

INDUSTRY OVERVIEW

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OVERVIEW OF GLOBAL DIGITAL AND INTELLIGENT MANUFACTURING SOLUTION MARKET

Introduction of Digital and Intelligent Manufacturing Solution

The digital and intelligent manufacturing solution refers to software and related services applied across manufacturing scenarios which enhance efficiency and operational capabilities by enabling digitalized research and design, intelligent production control and execution, integrated enterprise management, and data-driven decision-making through the convergence of advanced technologies such as AI, and AIoT. The digital and intelligent manufacturing solution can be categorized into the following four segments:

- **Research and Design Solution:** Leverage digital modeling and simulation capabilities to shift traditional prototype-based research and development toward virtual validation, reducing development cycles and costs, which are applied in industries such as automotive, semiconductors and others.
- **Production Control Solution:** Leverage on-site solutions to enable automated control, real-time monitoring, and resource scheduling, by integrating equipment-level data and connecting with upstream planning systems to support precise execution, enhance production visibility, and facilitate closed-loop quality management.
- **Digital Management Solution:** Integrate core enterprise functions, including finance, human resources, procurement, and inventory, across organizations and supply chains to optimize resource allocation, improve operational efficiency, and enhance capital turnover.
- **AIoT-related Solution:** Integrate AI and IoT technologies with sensor data, edge computing, and advanced analytics to enable real-time equipment connectivity, environmental sensing, and intelligent, data-driven decision-making.

Digital and Intelligent Manufacturing Solutions	Key Functions Supported
Research and Design Solution . . .	Computer Aided Manufacturing, Product Lifecycle Management, and others
Production Control Solution	Manufacturing Execution Systems, Advanced Planning and Scheduling, Warehouse Management System, Quality Management Systems and others
Digital Management Solution	Enterprise Resource Planning, Supply Chain Management, Customer Relationship Management and others
AIoT-related Solution	AIoT Platform and others

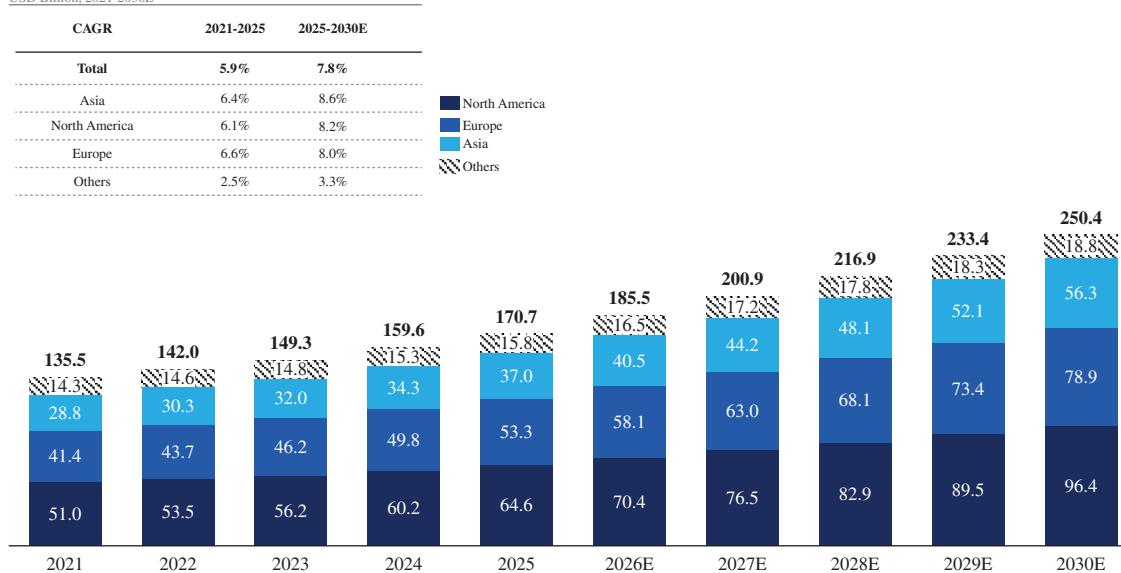
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Development of Global Digital and Intelligent Manufacturing Solution Market

