
INDUSTRY OVERVIEW

The information and statistics set out in this section and other sections of this Document were extracted from the Frost & Sullivan Report prepared by Frost & Sullivan, which was commissioned by us, and from various official government publications and other publicly available publications. We engaged Frost & Sullivan to prepare the Frost & Sullivan Report, an independent industry report, in connection with the [REDACTED]. The information from official government sources has not been independently verified by us, the Sole Sponsor, [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], any of their respective directors and advisors, or any other persons or parties involved in the [REDACTED], and no representation is given as to its accuracy.

SOURCE OF INFORMATION

We have commissioned Frost & Sullivan, an independent market research and consulting company, to conduct an analysis of, and to prepare a report on the global bulk commodities services and transactions. The report prepared by Frost & Sullivan for us is referred to in this Document as the Frost & Sullivan Report. A total fee of RMB600,000 was paid to Frost & Sullivan for the preparation of the report, which we believe reflects market rates for reports of this type.

Frost & Sullivan is a global consulting company founded in 1961 in New York and has over 40 global offices with more than 2,000 industry consultants, market research analysts, technology analysts and economists.

RESEARCH METHODOLOGY

The Frost & Sullivan Report was prepared through both primary and secondary research obtained from various sources using intelligence collection methodologies. Primary research involved discussing the status of the industry with certain leading industry participants across the industry value chain and conducting interviews with relevant parties to obtain objective and factual data and prospective predictions. Secondary research involved information integration of data and publication from publicly available sources, including official data and announcements from government agencies, company reports, independent research reports and data based on Frost & Sullivan’s own data base.

BENCHMARKS AND ASSUMPTIONS

In compiling and preparing the Frost & Sullivan Report, Frost & Sullivan has adopted the following assumptions: (i) the social, economic and political environment in the world and China are likely to remain stable in the forecast period; and (ii) industry key drivers are likely to drive the growth of the global and China’s green supply chain circular service industry in the forecast period. All statistics are based on the information available as at the date of the Frost & Sullivan Report.

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OVERVIEW OF THE GREEN SUPPLY CHAIN INDUSTRY

The green supply chain industry refers to a sector of green production-oriented services that aims to enhance resource efficiency, reduce carbon emissions, and strengthen supply chain collaboration throughout the entire supply chain process. It achieves cost reduction, efficiency gains, and sustainable development through green manufacturing, circular assets, digital technologies, and standardized systems. Against the backdrop of the continuous deepening of ESG concepts, the supply chain is accelerating its transformation towards a green, low-carbon and sustainable direction. This transformation is not only an inevitable choice to address environmental challenges, but also a core strategy to enhance the efficiency, resilience and long-term competitiveness of the industrial chain.

Under the ESG trend, packaging, warehousing, transportation services and digital systems, as the four core elements of the supply chain, are all undergoing a green transformation.

- **Circular packaging service:** It provides recyclable packaging for transporting goods, and provides packaging collection, cleaning, and maintenance services after the transportation is completed.
- **Intelligent warehouse network:** It is composed of warehousing nodes covering the upstream and downstream. Through the dynamic allocation of resources based on real-time data, it prioritizes the matching of new energy transportation capacity and optimizes route planning, enabling the nearby storage and efficient turnover of goods and packaging boxes.
- **Digital systems:** These encompass the digital logistics tracking system, the recycling management system and others, enabling transportation efficiency analysis and automated scheduling.
- **Green transportation service:** It refers to the provision of low-carbon and efficient transportation services through new energy logistics vehicles and other carriers, ensuring the smooth operation of the circular network while minimizing carbon emissions during the transportation process. Green transportation service serves as an indispensable key underpinning for the green supply chain system.

