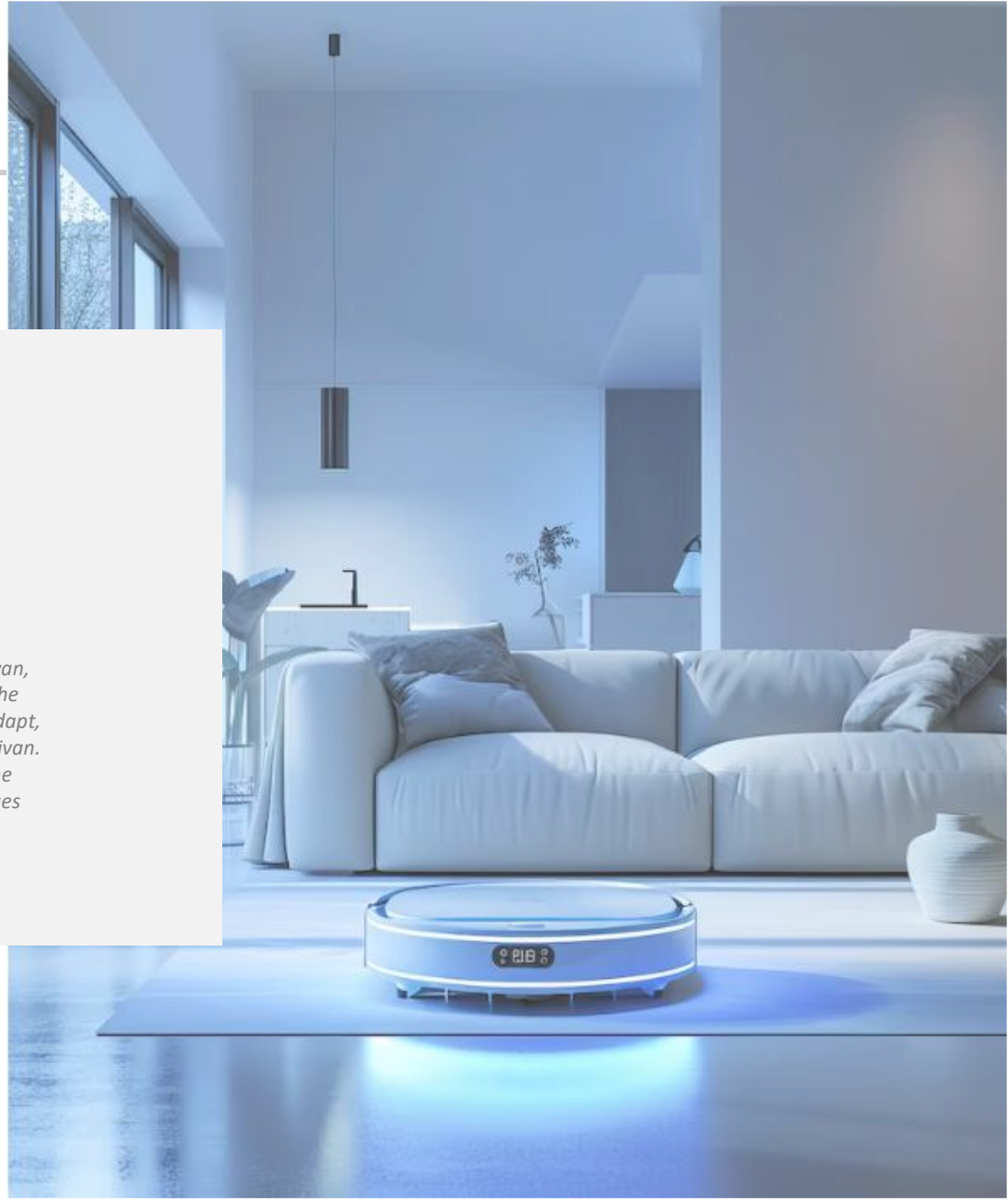
Confidential

Global Smart Home Industry

Independent Market Research

SwitchBot

2025.12



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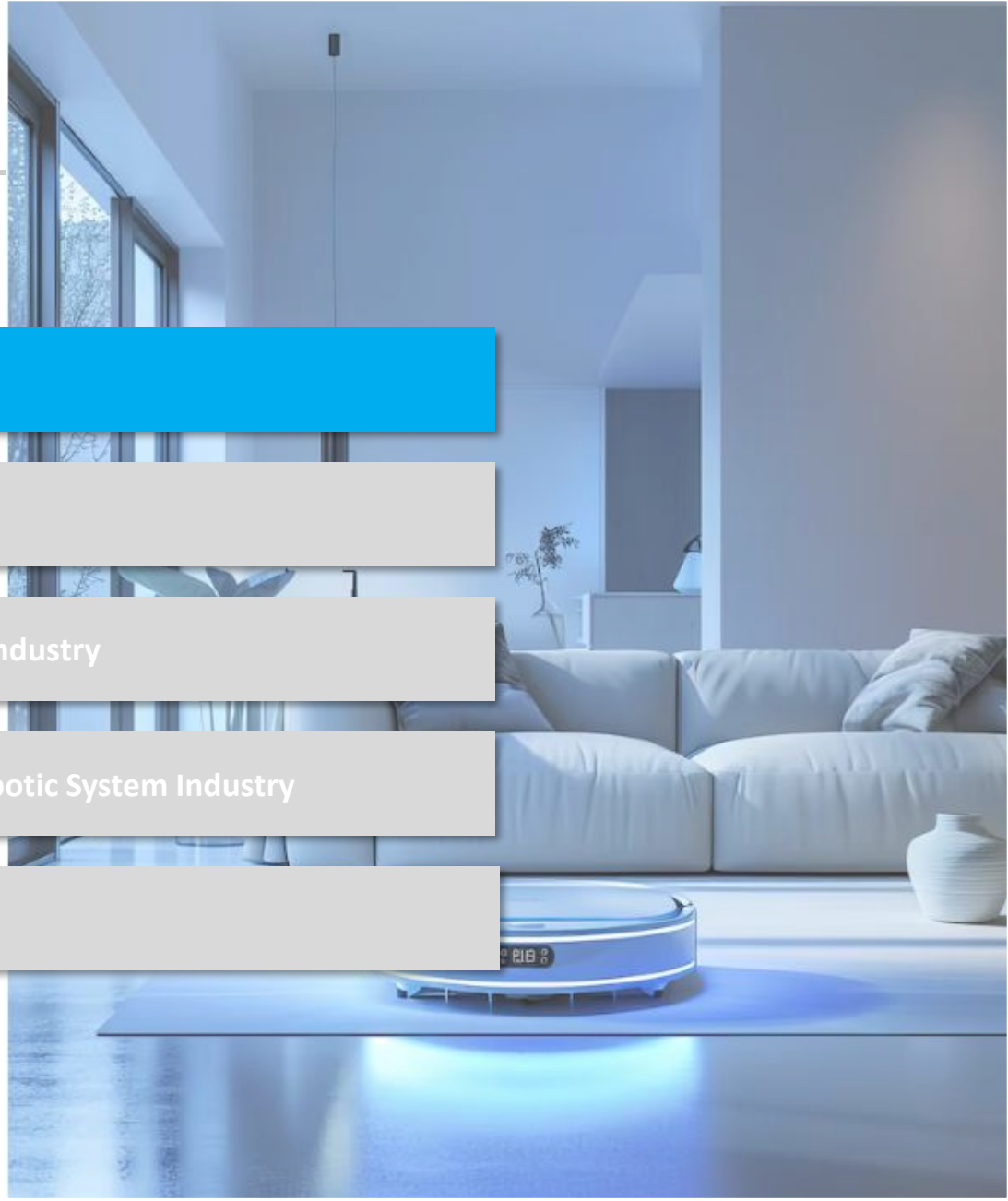
Scope

The project scope is defined as follows:

Research Period	• Historical Year: 2022-2024 • Base Year: 2024 • Forecast Year: 2024-2029E
Research Coverage and Methodology	• Global Market • Include both primary research and secondary research.
Service Scope and Assumptions	• Global Smart Home Industry • Frost & Sullivan's projection on the size of each of the related markets is based on the assumption that (i) the overall global social, economic, and political environment is expected to maintain a stable trend over the next decade; (ii) during the forecast period, related key industry drivers are likely to continue driving growth in China, and global market; and (iii) there are no extreme force major event or industry regulations by which the market situation may be affected either dramatically or fundamentally.

Agenda



Global Smart Home Industry

Background of Smart Home Industry（1/2）

The Background of Smart Home Industry

- With the widespread adoption and integration of technologies such as the Internet of Things (IoT), artificial intelligence (AI), and cloud computing, coupled with the transformation and upgrading of China‘s consumption patterns, the challenges inherent in traditional home furnishing models have emerged as key drivers for innovation in smart home technologies. This has fueled the robust growth and continuous expansion of the smart home industry market. Traditional home furnishings rely heavily on manual operation, requiring users to control individual devices such as lighting, air conditioning, and security systems separately, which is both time-consuming and limits the ability to achieve seamless scene-based integration. The isolated operation of these devices often results in significant energy waste, exemplified by common issues such as forgotten power shutdowns or idle operation of air conditioners. Furthermore, home security systems traditionally depend on physical locks and passive alarm mechanisms, which are insufficient for addressing real-time risks effectively.

Pain Points of Traditional Home Furnishing Industry

Cumbersome Operation
Such as manual door open and lock operation

Suboptimal Energy Consumption
Such as air conditioners run continuously when people leave

Delayed Safety Response
Such as manually pressing to trigger the alarm

Source: Frost & Sullivan

Global Smart Home Industry

Background of Smart Home Industry（2/2）

The Background of Smart Home Industry

- In contrast, smart home solutions, including single-unit smart home devices and home robots, not only address the inconvenient of traditional home furnishings—such as cumbersome operations, suboptimal energy consumption, and delayed safety responses—but also redefine family living scenarios through data-driven personalized services. As a result, smart homes represent one of the most promising growth areas in the digital economy era.

- From the perspective of development stages, the smart home industry has gradually evolved from the stage where single-item control was the core, featuring standalone smart home devices, to the stage of interconnection and interoperability aiming at diversified scenarios and intelligent spaces.

- With the continuous innovation and application expansion of technologies such as artificial intelligence, the Internet of Things, and cloud computing, Vision-Language-Action (VLA), and it will further advance into the comprehensive intelligent stage that provides corresponding services spontaneously based on customer demands and feedback.

Source: Frost & Sullivan

Global Smart Home Industry

Definition of Smart Home Industry（1/3）

Definition

- Smart home products refer to a new generation of home service products that integrate advanced intelligent IoT devices, control chips, communication technologies and other intelligent technologies. Smart home products can usually achieve remote control, automated management or intelligent responses in an intelligent way, and can automatically adjust according to users' needs and changes in the environment, providing consumers with more convenient, comfortable and safe living experiences.
- From the perspective of product classification, smart home products can be divided into **Single-unit smart home devices** and **Home robots**.

Classification of Smart Home Products

Single-unit Smart Home Devices

- Single-unit smart home device offers basic intelligent control through manual, voice, or remote means but lacks the ability to connect with a communication hub or intelligent decision-making hub to achieve interoperability, such as single-unit smart TVs, smart toilets and smart lights.

Home Robots

- The home robot product integrates artificial intelligence, robotics and IoT technologies in daily home living scenarios to complete daily tasks under the control and drive of a communication hub or intelligent decision -making hub.

Source: Frost & Sullivan

Global Smart Home Industry

Definition of Smart Home Industry（2/3）

The Comparison of Single-unit Smart Home Devices and Smart Home Robots

Comparison Dimension	Single-unit Smart Home Devices	Home Robots	
		General Home Robotics	Home Robotic System
Operation Mode	Manual, voice, mobile APP and other remote-control methods	Based on the basic control methods, they can connect with a communication hub or an intelligent hub	
Connect to the Communication Hub	×	√	√
Connect to the Intelligent Hub	×	√ (Part of)	√
Interconnect with Other Devices	×	√	√
Human-like Behavioral or other Enhanced Characteristics	×	×	√
Achieve Multiple Functions Through Interconnection	×	×	√

Source: Frost & Sullivan

Global Smart Home Industry

Definition of Smart Home Industry（3/3）

The Comparison of Single-unit Smart Home Devices and Smart Home Robots

Robot Vacuum as a Sample	Single-unit Smart Home Devices	Home Robots	
		General Home Robotics	Home Robotic System
Product Form			
Product Description	• Simple cleaning function, press the button for desired mode and start working. • Typically working in tow modes, dry sweep mode and damp mop mode.	• More functions are supported, such as automatic drying and carry out the tasks of sweeping and mopping simultaneously. • It could be connected to the APP or communication hub and linked with other smart devices like door locks and air purification systems. For example, it can start automatic cleaning after going out and activate the air purification system after the cleaning is completed.	• Based on the general home robotics, home robotic system can simulate the behavior of human feet and enhance the multiple functions of the robot. • For instance, it can interact with a humidifier, automatically adding water to the latter. Or it can move the humidifier to the place where is needed.

Source: Frost & Sullivan

Global Smart Home Industry

Global Policy and Program Analysis of Smart Home Industry

Policies/Program	Issuance Date	Issuing Country	Key Points of the Policy
Energy Efficient Home Improvement Credit	2023	The United States	According to the regulations of the Internal Revenue Service (IRS) of the United States, if people carry out eligible energy-saving renovations to their home after January 1st, 2023, they may be eligible for a tax credit of up to 3,200 US dollars.
Smart Grid Program	2022	The United States	The US Department of Energy (DOE) provides financial support through the "Smart Grid" project to encourage the integration of smart home technologies with renewable energy sources (such as the linkage of home energy storage systems and photovoltaic power generation), thereby enhancing energy efficiency
Product Security and Telecommunications Infrastructure (PSTI) Act	2022	The United Kingdom	The aim is to enhance the security of consumer-oriented networked products (such as smart devices) and improve the construction process of telecommunication infrastructure.
MaPrimeRénov' Programme	2020	France	The aim of this plan is to provide financial support to homeowners to enhance the energy efficiency of their residences. It covers the upgrades of heating, insulation and ventilation systems, which are closely related to smart home technologies and can help improve the intelligence level of energy management in households.

Source: Frost & Sullivan

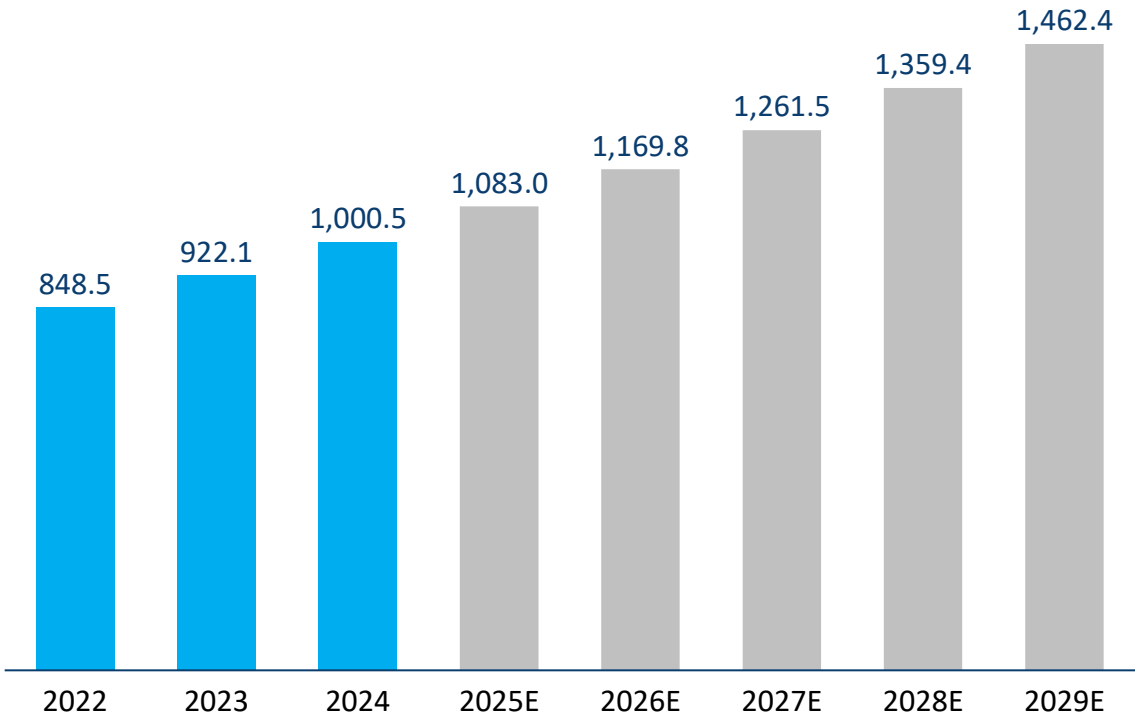
Global Smart Home Industry

Market Size of Global Smart Home Industry

Market Size of Global Smart Home Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
CAGR	8.6%	7.9%



Key Findings

- Over the past three years, with the breakthrough development of technologies such as the Internet of Things（IOT）, artificial intelligence, and 5G communication and their increasing penetration of the smart home industry, the market size of global smart home industry has grown from RMB848.5 billion in 2022 to RMB1,000.5 billion in 2024, with a CAGR of approximately 8.6%. In the future, with the advancement of strategic plans such as smart cities and green buildings in Europe, policy support in the Asia-Pacific region, and the structural upgrading of consumer demands driven by global aging and solo living, it is expected that by 2029, the global market size of smart home industry will reach RMB1,462.4 billion, with a CAGR of approximately 7.9%.

Source: Frost & Sullivan

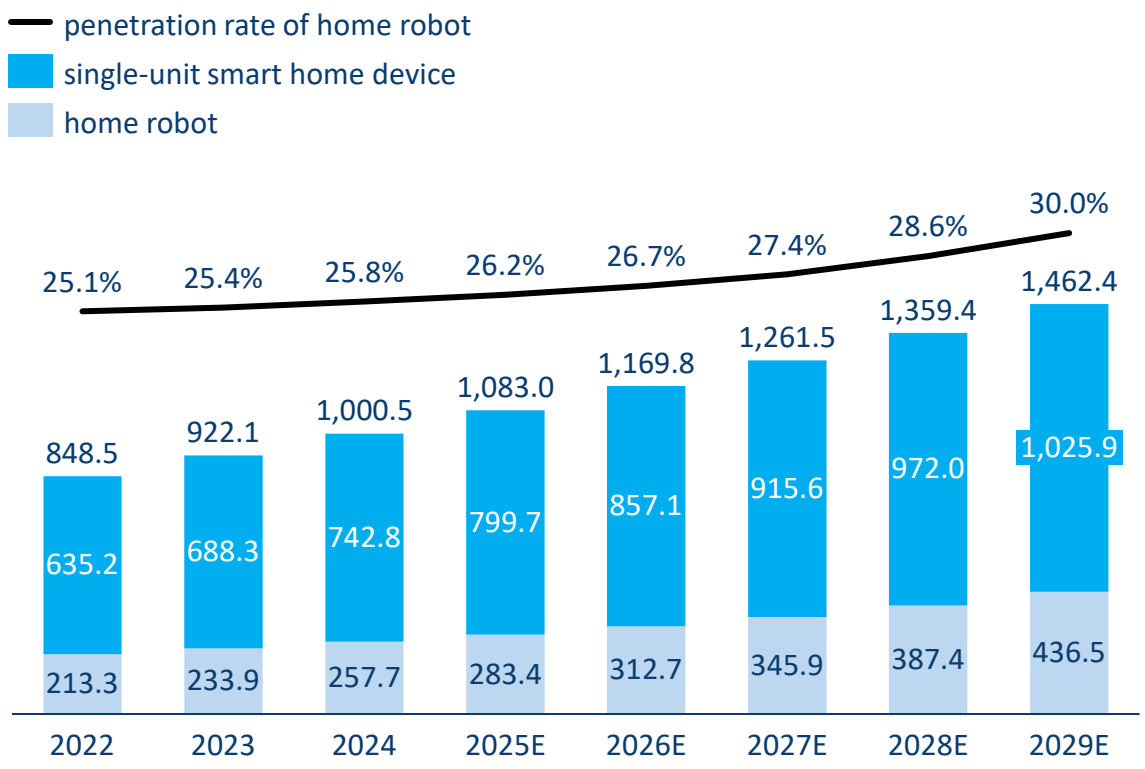
Global Smart Home Industry

Market Size of Global Smart Home Industry

Market Size of Global Smart Home Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
Single-unit smart home device	8.1%	6.7%
Home robot	9.9%	11.1%



Key Findings

- The global adoption rate of AI has exceeded 70%. With the continuous development of technologies such as AI, the improvement in intelligence and flexibility is driving the growing demand for smart products in the smart home industry.
- From 2022 to 2024, the market size of home robot grew from RMB213.3 billion to RMB257.7 billion, with a CAGR of 9.9%. Its penetration rate also increased from 25.1% to 25.8%.
- With individuals aged 65 and above comprising approximately 10% of the global population in 2024, the global trend of population aging will continue to drive the growing demand for smart products, and the market size of home robots is expected to grow steadily. It is projected that by 2029, the market size of home robots will reach approximately RMB436.5 billion, with a CAGR of 11.1%.

Source: Frost & Sullivan

Global Smart Home Industry

Analysis of the Market Drivers of the Smart Home Industry

Analysis of the Market Drivers of the Smart Home Industry	
AI technological innovation has facilitated the implementation of intelligent products in the home furnishing industry	• The continuous innovation of technology has elevated the level of home automation to a new stage. Particularly, the continuous innovation of AI technology has demonstrated strong advantages in aspects such as visual modules, voice interaction, multi-dimensional perception, and navigation planning algorithms in smart home devices. For example, the home robotic system can simulate human action behavior patterns, such as fingers and joints, so as to better achieve the enhancement of execution functions, and then provide more possibilities for the intelligence and flexibility of smart home products.
The advancement of robotics technology is driving demand for intelligent home products	• The rapid development of robotics technology is profoundly influencing the home furnishing industry through multi-dimensional technological breakthroughs, and is promoting the growth of demand for intelligent products. For instance, robot servo motors, as the underlying technical engine of the smart home industry, are driving industry innovation through three dimensions: precise control, intelligent response, and system collaboration. For example, in the smart security scenario, servo motors achieve millimeter-level response for intelligent security equipment through high-precision position control. With the advancement of Internet of Things and automatic control technologies, the application of household robots in cleaning, security, health monitoring and other fields will become increasingly widespread.
The global trend of population aging and rising solo living have created new demands	• With the acceleration of aging, the elderly group has seen a sharp increase in demand for health monitoring, safety protection, and convenience in daily life. Meanwhile, the young people living alone place greater emphasis on emotional companionship and efficiency in daily life. For instance, innovative products such as remote-controlled pet feeders and voice-controlled smart lighting systems have emerged. These two groups jointly drive the upgrade of smart home from single devices to scene-based and non-intrusive services.