The digital and intelligent transformation of manufacturing typically progresses through three stages. The initial stage focuses on the standardization and automation of business processes, where enterprises deploy basic information systems to digitize and standardize functions such as research and design, production, enterprise management and others, thereby establishing unified operating standards, reducing manual intervention, and improving process efficiency. Building on this foundation, the transformation advances to a digital stage centered on data integration and sharing. Enterprises break down data silos across research and development, production, and various other fields to enable cross-system connectivity. Through the establishment of unified data interfaces and integration platforms, they enhance data consistency, support visualized process monitoring, and enable more efficient cross-functional decision-making. With the integration of AI, the transformation further evolves into an intelligent stage characterized by autonomous learning and decision-making capabilities. Manufacturing solutions transition from passive execution to adaptive optimization, with the ability to analyze complex conditions, predict trends, and thus dynamically adjust operations.

In 2025, the global digital and intelligent manufacturing solution market reached USD170.7 billion. With earlier adoption of digital and intelligent manufacturing solutions, Europe and North America have maintained a leading position in the global market, supported by strong industrial foundations, mature technology ecosystems, and high levels of enterprise digitalization. In contrast, the Asia market is emerging as the fast-growing region and is gaining increasing strategic importance, driven by ongoing industrial upgrading, expanding manufacturing capacity, and supportive policy initiatives promoting digital transformation. As the manufacturing sector in Asia transitions from scale-driven expansion to high-quality development, demand for more intelligent solutions in research and design, production control and others is expected to accelerate. The Asia market is expected to reach USD56.3 billion in 2030 with its share of the global market continue to expand, positioning it as a key growth driver of the global digital and intelligent manufacturing solution market.

Size of Global Digital and Intelligent Manufacturing Solution Market, by Regions
USD Billion, 2021-2030E



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

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AI as a Key Driver of Innovation in the Global Digital and Intelligent Manufacturing Solution Market

With breakthroughs in large model capabilities across multimodal tasks such as text, images, video, and code, AI technologies represented by large models are no longer merely algorithmic innovations at the application layer but has increasingly integrated into enterprises’ real business environment. Previously, AI focused on optimizing algorithms within specific use cases; however, large models now demonstrate generalized capabilities in task decomposition, tool orchestration, context management, and real-time decision-making. Natural language is emerging as a new interface for human-machine interaction, while AI agents are evolving into a new paradigm of software, enabling on-demand orchestration and collaboration centered on models. The ongoing advancement of automation and digitalization in manufacturing has generated large volumes of high-quality, structured data from production lines, quality inspection, and other processes, providing a robust foundation for AI training and deployment. Looking ahead, driven by continued advances in AI technologies and data availability, AI is expected to develop into a foundational platform underpinning manufacturing scenario.

AI has broad application potential across different stages of the manufacturing, including research and design, production, quality control, supply chain management and others, thereby reshaping value creation toward data-driven models. In research and design, AI can empower enterprises to shorten design cycles and reduce prototyping costs. In production, AI can dynamically optimize process parameters by integrating real-time equipment status, material conditions, and environmental factors, improving productivity while reducing energy consumption and material waste. In quality control, AI can enhance inspection accuracy and consistency, while enabling adaptive decision-making and continuous process improvement. In supply chain management, demand forecasting and dynamic scheduling improve inventory efficiency and resource utilization. As a result, AI is expected to further enable digital and intelligent manufacturing solutions to empower enterprises to achieve cost reduction, efficiency gains, quality enhancement, and risk mitigation in manufacturing scenario simultaneously, transforming traditional scale-driven advantages into sustainable, intelligence-driven competitiveness.