Policy Analysis of the Green Supply Chain Industry Globally and in China

Global and Chinese policies are driving the industry’s development. Globally, Japan’s Seventh Basic Energy Plan is advancing the green transition under the “3E+S” framework, S stands for security, 3E represents energy security, economic efficiency and environmental sustainability, and aims to reduce greenhouse gas emissions by 60% and 73% by 2035 and 2040, respectively, compared to 2013 levels, in order to achieve carbon neutrality by 2050. Europe’s PPWR requires improved packaging recyclability, increased use of recycled materials, and restrictions on certain single-use plastic packaging, with the goal of achieving a circular economy for packaging in the EU by 2030. The U.S. Rules on Disposable Plastic Packaging for the Federal Supply Plan aim to reduce single-use plastic consumption by promoting packaging free of single-use plastics in federal procurement and identifying green suppliers.

In China, the 15th Five-Year Plan identifies logistics networks as a core element of new-type infrastructure, accelerating upgrades towards digitalisation, intelligent operations, and greening. Meanwhile, China’s national “dual-carbon” goals and the revised Solid Waste Law are substantially reshaping compliance requirements for carbon emissions and waste management across supply chains. For instance, the “Implementation Opinions on Expanding Green Trade” call for advancing the green and low-carbon transformation of foreign trade production and supply chains, promoting the optimization of transportation structures, and encouraging the use of environmentally friendly packaging and recyclable logistics equipment. The Opinions of the National Development and Reform Commission and Other Departments on Accelerating the Establishment of a Product Carbon

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Footprint Management System promote the quantification and management of carbon emissions in green supply chains by establishing product carbon footprint accounting rules, databases, and a carbon labeling certification system.

The global and Chinese green supply chain markets maintained a high growth rate from 2021 to 2025. Currently, the penetration rate of green supply chain circular service market remains relatively low, at approximately 13.5% globally and around 9.1% in China, indicating significant potential market growth. It is projected that by 2030, penetration rates will continue to rise, reaching approximately 18.5% globally and around 12.8% in China, with China’s share of the global green supply chain market increasing to about 20.2%.

Driving Forces and Development Trends of the Industry

- **The “Dual Carbon” goals drive the formation of a global consensus on emission reduction:** The “Dual Carbon” goals represent the core consensus for global climate governance, aiming to “limit global warming to no more than 1.5°C”. China has taken the “Dual Carbon” goals as its guiding principle for promoting the transformation of various industries; Europe, Southeast Asia and other regions are forming policy constraints through legislation, mandatory disclosure requirements and carbon border adjustment mechanisms, collectively advancing the global green transition. Based on the concepts of “reusable” and “cost reduction”, circular services can reduce carbon emissions from disposable packaging and capacity expansion, providing enterprises with quantifiable and actionable indirect emission reduction pathways.
- **Supply chain collaboration has driven the cross-regional integration of green management efficiency across the entire supply chain:** As environmental regulations tighten and carbon emission management requirements become more stringent, green supply chains are shifting from single-company management toward collaborative governance across the entire supply chain. By strengthening cooperation with suppliers, manufacturers, and logistics service providers, companies are achieving coordinated management throughout the entire process. Supported by digital technologies, environmental and carbon emission data are shared across all stages, enabling optimized resource allocation and reduced overall carbon emissions. In the future, cross-enterprise collaboration will become a key trend in the development of green supply chains.
- **Green manufacturing and circular asset trends in enhancing economic efficiency accelerate the transition of the manufacturing sector toward a low-carbon, closed-loop model:** As the concept of green manufacturing gains traction, companies are reducing energy consumption and resource waste through technological upgrades and cleaner production, thereby improving resource utilization efficiency in their production processes. At the same time, the circular economy facilitates the reintroduction of waste into the production system through recycling, remanufacturing, and cascading use, gradually forming a circular-based closed-loop cycle of “resources — products — recycled resources.” With the continuous improvement of recycling technologies and reverse logistics systems, the economic value of recycled assets continues to rise.
- **The trend of industrial transfer fuels the demand for cross-regional green supply chains:** With the accelerated global industrial transfer, particularly the relocation of China’s manufacturing sector to regions such as Southeast Asia, the demand for cross-regional green supply chains is releasing. By establishing cross-border scheduling and localized operations, service providers address the pain points in emerging markets, and build a green supply chain system covering a broader range of regions, realizing scale effects.