Source: Frost & Sullivan

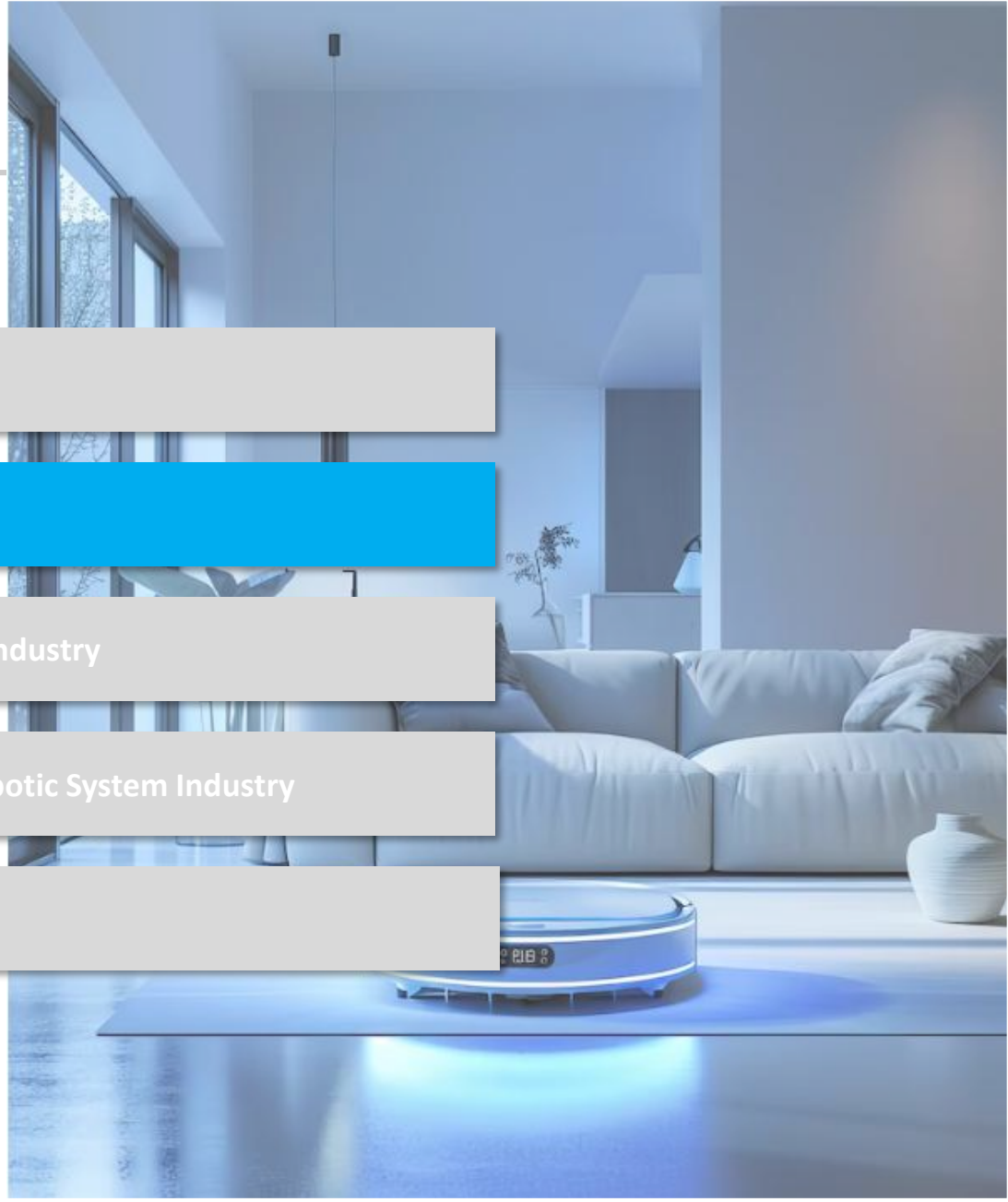
Global Smart Home Industry

Analysis of the Future Trends of the Smart Home Industry

Future Trends	
Innovation and wide application of AI technology	• The application of AI technology continuously drives innovation in smart home products. For instance, smart kitchen appliances can build personalized memory libraries based on user feedback and daily behavioral data. Based on the deep understanding of multimodal data (voice, images, sensors) by large models, and the research and development of AI-enabled decision-making capabilities, it provides consumers with more intelligent and convenient smart home products.
Ecological compatibility is the main trend	• The construction of the smart home ecosystem core is the key to achieving seamless connection and collaboration among devices. It can integrate devices from different brands, break down barriers between brands, and allow consumers to freely choose and expand smart devices, continuously expanding smart living scenarios, thereby enhancing the convenience and functional integrity of smart home usage.
The full-house integrated ecological system has become the mainstream consumption trend	• Currently, the smart home industry is undergoing a comprehensive upgrade from single devices to a full-house integrated ecological system. Based on different living scenarios such as the living room, bedroom, and kitchen, brand manufacturers have deeply mined consumer behavior data to build an inter-connected system of devices across brands and categories. This ecological development centered on scenarios not only realizes the synergy of subsystems such as lighting, security, and audio-visual, but also provides personalized service plans through AI algorithm learning of user habits.
The low-cost and zero-reconstruction mode for smart home will become the mainstream application scenario	• In the context of smart homes entering the “post-domestication era,” consumer demand for home intelligence has transitioned from a focus on “functional accumulation” to “non-intrusive integration.” This means achieving experiential upgrades through the intelligent transformation of existing products without compromising original decorative designs or adding redundant physical devices. In line with this trend, small robots have emerged as core products due to their modular adaptability and scenario-oriented penetration efficiency. By upgrading traditional home equipment such as door locks and curtains into intelligent terminals with robotic capabilities, these systems can be seamlessly integrated into the home‘s central intelligence framework. The “zero-reconstruction” mode can significantly reduce deployment costs and achieve lightweight transformation & upgrades.

Source: Frost & Sullivan

Agenda



Overview of Global Home Robot Industry

Definition and Classification of Home Robot

Definition

- **Home Robot** products are intelligent devices specifically designed for home scenarios, which are capable of assisting humans in completing tasks such as housekeeping, security, and living service through autonomous perception, learning, decision-making, and execution capabilities, playing the role of a family steward. Global home robots include general home robotics and home robotic system. Compared to general home robotics, home robotic systems can automatically learn and achieve dynamic decision-making for complex tasks through an intelligent hub with autonomous learning capability, realizing functional enhancements akin to human “hands”, “feet”, “brain”, “skin”, and “eyes”.

Home Robot

General Home Robotics

- **Hub products:** Communication hubs primarily designed for connectivity, without local computing capabilities;
- **Execution products:** Execution products, which are home robots that can only connect to a communication hub and performs single tasks, with its operation fully dependent on explicit user commands or pre-defined programs. It does not possess autonomous learning capability.

Home Robotic System

- An intelligent robotic system designed for daily home living scenarios, integrating artificial intelligence, robotics, and smart IoT technologies. It can connect to an intelligent hub and achieve enhanced functionality by **mimicking human behavioral characteristics—including hands, feet, brain, and sensory capabilities (e.g., vision, touch, etc.)**. This system **enables deep interaction with the physical world**.





Overview of Global Home Robot Industry

Definition and Classification of Home Robot

Comparison Dimension	Home Robotic System	General Home Robotics
Autonomous Learning & Intelligent Decision-Making Capability	• With the ability of autonomous learning, understanding and adapting to user habits, and active control of device operations. • Making real-time multimodal decisions based on vision, motion and environmental data.	• Primarily operate based on preset programs or simple commands, lacking autonomous learning capabilities. Decisions are simple, mostly relying on fixed logic or limited trigger rules.
Perception and Response	• Capable of real-time perception of environmental changes and intelligent responses (e.g., fall detection alerts, automatic light and TV shutdown).	• Typically responds only after the user explicitly triggers a command, with limited environmental perception and processing.
Multifunctionality	• A single device can perform multiple functions (e.g., a household robot that can also refill a humidifier while cleaning).	• Devices are single function, focused on completing one type of task.
Device Collaboration	• Emphasizing intelligent collaboration between different devices, complex tasks can be broken down and completed through multi-device cooperation (e.g., sensors collaboratively working with, among others, curtain robots and finger robot).	• Each device operates independently, with weak collaboration or relying on manual coordination.
Edge Intelligence	• Integrating terminal device perception (e.g., CMOS vision, edge AI chips) to enable fast local processing and feedback.	• Most processing is done on the cloud or simple chips within the device, with fewer edge intelligence applications.
Specific Examples	• Household robots: With a powerful intelligent control system, the household robot can not only accurately add water to the humidifier and efficiently transport clothes, but also link with home devices such as cameras to achieve security monitoring and multifunctional home services.	• Household robots: Follow simple maps for cleaning, unable to perform multiple functions or operate across devices.

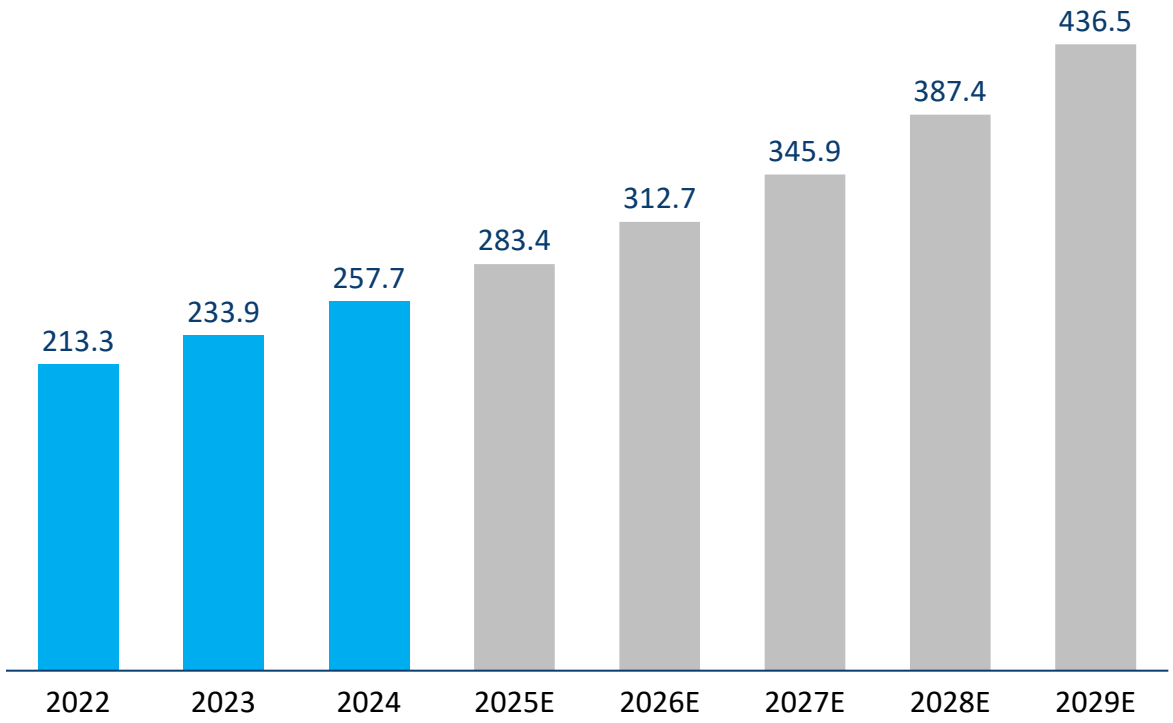
Overview of Global Home Robot Industry

Market Size of Global Home Robot Industry

Market Size of Global Home Robot Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
CAGR	9.9%	11.1%



Key Findings

- With the aging of the global population and increasing demands for home convenience and intelligence, the global home robot industry is experiencing growth. Global home robot market size grew from RMB213.3 billion in 2022 to RMB257.7 billion in 2024, with a CAGR of 9.9%.
- With the rising demand for personalized home services, the application of AI technology in home robotics system is expected to continue driving steady market growth. From 2024 to 2029, the industry is expected to rise at a CAGR of 11.1%, and the market size of global home robotics system is expected to reach RMB436.5 billion in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

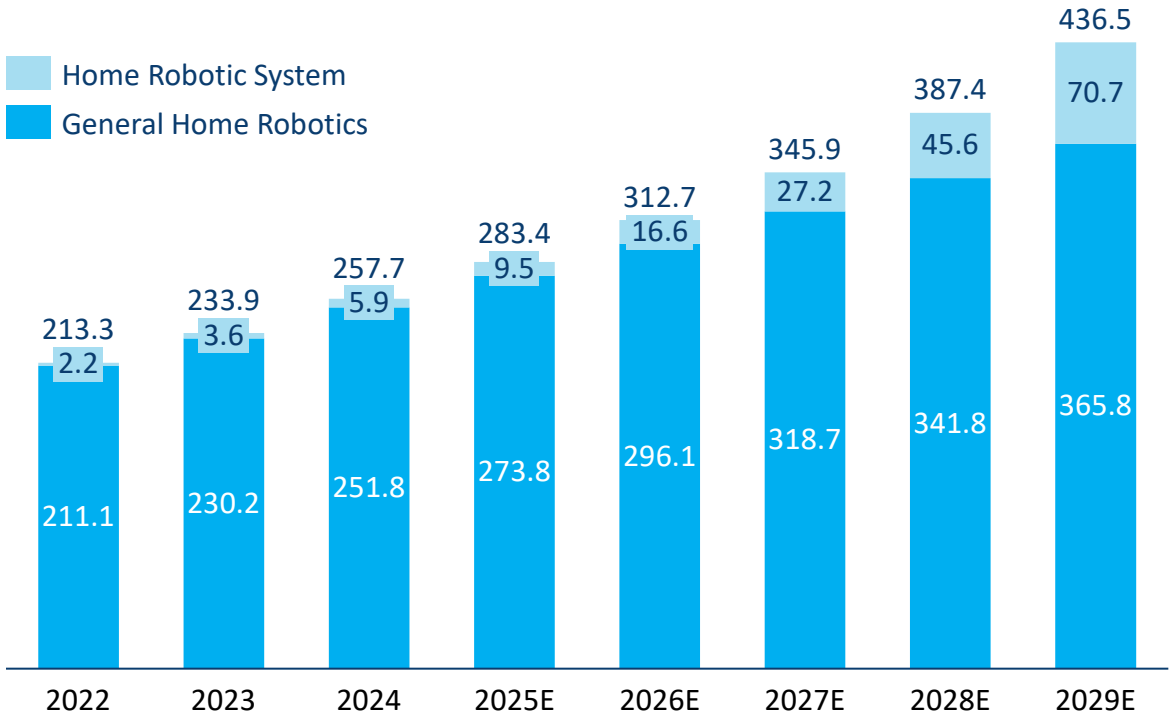
Overview of Global Home Robot Industry

Market Size of Global Home Robot Industry

Market Size of Global Home Robot Industry, By Retail Sales

RMB billion, 2022-2029E

CAGR	2022-2024	2024-2029E
Home Robotic System	63.7%	64.2%
General Home Robotics	9.2%	7.8%



Key Findings

- With the gradual acceptance and widespread adoption of AI technology, its application in global home robot industry has driven steady growth in market size, especially in home robotic system. Global home robotic system market size grew from RMB2.2 billion in 2022 to RMB5.9 billion in 2024, with a CAGR of 63.7%.
- In the future, as AI technology becomes better at meeting people's demands for personalized home solutions, the market size of home robotic systems is expected to continue growing. From 2024 to 2029, the industry is expected to rise at a CAGR of 64.2%, and the market size of global home robotic systems industry is expected to reach RMB70.7 billion in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

Overview of Global Home Robot Industry

Market Size of Global Home Robot Industry

Market Size of Global Home Robot Industry, By Retail Sales

RMB billion, 2022-2029E

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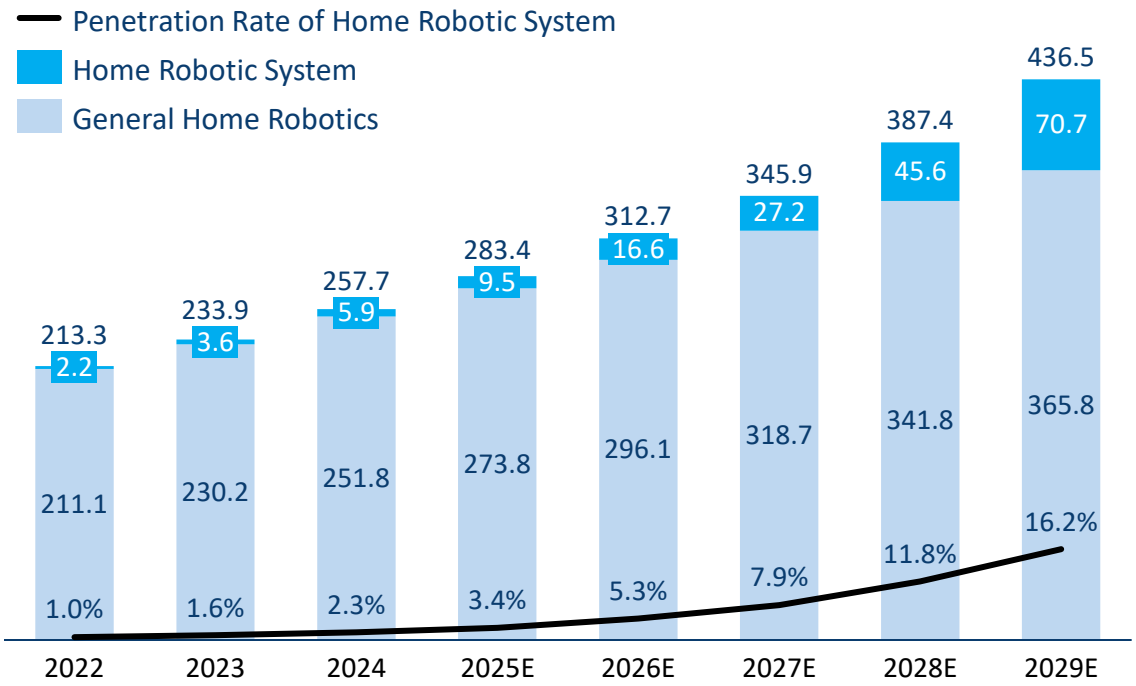


Note: The penetration rate of home robotic system is calculated by dividing the market size of global home robot industry by the market size of home robotic system industry.

Key Findings

- With the gradual acceptance and widespread adoption of AI technology, its application in global home robot industry has driven steady growth in market size, especially in home robotic system. Global home robotic system market size grew from RMB2.2 billion in 2022 to RMB5.9 billion in 2024, with a CAGR of 63.7%. From 2022 to 2024, the penetration rate of home robotic system increased from 1.0% to 2.3% in the global market.

- In the future, as AI technology becomes better at meeting people's demands for personalized home solutions, the market size of home robotic systems is expected to continue growing. From 2024 to 2029, the industry is expected to rise at a CAGR of 64.2%, and the market size of global home robotic systems industry is expected to reach RMB70.7 billion in 2029. The penetration rate will reach 16.2% in 2029 in the global market.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

Overview of Global Home Robot Industry

Analysis of Future Development Trends (1/2)

Analysis of Future Development Trends

Edge Computing Technology Empowers the Intelligent Hub

- Edge computing nodes, as the core of smart home networks, convert and adapt data of different protocols and formats, forming a unified network that enables devices to understand and communicate with each other for collaborative work between multiple devices. Additionally, edge computing's computational capabilities enhance the connection between perception and decision-making collaboration. The empowerment of the edge computing technology provides solid technical support for integrated intelligent hubs and brings a smoother application experience for the overall synergy.

Increasing Market Penetration Rate of Home Robotic Systems

- Intelligent hubs are systems capable of collecting and preprocessing scenario data. Through hubs, home robotic systems can execute tasks more precisely, enhancing the user experience through multidimensional collaboration of various home robotic systems. Currently, as consumer demand for comfortable home experiences grows, the collaboration between home robotic systems and intelligent hubs further enhances service capabilities of the robots, aligning with overall market trends and demands. This mutual reinforcement mechanism, aimed at enhancing home experience and supported by technological progress, will expand the application of home robotic systems in home scenarios. The penetration rate of home robotic systems in the global home robot industry will keep rising and is expected to rise from 2.3% in 2024 to 16.2% in 2029.

Source: Frost & Sullivan

Overview of Global Home Robot Industry

Analysis of Future Development Trends (2/2)

Analysis of Future Development Trends

The Growing Consumer Demand for Convenient and Comfortable Home Experiences	• The pursuit of comfortable living has always been a key driver in the development of home robot. However, as lifestyles become increasingly fast-paced, consumers are no longer satisfied with basic functionalities and are now seeking autonomous, systematic household solutions. Home robotic systems, with its environmental comprehension and autonomous decision-making architecture, breaks through the limitations of traditional smart devices that rely on pre-programmed routines. Through intelligent central control systems, it achieves dynamic scenario adaptation. This shift from passive response to proactive service is redefining the boundaries of home automation, seamlessly integrating robotics into daily routines and demonstrating strong market growth potential.
The Shift from "Tool-type" to "Interactive-type" Systems	• Compared with general home robotics that rely on preset programs, home robotic systems demonstrate significant advantages in perception, cognition and interaction due to ongoing advancements in AI technology. By integrating multimodal sensing technologies such as visual recognition, voice interaction, tactile feedback, and environmental perception, these systems achieve high-precision dynamic modeling of home scenarios, thus optimizing real-time and adaptive multi-device coordination. Empowered by AI, the robots not only accurately interpret user intent but also provide highly "human-like" services, ultimately creating an intelligent home ecosystem that is both efficient and emotionally engaging. Moreover, continuous learning mechanisms enable these systems to evolve their interaction models dynamically based on user habits, achieving truly personalized long-term adaptation.

Source: Frost & Sullivan

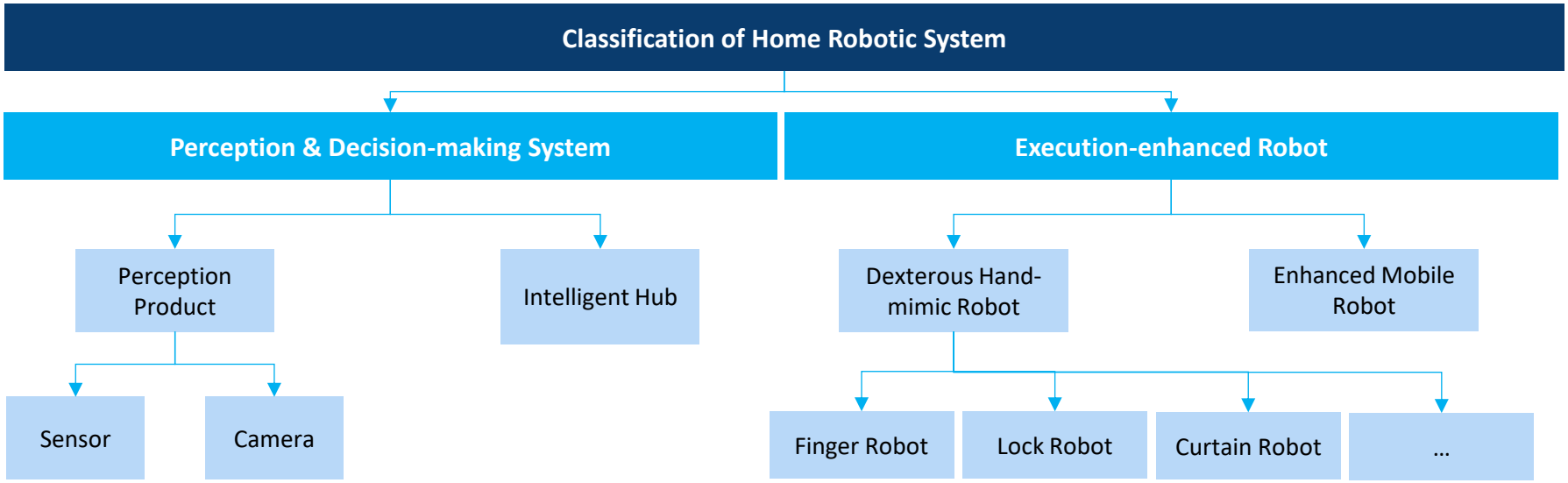
Agenda

Overview of Global Home Robotic System Industry

Introduction of Home Robotic System

Definition

- **Home Robotic System:** In modern smart home environments, advanced robotic systems combine AI decision-making, robotic actuation, and IoT connectivity to achieve remarkably human-like functionality. These systems precisely mimic human dexterity (through robotic hands and limbs), mobility (via adaptive locomotion systems), and cognitive processing (including but not limited to eye, skin, etc.). The integration of multi-modal sensors including 3D vision, tactile feedback, and environmental scanners enables seamless real-world interaction. By leveraging edge computing and distributed IoT networks, the system maintains continuous situational awareness while executing complex domestic tasks. This technological synergy ultimately creates responsive, context-aware home assistants that learn and adapt to residents' unique living patterns.



Overview of Global Home Robotic System Industry

Materiality Analysis of Home Robotic System (1/2)

Materiality Analysis of Perception & Decision-making System

Definition

- **Perception & Decision-making System:** The sensory devices and smart hub form the intelligent decision-making core of AI-powered home robots, mimicking human brain, skin and eye functions for household applications. This perception-decision system enables multi-device coordination through shared computing power and AI-powered visual processing, dynamically prioritizing tasks like cleaning and security while continuously optimizing decisions via machine learning. By integrating edge-cloud computing with adaptive algorithms and knowledge graphs, it creates a self-improving smart home ecosystem with autonomous learning capabilities.

Whole House Intelligent Management	• The perception and decision-making system uses multi-sensor data to understand 3D spaces and learn user habits, automatically adjusting robot services. Through constant data collection and cloud updates, it adapts to home layout changes and behavior patterns, evolving from basic controls to personalized care. This self-improving system enhances cleaning and security services through regular upgrades.
Risk Defense and Control	• The perception and decision-making system enables accident prevention through coordinated multi-tier IoT device networks. By integrating various smart sensors and actuators, the system can detect potential hazards in real time and trigger automated safety protocols. This layered approach ensures comprehensive protection across different home environments while maintaining energy efficiency.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Materiality Analysis of Home Robotic System (2/2)

Materiality Analysis of Execution-enhanced Robot

Definition

- **Execution-enhanced Robot** is an advanced mechanical product specifically designed for home living scenarios. By leveraging technologies such as motion control and mechanical engineering, it utilizes robotics to simulate the movements of human "hands" and "feet," enabling physical interaction. As the motion execution component of an home robotic system, it can replicate human actions, freeing users from manual tasks. Through integration with perception and decision-making control systems, the robot can perform more complex home automation tasks, making household life smarter and more efficient.