Drivers of Global Digital and Intelligent Manufacturing Solution Market

- ***Continued digital and intelligent transformation of enterprises.*** Under the Industry 4.0 framework, characterized by the integration of virtual-physical system integration, automation, and data-driven decision-making, digital and intelligent transformation are capturing opportunities from a new wave of technological and industrial evolution, continuously expanding global demand for digital and intelligent manufacturing solutions. The convergence of AI with manufacturing solutions enables research and development, production, supply chain processes, and related activities to achieve enhanced automation, real-time optimization, and intelligent decision-making. As a result, digital and intelligent manufacturing solutions have achieved breakthroughs across various key stages, with the industry entering an accelerated phase of transformation supported by an increasing number of benchmark implementations. In particular, lighthouse factories which are globally recognized advanced manufacturing sites for their leadership in applying advanced technologies at scale, serve as best-practice examples of end-to-end digitalization and intelligent transformation. The number of such lighthouse factories has increased from 9 in 2018 when this concept was firstly originated to 201 in 2025. As demonstrative benchmarks, these lighthouse factories are expected to encourage broader adoption of digital and intelligent manufacturing solutions among enterprises, thereby driving the growth of the global market.
- ***Technological advancement.*** Continuous technological evolution, particularly the rapid advancement of AI represented by large model technologies, is emerging as a key driver of the global digital and intelligent manufacturing solution market. AI is reshaping enterprise operations by enabling higher levels of automation and intelligence across various processes, while enhancing capabilities in data processing, decision-making, and cross-functional collaboration. Ongoing breakthroughs in AI particularly large model technologies accelerate digital transformation, creating growth opportunities for enterprises and further unlocking the growth potential of the digital and intelligent manufacturing solution market.

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Future Trends of Global Digital and Intelligent Manufacturing Solution Market

- ***Development of AI agents and multi-agent collaboration.*** AI agents in manufacturing are systems that developed, deployed, and operated within manufacturing environments by integrating domain-specific logics with large model technologies, enabling autonomous control and optimization of workflows. AI agents in manufacturing are characterized by autonomous decision-making, continuous adaptability, and human-machine collaboration, enabling real-time optimization of production processes, adaptive control of equipment, and intelligent coordination across various workflows, thereby expanding the application potential of large models in manufacturing. As large model technologies continue to advance, AI agents are expected to further evolve from single-agent architectures toward multi-agent collaboration. While single agents are often constrained by limited scalability and fault tolerance, multi-agent systems coordinate multiple specialized agents to address complex and dynamic industrial environments, thereby enhancing system flexibility and robustness.
- ***Emergence of integrated solutions.*** Driven by the need to enhance coordination across research and design, production, supply chain, and other functions, alongside the ongoing adoption of digital and intelligent manufacturing solutions, enterprise demand is shifting from standalone solutions addressing isolated challenges toward integrated solution portfolios that enable coordinated, end-to-end delivery of software and services. As enterprises increasingly pursue optimization across multiple stages, digital and intelligent manufacturing solutions are evolving toward unified architectures with stronger interoperability across systems, facilitating data sharing, cross-functional coordination, and supporting closed-loop management and continuous optimization. In line with this trend, providers are expected to further deliver integrated solutions supported by implementation, maintenance, and ongoing optimization services, forming a more holistic delivery model. Driven by the dual forces of global industrial intelligentization transformation and value chain reconstruction, enterprise demand is gradually shifting from single-product solutions addressing localized management challenges to integrated product portfolios with continuous, full life-cycle services. Achieving integration requires solutions to break down data silos and enable end-to-end connectivity across the entire value chain, including R&D, production, and others.
- ***Rising awareness on green manufacturing.*** Sustainability is becoming a critical driver of the adoption of digital and intelligent manufacturing solutions. Enterprises are increasingly required to reduce energy consumption, emissions, and material waste, while complying with evolving regulatory and ESG requirements. As green manufacturing becomes more deeply integrated into different manufacturing processes, digital and intelligent manufacturing solutions are expected to play a greater role in enabling energy optimization, improving resource efficiency, and supporting carbon tracking, thereby helping enterprises achieve their sustainability targets.