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OVERVIEW OF THE GREEN SUPPLY CHAIN CIRCULAR SERVICE INDUSTRY

Definition of the Green Supply Chain Circular Service Industry

A green supply chain circular service refers to a comprehensive industrial system comprising reusable packaging assets and services, digital operational platforms, and related ecosystem technologies centered around key supply chain nodes, and provides reusable logistics packaging solutions and full-lifecycle management services for all participants in the green supply chain ecosystem. Its core characteristic is converting physical packaging into recyclable, dispatchable and billable digital assets, and realizing full-chain visualization, automated dispatching and circular network collaboration for the entire process of “collection, distribution, cleaning, maintenance and consumption” through a digital system. Building on the provision of circular services, all parties in the industrial chain are empowered to jointly participate in the development and operation of circular assets by outputting standards and data platforms for the development and operation of circular packaging assets. It is intended to **realize the circular utilization of resources, reduce carbon emissions, improve the operational efficiency of supply chains and the utilization efficiency of packaging resources** in the industry, thereby enhancing the sustainability and resilience of supply chains.

Currently, the traditional packaging industry faces long-standing challenges, including high costs associated with single-use packaging, difficulties in recycling, and significant transportation losses. The penetration rate of reusable packaging remains relatively low, indicating substantial room for growth across the industry. With advancements in technology and business models, the industry is evolving toward smart reusable packaging, digital operations platforms, and end-to-end collaboration, driving overall value enhancement.

Value leap of intelligent circular packaging

Digital technology transforms circular packaging from a “disposable product” into an “operable digital asset”

Packaging is a universal carrier for material loading in the supply chain, enabling direct integration into the core processes of various customers. Under the traditional model, packaging is primarily delivery on a one-off basis, with its value reflected only in the manufacturing link, hindering the realization of systemic efficiency through multiple uses. By assigning codes to circular packaging, each packaging unit becomes a traceable data node that collects real-time information such as location, status and number of cycles, complemented by such functions as empty box identification and self-inspection of packaging health status. After the integration and analysis of such multi-dimensional data through a professional SaaS platform, the data can be converted into a basis for optimized decision-making.

As circular application scenarios become more complex and customers raise their requirements for cost, stability and carbon reduction effects, circular packaging is evolving into an operable asset, which achieves traceability, measurability and settleability through digitalization and provides continuous services through leasing or pay-per-use models. The focus of industrial competition is also shifting from individual products to asset operation capabilities, service network coverage and systemic synergy efficiency, driving the transformation of the industry from a manufacturing-oriented model to a service-oriented one. It also provides continuous services through leasing or pay-per-use models.

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Packaging assets evolve from “management objects” to the “cornerstone for building an intelligent network”

- **Becoming a terminal for data perception:** Intelligent circular packaging integrates the functions of identity recognition, status perception and data communication, which not only carries goods but also collects logistics information in real time, thus serving as an intelligent hardware terminal in the green supply chain.
- **Empowering AI and network synergy:** After breaking down data silos across warehousing, transportation, distribution and other links, AI technology enables intellectualization and transparency across the entire process of the green supply chain and carries out intelligent prediction, dynamic scheduling and resource optimization, improving logistics efficiency and resource utilization rate. Combined with carbon reduction technologies, it also drives the upgrading of green supply chain to an advanced model of simultaneous efficiency improvement and carbon reduction.
- **Accumulating core data assets:** Under large-scale application, enterprises accumulate such data as carbon emissions and logistics trajectories in links including warehousing, transportation and circular recycling. On the one hand, these data assets can support the establishment of a carbon accounting system and meet the ESG disclosure requirements; on the other hand, data insights can feed back into operational activities, such as optimizing packaging turnover rate, which strengthens the green attributes of the supply chain while reducing costs and enhancing efficiency.