Classification of Execution-enhanced Robot

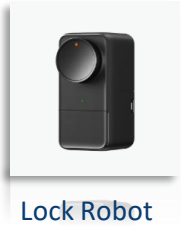
Dexterous Hand-mimic Robot

Designed for home living scenarios, these robotic products simulate the functional movements of human "fingers" and "wrists" using robotics technology to perform physical interactions like pressing, dialing, and rotating. Typical products include finger robots, lock robots, and curtain robots.

Enhanced Mobile Robot

This refers to robots that expand home automation capabilities through multi-functional combinations – such as whole-house patrolling with cameras or refilling humidifiers – by mimicking human "foot" movements. Designed for scenario extension, they integrate compound functions (e.g., sweeping + object transport) to enhance smart home ecosystems.

Curtain Robot



Lock Robot

Finger Robot

Enhanced Mobile Robots

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Classification of Home Robotic System

	Category	Picture	Description
Perception Product	Camera		• It provides high-definition video surveillance. When motion is detected, the camera will send instant alerts, accompanied by recorded video clips for viewing.
Intelligent Hub	Hub Product		• It provides Matter protocol support in a compact form, allowing diverse smart home devices to work seamlessly within Apple HomeKit Home through Matter integration.
Dexterous Hand-mimic Robot	Curtain Robot		• It can be easily installed on existing curtain tracks without modifying the curtain system. Users can control it through mobile apps, voice assistants, or automation routines.
	Finger Robot		• It is a smart button pusher compatible with most rocker switches and one-way buttons, making devices such as coffee machines, air conditioners, and garage doors smarter.
	Lock Robot		• It is a device that offers secure and intelligent home access that retrofits onto existing deadbolts, allowing users to convert their traditional locks into smart locks without replacing the entire lock mechanism.
Enhanced Mobile Robot	Enhanced Mobile Robot		• It is an enhanced mobile robot that delivers automated cleaning with its dual station design for hands-free operation. Its water station connects directly to household plumbing to eliminate manual refills. The robot is capable of simultaneous cleaning and mopping, and can also conduct automated mop lifting on carpets.
	……		……

Overview of Global Home Robotic System Industry

Features of Intelligent Decision-making Hub

	Communication Hub	VS	Intelligent Decision-making Hub
Product Illustration			
Performance Comparison	• Cloud-based storage, unavailable when offline • Lacks data analysis capabilities; • There is a risk of user data leakage. • It functions as a connector between various devices and systems, ensuring interoperability across different communication protocols. It acts as an information "channel" and "bridge" within the system, but does not possess inherent capabilities for complex analysis or autonomous decision-making.		• Local rule engine, available even when offline • Capable of controlling legacy appliances that do not support Bluetooth or Wi-Fi • Supports local data storage, data analysis, and preprocessing • Enables customized scene configurations • Offers more responsive product performance • Local storage provides a certain level of data security • Equipped with built-in temperature, light, and humidity sensors to perceive user needs and autonomously activate indoor devices—such as curtain robots, finger robots, and humidifiers—to create a comfortable home environment

Overview of Global Home Robotic System Industry

Features of Execution-enhanced Robot

- The execution-enhanced Robot features a lightweight design and low retrofitting cost. Instead of relying on the replacement of existing hardware, it utilizes non-intrusive installation to make small-scale modifications to existing household devices, thereby enabling intelligent functionality.
- It can directly interact with existing curtains, door locks, buttons, knobs, and other fixtures to deliver a plug-and-play smart upgrade experience without altering the original home structure. This makes it an ideal low-cost solution for achieving home automation, especially in environments with a high number of non-standard devices and weak smart infrastructure foundations.

Curtain Robot is suitable for many types of curtain rods

Rod

U Rail

I Rail

Lock robot is compatible with various types of door locks and requires no disassembly

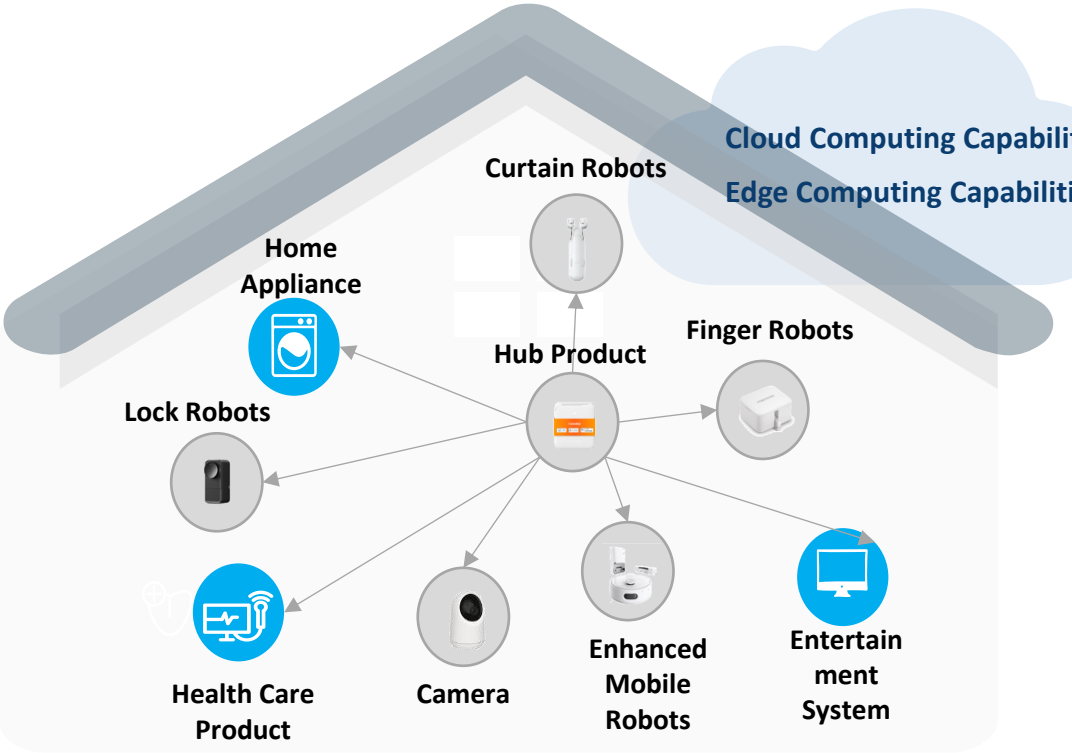
- Euro Profile Cylinder
- UK Oval Cylinder
- Knob Cylinder
- Swiss Round Cylinder
- Night-Latches

Finger robots is suitable for many types of switches

Overview of Global Home Robotic System Industry

Features of Home Robotic System

- The home robotic system features autonomous learning and device collaboration. Through machine vision and multi-modal perception, it continuously learns from the user's daily habits and environmental changes, autonomously creating a personalized behavior model. The robot can spontaneously perform tasks without instructions and collaborate with other devices, providing a seamless and intuitive home experience.

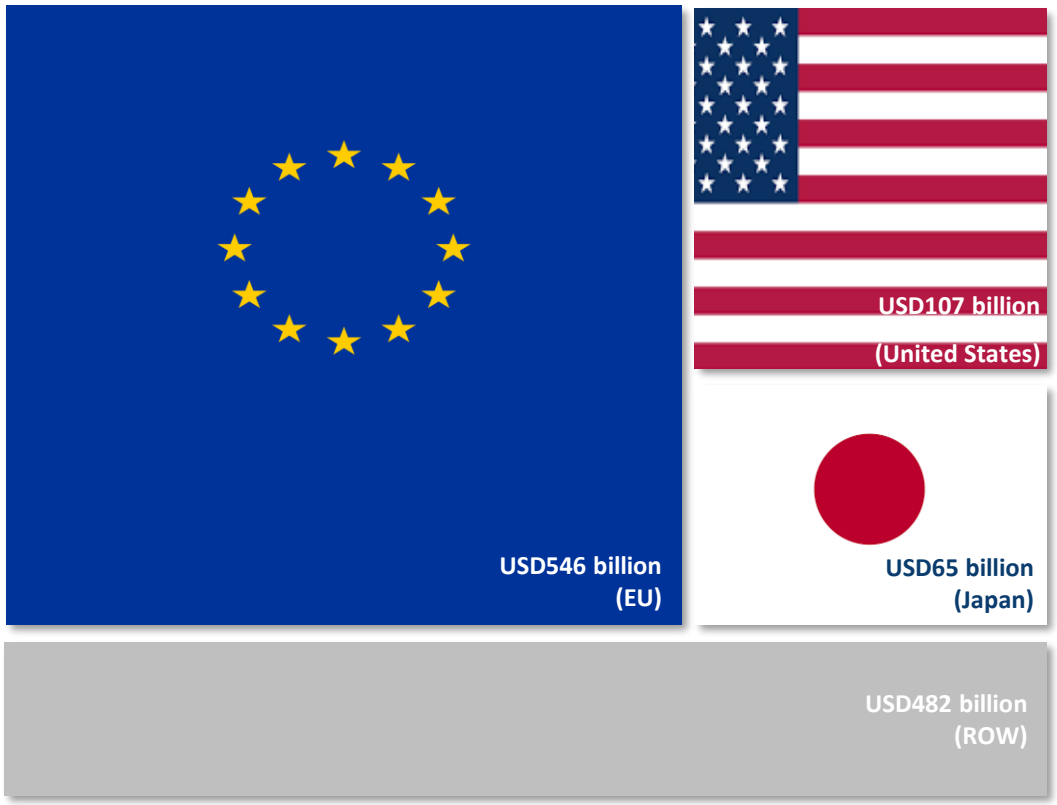


1. Achieve seamless interoperability between devices of different brands.
2. Remote / voice control of various devices.
3. Data can be processed, filtered, and analyzed locally, reducing reliance on the cloud and improving response speed and system stability.
4. Leverage edge computing to predict user needs and activate the corresponding devices to adjust the indoor environment, such as lighting and temperature.

Overview of Global Home Robotic System Industry

Addressable Markets Size by Region

Size of Addressable Market Opportunities by Regions, Long term



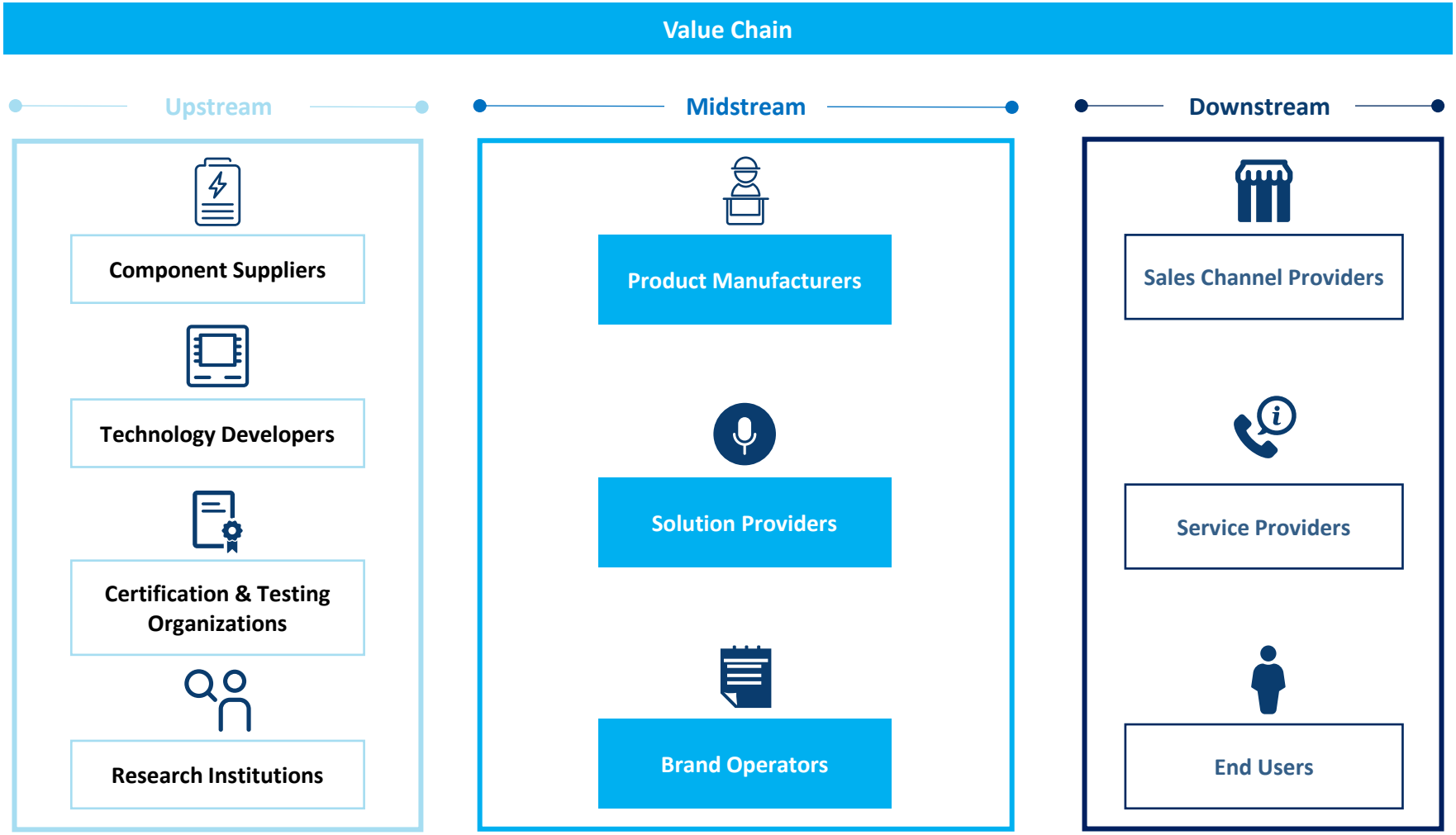
Key Findings:

- The total addressable market for home robotic system exceeds USD1 trillion, highlighting immense commercial potential and global expansion opportunities.
- Specifically, the European market is valued at approximately USD546 billion, driven by high smart home adoption, strong consumer purchasing power, and a high acceptance of automation and intelligent products. The U.S. market accounts for around USD107 billion, benefiting from a leading technological ecosystem, a large base of smart home users, and a vibrant innovation environment. The Japanese market is estimated at USD65 billion, where a rapidly aging population and strong demand for lifestyle convenience create favorable conditions for intelligent service robots. These regions are experiencing rising urbanization and accelerating penetration of smart technologies, presenting substantial growth potential

Source: Company Website, Frost & Sullivan

Overview of Global Home Robotic System Industry

Value Chain of Global Home Robotic System Industry



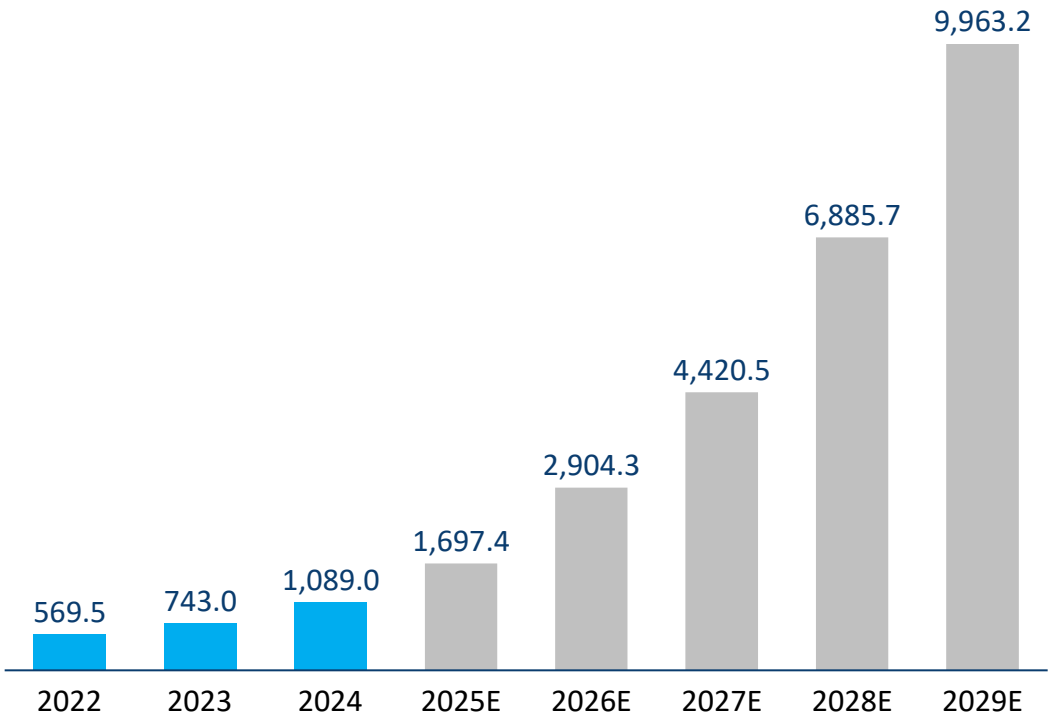
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry, By Retail Volume

10,000 units, 2022-2029E

	2022-2024	2024-2029E
CAGR	38.3%	55.7%



Key Findings

- Driven by the factor of the consumer demand for a convenient and comfortable home experience, the retail volume of global home robotic system industry continues to expand. Annual retail volume of global home robotic system industry grew from 5,694,900 units in 2022 to 10,889,763 units in 2024, with a CAGR of 38.3%.
- As the population aging is increasing, the retail volume of global home robotic system industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the industry is expected to rise at a CAGR of 55.7%, and the retail volume of global home robotic system industry is expected to reach 99,631,609 units in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

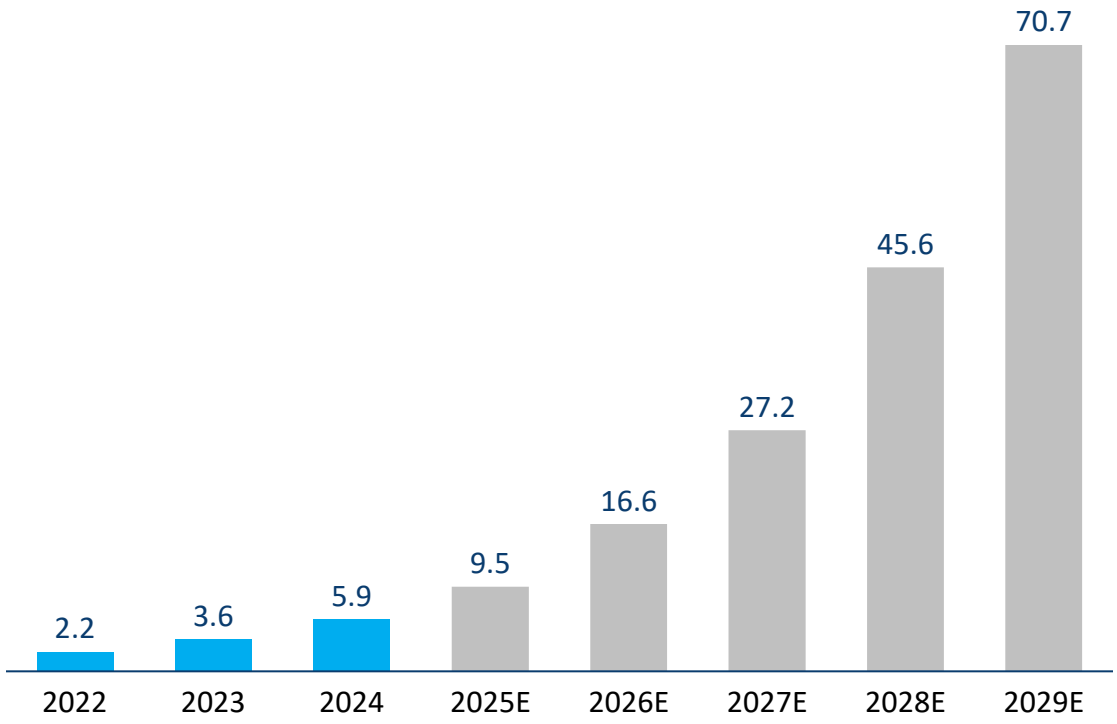
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
CAGR	63.7%	64.2%



Key Findings

- Driven by the factor of the product function expansion, the retail sales of global home robotic system industry continue to expand. Annual retail sales of global home robotic system industry grew from RMB 2.2 billion in 2022 to RMB 5.9 billion in 2024, with a CAGR of 63.7%.
- Driven by the factor of the rising reliance on AI devices, the retail sales of global home robotic system industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the industry is expected to rise at a CAGR of 64.2%, and the retail sales of global home robotic system industry is expected to reach RMB70.7 billion in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

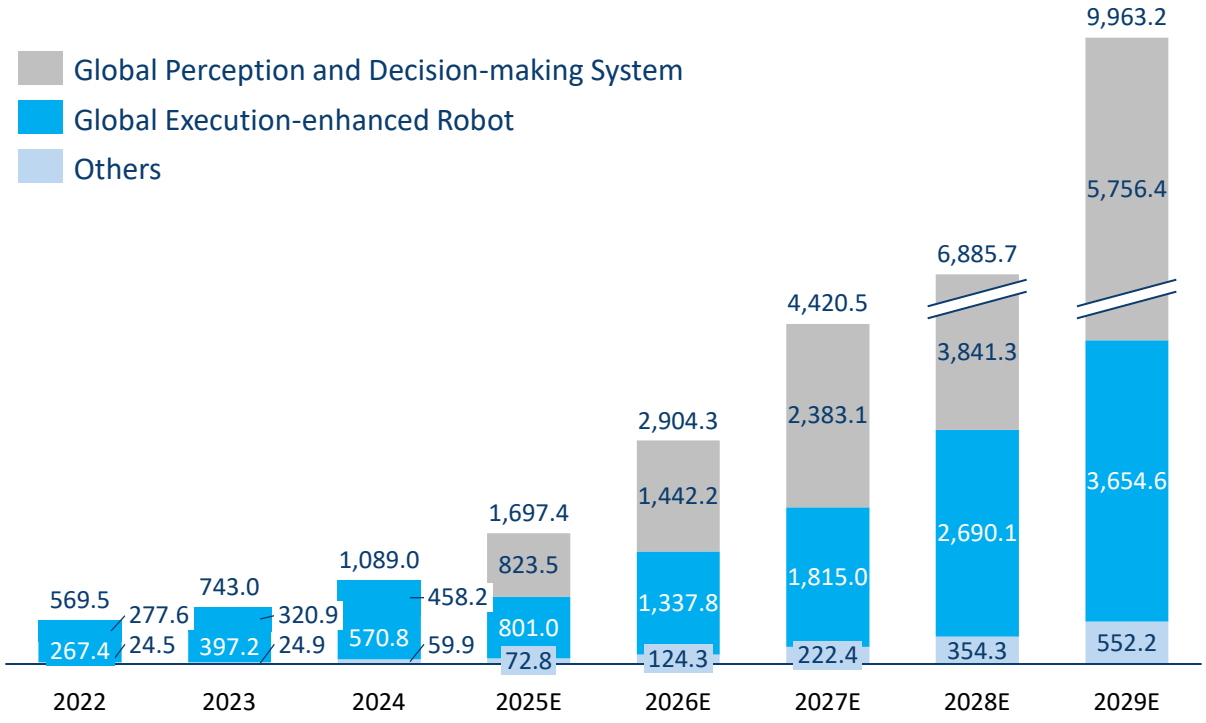
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry, By Retail Volume

10,000 units, 2022-2029E

	2022-2024	2024-2029E
Global Perception and Decision-making System	28.5%	65.9%
Global Execution-enhanced Robot	46.1%	45.0%



Key Findings

- Driven by the factor of technological innovation, the retail volume of global home robotic system continues to expand. The retail volume of global perception and decision-making system grew from 2,775,977 units in 2022 to 4,582,029 units in 2024, with a CAGR of 28.5%. The retail volume of global execution-enhanced robot grew from 2,673,925 units in 2022 to 5,708,255 units in 2024, with a CAGR of 46.1%.
- From 2024 to 2029, the retail volume of global perception and decision-making system is expected to rise at a CAGR of 65.9%, and the retail volume is expected to reach 57,564,127 units in 2029. The retail volume of global execution-enhanced robot is expected to rise at a CAGR of 45.0%, and the retail volume is expected to reach 36,545,543 units in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