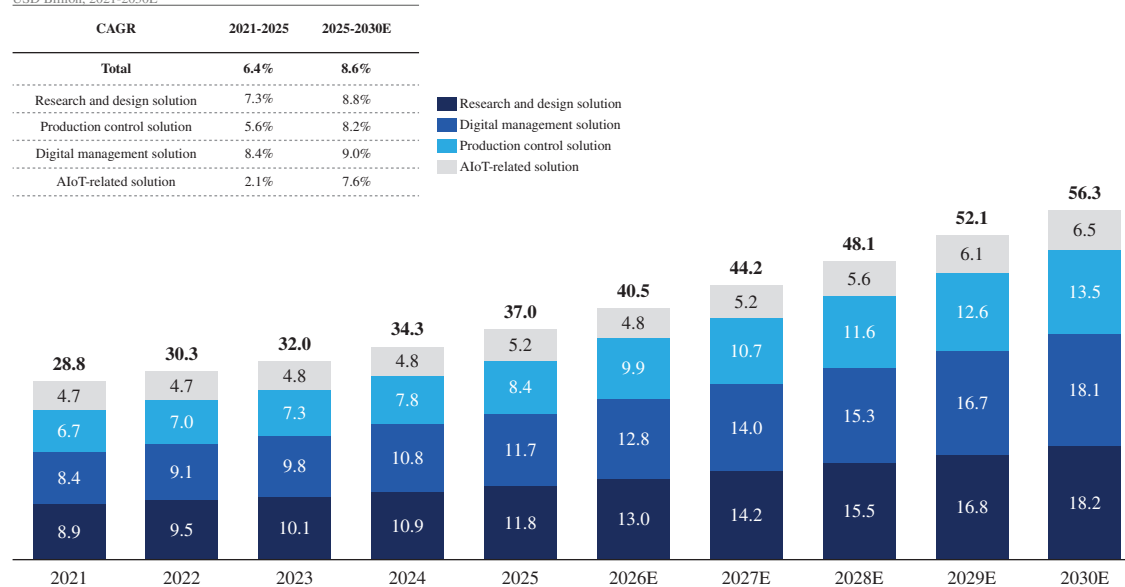
OVERVIEW OF DIGITAL AND INTELLIGENT MANUFACTURING SOLUTION MARKET IN ASIA

Development of Digital and Intelligent Manufacturing Solution Market in Asia

The Asia market has increased from USD28.8 billion in 2021 to USD37.0 billion in 2025 where the Chinese market has been an important market in the Asia, reaching USD23.6 billion in 2025. The core driver of this rapid expansion lies in AI technologies, enabling digital and intelligent manufacturing solutions to achieve productivity gains through real-time sensing and decision-making. Looking forward, the digital and intelligent manufacturing solution market in Asia is expected to further increase to USD56.3 billion, representing a CAGR of 8.6% from 2025 to 2030.

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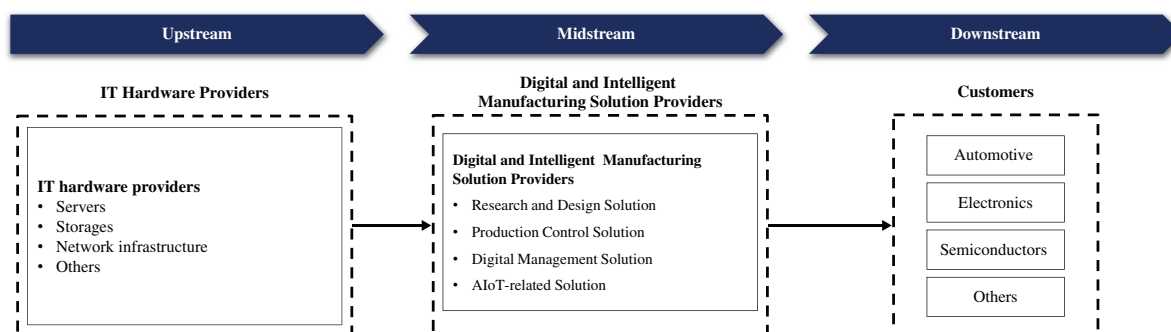
Size of Digital and Intelligent Manufacturing Solution Market in Asia, by Products
USD Billion, 2021-2030E