Industry players can be divided into three categories: traditional manufacturers/small service providers, regional vertical players and platform-based enterprises

Traditional manufacturers/small service providers: They focus on specific product formats or processes, and core competitivenesses are manufacturing capability, cost advantage, or customized services. Their business models are product sales or services. They are weak in digitalization and cross-scenario synergy, unable to achieve large-scale scheduling or ecological reuse of packaging assets. Their growth relies on individual orders. They hold local efficiency advantages, but lag behind platform-based enterprises in cross-industry replication, network effects, and long-term competitiveness.

Regional vertical players: They focus on a single industry or a specific geographic area, and core competitivenesses are industry depth, regional cost advantage, or customized services. Their business models are services or product sales, and similarly lack digitalization and cross-scenario synergy, with growth limited to industry or regional expansion. They hold local cost and efficiency advantages, but lag behind platform-based enterprises in cross-industry replication, network effects, and long-term systemic competitiveness.

Platform-based enterprises: They are centered on digital operation platforms, with full-chain capabilities covering design, manufacturing, operation networks, and downstream collaboration. They empower participants through self-investment, joint investment, and other models, building an open ecosystem. As connected assets, customers, and scenarios expand, data accumulation, scheduling efficiency, and scale effects continuously improve, evolving into industrial-level green infrastructure. They deliver quantifiable value in asset efficiency, supply chain collaboration, cost reduction, carbon traceability, etc. Their SP/TP/CP pooling models align with future scenarios of supply chain collaboration and green development.

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Competitive Dimensions	Traditional Manufacturers/ Small Service Providers	Regional Vertical Players	Platform-based Enterprises
Comprehensiveness of the Technical Framework			
Diversity of Product Solutions			
Flexibility of Business Models			
Degree of Digitalization			
Ability to Resist Business Cycles			
Capability for Global Multi-Region Adaptation			
Capacity for Ecological Construction			

Value and significance of the green supply chain circular service industry

- Analysis of pain points in the traditional packaging industry**
 - Low entry threshold and fierce homogeneous competition:** Due to the lack of core technological barriers and differentiated services, packaging products generally suffer from convergent functions and monotonous designs, making it difficult to meet the customized and refined needs of customers. Meanwhile, most enterprises only provide single packaging production or delivery services, failing to cover the full-lifecycle circular management of packaging, resulting in low value-added services.
 - Low digital intelligence level:** Traditional models mostly rely on manual experience for operation and management, lacking in-depth application of technologies such as IoT and big data. Therefore, they are unable to achieve full-chain digital tracking and precise control of packaging. The delayed information transmission not only frequently lead to problems such as incorrect or missing delivery of packaging and loss during transportation, but also result in low resource allocation efficiency due to the inability to predict market demand and packaging flow.
 - Inadequate innovation capability:** Innovations in the traditional packaging industry mostly remain confined to superficial aspects such as appearance design and specification adjustment, failing to extend to core areas like high-performance environmental protection material R&D and circular model innovation. This results in products with limited functionality and significant challenges in reuse and recycling.
 - Lack of carbon footprint tracing and ESG quantitative tools, leading to insufficient data support for green transformation:** The traditional packaging industry has not established a full-lifecycle carbon footprint tracing system, and lacks professional ESG quantitative analysis tools, making it impossible to calculate and monitor carbon emissions at each stage of packaging, from procurement, production, transportation, and waste disposal.

