The data and statistics contained in this section and elsewhere in this document are, unless otherwise indicated, extracted from various official government publications and other publications, and an industry report prepared by Frost & Sullivan, an independent market research and consulting company commissioned by us in connection with the **[REDACTED]**. *We believe that the sources of this information are appropriate sources for such information and have taken reasonable care in extracting and reproducing such information. We have no reason to believe that such information is false or misleading or that any fact has been omitted that would render such information false or misleading. However, information from official government sources has not been independently verified by us, the Sole Sponsor, the Sponsor-Overall Coordinator, the Overall Coordinators,* **[REDACTED]**, *their respective directors and advisors, or any other persons or parties involved in the* **[REDACTED]**, *and no representation is given as to its accuracy.*

SOURCE OF INFORMATION

We commissioned Frost & Sullivan, an independent market research consultant, to conduct an analysis of and prepare a report on the smart retail cabinet operation industry in the PRC for use in this document, for which we paid a fee of RMB440,000. In compiling and preparing the Frost & Sullivan Report, Frost & Sullivan has adopted the following assumptions: (i) the current social, economic and political conditions in the PRC will remain stable during the forecast period, (ii) the PRC government's policies on the smart retail cabinet operation industry will remain consistent during the forecast period, and (iii) the smart retail cabinet operation industry in the PRC will be driven by the factors described in the report during the forecast period. Unless otherwise indicated, all data and forecasts contained in this section are derived from the Frost & Sullivan Report. The Frost & Sullivan Report was independently prepared by Frost & Sullivan and was not influenced by us or other interested parties.

Frost & Sullivan is an independent global consulting company founded in New York in 1961, whose services include, among others, industry consulting, market strategy consulting and corporate training. Frost & Sullivan conducted (i) primary research, including discussions with certain leading industry participants on the industry's current status and interviews with industry experts on a best-effort basis to collect data to assist in its in-depth analysis; and (ii) secondary research, including reviewing company reports, independent research reports and data from its own research databases.

BACKGROUND OF THE SMART RETAIL CABINET OPERATION INDUSTRY

Evolution of Unattended Retail Industry

Traditional retail, which relies primarily on physical stores and face-to-face interactions, faces three pain points that constrain its long-term growth potential: (i) high and largely fixed operating costs; (ii) limited digitalization; and (iii) inadequate scenario coverage. By eliminating the need for on-site staff, enabling flexible deployment across diverse locations, and supporting digital management, unattended retail offers a more efficient alternative to address these limitations.

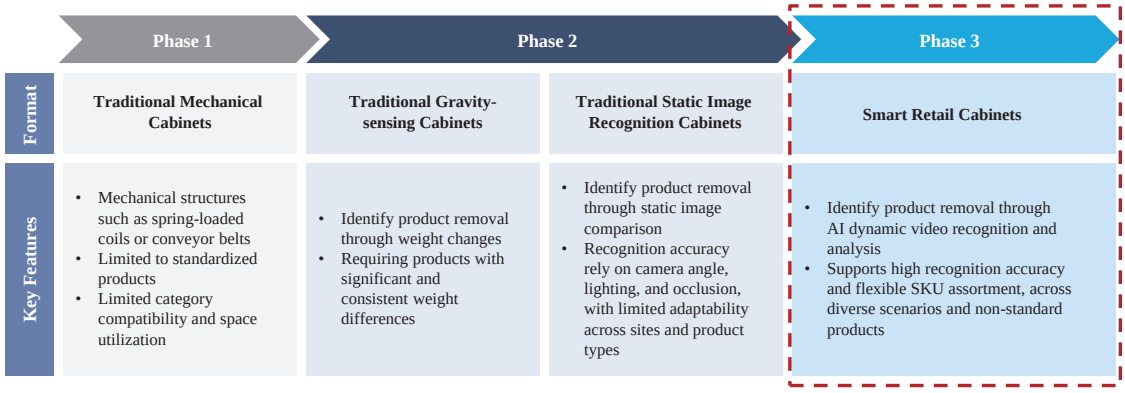
While unattended retail addresses many limitations of traditional physical stores, conventional vending machines remain constrained by three significant limitations: (i) high upfront investment and large physical footprints; (ii) fixed mechanical shelving that restricts product compatibility and SKU flexibility; and (iii) high equipment procurement costs coupled with manual-dependent operations. Smart retail cabinets, powered by AI dynamic video recognition technology, are designed to overcome each of these constraints, enabling more flexible deployment, broader product compatibility, and data-driven operational management at scale.

Development of Smart Retail Cabinets

Vending machines have evolved through three generations of technological iteration, progressively overcoming the product compatibility, recognition accuracy, and operational flexibility limitations of earlier formats. The emergence of smart retail cabinets, powered by AI dynamic video recognition technology, represents a fundamental shift from automated dispensing devices toward intelligent, data- driven retail terminals capable of serving a broad range of scenarios and consumer needs.

Smart retail cabinets entered an initial development phase between 2018 and 2019, gained momentum from 2022 to 2023, and have rapidly displaced traditional vending machines to become the mainstream choice in the industry. By 2025, smart retail cabinets accounted for 61.4% of the total vending machine installed base and 60.4% of total merchandise sales GMV generated across all vending machines.