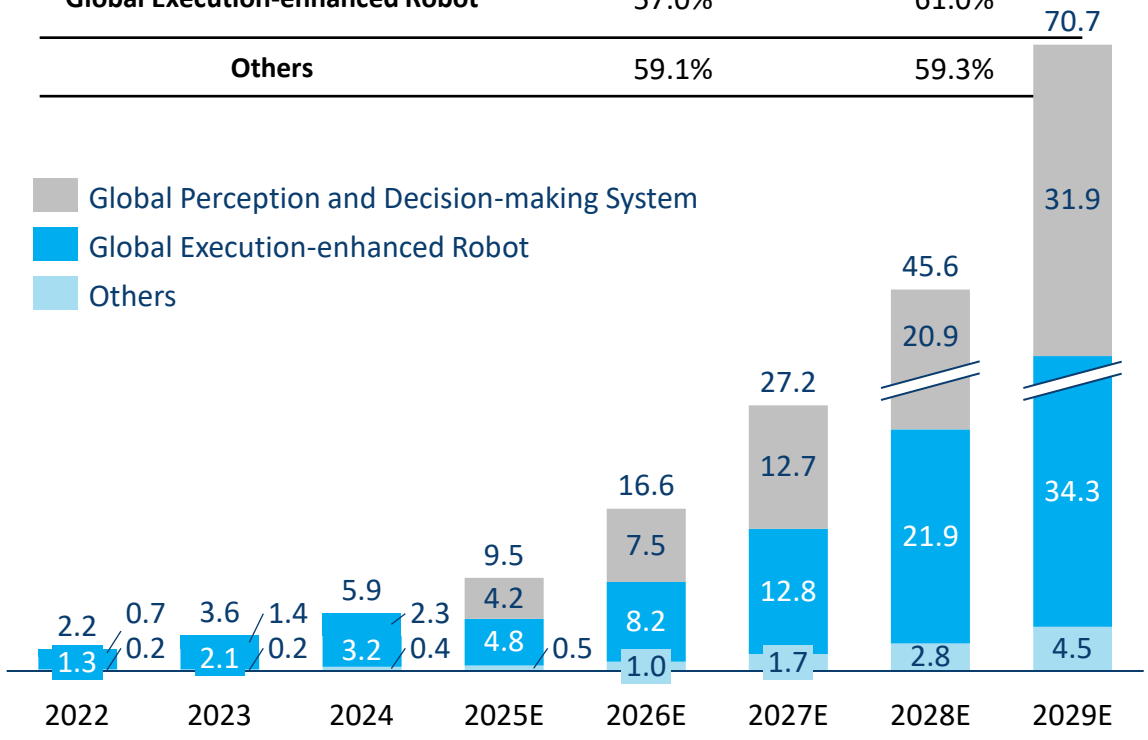
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
Overall	63.7%	64.2%
Global Perception and Decision-making System	75.7%	69.0%
Global Execution-enhanced Robot	57.0%	61.0%
Others	59.1%	59.3%



Key Findings

- Because of the technical application of VLA, the retail sales of global home robotic system continues to expand. The retail sales of global perception and decision-making system grew from RMB0.7 billion in 2022 to RMB2.3 billion in 2024, with a CAGR of 75.7%. The retail sales of global execution-enhanced robot grew from RMB1.3 billion in 2022 to RMB3.2 billion in 2024, with a CAGR of 57.0%.
- From 2024 to 2029, the retail sales of global perception and decision-making system is expected to rise at a CAGR of 69.0%, and the retail sales is expected to reach RMB31.9 billion in 2029. The retail sales of global execution-enhanced robot is expected to rise at a CAGR of 61.0%, and the retail sales is expected to reach RMB34.3 billion in 2029.
- *Note: Others refers to home robotic systems' accessories, including key pad touch associated with lock robot, purifiers and fans associated with enhanced mobile robots, cleaning supplies, power solutions, and smart home control accessories, among other things.*

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

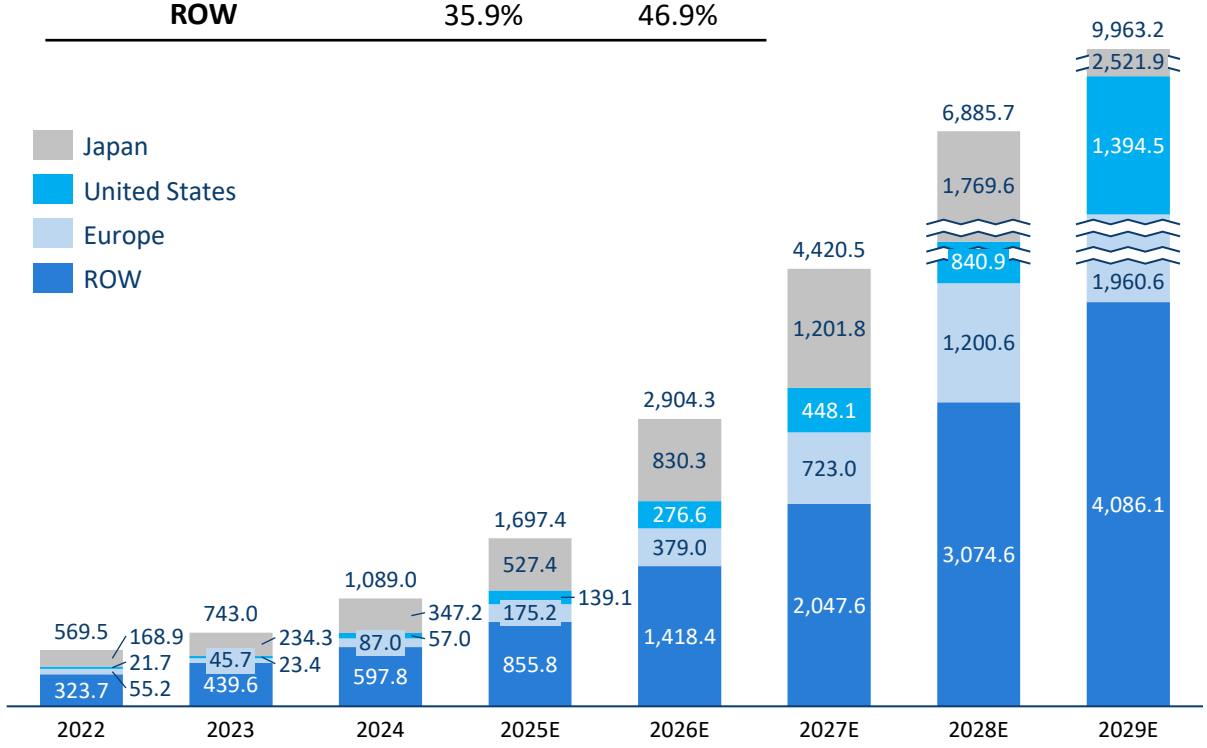
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry, By Retail Volume

10,000 units, 2022-2029E

	2022-2024	2024-2029E
Japan	43.4%	48.7%
United States	62.1%	89.6%
Europe	25.5%	86.5%
ROW	35.9%	46.9%



Key Findings

- As the home robotic system offers consumers a better home experience through more convenient collaboration and precise execution, the global market for global home robotic system continues to grow.
- From 2022 to 2024, the market size of Japan's home robotic system grew from 1,688,875 units to 3,471,998 units, with a CAGR of 43.4%.
- With the advancement of AI technology, home robotic system will become more personalized and better aligned with customer needs. The market size is expected to grow steadily. It is projected that by 2029, the market size of Japan's home robotic system will reach approximately 25,219,411 units, with a CAGR of 48.7%.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

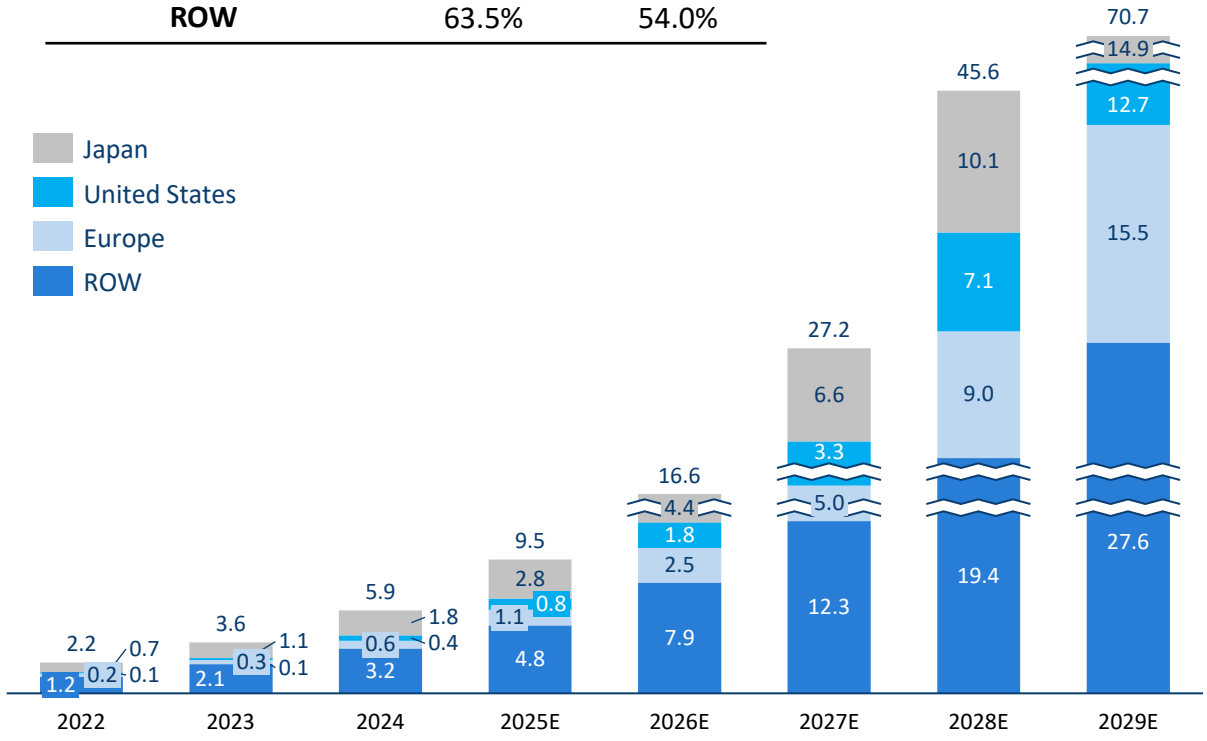
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry, By Retail Sales

RMB billion 2022-2029E

	2022-2024	2024-2029E
Japan	61.0%	52.8%
United States	91.7%	101.2%
Europe	59.3%	94.7%
ROW	63.5%	54.0%



Key Findings

- As the pace of consumers' lives accelerates, people are increasingly seeking autonomous and systematic household solutions, driving growth of the global home robotic system.
- From 2022 to 2024, the market size of Japan's home robotic system grew from approximately RMB0.7 billion to RMB1.8 billion, with a CAGR of 61.0%.
- The highly responsive interaction model of home robotic system is reshaping home environments. The market size of home robotic system is expected to grow steadily. It is projected that by 2029, the market size of Japan's home robotic system will reach approximately RMB14.9 billion, with a CAGR of 52.8%.
- *Note: "ROW" refers to the rest of the world, encompassing countries and regions excluding Japan, the United States, and Europe.*

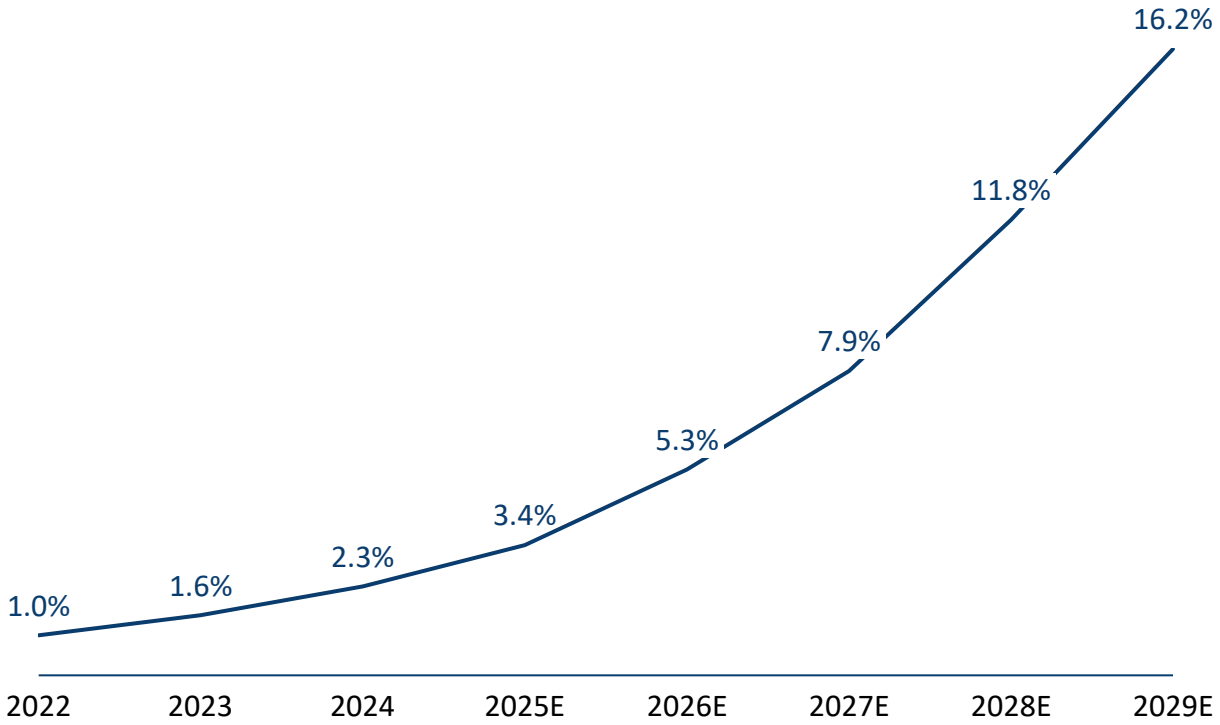
Source: Frost & Sullivan, World Bank Group, e-commerce platforms

Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Penetration of Global Home Robotic System in Global Home Robot Industry, By Retail Sales

%, 2022-2029E



Key Findings

- Driven by the factor of the accelerated global aging, the penetration of global home robotic system in global home robot industry continues to expand. Annual penetration grew from 1.0% in 2022 to 2.3% in 2024.
- Driven by the factor of technology maturity breakthrough the penetration of global home robotic system in global home robot industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the penetration of global home robotic system in global home robot industry is expected to reach 16.2% in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

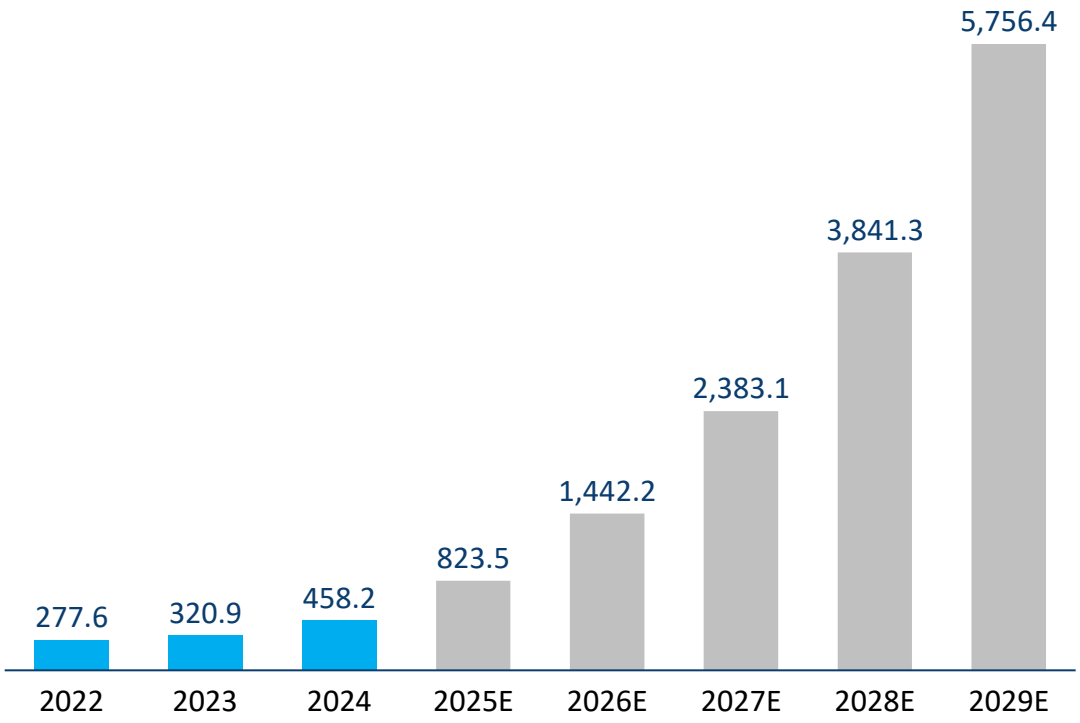
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market Size of Global Perception & Decision-making System Industry, By Retail Volume

10,000 units, 2022-2029E

	2022-2024	2024-2029E
CAGR	28.5%	65.9%



Key Findings

- Driven by the factor of AI edge computing applications, the retail volume of global perception and decision-making system industry continues to expand. Annual retail volume of global perception and decision-making system industry grew from 2,775,977 units in 2022 to 4,582,029 units in 2024, with a CAGR of 28.5%.
- Driven by the factor of smart home integration, the retail volume of global perception and decision-making system industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the industry is expected to rise at a CAGR of 65.9%, and the retail volume of global perception and decision-making system industry is expected to reach 57,564,127 units in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

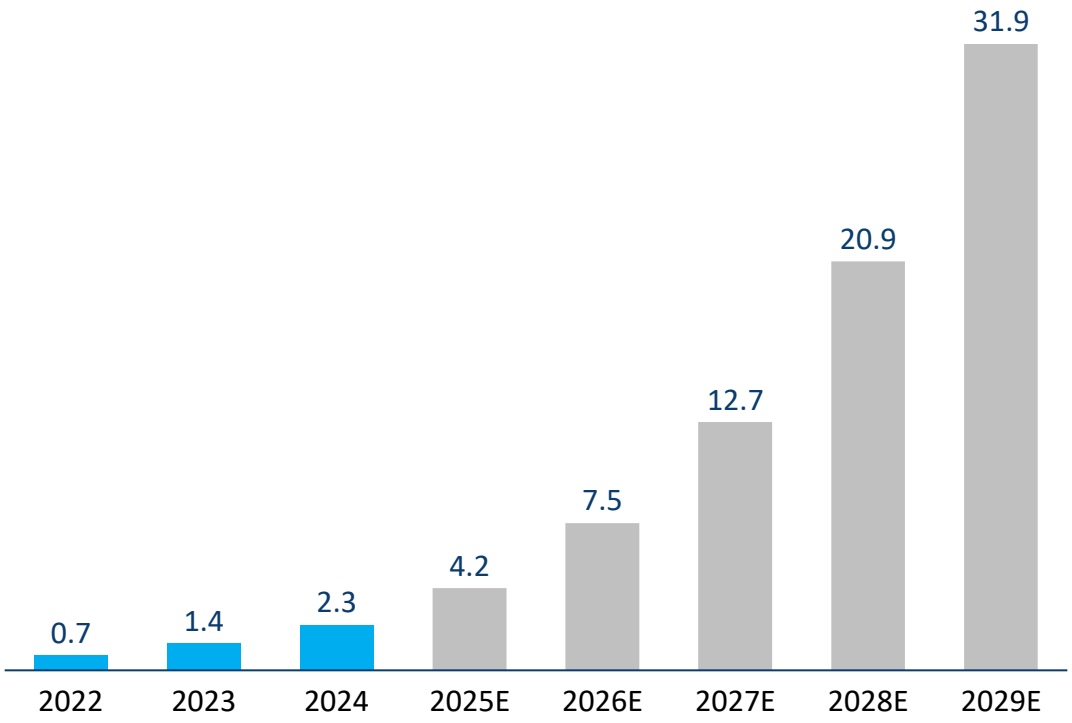
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market size of Global Perception & Decision-making System Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
CAGR	75.7%	69.0%



Key Findings

- Driven by the factor of the technical applications of VLA and VLM, the retail sales of global perception and decision-making system industry continue to expand. Annual retail sales of global perception and decision-making system industry grew from RMB0.7 billion in 2022 to RMB2.3 billion in 2024, with a CAGR of 75.7%.
- Driven by the factor of the user experience optimization, the retail sales of global perception and decision-making system industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the industry is expected to rise at a CAGR of 69.0%, and the retail sales of global perception and decision-making system industry is expected to reach RMB31.9 billion in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

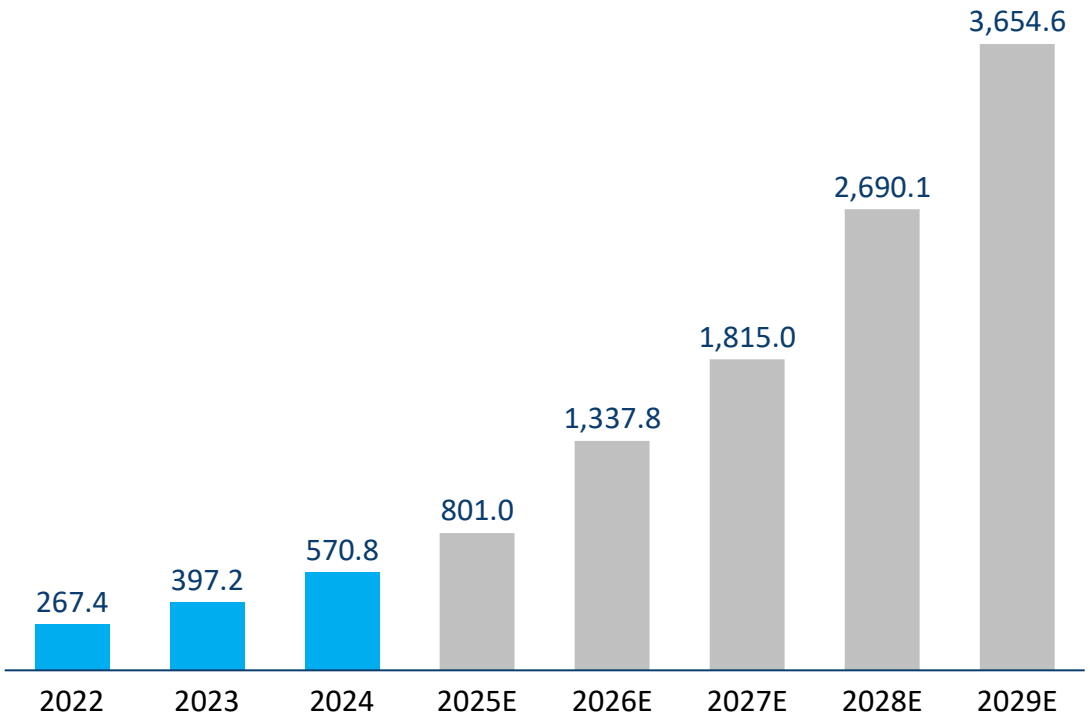
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market size of Global Execution-enhanced Robot Industry, By Retail Volume

10,000 units, 2022-2029E

	2022-2024	2024-2029E
CAGR	46.1%	45.0%



Key Findings

- Driven by the factor of the harmonization of smart home protocols, the retail volume of global execution-enhanced robot industry continues to expand. Annual retail volume of global execution-enhanced robot industry grew from 2,673,925 units in 2022 to 5,708,255 units in 2024, with a CAGR of 46.1%.
- Driven by the factor of the influx of capital, the retail volume of global execution-enhanced robot industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the industry is expected to rise at a CAGR of 45.0%, and the retail volume of global execution-enhanced robot industry is expected to reach 36,545,543 units in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

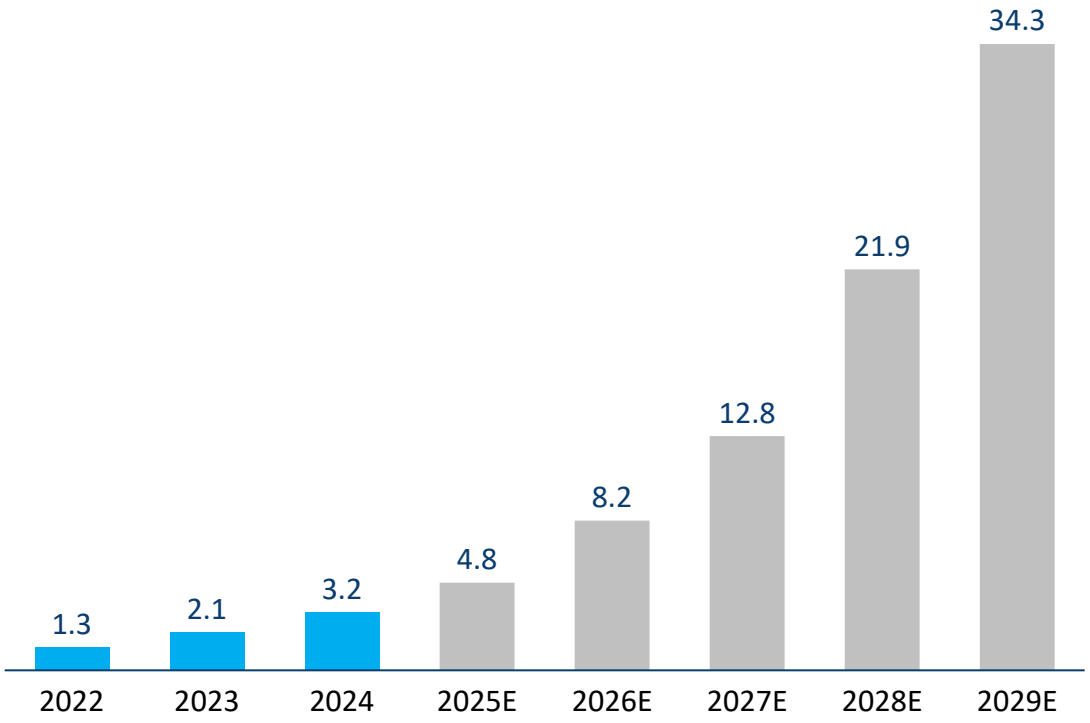
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market size of Global Execution-enhanced Robot Industry, By Retail Sales

RMB billion, 2022-2029E

	2022-2024	2024-2029E
CAGR	57.0%	61.0%



Key Findings

- Driven by the factor of the feedback from user behavior data to optimize algorithms, the retail sales of global execution-enhanced robot industry continues to expand. Annual retail sales of global execution-enhanced robot industry grew from RMB1.3 billion in 2022 to RMB3.2 billion in 2024, with a CAGR of 57.0%.
- Driven by the factor of the lower production costs, the retail sales of global execution-enhanced robot industry is expected to continue its steady growth in the coming years. From 2024 to 2029, the industry is expected to rise at a CAGR of 61.0%, and the retail sales of global execution-enhanced robot industry is expected to reach RMB34.3 billion in 2029.