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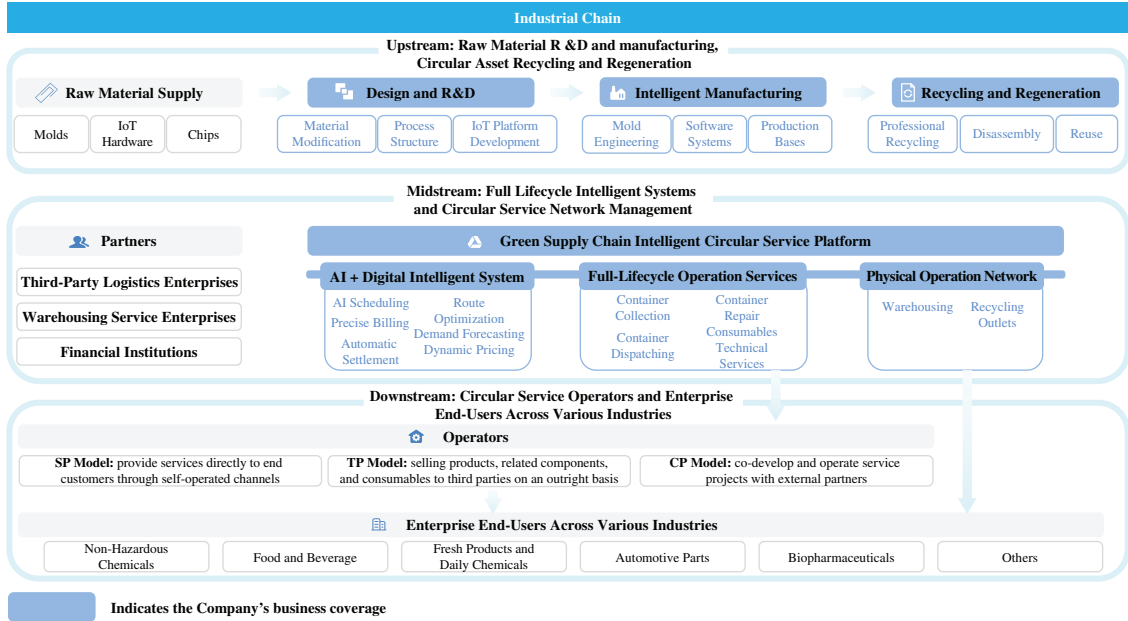
- ***Empowerment by Players in the Green Supply Chain Circular Service Industry***
 - **At the customer level, replacing disposable packaging, improving asset utilization, and reducing carbon emissions:** By replacing disposable consumables with reusable standardized packaging, it reduces costs, resource waste and carbon emissions, and helps enterprises achieve cost reduction, efficiency improvement and ESG transformation. Through SaaS digital management, it realizes full-chain transparent management and control of packaging, tracks the location and status in real time, addresses pain points such as incorrect delivery, loss and idleness, and optimizes operational efficiency of the supply chain.
 - ◆ The circular packaging and digital management provided by the platform help enterprises get rid of dependence on disposable packaging, avoid risks such as raw material price fluctuations and supply chain disruptions;
 - ◆ At the brand value and compliance level, the platform’s circular packaging solutions meet the needs of enterprises for ESG strategy implementation. By virtue of actions such as emission reduction and resource conservation, they enhance ESG performance, and strengthen recognition from consumers and investors;
 - ◆ Corporate customers leverage the platform’s SaaS-based management tools to achieve full-chain digital management and control of packaging and enhance overall supply chain control.
 - **At the industrial level, providing innovative solutions for the development of the circular economy industry**
 - ◆ Using containers as data carriers and leveraging technologies such as AI, AIoT and SaaS, the packaging industry is undergoing digital and intelligent transformation. This allows each reusable container to evolve into a traceable, quantifiable and optimizable data asset.
 - ◆ Relying on the platform, a collaborative ecosystem is established to deliver full-process standardized solutions that break down barriers between enterprises. By collaborating with upstream and downstream partners to develop multi-scenario adaptable circular packaging, resources are integrated to drive industrial upgrading and achieve cross-industry-chain synergy, which provides an innovative paradigm for scaling the circular economy.
 - **At the strategy level, achieving the global output of China’s values and jointly building the “industrial equity” of the global green supply chain by going global with technologies and standards:** The industry is transitioning from “passive adaptation” to “proactive rule-setting”, leveraging technological IP to lead international standardization efforts. It can drive upstream and downstream stakeholders to jointly establish a low-carbon certification ecosystem, thereby enhancing China’s voice in global sustainable development.