Looking ahead, driven by the hardware advantages of smart retail cabinets combined with ongoing advancements in data-driven operational technology, penetration is expected to deepen further, accelerating the displacement of traditional vending machines and consolidating smart retail cabinets as the dominant form of unattended retail in China.



Analysis of Emerging Technologies

The intelligent capabilities of smart retail cabinets are built upon a foundation of closely coordinated hardware and software algorithms that support unattended operations, precise interaction, and efficient management.

At the hardware level, smart retail cabinets are built around three core components:

- **Multi-modal sensor array:** High-definition cameras, depth sensors, and shelf-integrated gravity sensors work in combination to enable continuous capture of user behavior and product status.
- **Edge computing units:** Equipped with dedicated AI chips, such as Neural Processing Units, these units support real-time local processing of video streams. Some operators have developed model compression and optimization capabilities to fully leverage edge-side AI inference, enabling instantaneous "grab-and-go, seamless checkout" transactions while reducing reliance on network bandwidth.
- **IoT communication modules:** Supporting 4G/5G cellular networks and Narrowband IoT connectivity for stable cloud connectivity, complemented by temperature sensors and smart door locks.

Together, these components enable seamless data collection, on-device inference, and command execution, ensuring high recognition accuracy, loss prevention, and reliable operation across diverse deployment environments.

At the software and algorithm level, smart retail cabinets are powered by the following capabilities:

- **Computer vision and AI recognition models** for real-time product and behavior identification.
- **Sales forecasting and smart restocking algorithms** that integrate historical sales, weather, and site data to automate replenishment plans and dynamic pricing strategies at scale; only some operators have developed the data assets and algorithm maturity to support these capabilities.
- **Large model integration** that enables natural language interaction for intelligent shopping guidance.
- **Cloud-based management platform** responsible for continuous model training, remote monitoring, fault alerts, inventory management, and business data analysis, transforming smart retail cabinets from automated devices into intelligent commercial nodes and driving improvements in transaction value, inventory turnover, and operational efficiency across large-scale terminal networks.

Advantages of Smart Retail Cabinets

Flexible deployment and broad scenario coverage. Smart retail cabinets require a smaller footprint and lower per-unit investment compared to traditional vending machines, enabling penetration into dispersed and enclosed scenarios — such as offices, commercial venues, leisure and entertainment venues, among others — that were previously difficult to serve, supporting large-scale network replication across a wide range of deployment locations.

Data-driven operations and higher operational efficiency. Real- time collection of sales, inventory, and user behavior data across each cabinet enables algorithm- driven product selection, dynamic pricing, and replenishment decisions. AI dynamic video recognition further extends product compatibility beyond the standardized SKU limitations of traditional vending machines, supporting flexible assortment configuration and driving improvements in inventory turnover and merchandise sell-through rates.

Lower operating costs. Smart retail cabinets carry a lower per-unit equipment cost than traditional vending machines, and their remote monitoring and automated management capabilities reduce the need for manual on-site inspections and maintenance. As the network scales, per-site operating costs are progressively diluted, creating an increasingly favorable unit economics profile and a more efficient overall profitability model.

Together, these advantages make smart retail cabinets a better alternative to traditional vending machines. However, realizing the full commercial potential of smart retail cabinets requires more than hardware deployment — it demands sophisticated operational capabilities spanning site network management, product assortment optimization, pricing strategy, inventory replenishment, supply chain management, and market positioning to drive sustainable profitability at scale. This has given rise to a rapidly growing smart retail cabinet operation industry.

OVERVIEW OF SMART RETAIL CABINET OPERATION INDUSTRY

Definition of Smart Retail Cabinet Operation

Smart retail cabinet operation refers to a retail model in which an operator directly sells merchandise to end consumers through a network of smart retail cabinets deployed across various scenarios. Unlike terminal manufacturers or technology suppliers, the operator is responsible for site acquisition, equipment deployment, daily maintenance, product replenishment, and marketing operations to drive merchandise sales.

Challenges of Smart Retail Cabinet Operation

Competition for premium sites. As service offerings among operators become increasingly homogeneous, site resources secured through competitive bidding have given rise to price competition, with operators driving up rental costs to retain or acquire locations. This dynamic is particularly pronounced in scenarios such as transportation hubs and shopping malls, where premium site resources are scarce, intensifying the pressure on operators' cost structures and profit margins.

Diverse and fragmented product demand. A large number of terminals are widely installed in vastly different scenarios, such as office buildings, communities, and industrial parks. The customer profiles, consumption habits, and product preferences at each site vary significantly, leading to highly diverse and fragmented product demand at the terminal level. Operators must build a highly flexible supply chain and an intelligent dispatching system to accurately respond to a large number of dispersed and dynamically changing replenishment orders.

Challenges in remote operations management. Although terminals have achieved unmanned front-end transactions, back-end processes such as replenishment execution, inventory counting, equipment maintenance, and user services still need to be completed offline. A lack of efficient tools and processes to ensure that offline actions accurately respond to online commands will lead to problems such as untimely replenishment, inaccurate inventory, and slow service response, making it difficult to implement operational decisions and affecting terminal service quality and operational efficiency.