Source: Frost & Sullivan, World Bank Group, National Bureau of Statistics of China, e-commerce platforms

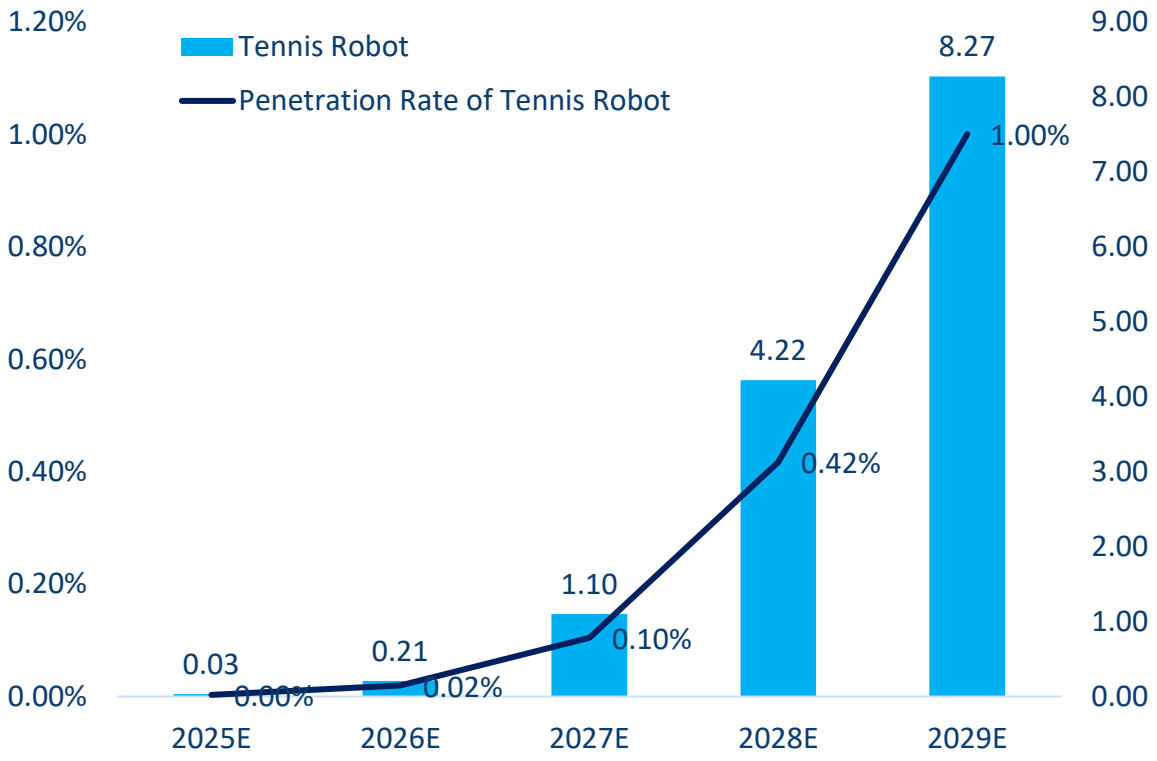
Overview of Global Home Robotic System Industry

Market Size of Global Home Robotic System Industry

Market size of Tennis Robot Industry, By Retail Sales

RMB billion, 2022-2029E

	2025-2029E
CAGR	293.0%



Key Findings

- With the holding of tennis competitions and media promotion, more and more people are participating in tennis, and the demand for tennis training equipment has increased accordingly. The market demand for tennis robots has also expanded correspondingly. Annual retail sales of global tennis robot industry will grow from RMB0.03 billion in 2025.
- In the future, many professional and semi-professional players will rely on tennis robots to improve their skills, making them a valuable investment for training institutions. From 2025 to 2029, the industry is expected to rise at a CAGR of 293.0%, and the retail sales of global tennis robot industry is expected to reach RMB8.27 billion in 2029. The penetration rate will increase to 1.0%.

Source: Frost & Sullivan, International Tennis Federation

Overview of Global Home Robotic System Industry

Analysis of Market Drivers for Home Robotic Systems

Analysis of Market Drivers for Home Robotic Systems	
Increasing Consumer Demand for Convenient and Comfortable Home Experiences	• End consumers' demand for convenient and comfortable home experiences drives a higher demand for responsive home robotic systems. Tasks involving sensing and collaboration are growing. For example, by visually detecting changes in ambient light and leveraging edge computing to autonomously determine whether to open or close curtains, the systems can optimize indoor lighting without user commands and collaborate with temperature control and lighting systems. In such scenarios, the empowerment of home robotic systems enables whole-home integration, incorporating more intelligent and automated functions to make the living experience more comfortable and convenient. The increasing complexity of scene logic, combined with multi-device collaboration, continuously elevates the importance of perception and decision-making collaboration.
Modular Design Drives Functional Expansion	• Execution-enhanced robots will feature more modular designs, integrating more intelligent and automated functions to handle increasingly complex household tasks. Dexterous hand-mimic robots can be equipped with different tool modules, and their modular design and product stacking capabilities enable flexible function replacement and iteration. For example, they can perform diverse tasks such as opening/closing curtains and serving tea, evolving from a single sweeping function to a comprehensive whole-home service platform.
Application of AI Edge Computing	• Leveraging on chips, home robotic systems can deploy local computing power and real-time multimodal AI models, enabling user demand anticipation and proactive services. For example, they can interpret users' natural language commands and combine them with 3D mapping for object localization and route planning. Meanwhile, cloud-based computing and AI edge computing complement each other in data processing, real-time response, and security, working collaboratively to improve response efficiency. For computationally intensive tasks with relatively low real-time requirements, cloud-based processing is adopted. For tasks demanding high real-time performance but lower computing power, local edge computing is adopted.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Analysis of Market Drivers for Home Robotic Systems

Analysis of Market Drivers for Home Robotic Systems	
Applications of Vision-Language-Action (VLA) Technology	• With the adoption of the VLA new paradigm in embodied intelligence, home robotic systems can make autonomous decisions in diverse scenarios and flexibly respond to unseen environments. The application of VLA models significantly enhances robots' understanding and adaptability in complex environments, driving home robotic systems toward greater generalizability and broader applicability across varied scenarios.
Standardization of Home Robots Protocols	• The standardization of smart home protocols (e.g., Matter, Zigbee) serves as a key market driver for home robotics by eliminating fragmented ecosystems and enabling seamless cross-brand interoperability. By adopting universal connectivity standards, robotic systems can integrate a wider range of smart devices—from lighting to security systems—without being locked into proprietary platforms. This not only enhances task efficiency but also reduces development costs for manufacturers, who no longer need to build custom integrations for every brand.
Advancement in Autonomous Learning & Adaptive Algorithms	• Home robotic systems are increasingly adopting self-optimizing algorithms powered by reinforcement learning and transfer learning, enabling dynamic adaptation to evolving environments. These systems analyze historical interaction data and environmental feedback to refine task execution strategies autonomously. This capability reduces dependency on pre-programmed workflows while improving responsiveness to novel scenarios, directly addressing consumer demands for truly "smart" home ecosystems.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Future Development Trends of Home Robotic Systems (1/2)

Future Development Trends of Home Robotic Systems (1/2)

Energy Efficiency Upgrades

- In terms of energy optimization, home robotic systems leverage edge computing to analyze device loads in real time, through dynamically adjusting communication frequency and power modes to reduce consumption. With continuous AI algorithm optimization, energy efficiency upgrades will further drive the development of lighter, longer-lasting, and higher-performance home robotic systems, enhancing their wider application value in smart homes.

Enhanced Consumer Data Security

- In the smart home system, data security is the core concern of consumers. With the improvement of robots' autonomous learning capabilities, they need to continuously obtain a large amount of data from home scenarios to optimize their behavior models. This leads to a sharp increase in the amount of data, and involves sensitive privacy information such as users' living habits, health conditions, and the dynamics of family members. In order to address the potential risks of data leakage, the industry will gradually increase the means of local data processing. That is, data collection, modeling, and preliminary reasoning will be completed at the device end, minimizing the need to upload sensitive information to the cloud, effectively protecting users' privacy, and promoting the healthy and sustainable development of the industry.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Future Development Trends of Home Robotic Systems (2/2)

Future Development Trends of Home Robotic Systems (2/2)

Gradually Enhanced Autonomous Learning and More Flexible Human-Robot Interaction

- AI technology is poised to revolutionize traditional command-based interaction paradigms. With the implementation of VLA technology and the iterative advancement of the perception and decision-making systems, home robotic systems will be capable of interpreting consumers' complex instructions. In the foreseeable future, the autonomous learning capacity of home robotic systems will remain a pivotal trend in the industry's development. These robots will no longer be confined to relying solely on pre - set programs for task execution. Instead, they will dynamically adapt to diverse home environments and user requirements through autonomous perception, comprehension, and decision-making processes. Specifically, continuous improvements in areas such as visual recognition, semantic understanding, and environmental modeling empower robots to amass data through daily interactions and update user behavior models in real-time, thereby delivering personalized and context-aware service experiences. Moreover, autonomous learning will also foster collaborative optimization among devices, enabling complex tasks to be delegated to multiple devices for collaborative completion and facilitating the formation of a more efficient and intelligent home ecosystem. Ultimately, home robots will proactively detect needs and predict behaviors, significantly enhancing the comfort and security of domestic living. This trend is also expected to propel the entire industry towards more intricate and natural human-robot collaboration, thereby spawning new application scenarios and service models.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Entry Barriers of the Home Robotic System (1/2)

Entry Barriers of the Home Robotic System (1/2)

Profound Industry Understanding and Consumer Pain Point Insights	• In the execution-enhanced robot industry, a profound insight into consumer needs is one of the keys to success. Execution-enhanced robot companies need to accurately identify pain points in various home application scenarios, design and develop products tailored to address these pain points, and satisfy consumers' personalized, intelligent and all-around service demands.
Mature Technological Innovation Capabilities	• In the home robotic system industry, the key to a company's success hinges on the accumulation of core technologies, reflected in areas such as 3D environment mapping and machine vision. Positioning and environment construction technologies, through multi-sensor fusion and edge technologies, enable robots to achieve high-precision positioning and 3D environment mapping in complex home environments, ensuring accurate obstacle recognition and environmental awareness. This provides a solid foundation for stable autonomous movement and task execution. Secondly, machine vision control technology combines cloud-based deep learning and edge computing, utilizing visual sensors and optimized processing units to ensure home robots can recognize and understand their environment and perform complex tasks, thereby enhancing the product's intelligence level and user experience. Additionally, distributed neural control network technology employs low-power, high-efficiency communication protocols to ensure real-time collaborative control among smart home devices. Overall, solid technological capabilities enable robotic products to achieve high intelligence, adaptability and stability, which are core advantages for companies to stand out in a highly competitive market.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Entry Barriers of the Home Robotic System (2/2)

Entry Barriers of the Home Robotic System (2/2)

Continuous Optimization of Enhanced Product Functionality	• Multifunctional execution-enhanced robots can perform and achieve more functions, as well as enable multi-dimensional task coordination. For example, in cleaning, a robot can first perform cleaning and then reposition a humidifier to achieve all-around environmental optimization services. This multi-task coordination and collaborative operation significantly enhances the practicality and convenience of execution-enhanced robots, allowing end consumers to enjoy more efficient and intelligent service experiences during use.
Strong Brand Image	• A strong brand image and reputation can increase end consumers' trust and recognition of execution-enhanced robots. By offering diverse product functionalities, user-centric services, and unique usage experiences, companies can gain consumer approval and establish a positive reputation. Users who experience stable, high-quality products are more likely to develop long-term trust and make repeat purchases. Positive word-of-mouth can also attract more potential end consumers, driving sustained market growth for the brand.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Key Success Factors for Home Robotic System Brands

Core Technology Portfolio of Home Robotic System	
Robot Positioning and Environmental Construction Technology	• This technology integrates multi-sensor fusion, edge intelligence, and 3D visual reconstruction, enabling home robots to move autonomously with high precision and adaptability. In 1D positioning, multi-sensor fusion boosts the accuracy of curtain and lock robots. 2D mapping uses LiDAR SLAM and information gain algorithms for fast, wide - area mapping. For 3D, enhanced robots combine LiDAR, computer vision, and edge AI SLAM, covering various functions and enabling high-precision 3D home mapping with obstacle avoidance. This technology empowers products to position accurately in all three dimensions, map homes, build 3D models, and identify key features.
Artificial Intelligence Machine Vision Control Technology (Vision-Language-Action Model)	• This technology combines the Vision-Language-Action model with cloud-based deep learning and local diffusion models. Relying on terminal devices with CMOS visual sensors and edge chips, it achieves precise visual recognition and intelligent feedback. The terminals, optimized for low-power NPUs, enable perception. Cloud-based deep model parameters allow for rapid advanced reasoning, while the diffusion-based execution module on the device side ensures accurate action execution. This technology helps home robotic systems analyze visual data, integrate with positioning and mapping tech, and precisely carry out actions.
Distributed Neural Control Network Technology	• The distributed neural control network technology uses bionic communication protocols to create low-power, self-healing networks for real-time control of smart home devices. It has three core modules: a multimodal decision-making architecture for data integration and autonomous decisions, a bio-inspired protocol reducing energy use, and an embedded control module for precise movements. Its fast response, high accuracy, low energy consumption, and adaptability drive smart homes towards greater autonomy.

Source: Frost & Sullivan

Overview of Global Home Robotic System Industry

Business Risks and Challenges Analysis

Risks

Cargo transportation risk

- Natural disasters such as typhoons, heavy rains, and tsunamis may cause shipping delays or cargo damage. Unexpected incidents including traffic accidents, ship collisions, and fires could lead to cargo losses. Human factors like operational errors, improper handling, and documentation mistakes may also result in financial losses. These risks could adversely affect the company's cargo safety, delivery timelines, and operational costs.

Exchange rate risk

- Exchange rate fluctuations in Japan, the US, and Europe pose significant risks to the company. Depreciation of local currencies reduces the converted value of overseas revenue. Unhedged foreign currency receivables and payables can generate exchange losses. Particularly amid growing global economic uncertainty, sharp currency movements could substantially affect our profit margins and cash flow stability.

Mitigation

To address cargo transportation risk

- The company can reduce shipping risks by establishing long-term partnerships with reputable logistics providers. Secondly, it can leverage IoT technology to monitor shipment status in real time, ensuring safety and control. Finally, they should implement robust insurance mechanisms and contingency plans to handle unexpected delays or cargo damage.

To address exchange rate risk

- Financial hedging involves using instruments such as forward contracts, futures contracts, and options to lock in future exchange rates. Currency diversification helps reduce reliance on any single currency by balancing asset allocations and debt structures across multiple currencies. Additionally, optimizing the supply chain by shortening procurement and sales cycles can minimize the impact of exchange rate fluctuations on both costs and revenues.

Source: Company Website, Frost & Sullivan

Overview of Global Home Robotic System Industry

Business Risks and Challenges Analysis

Risks	Mitigation
Tariff risk • As an export-oriented enterprise, the company will be significantly impacted by tariff policies in Japan, the US, and Europe. The company's smart home products face varying tariff rates across these markets. These tariffs directly affect our products' price competitiveness in local markets.	**To address tariff risk** • Establish production or assembly facilities in multiple countries to flexibly adjust shipping origins in response to different trade policies and tariff changes across markets. Closely monitor policy updates and accurately declare product HS codes and country of origin to avoid costly tariffs or penalties due to misreporting.
Cash flow risk • As a smart home enterprise in the growth period, the company's current capital scale is relatively limited. With the rapid expansion of business, the company will face severe challenges. The company will face the double pressure of R&D investment and marketing investment, and may encounter cash flow constraints.	**To address cash flow risk** • The company should adopt a multi-pronged strategy. Short-term measures like accelerating collections (factoring receivables, dynamic inventory management) and extending payables. Medium-term solutions including low-cost financing (supply chain notes, credit loans) and cost restructuring. Long-term upgrades to subscription models/platform monetization and AI-powered risk control systems.

Source: Company Website, Frost & Sullivan

Overview of Global Home Robotic System Industry

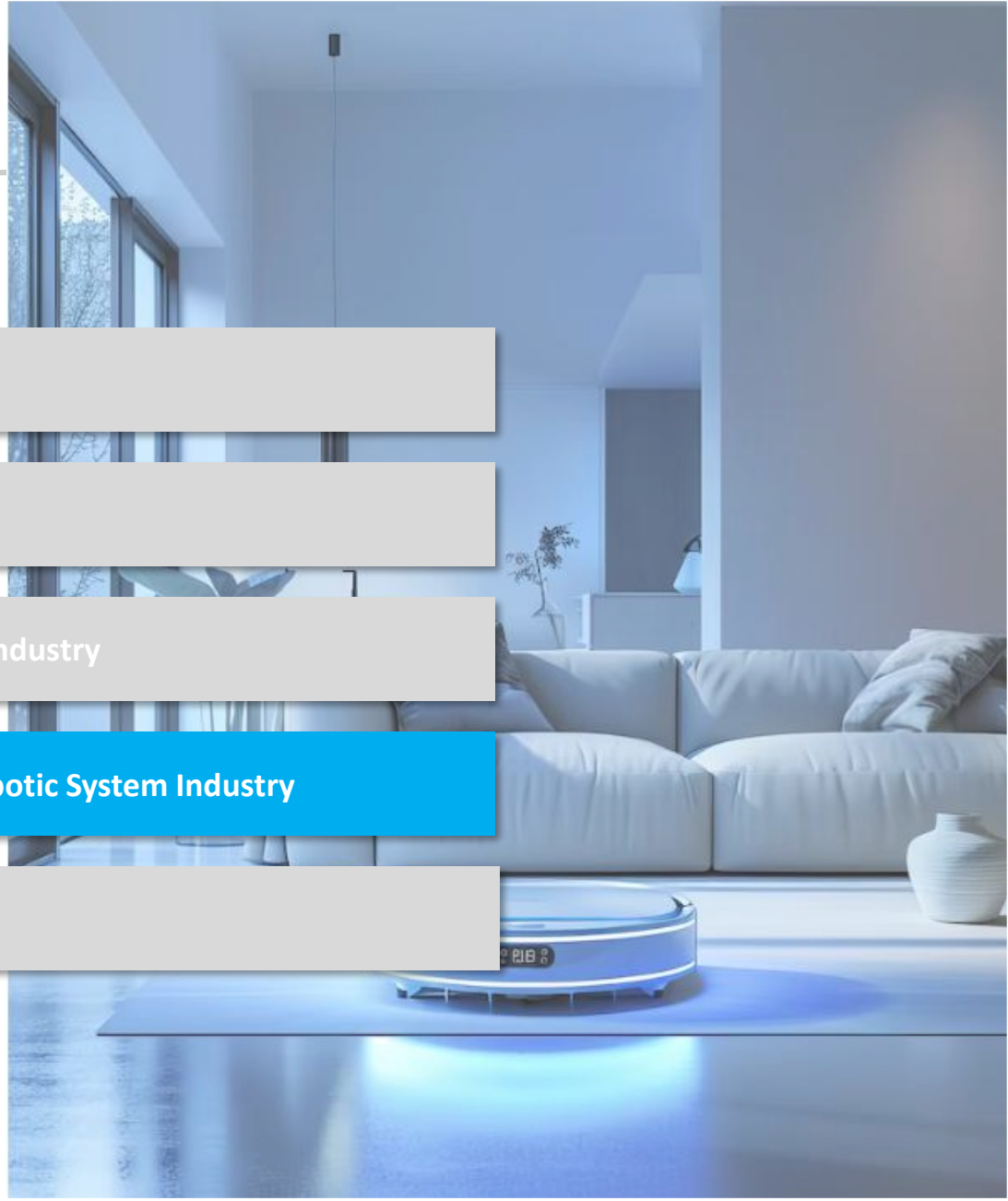
Business Risks and Challenges Analysis

Challenges

Pressure of technology iteration	The company, as an innovator in the smart home sector, constantly faces the challenge of technological iteration. In the rapidly evolving IoT and AI era, technology update cycles have shortened to 6-12 months, compelling the company to continuously invest substantial R&D resources to maintain competitive advantages. This includes ongoing upgrades to existing product lines, such as navigation algorithms for robotic vacuums and motor control systems for smart curtains, while simultaneously conducting pre-research on next-generation technologies, such as the digital twin technology, robotic grasping and motion control technology, etc.
Differentiation of regional needs	European and American users prefer fully automated whole-house solutions with strong data privacy protections; Japanese consumers prioritize quiet operation and energy efficiency. These differences extend beyond hardware specifications to include software interaction logic and after-sales service systems. Companies must establish localized product development teams to thoroughly understand regional usage habits and cultural preferences, enabling them to create products that truly meet local market needs. Additionally, varying regional certification standards (such as CE in EU, FCC in US, and PSE in Japan) increase product adaptation complexity, requiring multi-version compatible designs from the initial R&D phase.
Competition from localized brands	Smart home companies exporting to the US, Japan, and Europe face challenges from localized brands. In Japan, domestic players like Panasonic and Sony dominate with strong technological heritage and high national recognition. The US market is led by tech giants such as Amazon (Alexa) and Google (Nest), whose products are deeply integrated into local ecosystems, while consumers prioritize compatibility and data security. Europe's Siemens and Philips lead the market, with strict GDPR regulations creating compliance barriers for foreign entrants.

Source: Company Website, Frost & Sullivan

Agenda



Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Hub Industry, by launch time

Definition

- AI hub is the intelligent home hub that integrates large-scale pre-trained language models with edge computing technology. It enables multi-source perception and autonomous decision-making in multiple scenarios. Moreover, it can collaborate with other home robotic system to perform multi-functional tasks such as home patrol, whether in an online or offline state.