Source: Frost & Sullivan

Value Chain of Digital and Intelligent Manufacturing Solution Market in Asia

The value chain of the digital and intelligent manufacturing solution market comprises upstream IT hardware providers, midstream digital and intelligent manufacturing solution providers, and downstream enterprise customers across various industries. Upstream participants primarily supply hardware components required for the development and deployment of digital and intelligent manufacturing solutions, including servers, storage systems, and network infrastructure. Midstream participants consist of digital and intelligent manufacturing solution providers which develop and deliver software and related services applied across manufacturing scenarios, enhance efficiency and operational capabilities by enabling functions such as digitalized research and design, intelligent production control and execution, and others. Downstream participants are enterprise customers across industries such as automotive, electronics and semiconductors, which adopt digital and intelligent manufacturing solutions to improve operational efficiency and optimize business processes.



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Drivers of Digital and Intelligent Manufacturing Solution Market in Asia

- **Advanced digital transformation.** Across Asia, enterprises in key downstream industries are increasingly advancing their digital transformation, driving demand for digital and intelligent manufacturing solutions. For example, Southeast Asia is emerging as a high-growth region demonstrating strong economic momentum and rising levels of industrialization. As a core sector across the region, manufacturing is transitioning from traditional production models toward more digitalized and intelligent operations. In key segments such as automotive components, electronics, and semiconductors, growing requirements for refined production management, enhanced supply chain coordination, and end-to-end quality traceability are accelerating the adoption of digital and intelligent manufacturing solutions.
- **Favorable policies.** Across Asia, governments are actively promoting the integration of digital technologies with the real economy, positioning digitalization and intelligent transformation as key drivers of industrial upgrading and economic growth. In particular, China continues to play a leading role through comprehensive digital economy strategies that promote the integration of digital technologies with manufacturing and the advancement of “AI + manufacturing” initiatives. For example, in 2025, the Ministry of Industry and Information Technology issued the “Key Work Points for the Integration of Informatization and Industrialization” (《信息化和工業化融合2025年工作要點》) emphasizing the development of industrial software, large models, and manufacturing AI agents. It also introduced the “Action Plan for High-Quality Development of Industrial Internet Platforms (2026-2028) (推動製造業互聯網平台高質量發展行動方案(2026-2028))” targeting the establishment of a multi-tier platform system by 2028 with over 450 platforms and 120 million connected devices. In 2026, multiple ministries in China further released the “Implementation Opinions on AI + Manufacturing,” (人工智能+製造業”專項行動實施意見) aiming to strengthen core AI technologies and promote the deployment of large models and AI agents across industrial scenarios. Similar policy directions are observed across other Asian economies, where governments are supporting smart manufacturing, digital infrastructure, and enterprise-level adoption of intelligent solutions, collectively driving market growth across the region.