The leap from single-site operation to large-scale network management. As operators scale from single-site to large networks, the complexity of coordinating dispersed locations — spanning inventory monitoring, replenishment scheduling, product selection, and dynamic pricing — increases significantly. Manual management becomes increasingly inefficient and error-prone at scale, making full-process digitalization and automation essential for operators to maintain operational efficiency and profitability across a growing site network.

These challenges are difficult to address through traditional vending machine. The emergence of new hardware capabilities combined with rapid iteration in operational technologies is creating the conditions to address these challenges. As these technologies continue to mature, operators are increasingly equipped to manage site competition more strategically, respond to fragmented demand more precisely, and coordinate large distributed networks more efficiently, unlocking the full growth potential of the smart retail cabinet operation industry.

Technological Iteration of Smart Retail Cabinet Operation

1.0 Digitalization Phase: Daily operational processes for products, orders, and equipment are moved from offline to online, achieving digital management of basic functions. However, the systems are often independent of each other, creating information silos, and mainly serve small and medium-sized operators in completing basic tasks.

2.0 Systemization Phase: Building on foundational online capabilities, systems such as WMS and ERP are introduced to aggregate data and enable process collaboration, achieving full digitalization across warehousing, replenishment, and sales, and laying the foundation for large-scale operations.

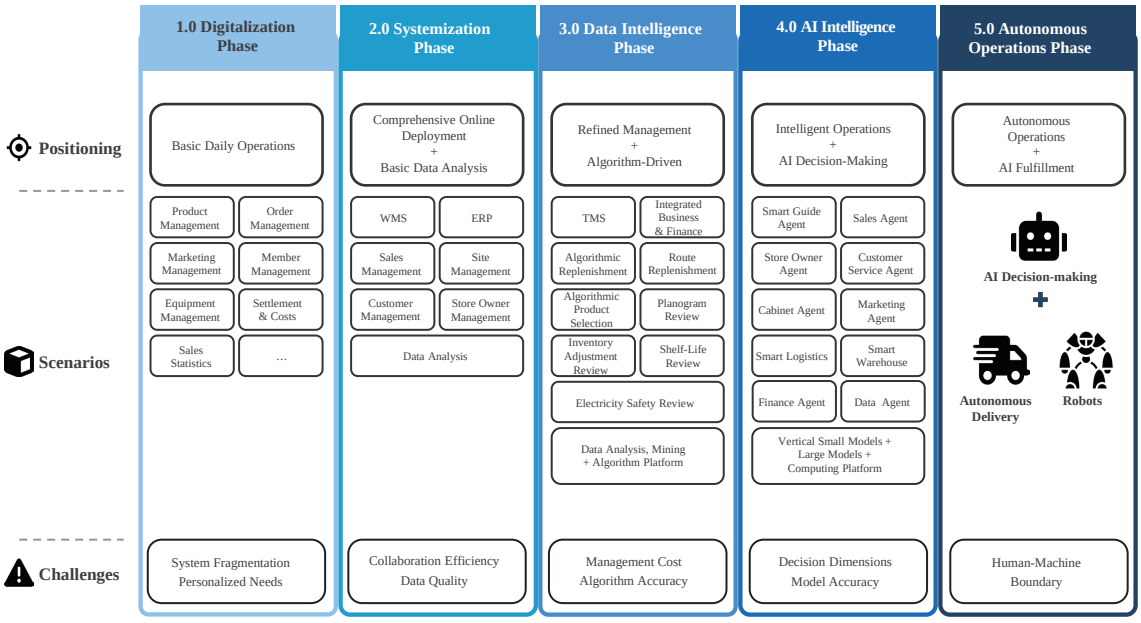
3.0 Data Intelligence Phase: Core processes such as replenishment, product selection, and planogram audit are driven by algorithm platforms, marking the transition from digital recording to data-empowered decision-making, enabling refined management and directly addressing pain points in inventory and operational efficiency.

4.0 AI Intelligence Phase: AI agents are deployed across vertical scenarios such as sales, customer service, and cabinet management, leveraging large model capabilities to achieve automated decision-making in demand forecasting, inventory optimization, replenishment planning, and resource allocation, marking the transition from human-led management to AI-driven operations.

5.0 Autonomous Operations Phase: AI evolves from a decision-making tool to the core driver of fully automated operations, achieving complete integration between AI decision-making and fulfillment. Through deep integration with unmanned delivery, autonomous robotic replenishment, intelligent sorting, and embodied intelligence technologies, the full operational chain is closed into a seamless autonomous loop, building a highly autonomous and self-adaptive smart retail ecosystem.

Currently, smart retail cabinet operations are transitioning from the 2.0 phase to the 3.0 phase. Most enterprises are still in the 2.0 phase and are making preliminary attempts to explore the 3.0 phase. Leading companies are already transitioning from the 3.0 phase to the 4.0 phase. Looking ahead, technological evolution is expected to advance further toward the 5.0 phase, with AI agents more deeply integrated into full-chain operations and robotic systems taking over physical execution tasks such as replenishment and delivery, enabling cross-scenario collaboration and increasingly sophisticated automated operations.