Industrial Chain Analysis on the Green Supply Chain Circular Service Industry

The upstream focuses on raw material supply, technology R&D, asset manufacturing, and recycling and regeneration of packaging assets. The midstream focuses on green supply chain circular service, with technology players at its core. Leveraging the digital system, full-lifecycle operational services, as well as collaboration with partners, such as third-party logistics providers, warehousing service partners and industrial financial institutions, the industrial midstream players provide tailored full-chain services or technology enablement that match the differentiated preferences of different partners through three parallel pooling models — SP, TP, and CP. They act both as integrated operators of upstream assets and solutions providers for downstream needs. The

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downstream comprises operators and entity enterprise users in various industries. The downstream entity enterprises engage with the midstream circular services either through operators or directly to meet their green packaging needs across the supply chain.



Source: Frost & Sullivan

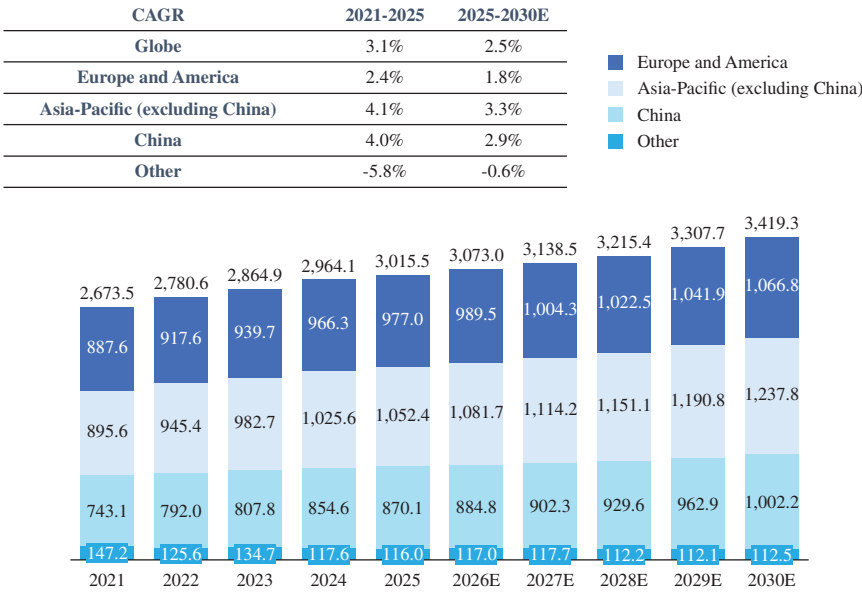
Market Size Analysis on the Global and Chinese Green Supply Chain Circular Service Industry

In 2025, the global supply chain packaging solutions market size reached RMB3,015.5 billion, with a CAGR of 3.1% from 2021 to 2025. Driven by the advancement of global environmental policies and the widespread adoption of circular economy models, the market size of the global supply chain packaging solutions industry is expected to grow steadily, reaching RMB3,419.3 billion by 2030, with a CAGR of 2.5% from 2025 to 2030. Based on the analysis on regional structure, the Asia-Pacific (excluding China) and China markets are the two largest and most steadily growing markets. Among them, the market size of the Asia-Pacific (excluding China) reached RMB1,052.4 billion in 2025, while that of China reached RMB870.1 billion. It is expected that these two core markets will maintain a CAGR of 3.3% and 2.9% from 2025 to 2030, respectively. The driving force for global market growth over the next five years is expected to concentrate in the Asia-Pacific region.