Future Trends of Digital And Intelligent Manufacturing Solution Market in Asia

- **Further adoption by SMEs.** While early adoption of digital and intelligent manufacturing solutions has been driven primarily by large enterprises, SMEs across Asia are expected to increasingly embracing digital transformation. Driven by intensified competition, supply chain integration requirements, and increasing access to cloud-based and modular solutions, SMEs are becoming an important growth segment. Digital and intelligent manufacturing providers in Asia are expected to respond by offering lightweight, scalable, and cost-effective solutions, accelerating overall market expansion in the region.
- **Acceleration of connectivity infrastructure.** The development of industrial internet infrastructure, including 5G networks, edge computing, and industrial IoT platforms, is accelerating across Asia. Countries such as China are placing strong emphasis on next-generation connectivity, driving the deployment of high-speed, low-latency networks in industrial environments. This enables real-time equipment connectivity, distributed computing, and more advanced industrial applications such as predictive maintenance, process optimization, and intelligent production control, thereby providing a solid foundation for the large-scale deployment of digital and intelligent manufacturing solutions.
- **Global expansion.** As manufacturing enterprises particularly ones based in China continue to shift production capacity to overseas markets such as Southeast Asia, digital and intelligent manufacturing solution providers in Asia are increasingly expected to expand their international presence, driving digital and intelligent manufacturing solution providers to enhance their overseas solution offering capabilities and establish localized service networks to better support clients’ global operations, thereby creating new growth opportunities for the market.

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Competitive Landscape of Digital And Intelligent Manufacturing Solution Market in Asia

The digital and intelligent manufacturing solution market in Asia remains relatively fragmented, with the top ten providers accounting for approximately 23.8% of the total market share. In terms of revenue in 2025, the Company ranked as the eighth-largest player in the digital and intelligent manufacturing solution market in Asia and was also the largest Asia-based provider in the market with a market share of 0.9%. In addition, in terms of revenue in 2025, the Company ranked as the fifth-largest player in the digital and intelligent manufacturing solution market in China and was also the largest China-based provider in the market with a market share of 1.4%.

Ranking Top Digital and Intelligent Manufacturing Solution Providers in Asia (2025)				
Ranking	Company	Headquarter	Relevant Revenue (RMB Billion, 2025)	Market Share (% , 2025)
1	The Company	Asia, China	2.4	0.9%
2	Company A	Asia, China	2.0	0.7%
3	Company B	Asia, China	1.9	0.7%

Source: Frost & Sullivan

Notes:

- 1) China include Chinese mainland, Hong Kong, Macao and Taiwan regions.
- 2) Company A, founded in 1988 in Beijing, is a public company listed on the Shanghai Stock Exchange, which primarily provides enterprise software and service to enterprises across various industries.
- 3) Company B, founded in 1993 in Shenzhen, is a public company listed on Hong Kong Stock Exchange, which primarily provides enterprise software and service particularly cloud-based software to enterprises across various industries with a focus on SMEs.

Entry Barriers of Digital and Intelligent Manufacturing Solution Market in Asia

- **R&D and technological capabilities.** In the technology-driven and rapidly evolving digital and intelligent manufacturing solution market, strong R&D and technological capabilities are critical to establishing sustainable competitive advantages. Leading players continue to increase R&D investment, build extensive intellectual property portfolios, and attract high-end technical talent, thereby strengthening product differentiation and technological leadership. In addition, players with advanced capabilities often participate in the development of industry technical standards, enabling their technologies to become widely adopted benchmarks. As a result, new entrants face not only substantial upfront R&D investment requirements but also challenges in achieving compatibility with prevailing standards and implementing complex technologies, creating significant barriers to entry in the market.
- **Comprehensive industry know-how.** Digital and intelligent manufacturing solutions are deeply embedded in production processes and operational systems, with variations across different industries in production models, management logic, and data structures. The development of relevant capabilities relies heavily on long-term project execution and the accumulation of industry know-how, which is difficult to replicate through short-term development, thereby creating inherent barriers for new market entrants to entry. Leading players have established long-standing relationships with manufacturing enterprises, accumulating extensive implementation experience across diverse scenarios and developing deep insights into industry dynamics and customer needs.
- **Long-term evolution capability barriers.** Digital and intelligent manufacturing solutions typically comprises multi-module, multi-layered systems that require a high degree of stability, compatibility, and scalability. Digital and intelligent manufacturing solutions are continuously optimized and innovated through long-term deployment in real-world environments. Product maturity is largely