Technological Evolution of Smart Retail Cabinet Operation

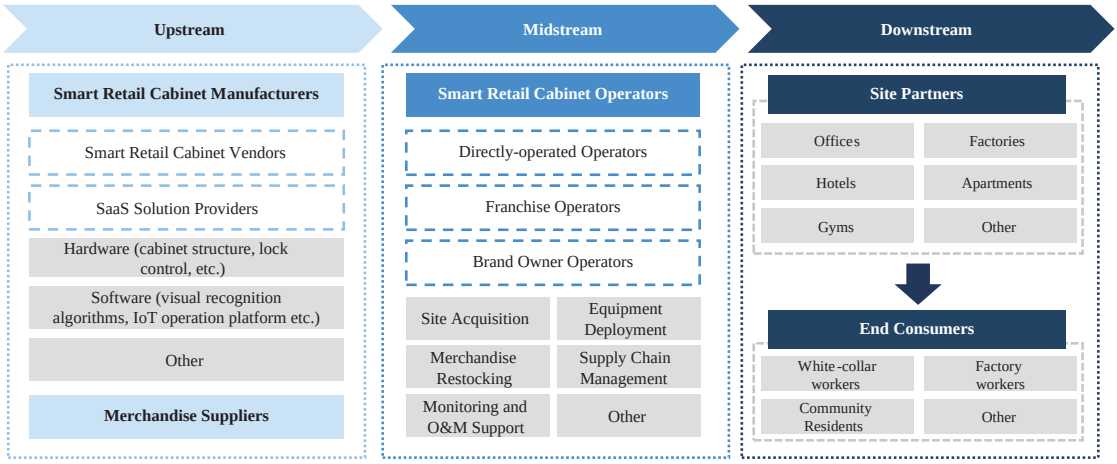


Source: Frost & Sullivan

Analysis of Smart Retail Cabinet Operation Industry Chain

The upstream is dominated by smart retail cabinet manufacturers, SaaS solution providers, and merchandise suppliers. The midstream consists of entities responsible for the commercialization and large-scale operation of the terminals, including directly-operated operators, franchise operators, and brand owner operators. The main responsibilities of midstream operators include site acquisition, equipment deployment, technology integration, product replenishment, supply chain management, remote monitoring and operational support, marketing and membership operations, and data analysis and monetization. Their main cost is merchandise procurement costs. The downstream consists of site partners that supply deployment locations, enabling smart retail cabinets to serve end consumers with 24/7 self-service retail access.

Smart Retail Cabinet Operation Industry Chain



Source: Frost & Sullivan

Analysis of Smart Retail Cabinet Operation Scenarios

Leveraging their flexible deployment and unattended nature, smart retail cabinets have widely penetrated various core scenarios of daily life and work. Based on the difference in single-site GMV, these scenarios can be further divided into two categories: light-traffic and high-traffic scenarios. Among them, light-traffic scenarios are particularly crucial as the basic units for network expansion. They precisely penetrate areas that are difficult for traditional retail to cover, such as offices, small gyms, and remote towns. By leveraging low costs and algorithm-driven operations, they tap into stable demand within limited customer traffic, making them a key factor in achieving large-scale penetration:

High-traffic Scenarios (monthly GMV per cabinet above RMB2,000): High-traffic scenarios refer to deployments in high-traffic open areas, resulting in high single-site GMV potential. The core operational priority is ensuring high-frequency replenishment and transaction efficiency to capture concentrated customer flow. The requirements for product variety and new product introduction are relatively limited, resulting in comparatively lower overall operational complexity.

Light-traffic Scenarios (monthly GMV per cabinet of RMB2,000 or less): Light-traffic scenarios refer to deployments in enclosed, semi-enclosed, or remote areas with limited but stable customer traffic. These locations are typically underserved by traditional retail, and the consumer base is fixed with clear purchasing intent and high repeat purchase potential. The core operational challenge lies in achieving refined management, dynamic product refreshment, and cost control with limited customer traffic.

Comparison Analysis of High-Traffic Scenarios and Light-Traffic Scenarios

Analysis Dimension	High-traffic Scenarios	Light-traffic Scenarios
Examples of Typical Scenarios	Transportation hubs, large hospitals, tourist attractions, core business districts	Offices, apartment front desks, small gyms, remote factory areas
Core of Site Expansion	**Resource-intensive:** High site acquisition costs and intense competition for premium locations, requiring ongoing investment in customer relationship management to secure long-term site retention. Brand owner operators with strong supply chain capabilities hold a structural advantage in this segment	**Resource-light:** Low site acquisition and rental costs, with success primarily dependent on the management and execution efficiency of sales teams to develop and maintain dispersed sites at scale
Core of Operation	**Low service complexity:** The core lies in transaction smoothness and high-frequency replenishment, with low user interaction needs	**High service complexity:** Refined operations (e.g., product selection, pricing, promotions) to increase repeat purchases and average transaction value under limited customer flow
Market Space and Penetration	Relatively small market space, scarcity of premium sites, already high penetration rate, intense competition	Large market space, numerous and dispersed penetrable sites, currently low penetration rate, the main battlefield for scale expansion
Entry and Competitive Barriers	Core barriers are mainly in capital and resources (site cost, site acquisition), supply chain, and brand effect	Core barriers lie in technology and operational efficiency, and the ability to achieve profitable and scalable replication
Demand Characteristics/ Categories	Highly homogeneous demand, relatively standard and concentrated categories (mainly beverages and portable snacks)	Diverse demand and dispersed customer shopping times; categories need to be varied and highly adapted to the personalized preferences of specific scenarios
Suitable Operating Model	More suitable for the franchise/partner model given the heavy reliance on site resources	Suitable for direct operation model to achieve a closed-loop for full-chain data and precise operations
Technology Requirements	Relatively low technology dependency	High technology investment and dependency, with data analytics and algorithm-driven decision-making being essential

Analysis of Smart Retail Cabinet Operation Models

The operating models for smart retail cabinets are mainly divided into direct operation and franchise models:

Direct Operation Model: The operation provider directly invests capital, equipment, and human resources, and is responsible for all aspects, from site development, equipment deployment, daily replenishment and maintenance to marketing.