Ranking of Players in Global AI Hub Industry, by launch time

Ranking	Company	Product launch time	Language model & AI edge computing	Multi-source perception and multi-scenario autonomous decision-making	Multi-functional collaboration
1	SwitchBot	2025	✓	✓	✓
2	mi	2022	✓	✗	✗

- **Switchbot is the first company in the world to lay out the AI Hub. As of May 2025, the company is the only one to have released an AI hub.**

Source: Frost & Sullivan

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Enhanced Mobile Robot Industry, By launch time

Ranking of Players in Global Enhanced Mobile Robot Market, By launch time

Ranking	Company	Product series	Product Launch Time
1	SwitchBot	 S10 Series	2023.10
2		 G30 Space Series	2025.02

- **SwitchBot introduced the global first enhanced mobile robot in 2023.**

Source: Frost & Sullivan

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Small-size Smart Laser Vacuum Robot Industry, By dimension

Ranking of Players in Global Small-size Smart Laser Vacuum Robot Market, By dimension

Ranking	Company	Product series	Product Diameter
1	SwitchBot	 K10+ Series	248mm
2	ECOVACS ROBOTICS	 ILIFE V5e	305mm
3	iRobot	 Robot Roomba S9+	311mm

- **SwitchBot's K10 series vacuum robot is the global smallest laser vacuum robot in terms of product diameter as of May 2025.**

Source: Frost & Sullivan

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Execution-enhanced Curtain Robot Industry, by launch time

Ranking of Players in Global Execution-enhanced Curtain Robot Industry, by launch time

Ranking	Company	Product launch time
1	SwitchBot	2020
2	Style	2021
3	Aqara	2022

- **SwitchBot introduced the global first execution-enhanced curtain robot in 2020.**

Source: Frost & Sullivan

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Execution-enhanced Fingerprint Lock Robot Industry, by launch time

Ranking of Players in Global Execution-enhanced Fingerprint Lock Robot Industry, by launch time

Ranking	Company	Product launch time	Fingerprint	Retrofit smart home devices
1	SwitchBot	2022	✓	✓
2	Kaadas 凯迪仕 • 智能锁	2009	✓	✗
3	mi	2018	✓	✗
4	HUAWEI	2022	✓	✗

- **In 2022, SwitchBot launched the world's first fingerprint lock robot.**

Source: Frost & Sullivan

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Execution-enhanced Finger Robot Industry, by launch time

Ranking of Players in Global Execution-enhanced Finger Robot Industry, by launch time

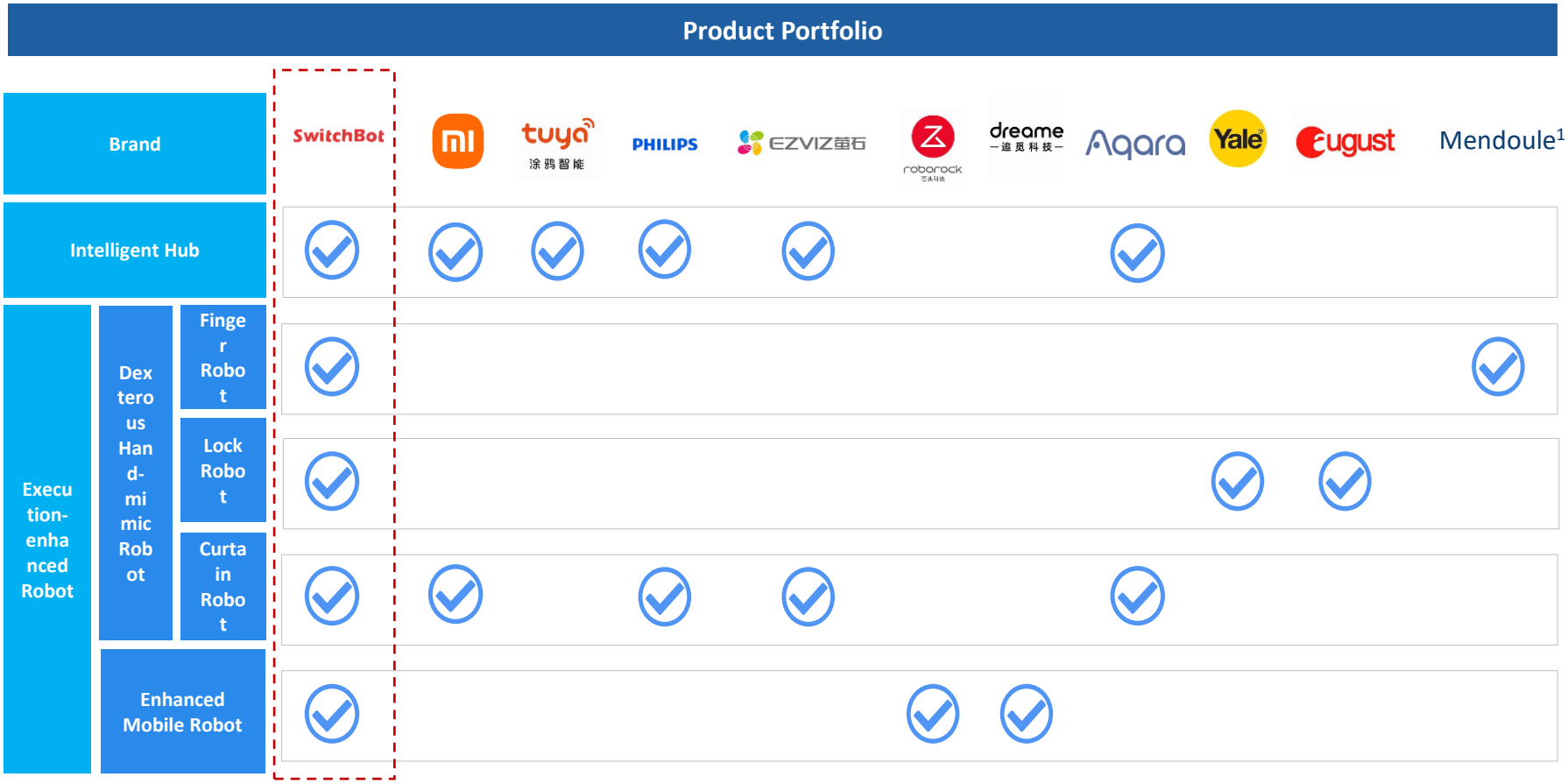
Ranking	Company	Product launch time
1	SwitchBot	2017
2	Lesunty	2024
3	Buhyujkm	2024
4	ノーブランド品	2024
5	LUQEEG	2025

- **SwitchBot introduced the global first execution-enhanced finger robot in 2017.**

Source: Frost & Sullivan

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Home Robot Market, by Product Portfolio



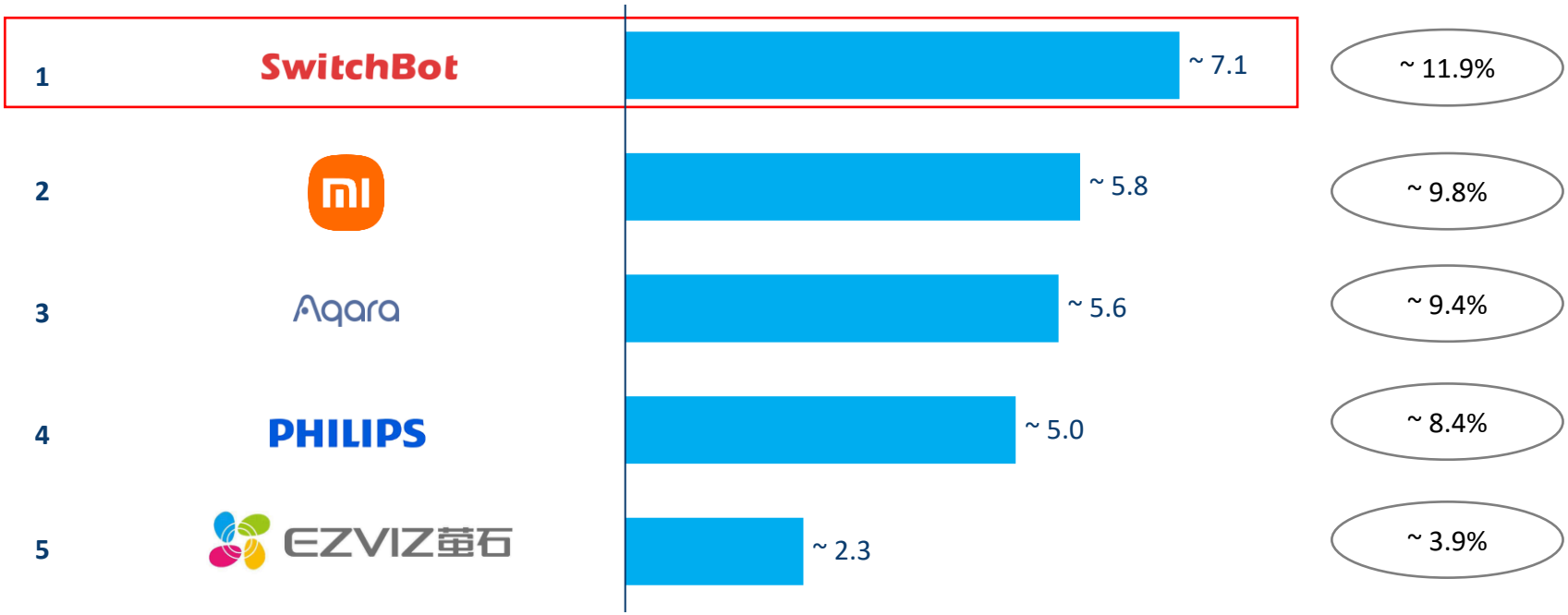
- **Switchbot is the only company with a comprehensive portfolio of home robotic system as of May 2025.**
- **Switchbot is the only company with a comprehensive portfolio of execution-enhanced robot as of May 2025.**

Note 1: At the end of 2024, there are no large-scale companies in the finger robotics field. To make the comparison dimensions more comprehensive, Mendoule is therefore included in the product portfolio.

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Home Robotic System Industry, By Retail Sales

Ranking of Players in Global Home Robotic System Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest home robotic system company in the global market in 2024.**

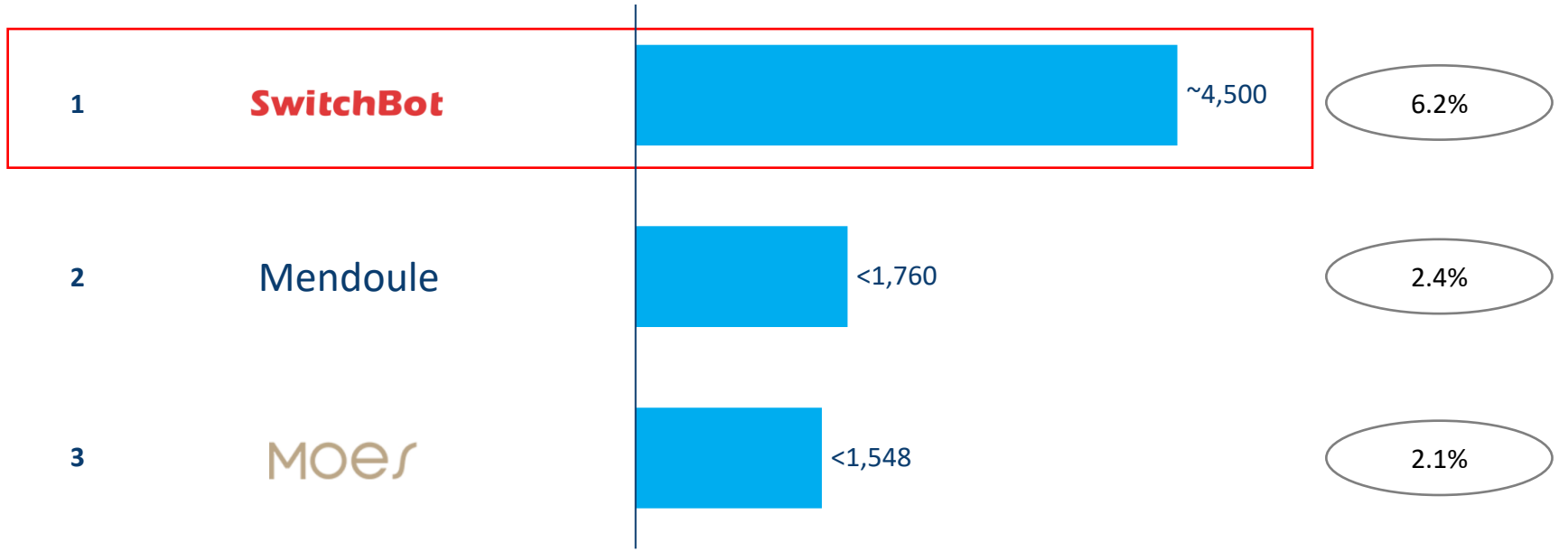
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Finger Robot Industry, By Retail Sales

Ranking of Players in Global Finger Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest finger robot company in the global market in 2024.**

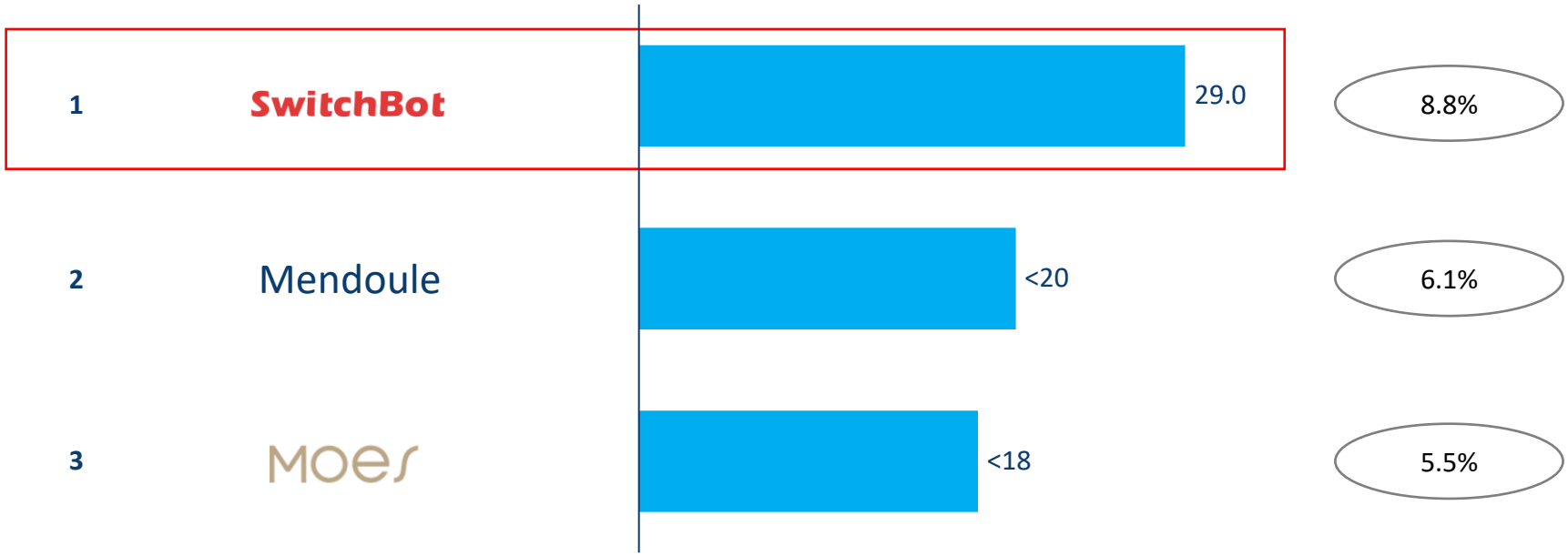
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Finger Robot Industry, By Retail Volume

Ranking of Players in Global Finger Robot Industry, by Retail Volume, 2024



Key Findings:

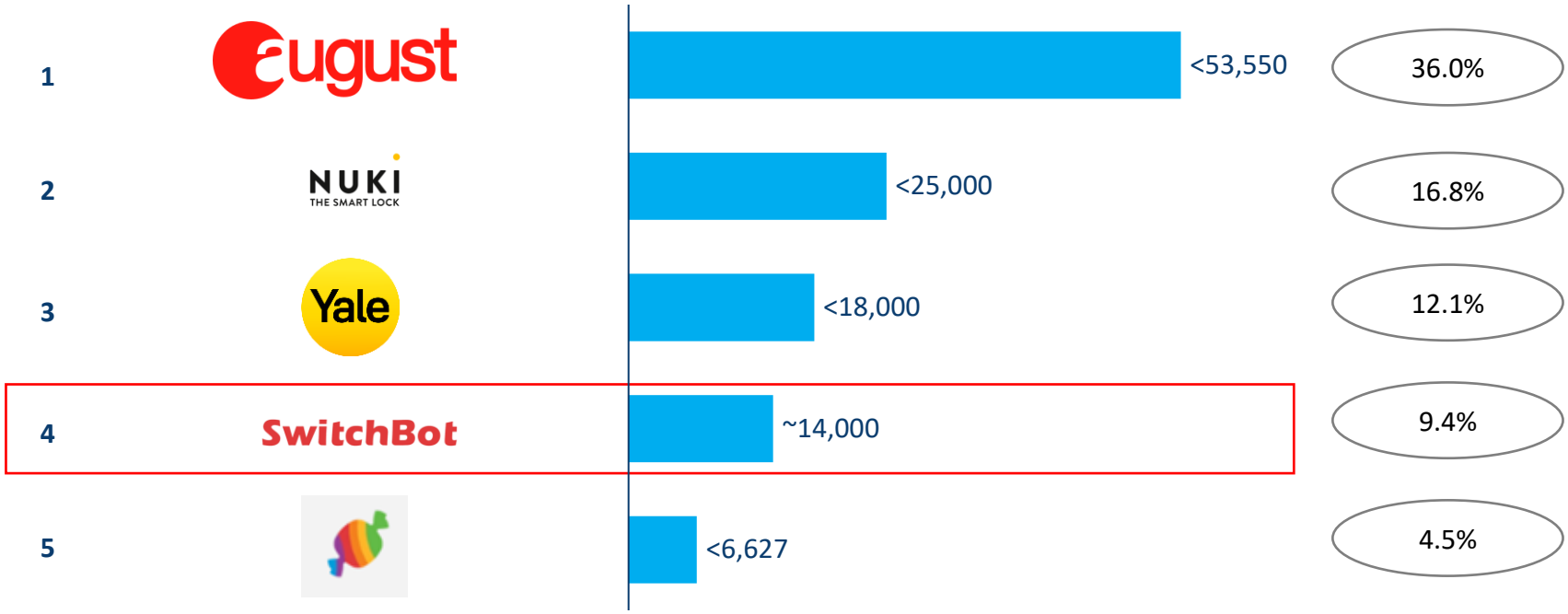
- **In terms of retail volume, Switchbot is the largest finger robot company in the global market in 2024.**

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Lock Robot Industry, By Retail Sales

Ranking of Players in Global Lock Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot ranks fourth in the global lock robot industry in 2024.**

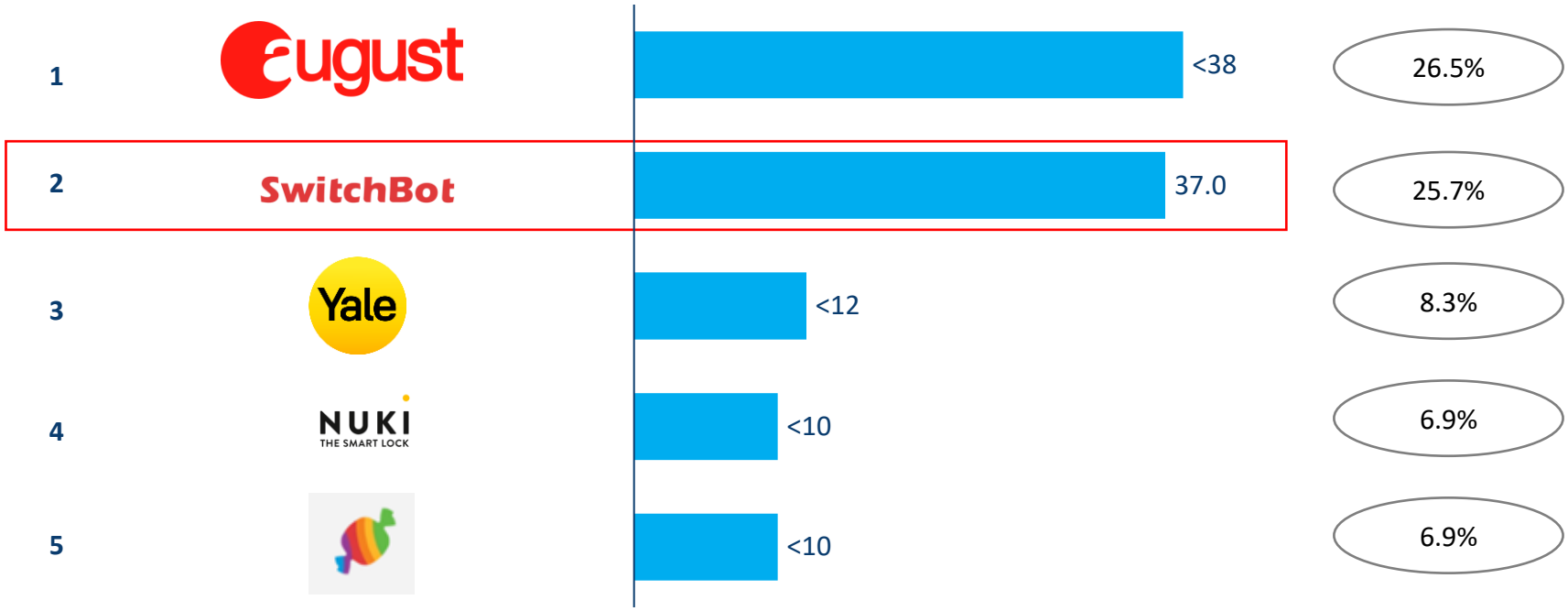
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Lock Robot Industry, By Retail Volume

Ranking of Players in Global Lock Robot Industry, by Retail Volume, 2024



Key Findings:

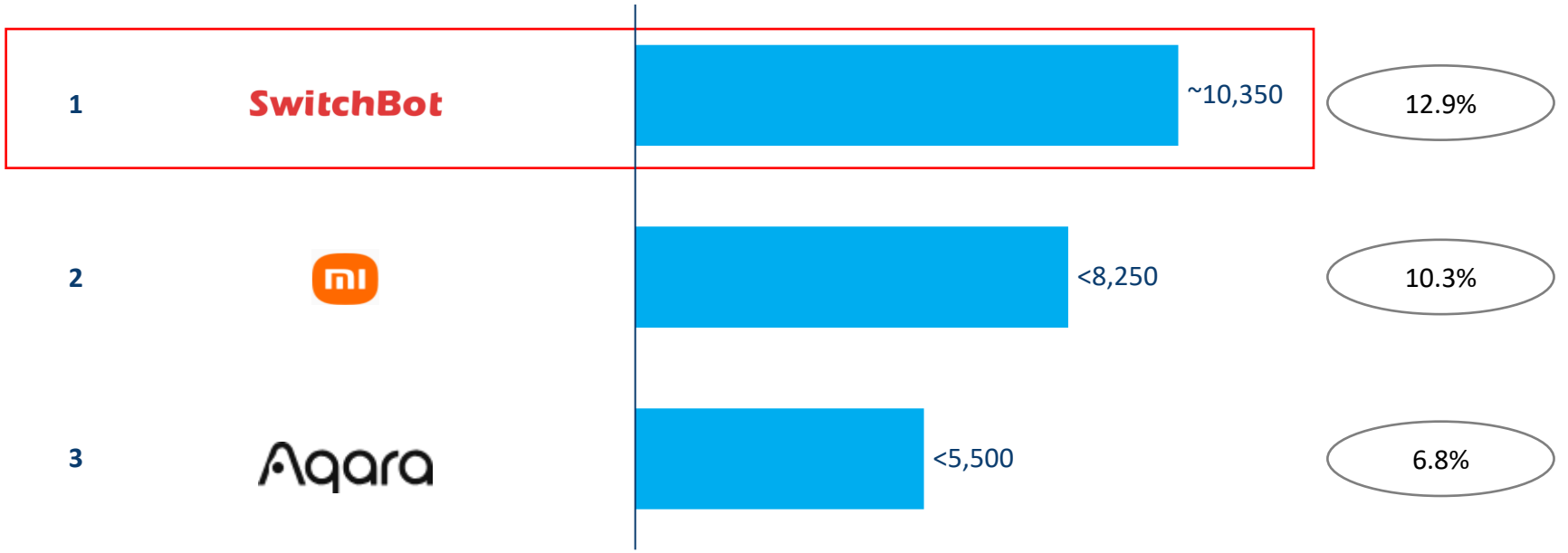
- **In terms of retail volume, Switchbot is the second-largest lock robot company in the global market in 2024.**