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determined by system-level architectural capabilities and multiple iterations across historical versions, making it challenging for new entrants to achieve comparable levels of reliability and performance within a short period. Manufacturing software typically exists in the form of multi-module, multi-layered systems, requiring a very high degree of stability, compatibility, and scalability. These products must be continuously iterated and optimized through long-term real-world operation. System-level architectural capabilities and multiple iterations of historical versions determine product maturity, making it difficult for new entrants to achieve comparable reliability levels in the short term.

- **Customer trust barriers.** Manufacturing enterprises are typically cautious when selecting key digital and intelligent manufacturing solutions, placing significant emphasis on a provider’s industry experience, proven track record, and long-term service capabilities. Established implementations and strong market reputation create high trust barriers, making it challenging for new entrants to secure key customers in a short period. In addition, digital and intelligent manufacturing solutions are deeply embedded in business processes, organizational workflows, as well as data, making system replacement costly and operationally disruptive. As a result, customers tend to expand and upgrade existing systems rather than switch providers, leading to high customer stickiness.
- **Project implementation capability barriers.** The commercialization of manufacturing software is highly dependent on implementation and service capabilities. Projects often involve process design, multi-system integration, and ongoing optimization, with outcomes largely influenced by the expertise and industry experience of the implementation team. Building scalable delivery capabilities requires sustained focus in talent development and accumulated project experience, making it difficult for new entrants to establish comparable service systems in the short term.
- **Global expansion capability.** With global supply chain restructuring and the ongoing shift of manufacturing capacity toward regions such as Southeast Asia, overseas expansion capabilities have become a key success factor and competitive barrier for China-based digital and intelligent manufacturing solution providers. Expanding into new overseas markets requires the establishment of localized service networks to support diverse manufacturing scenarios. Providers must also ensure compliance with local regulatory requirements, while adapting digital and intelligent manufacturing solutions to local market needs. Building a regional partner ecosystem is also critical for digital and intelligent manufacturing providers to deliver integrated solutions and supporting the overseas operations of various enterprises.

SOURCE OF INFORMATION

In connection with the [REDACTED], we have engaged Frost & Sullivan to conduct a detailed analysis and prepare an industry report on the markets in which we operate (the “**Frost & Sullivan Report**”). Services provided by Frost & Sullivan include market assessments, competitive benchmarking, and strategic and market planning for a variety of industries. We have agreed to a total of RMB500,000 in fees and expenses for the preparation and use of the Frost & Sullivan Report. The payment of such an amount was not contingent upon our successful [REDACTED] or on the results of the Frost & Sullivan Report. Apart from the Frost & Sullivan Report, we have not commissioned any other industry report in connection with the [REDACTED].

We have extracted certain information from the Frost & Sullivan Report in this section, as well as in the sections headed “Summary,” “Risk Factors,” “Business,” “Financial Information” and elsewhere in this document to provide our potential [REDACTED] with a more comprehensive presentation of the industries in which we operate. Unless otherwise noted, all of the data and forecasts contained in this section are derived from the Frost & Sullivan Report, various official government publications and other publications. Frost & Sullivan prepared its report based on its in-house database, independent third-party reports, and publicly available data from reputable industry organizations. Where necessary, Frost & Sullivan contacts companies operating in the industry to gather and synthesize information in relation to the market, prices and other relevant information. Frost & Sullivan believes that the basic assumptions used in preparing the Frost & Sullivan Report, including those used to make future projections, are factual, correct and not misleading. Frost & Sullivan has independently analyzed the information, but the accuracy of the conclusions of its review largely relies on the accuracy of the information collected. Frost & Sullivan’s research may be affected by the accuracy of these assumptions and the choice of these primary and secondary sources.