Franchise/Partner Model: The operator provides the equipment, technology platform, supply chain, and brand standards, while franchisees or partners are responsible for site development, maintenance, and customer relationship management, with profits shared according to their agreement.

Comparison Analysis of Direct Operation Model and Franchise/Partner Model

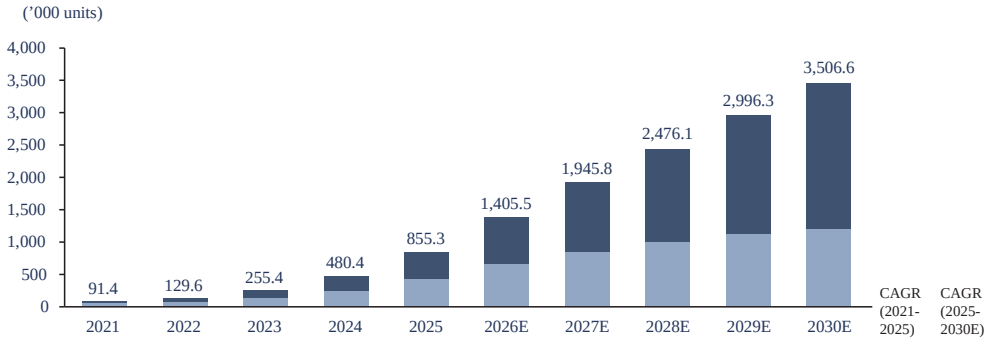
Comparison Dimension	Direct Operation Model	Franchise/Partner Model
Capital Investment	Operator directly invests all capital	Reduces operator's capital pressure
Site Acquisition	Operator collaborates directly with site providers	Operator collaborates with the franchise/partner, the franchise/partner then collaborates with site providers
Expansion	Driven by operator's own capital investment and team resources, with strong control and unified management across all sites	Driven by franchisees/partners with lower direct resource commitment, with weak control and reliance on franchisees/partners
Algorithm Execution Efficiency	Full-chain, high-quality operational data enables algorithms to be executed directly at the terminal level with high efficiency and rapid response, ensuring consistently high service quality and uniform service standards	Poor and incomplete data quality, combined with dependence on franchisees/partners for terminal-level execution, introducing inconsistencies and reducing implementation effectiveness
Operation Threshold	Despite lower per-cabinet GMV at light-traffic sites, centralized management enables operators to achieve profitability, allowing continuous operational support for light-traffic sites	As light-traffic sites are difficult to operate profitably on a standalone basis and franchisees/partners bear their own operational costs, higher per-cabinet GMV requirements make low-traffic sites economically unviable and likely to be abandoned
Management and Quality Consistency	Full control over operational standards, ensuring consistently high service quality and uniform service standards across all sites	Franchisees/partners operate with a degree of autonomy, making it difficult to enforce standardized practices and resulting in potential variance in service quality across sites
Management Requirements	High management complexity, requiring rigorous oversight of teams, processes, and operational details to ensure consistent execution across all sites	Lower management complexity for the operator, as franchisees/partners are self-funded and bear their own operational responsibilities

Market Size Analysis of Smart Retail Cabinet Operation

Smart retail cabinets began to emerge between 2018 and 2019. Leveraging technological advantages such as AI dynamic video recognition, they rapidly replaced traditional vending machines. From 2021 to 2025, it grew from 91.4 thousand units to 855.3 thousand units, with a CAGR of 74.9% during the period. Their share of the total installed base of vending machines rose rapidly from 9.9% in 2021 to 61.4% in 2025, becoming the mainstream of the market. In the future, as the substitution of traditional vending machines nears completion and the installed base in core scenarios approaches saturation, growth is expected to moderate and enter a steady growth period. By 2030, the installed base is projected to reach 3,506.6 thousand units, representing 95.2% of the total vending machine market — reflecting the near-complete transition of the industry to smart retail cabinets.

Among them, the long-tail, dispersed sites covered by light-traffic scenarios are vast and yet to be developed. Coupled with lower unit prices for equipment and flexible deployment, they are more conducive to scalable replication. In the future, its installed base of smart retail cabinets is expected to grow from 424.4 thousand units in 2025 to 2,296.7 thousand units in 2030, with a CAGR of 40.2% during the period, significantly higher than that of high-traffic scenarios.