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Curtain Robot Industry, By Retail Sales

Ranking of Players in Global Curtain Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest curtain robot company in the global market in 2024.**

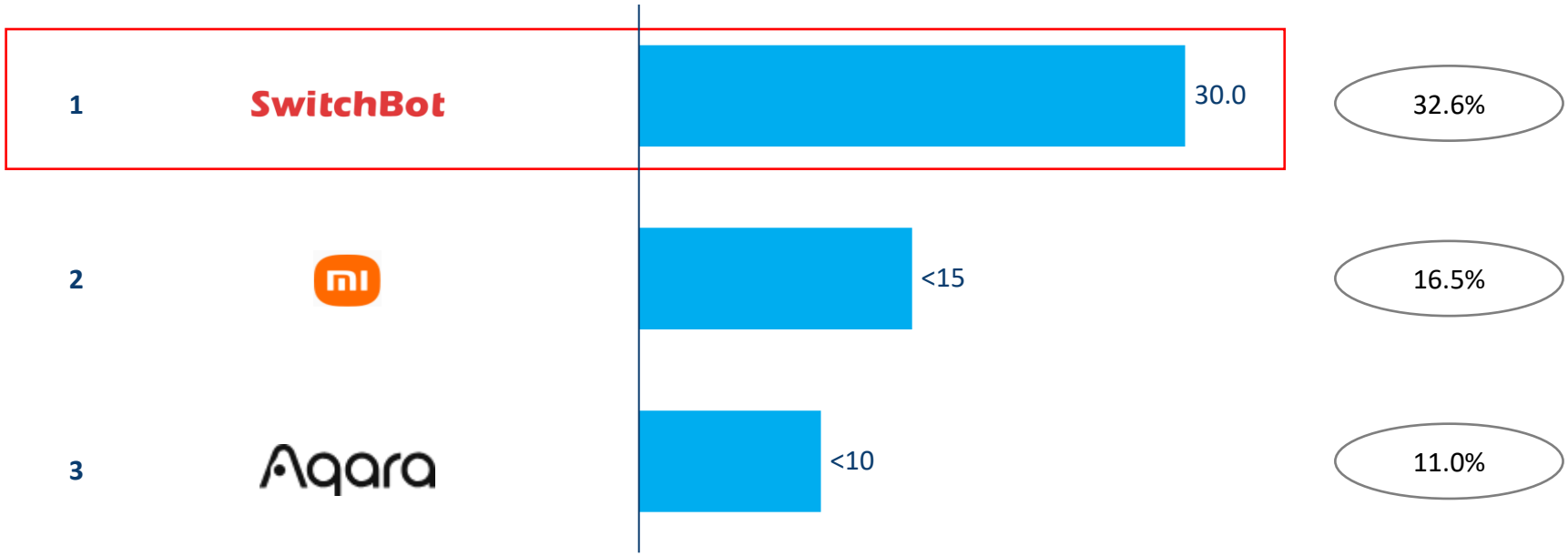
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Curtain Robot Industry, By Retail Volume

Ranking of Players in Global Curtain Robot Industry, by Retail Volume, 2024



Key Findings:

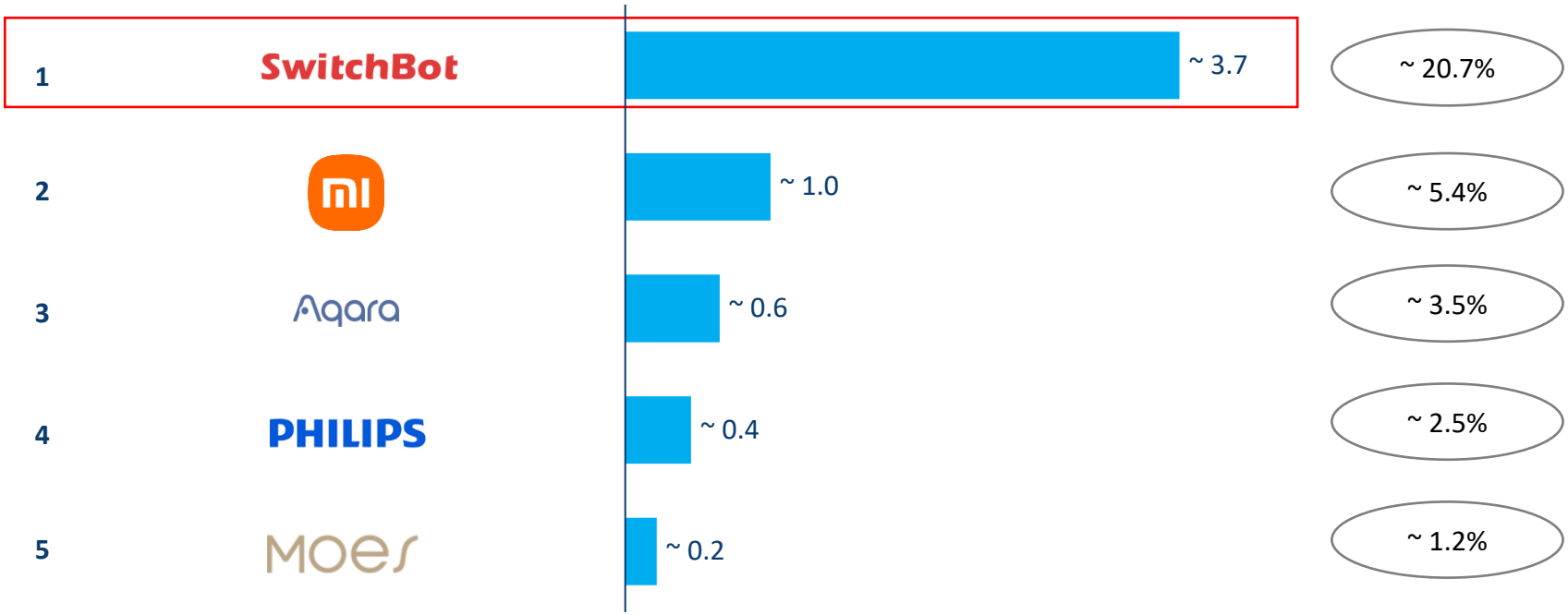
- **In terms of retail volume, Switchbot is the largest curtain robot company in the global market in 2024.**

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Home Robotic System Industry, By Retail Sales

Ranking of Players in Japanese Home Robotic System Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest home robotic system company in the Japanese market in 2024.**

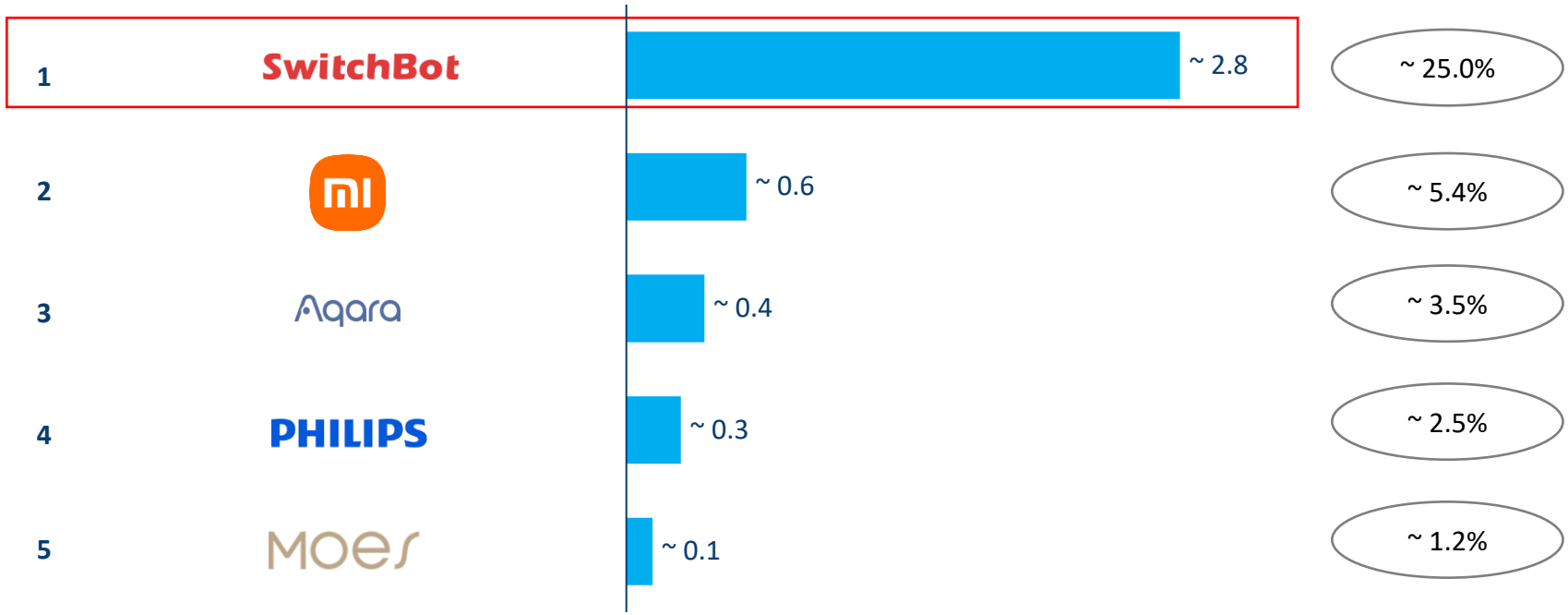
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Home Robotic System Industry, By Retail Sales

Ranking of Players in Japanese Home Robotic System Industry, by Retail Sales, 2023



Key Findings:

- **In terms of retail sales, Switchbot is the largest home robot company in the Japanese market in 2023.**

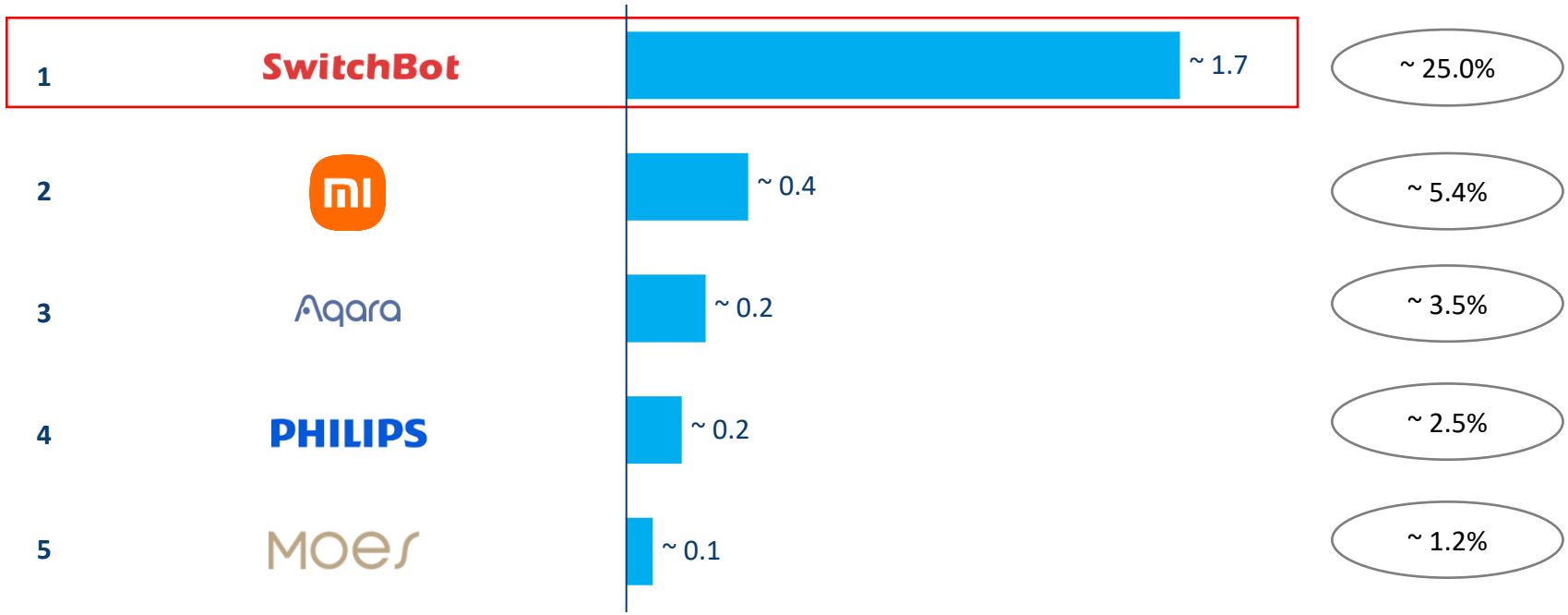
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Home Robotic System Industry, By Retail Sales

Ranking of Players in Japanese Home Robotic System Industry, by Retail Sales, 2022



Key Findings:

- **In terms of retail sales, Switchbot is the largest home robotic system company in the Japanese market in 2022.**

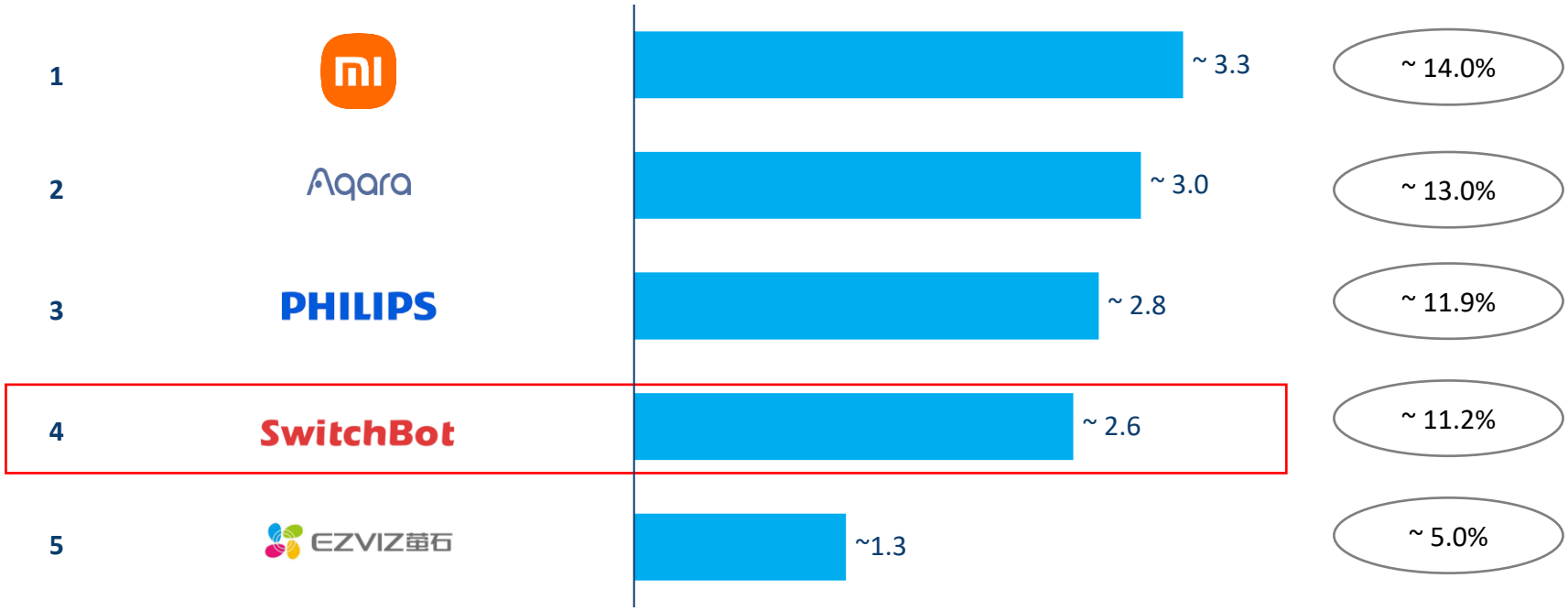
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Perception and Decision-making System Industry, By Retail Sales

Ranking of Players in Global Perception and Decision-making System Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot ranks forth in the global perception and decision-making system industry in 2024.**

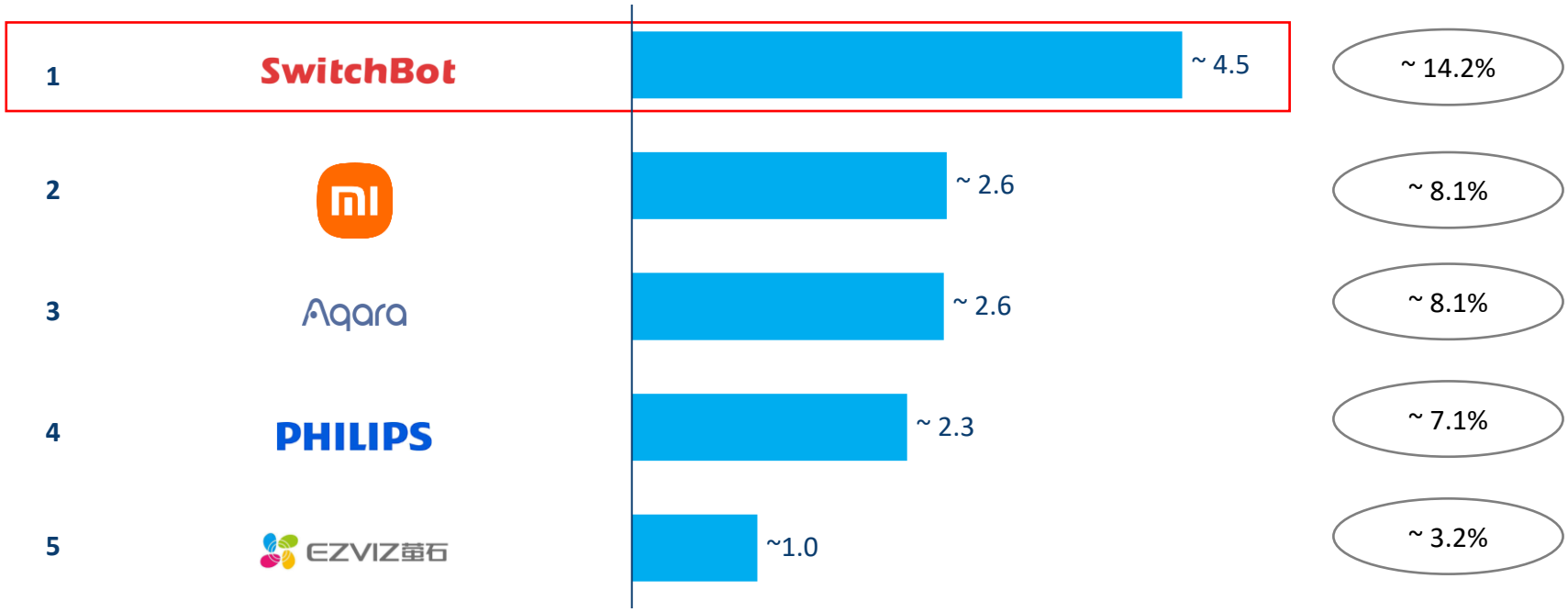
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Global Execution-enhanced Robot Industry, By Retail Sales

Ranking of Players in Global Execution-enhanced Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest execution-enhanced robot company in the global market in 2024.**

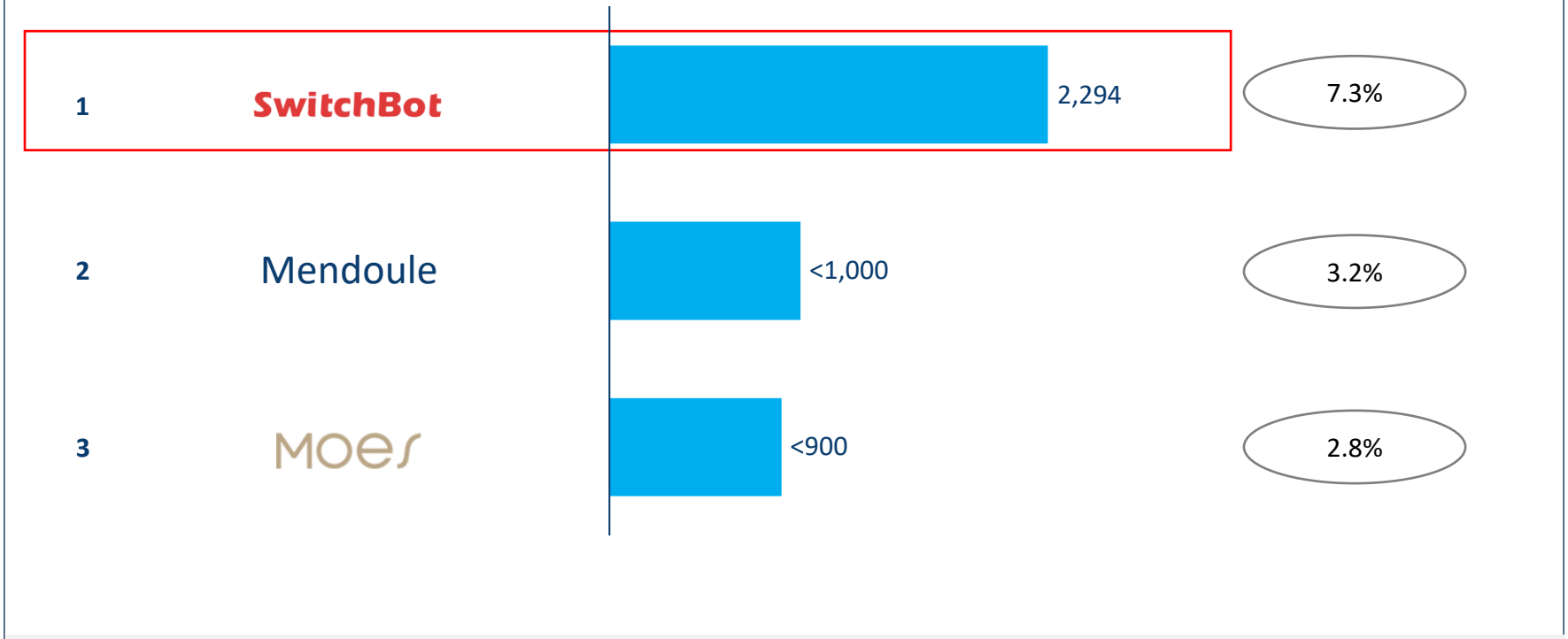
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Finger Robot Industry, By Retail Sales

Ranking of Players in Japanese Finger Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest finger robot company in the Japanese market in 2024.**

Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Finger Robot Industry, By Retail Volume

Ranking of Players in Japanese Finger Robot Industry, by Retail Volume, 2024

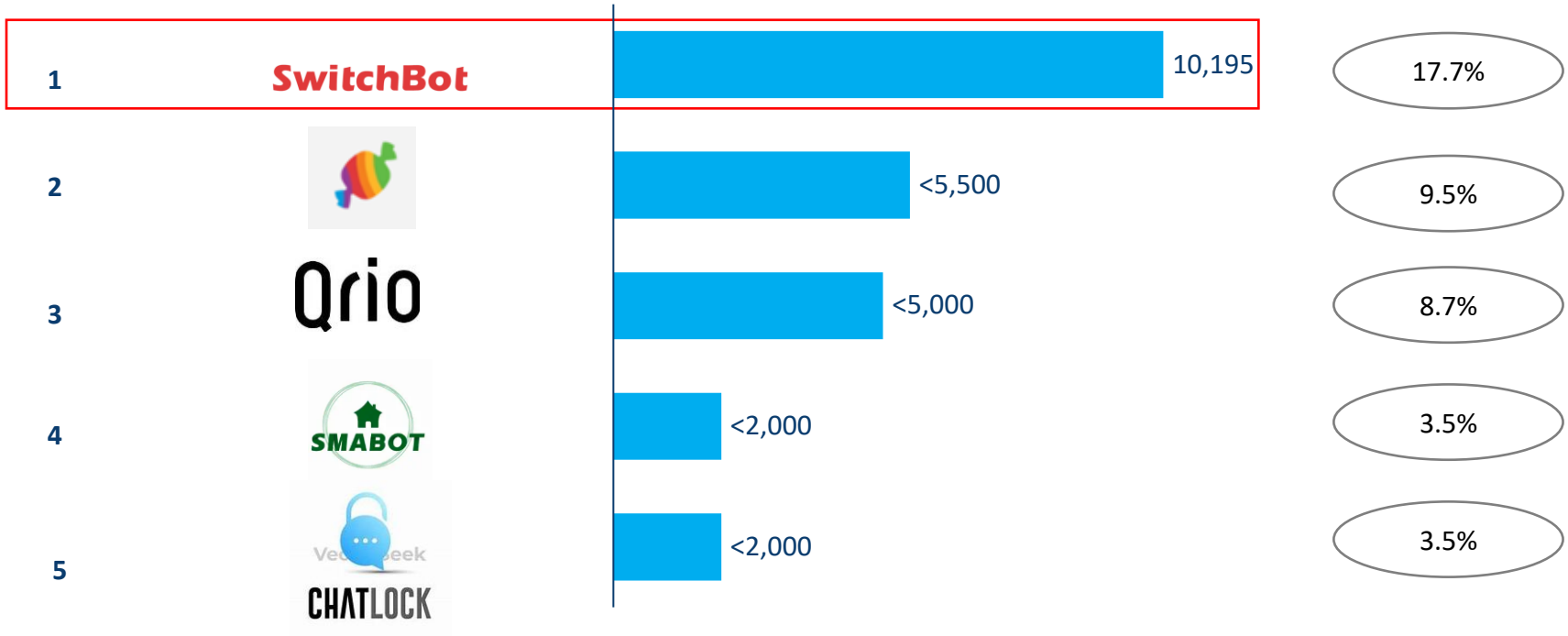
Key Findings:

