13th in China urban intelligent transportation system market in terms of revenue in 2024.

Entry Barriers of China Urban Intelligent Transportation System Market

Technical Barriers

Urban intelligent transportation systems leverage cloud computing, big data, intelligent video analysis, and AI to convert complex traffic rules into computer-executable logic, enabling real-time perception and dynamic management of the entire road network. The system can quickly detect and respond to traffic events, ensuring precise control. Developing such a city-level real-time intelligent traffic platform requires leading capabilities in algorithms, data processing, system architecture, and hardware-software integration, while maintaining stability under high concurrency, creating very high barriers to entry.

Full-scale Data Perception and Data Governance Barriers

The efficient operation of urban intelligent transportation systems depends on real-time perception of comprehensive road network data, including static infrastructure (road signs, signals, intersections) and dynamic information (traffic flow, vehicle speed, GPS trajectories, travel patterns, weather, and incidents). The system must handle massive multi-source data and convert it into computer-readable logic, placing high demands on data governance, including data cleaning, standardization, integration, and real-time analysis.

Drivers and Trends of China Urban Intelligent Transportation System Market

AI Technology Drives Urban Intelligent Transportation Systems Toward Proactive Prediction and Intelligent Decision-making

With the rapid development of AI, urban intelligent transportation systems are transitioning from passive monitoring to proactive prediction and intelligent decision-making. Leveraging the deep learning capabilities of big data and large AI models, these systems can analyse traffic flow trends in advance, accurately predict potential congestion and accident risks, and enable proactive management. AI empowerment enhances the systems’ autonomous perception and decision-making capabilities, positioning them as intelligent hubs in urban traffic management.

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From Single-Point Applications to Integrated Management and Control: Building the "Urban Traffic Brain"

Urban intelligent transportation development is transitioning from single systems to a stage of integrated collaborative decision-making. By breaking down data silos across departments, cities are building an integrated "Urban Traffic Brain." Based on a unified data resource pool, technologies such as cloud computing, big data, intelligent video analysis, and AI are integrated to enable data interoperability and business coordination across various systems. In particular, integrated transportation is expected to become a core direction of future development, emphasizing the seamless coordination of multiple transport modes through unified platforms that support cross-modal management and improve overall operational efficiency.

Historical Price Trends of Major Raw Materials

Labour cost as a key input

In the ICT products and services industry, direct labour is a fundamental cost component that functions similarly to raw materials. The Group's solutions integrate hardware, software and services, all of which depend heavily on skilled labour inputs.

The average annual wage of employees in the "Information Transmission, Software and Information Technology Services" sector was RMB101,281; RMB114,618; RMB123,894; RMB129,251; RMB123,193 from 2020 to 2024. This reflects a steady upward trend in staff costs during the past five years, underscoring sustained cost pressure from human capital as the sector expands and competition for skilled personnel remains intense.

Producer Price Index (PPI)

The Producer Price Index (PPI) measures the overall change in factory-gate prices of industrial products sold by producers and serves as an indicator of cost trends in manufacturing. For the computer, communication and other electronic equipment manufacturing industry, the PPI reflects general movements in input costs for ICT hardware, components, and related manufacturing solutions.

The PPI remained broadly stable over the past five years, fluctuating within a narrow range. The index recorded 98.5, 99.9, 100.7, 98.3, 97.6 from 2020 to 2024, showing only a mild decline over the period. Overall, the cost of key materials has remained relatively stable.

SOURCE OF INFORMATION

In connection with the [REDACTED], we engaged Frost & Sullivan, an independent market research consultant, to conduct an analysis of and prepare a report on the AI and transportation industry in China and globally. We agreed to pay Frost & Sullivan a fee of RMB430,000 for the preparation of the Frost & Sullivan Report, and our Directors consider that such fee reflects market rates and are of the view that the payment of the fee does not affect the fairness of conclusions drawn in the Frost & Sullivan Report. Frost & Sullivan is an independent global consulting firm, founded in 1961 in New York. It offers industry research and market strategies, and provides growth consulting and corporate training. Our Directors confirm to the best of their knowledge, and after making reasonable enquiries, that there have been no adverse changes in the industry since the date of the Frost & Sullivan Report which may qualify, contradict or have an impact on the information set out in this section.

During the preparation of the Frost & Sullivan Report, Frost & Sullivan conducted primary research that involved discussing the status of the industry with leading industry participants and industry experts, as well as secondary research that involved reviewing company reports, independent research reports and Frost & Sullivan's own database. Except as otherwise noted, all the data and forecasts contained in this section are derived from the Frost & Sullivan Report.

The Frost & Sullivan Report was compiled based on the following assumptions: (i) global economy is likely to maintain steady growth in the next decade; (ii) global social, economic, and political environment is likely to remain stable in the forecast period; (iii) market drivers like favorable policies and regulations, and demand for AI application in the transportation sector, among others.