Market Size of Smart Retail Cabinet Operation (by installed base), China, 2021-2030E

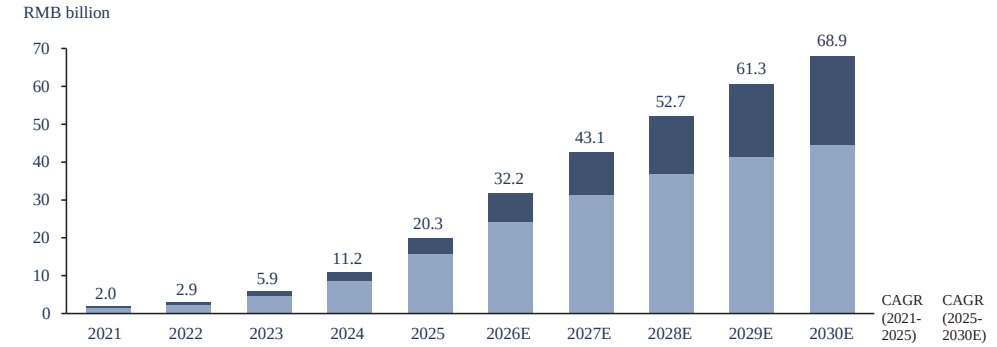


	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E	CAGR (2021-2025)	CAGR (2025-2030E)
Light-traffic scenarios	40.8	59.5	120.4	232.4	424.4	742.0	1,089.1	1,464.5	1,867.3	2,296.7	79.6%	40.2%
High-traffic scenarios	50.6	70.1	135.0	248.0	430.9	663.5	856.7	1,011.6	1,129.0	1,209.9	70.8%	22.9%
Total	**91.4**	**129.6**	**255.4**	**480.4**	**855.3**	**1,405.5**	**1,945.8**	**2,476.1**	**2,996.3**	**3,506.6**	**74.9%**	**32.6%**

Source: Expert interviews, Frost & Sullivan

In terms of GMV, the market size of smart retail cabinet operation in the PRC is expected to grow from RMB20.3 billion in 2025 to RMB68.9 billion in 2030, representing a CAGR of 27.7% during the period. Within this market, high-traffic scenarios currently dominate, accounting for 77.8% of total GMV in 2025, driven by their higher per-cabinet transaction volumes. High-traffic scenarios are predominantly served by brand owner operators, whose inherent supply chain advantages enable them to meet the high-frequency replenishment demands characteristic of these locations. Looking ahead, as the installed base of smart retail cabinets in light-traffic scenarios expands rapidly, the GMV contribution from light-traffic scenarios is expected to grow significantly, rising from 22.2% in 2025 to 34.7% by 2030.

Market Size of Smart Retail Cabinet Operation (by GMV), China, 2021-2030E

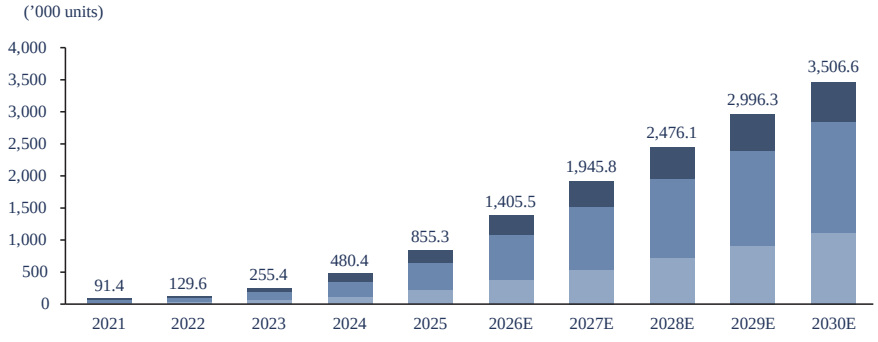


	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E	CAGR (2021-2025)	CAGR (2025-2030E)
Light-traffic scenarios	0.4	0.6	1.2	2.4	4.5	7.8	11.4	15.3	19.5	23.9	83.1%	39.6%
High-traffic scenarios	1.6	2.3	4.7	8.8	15.8	24.4	31.7	37.4	41.8	45.0	77.3%	23.3%
Total	**2.0**	**2.9**	**5.9**	**11.2**	**20.3**	**32.2**	**43.1**	**52.7**	**61.3**	**68.9**	**78.5%**	**27.7%**

Source: Expert interviews, Frost & Sullivan

By city tier, the number of smart retail cabinets in tier-2 cities in 2025 is 436.2 thousand units, accounting for 51.0%, the highest proportion among all city tiers. In 2025, the number of smart retail cabinets per thousand people is 2.5 units in tier-1 cities, 1.0 unit in tier-2 cities, and only 0.2 units in tier-3 and below cities, indicating significant room for market growth. While tier-1 and tier-2 cities benefit from relatively mature retail ecosystems, tier-3 and below cities remain underserved, particularly in communities, factory zones, and urban-rural fringes where standardized convenience retail networks are largely absent. This infrastructure gap underpins the strong growth outlook for lower-tier markets. By 2030, the installed base of smart retail cabinets in tier-3 and below cities is expected to reach 1,123.1 thousand units, with a CAGR of 39.3% from 2025 to 2030, the fastest growth rate among all city tiers.