- **In terms of retail volume, Switchbot is the largest finger robot company in the Japanese market in 2024.**

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Lock Robot Industry, By Retail Sales

Ranking of Players in Japanese Lock Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest lock robot company in the Japanese market in 2024.**

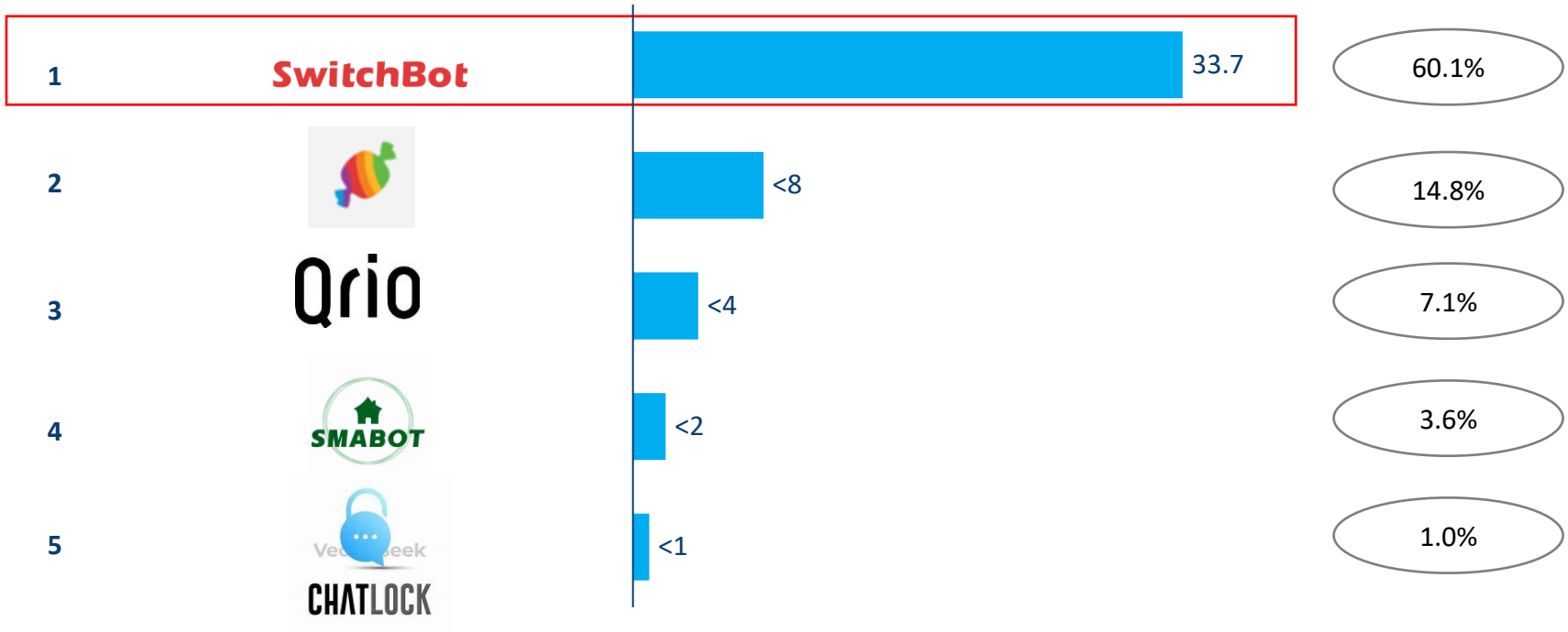
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Lock Robot Industry, By Retail Volume

Ranking of Players in Japanese Lock Robot Industry, by Retail Volume, 2024



Key Findings:

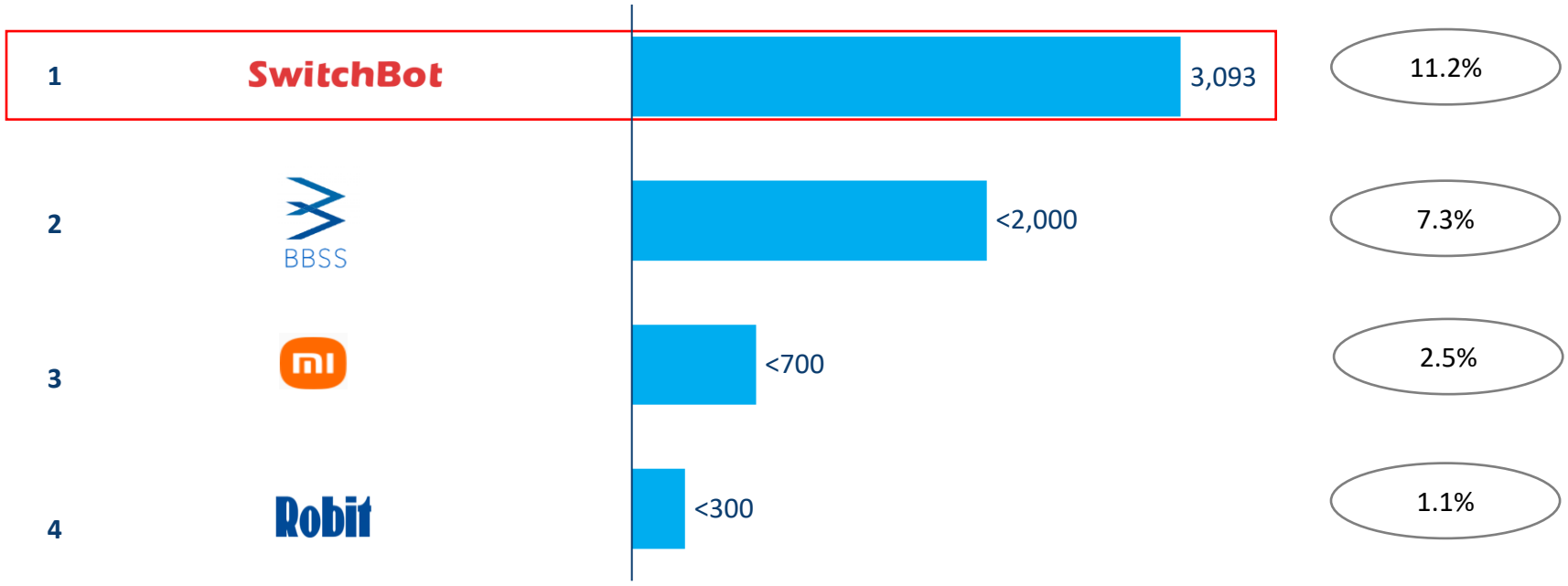
- **In terms of retail volume, Switchbot is the largest lock robot company in the Japanese market in 2024.**

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Curtain Robot Industry, By Retail Sales

Ranking of Players in Japanese Curtain Robot Industry, by Retail Sales, 2024



Key Findings:

- **In terms of retail sales, Switchbot is the largest curtain robot company in the Japanese market in 2024.**

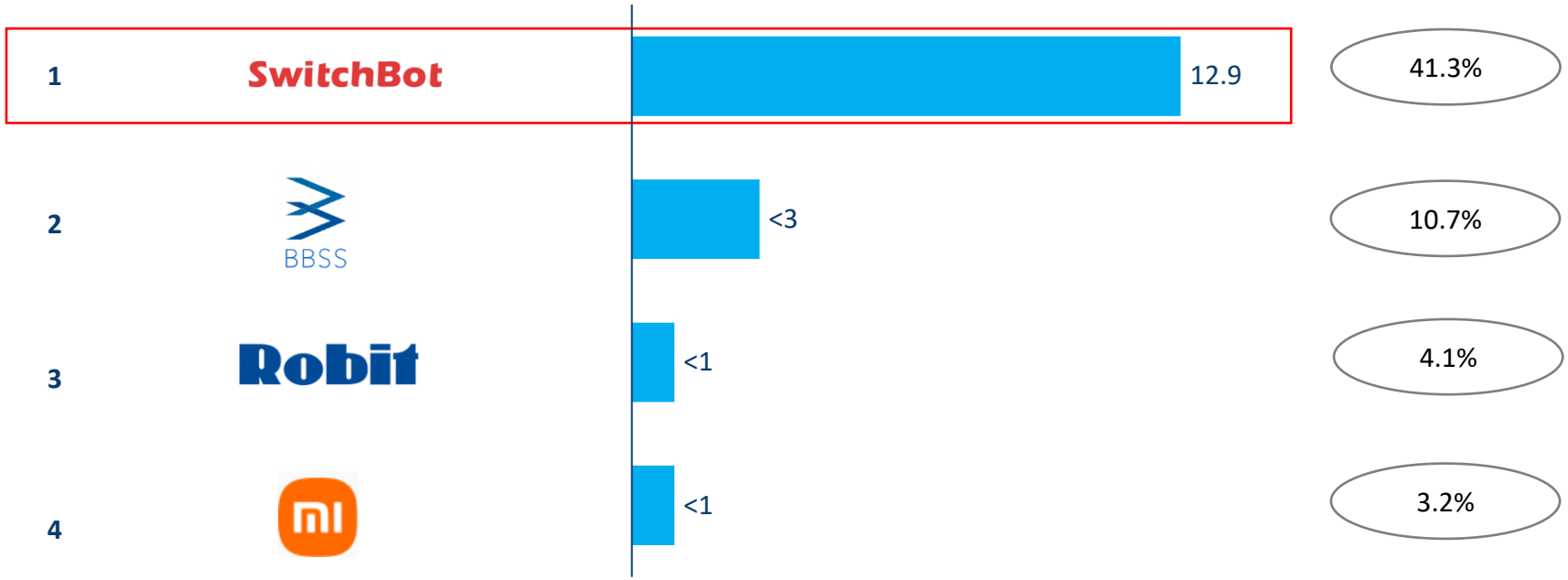
Note: Retail sales refers to the total sales value of a product when it sold to the final consumer through retail channels, including any markups added by distributors or retailers.

Source: Frost & Sullivan, e-commerce platforms

Competitive Landscape of Global Home Robotic System Industry

Ranking of Players in Japanese Curtain Robot Industry, By Retail Volume

Ranking of Players in Japanese Curtain Robot Industry, by Retail Volume, 2024

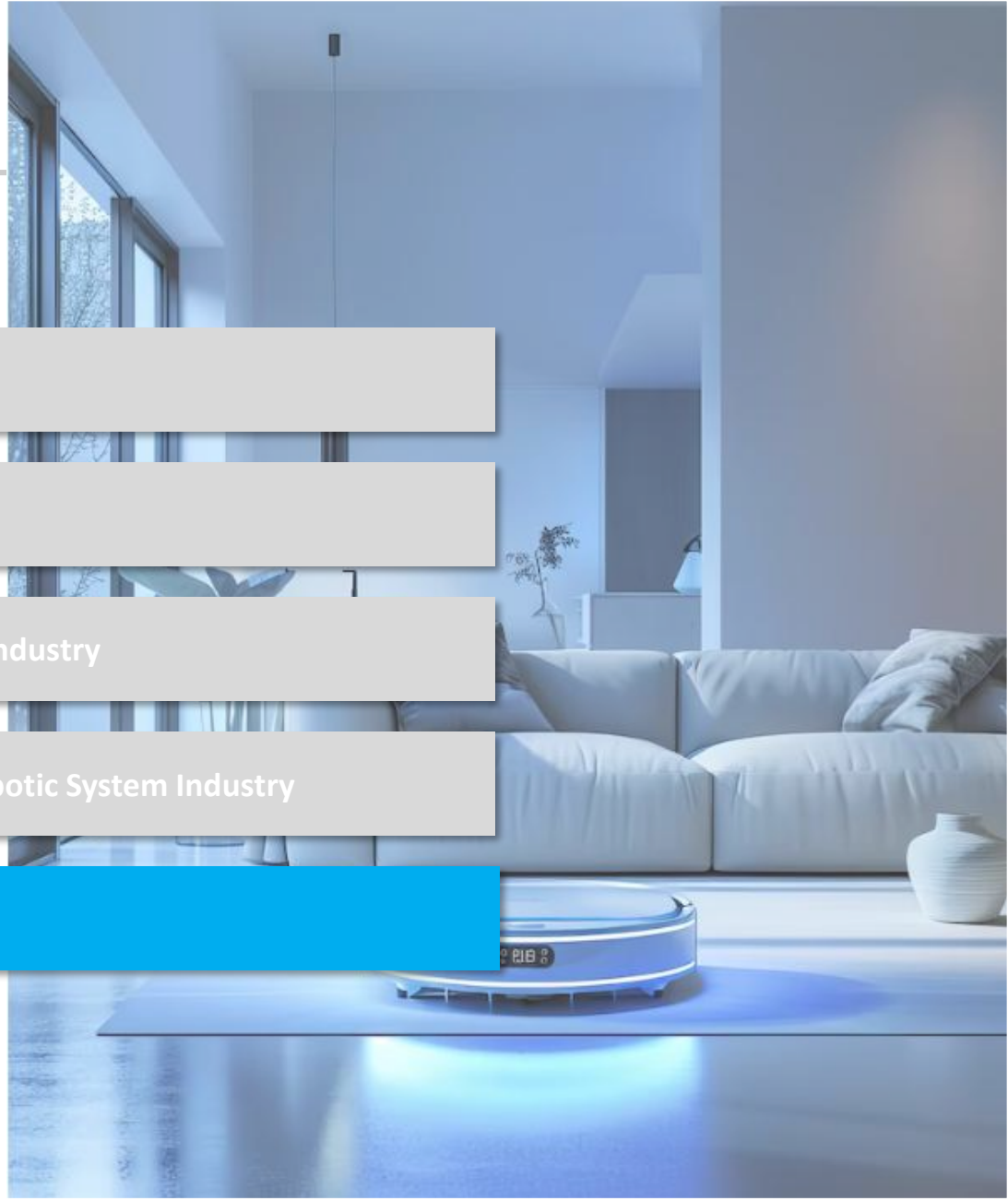


Key Findings:

- **In terms of retail volume, Switchbot is the largest curtain robot company in the Japanese market in 2024.**

Source: Frost & Sullivan, e-commerce platforms

Agenda



Appendix

AI hub (Full Definition): AI hub is the intelligent home hub that integrates large-scale pre-trained language models with edge computing technology. It enables multi-source perception and autonomous decision-making in multiple scenarios. Moreover, it can collaborate with other home robotic systems to perform multi-functional tasks such as home patrol, whether in an online or offline state.

AI hub (Short Definition): AI hub is the intelligent home hub that integrates large language models with edge computing, enabling multi-source perception and autonomous decision-making in multiple scenarios. It can also collaborate with home robotic systems to complete various functions such as home patrol, whether in an online or offline state.

The global home robotic system industry is characterized by evolving technologies, products, increasing competition, changing government regulations and industry standards, and rapidly shifting consumer living habits and preferences.

The global home robotic systems market has entered a period of rapid growth.

Switchbot is a company that has fully deployed the home robotic system products, enabling intelligent interaction between multiple products within an ecosystem as of the Latest Practicable Date.

Switchbot is capable of bringing promising concepts to market in a relatively short period of time (i.e., three months), significantly outpacing the industry average of eight to twelve months.

Selling products through distributors is a common practice in the industries where Switchbot operates.

The home robotic system industry is continuously expanding, and Switchbot strives to capture as many new market opportunities as possible.

Switchbot and Amazom's arrangements and terms under the Seller Central program and Vendor Central program are in line with industry norms.

Source: Company Website, Frost & Sullivan

The favorable nature of internet, particularly the potential unlimited geographic coverage, promptness and inclusivity, allows it to be an increasingly important sales channel in the smart home industry and in particular, the home robot industry and home robotic system industry.

The global e-commerce market is dominated by a few major platforms, with Amazon being the largest in many of our key markets.

A significant percentage of online sales from the top smart home appliances are generated from Amazon and Amazon is the largest e-commerce marketplace in many of Switchbot's target markets.

For market players who focus on online sales, Amazon, in most cases, is their primary online retail channel.

Amazon's well-developed review system and user-friendly website interface help Amazon continuously expand its customer base.

Besides Amazon, online stores of traditional retailers are important online channels for home robots and home robotic system productors vendors.

The competition in the global home robotic system industry has gradually intensified in recent years.

The global home robotic system industry is a rapidly evolving sector with significant growth potential.

Switchbot holds a unique position as the only company that has achieved comprehensive product deployment of home robotic systems across wide-ranging home living scenarios as of the Latest Practicable Date.

Switchbot's gross profit margin in 2023, and 2024 was 50.4% and 51.7%, respectively, which outperformed the industry average.

Switchbot became a leading global provider of home robotic systems offering a broad range of home robotic categories designed for a variety of home living scenarios as of the Latest Practicable Date.

Source: Company Website, Frost & Sullivan

Appendix

In terms of sales amount in 2024, Amazon accounted for more than 35%, 15% and 35% of total e-commerce sales in the United States, Europe and Japan, respectively, significantly outperforming other local e-commerce platforms in each respective market.

Offering a wide range of discounts to channel partners to address strategic objectives such as promotional campaigns, market penetration, and inventory management is a common and established practice within the Company's Industry.

The SwitchBot S Series provides comprehensive automated cleaning solutions (i) an auto-empty and dry station that automatically empties collected waste and uses hot air to dry the mop, preventing the growth of mold and bacteria; and (ii) a separate water station that connects directly to a household's plumbing to automatically refill the robot with clean water and drain its used water, significantly reducing the need for manual intervention.

Yale was founded in 1840 and brand-owned company is listed on the Stockholm Stock Exchange. The company is headquartered in Stockholm, Sweden. Its main business is manufacturing a wide range of lock products and security solutions, including mechanical locks, smart locks, door locks for various applications, and related accessories.

Candy house was founded in 2017 and brand-owned company is not listed. The company is headquartered in Tokyo, Japan. Its main business focuses on the research and development, production, and sales of AIoT products. It offers a variety of high - quality products, including smart gateways, smart door locks, smart bike locks, smart button robots, and AI cameras.

The group under **Philips** was founded in 1891, headquartered in Amsterdam, the Netherlands, and listed on the New York Stock Exchange in 1987. The group is a large comprehensive group with departments including healthcare, lighting, and premium lifestyle, covering a wide range of business areas.

EZVIZ was established in 2015 with its headquarters in Hangzhou, China. It was listed on the Shanghai Stock Exchange in 2022. EVIZ is committed to becoming a trustworthy smart home service provider and an IoT cloud platform provider.

Tuya Inc. was established in 2014 with its headquarters in Hangzhou, China. It was listed on the Main Board of the Hong Kong Stock Exchange. The main business includes IoT PaaS Business, SaaS Business, and solution business.

Source: Company Website, Frost & Sullivan

Appendix

Beijing Roborock Technology Co., Ltd. was founded in 2014 with its headquarters in Beijing, China. It was listed on the Shanghai Stock Exchange. The company specializes in the design, R&D, production, and sales of smart hardware, primarily focusing on intelligent cleaning robots.

Dreame Technology was founded in 2017 with its headquarters in Suzhou, China. It was not been listed yet. The company focuses on the smart home appliance industry, with its main business covering the R & D, production and sales of smart cleaning appliances and personal care products.

Xiaomi Corporation was founded in March 2010 and brand-owned company listed on the Main Board of the Hong Kong Stock Exchange. The company is headquartered in Beijing, China. The company is a consumer electronics and smart manufacturing company with smartphones and smart hardware connected by an IoT platform at its core.

Mendoule was founded in 2023 and brand-owned company is not listed. The company is headquartered in Sichuan, China. The company's main business includes software development, digital cultural and creative software development, animation and game development, computer system services, and sales of various products.

MOES was founded in 2017 and brand-owned company is not listed. The company is headquartered in Wenzhou, China. Its main business is the research and development, production, and sales of smart home products. The product range covers various fields such as smart electrical appliances, smart lighting, smart doors and windows, smart temperature control, smart security, and smart sensors.

August was founded in 2012 and brand-owned company is listed on the Stockholm Stock Exchange. The company is headquartered in San Francisco, United States. Its main business is the development and production of smart door locks and doorbell cameras.

Aqara was founded in 2016 and brand-owned company is not listed yet. The company is headquartered in Shenzhen, China. Its main business is to provide a wide range of smart home products and solutions, including various sensors, smart switches, sockets, curtain motors, air - conditioning controllers, dimmers, smart door locks, and more. These products can be connected to multiple platforms, enabling users to build a smart life through an intelligent control system.

Source: Company Website, Frost & Sullivan

Appendix

Nuki was founded in 2013 and brand-owned company is not listed. The company is headquartered in Graz, Austria. Its main business is focused on the research and development, production and sales of smart locks and related access solutions.

Switchbot is a global provider of home robotic systems with a particular focus on the markets in Japan, Europe and North America.

Switchbot is a provider of home robotic systems with a comprehensive deployment of home robotic categories.

Switchbot launches and commercializes finger robots, curtain robots, fingerprint lock robots, multitasking household robots and AI tennis robot.

Home robotic systems products are defined by their ability to simulate human sensory, cognitive, and executive functions, forming a closed-loop ecosystem encompassing perception, reasoning, and action. Specifically, such products replicate human eyes, skin, brain, hands, and feet through specialized components, enabling autonomous interaction with the environment and task execution.

The Company's main product categories fully meet the classification criteria of home robotic systems (distinguishing them from conventional smart or IoT devices) by forming an integrated perception-reasoning-execution closed loop:

- Dexterous Hand-Mimic Robots: Designed for home living scenarios, these products use robotics technology to replicate human finger/wrist movements for physical interactions. For example, finger robots can control coffee machines, while curtain robots complete curtain opening/closing tasks, with both collaborating to deliver synchronized actions per the smart hub's instructions.
- Enhanced Mobile Robots: Perform multiple intelligent tasks such as vacuuming, and water refilling, adapting dynamically to user needs based on instructions from the smart hub.
- Smart Hubs: Serves as the core decision-making unit, processing data from smart sensors, learning user habits, and issuing precise execution instructions (including adjusting air conditioning temperature based on perceived environmental changes and user sleep status, etc.).
- Smart Sensors: Detect environmental signals such as temperature, humidity, and water leaks, transmitting real-time data to the smart hub.
- AI tennis robot: Capable of autonomous decision-making, playing against human players, and performing returning and hitting actions.

Source: Company Website, Frost & Sullivan

Appendix

Edge intelligence and edge computing are core enabling technologies for home robotic systems. As a critical supplement to cloud computing, edge technologies deploy data processing locally on robot terminals, which can reduce system response latency compared with traditional cloud-only architectures, ensuring that robots achieve real-time interaction and agile decision-making in dynamic home environments. Meanwhile, edge intelligence supports local data storage and processing—a model that can lower data breach risks compared with cloud-centric architectures.

These technological advantages are directly translated into business value. On one hand, the application of edge technologies significantly enhances the market competitiveness of products, enabling them to form differentiated advantages in user experience and security assurance. At the same time, it endows robots with stronger scenario adaptability, laying a foundation for expanding diverse home service scenarios and serving as a key support for driving long-term business development.

Switchbot has launched Acemate, an AI tennis robot to replicate human-like rallies.

Source: Company Website, Frost & Sullivan


Thanks!
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