Market Size of Smart Retail Cabinet Operation (by installed base), China, 2021-2030E

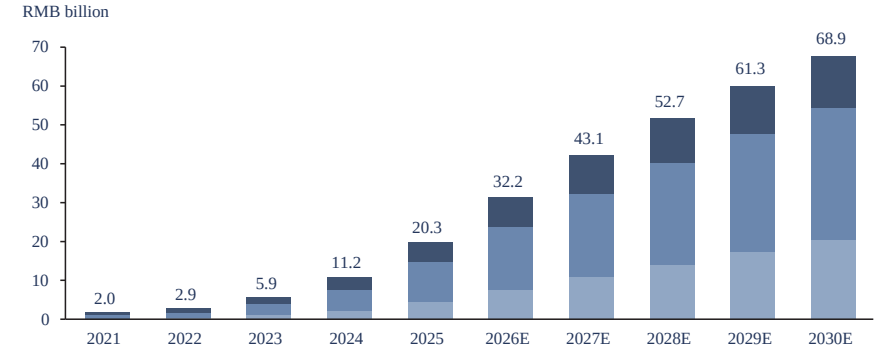


	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E	CAGR (2021-2025)	CAGR (2025-2030E)
Tier-1 cities	32.9	42.8	76.6	129.6	205.2	320.3	420.1	504.9	575.0	630.9	58.0%	25.2%
Tier-2 cities	44.3	63.6	127.0	241.9	436.2	714.0	984.4	1,247.7	1,503.7	1,752.6	77.1%	32.1%
Tier-3 and below cities	14.2	23.2	51.8	108.9	213.9	371.2	541.3	723.5	917.6	1,123.1	97.0%	39.3%
Total	**91.4**	**129.6**	**255.4**	**480.4**	**855.3**	**1,405.5**	**1,945.8**	**2,476.1**	**2,996.3**	**3,506.6**	**74.9%**	**32.6%**

Source: Expert interviews, Frost & Sullivan

In terms of GMV, the market size of smart retail cabinet operation in tier-3 and below cities is expected to grow from RMB4.6 billion in 2025 to RMB20.8 billion in 2030, representing a CAGR of 35.2% during the period.

Market Size of Smart Retail Cabinet Operation (by GMV), China, 2021-2030E



	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E	CAGR (2021-2025)	CAGR (2025-2030E)
Tier-1 cities	0.8	1.1	1.9	3.3	5.3	8.0	10.1	11.7	12.8	13.5	60.4%	20.6%
Tier-2 cities	1.0	1.5	2.9	5.7	10.4	16.4	21.9	26.7	30.9	34.6	79.6%	27.2%
Tier-3 and below cities	0.2	0.3	1.1	2.2	4.6	7.8	11.1	14.3	17.6	20.8	119.0%	35.2%
Total	**2.0**	**2.9**	**5.9**	**11.2**	**20.3**	**32.2**	**43.1**	**52.7**	**61.3**	**68.9**	**78.5%**	**27.7%**

Source: Expert interviews, Frost & Sullivan

Market Drivers and Development Trends of the Smart Retail Cabinet Operation Industry

Rising labor costs drive long-term growth of unattended retail. As labor costs in China continue to rise, the profitability of labor-intensive retail formats is under increasing structural pressure, driving operators to seek more cost-efficient alternatives. Unattended retail formats reduce reliance on on-site labor while serving fragmented retail scenarios more efficiently and maintaining convenient consumer access, making them an increasingly attractive operational model. Smart retail cabinet operation, as the advanced form of unattended retail, is expected to see significant market expansion as operators increasingly transition toward more automated and technology-enabled operations.

Rising operating costs accelerate the replacement of traditional vending machines. As rent and labor costs continue to rise, traditional vending machine operators face mounting pressure to improve efficiency and reduce manual involvement across increasingly dispersed networks.

Smart retail cabinets, supported by computer vision, real-time inventory monitoring, and algorithm-driven operating systems, address these limitations through more accurate product recognition, flexible SKU assortment, and demand-based replenishment planning, enabling operators to reduce per-site costs and achieve more scalable network expansion. By 2030, smart retail cabinets are projected to account for 95.2% of the total vending machine installed base and 94.8% of total merchandise sales GMV generated across all vending machines, reflecting the ongoing displacement of traditional vending machines across the industry.

Evolving consumer demand is driving market penetration. Consumers' increasingly fragmented, scenario-based, and immediate consumption patterns require retail services with high response speed and broad touchpoint coverage. As consumer awareness and acceptance of smart retail cabinets continue to rise, adoption has expanded rapidly across diverse scenarios driving sustained growth in the industry.

Business owners embracing smart retail cabinets as essential amenity facilities. Offices, apartment buildings, gyms, and other business owners are increasingly introducing smart retail cabinets as a value-added service to meet the on-demand consumption needs of their occupants and employees. As deployment costs decline and operational models mature, smart retail cabinets are expected to evolve into a standard amenity facilities across a wide range of commercial and residential sites.

Continuous hardware innovation enhancing user experience. The iterative advancement of hardware technologies has significantly improved product recognition accuracy, transaction speed, and operational reliability of smart retail cabinets. As the interactive experience becomes increasingly seamless and frictionless, the gap between unattended and traditional staffed retail continues to narrow, further accelerating consumer adoption and broadening the range of applicable deployment scenarios.

Advancing software capabilities and supply chain infrastructure enabling scalable operations. As data analytics, IoT connectivity, and cloud platform technologies mature, operators are able to capture real-time consumption patterns across dispersed sites, enabling tailored product selection, dynamic pricing, and personalized marketing at the individual cabinet level. Meanwhile, increasingly agile supply chain systems and mature instant delivery networks provide the logistical backbone to meet the high-frequency, fragmented replenishment demands at scale, collectively transforming dispersed cabinets into a coordinated, data-driven retail network.

COMPETITIVE LANDSCAPE ANALYSIS OF THE PRC SMART RETAIL CABINET OPERATION INDUSTRY

Competitive Landscape of Smart Retail Cabinet Operation Industry

China's smart retail cabinet operation industry is in a rapid development stage, characterized by the coexistence of intelligent operation and fragmented scenarios, driving enterprises to transform from single equipment providers to comprehensive operators. The current competitive landscape is characterized by an ecosystem of "platform empowerment + vertical specialization." Numerous specialized enterprises are leveraging their core advantages in specific scenarios or technological fields to deeply penetrate different scenarios such as office buildings, communities, and industrial parks, resulting in a relatively fragmented market.

Ranking and Market Share of the Smart Retail Cabinet Operators

In terms of the installed base of smart retail cabinets as of the end of 2025, the Company ranked first with 184.0 thousand units, holding a market share of 21.5%. Although the Company's greater emphasis on light-traffic scenarios results in a comparatively lower average GMV per cabinet, the Company still ranked first in terms of total GMV in 2025 with RMB2.3 billion, holding a market share of 11.5%.

Ranking and Market Share of the Smart Retail Cabinet Operators (by Installed Base), China, 2025

Company	Installed Base of Smart Retail Cabinets	Market Share
	(thousand units)	*(%)*
The Company	**184.0**	**21.5%**
Company A	49.7	5.8%
Company B	32.5	3.8%
Company C	21.8	2.5%
Company D	19.9	2.3%
Other	547.4	64.1%
Total	**855.3**	**100.0%**

Ranking and Market Share of the Smart Retail Cabinet Operators (by GMV), China, 2025

Company	GMV of Smart Retail Cabinets	Market Share
	(RMB billion)	*(%)*
The Company	**2.3**	**11.5%**
Company A	1.6	7.7%
Company B	0.9	4.4%
Company D	0.5	2.6%
Company C	0.4	2.2%
Other	14.6	71.6%
Total	**20.3**	**100.0%**

Source: *Expert interviews, Frost & Sullivan*

Note:

Company A, established in 2012, is a company listed on the HKEX and headquartered in Beijing, China, primarily engaged in the operation of unmanned retail cabinets and the provision of related supply chain services.

Company B, established in 1996, is a company listed on the HKEX and headquartered in Hangzhou, China, primarily engaged in the production and sale of packaged drinking water, tea beverages, and other beverages and food products.

Company C, established in 2016, is a private company headquartered in Beijing, China, primarily engaged in the research, development, production, and sale of sparkling water, energy drinks, and other beverages.

Company D, established in 2000, is a private company headquartered in Beijing, China, primarily engaged in the production and sale of carbonated beverages and other non-alcoholic beverages.

Analysis of Competition Barriers in the Smart Retail Cabinet Operation Industry

Technical Barriers. The core competitiveness of the industry lies not only in hardware deployment but more importantly in the software systems and algorithmic capabilities that support large-scale, refined operations. To manage inventory and products across a large number of dispersed sites, enterprises need to independently develop or deeply customize an operational middle-office platform that integrates intelligent product selection, dynamic demand forecasting, automated replenishment, and visualized dispatching functions. The platform needs to integrate big data analytics, operations research optimization, and machine learning algorithms to achieve precise forecasting of fragmented terminal demand, global optimization of inventory, and intelligent planning of replenishment routes. Building such capabilities requires sustained investment over an extended period. Leading enterprises, through long-term data accumulation and algorithm iteration, continuously optimize the decision-making accuracy and automation level of their systems, forming significant software and data barriers.

Operational Scale Barriers. As operators expand their site network, economies of scale emerge across supply chain negotiation, centralized procurement, and logistics route optimization, progressively reducing the operating cost per site. This cost advantage compounds with scale — the larger and denser the network, the more efficiently warehousing, replenishment, and servicing can be coordinated across dispersed terminals. New entrants, operating at a fraction of the scale, face structurally higher per-site costs and cannot replicate this efficiency advantage without first achieving comparable network density, creating a significant and self-reinforcing barrier to competition.

Site Development Barriers. Smart retail cabinet deployment requires engaging a large number of fragmented site partners — including property managers, administrative bodies, and enterprises — each requiring individual negotiation and collaboration. For new entrants, this process is time-consuming and resource-intensive, resulting in slow initial expansion and high acquisition costs. First-movers, having accumulated standardized site development processes, established brand recognition, and extensive channel networks, are able to replicate and scale deployments significantly more efficiently, creating a compounding advantage that is difficult for late entrants to overcome.

Operational Capability Barriers. Refined and intelligent operational management across a large-scale terminal network constitutes a significant competitive barrier, particularly in light-traffic scenarios characterized by fragmentation and limited output per site. On the employee side, managing and training a large frontline workforce across dispersed locations requires standardized procedures and systematic training programs. Leading enterprises, through long-term investment in both dimensions, have built efficient human-machine collaborative execution systems.