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Global Supply Chain Packaging Solutions Market Size, by Value

RMB Billion, 2021-2030E

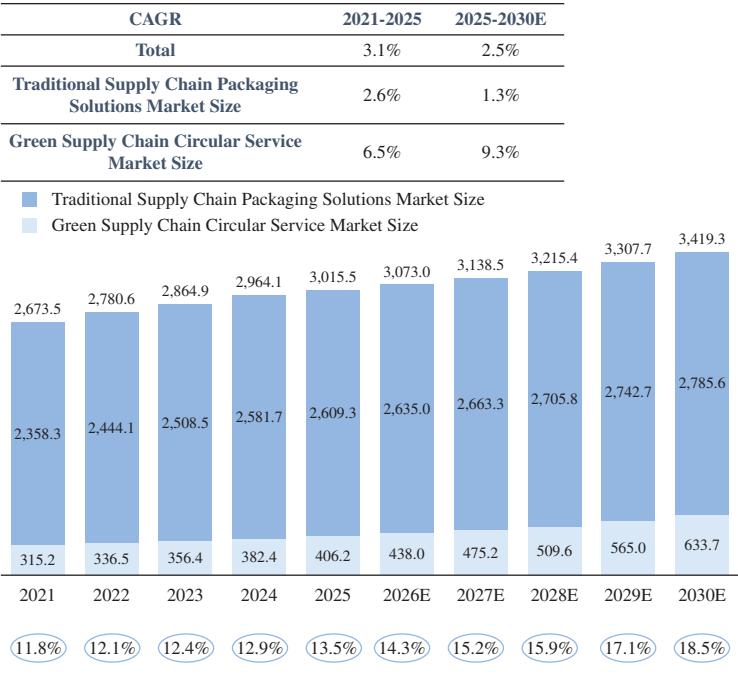


Source: Frost & Sullivan

Among these, the market size of green supply chain circular service increased from RMB315.2 Billion in 2021 to RMB406.2 Billion in 2025 with a CAGR of 6.5%, and the penetration rate of green supply chain circular service market rose from 11.8% to 13.5%. In the future, the market size of green supply chain circular service will increase to RMB633.7 Billion in 2030 with a CAGR of 9.3% during 2025 and 2030, and the penetration rate rose to 18.5%.

Global Supply Chain Packaging Solutions Market Size, by Value

RMB Billion, 2021-2030E



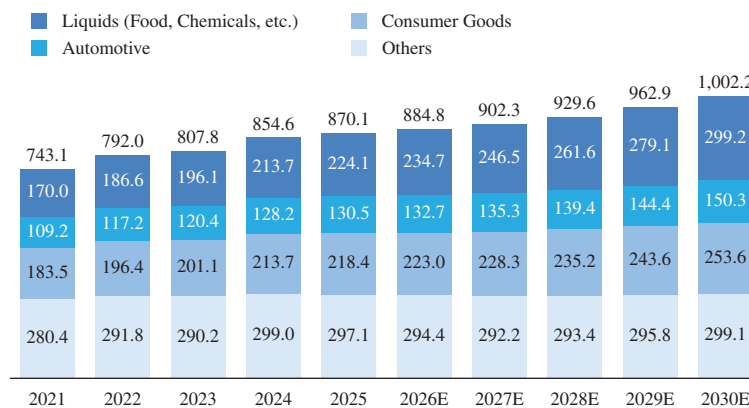
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China is one of the primary markets for supply chain packaging solutions. In 2025, the market size of China’s supply chain packaging solutions reached RMB870.1 billion, with a CAGR of 4.0% from 2021 to 2025. It is projected to reach RMB1,002.2 billion by 2030, with a CAGR of 2.9% from 2025 to 2030. The penetration rate of green supply chain circular service market increased from 7.9% to 9.1% during this period. While the overall market continues to grow, traditional supply chain packaging solutions are facing accelerated replacement by green supply chain circular service. Leveraging dual advantages of cost reduction and efficiency enhancement alongside low-carbon environmental protection, green models are gradually penetrating core sectors. The market size of China’s green supply chain circular service in 2025 reached RMB79.2 billion, with a CAGR of 7.2% from 2021 to 2025. It is forecasted to reach RMB128.1 billion by 2030, with a CAGR of 10.1% from 2025 to 2030. During this period, the penetration rate will rise to 12.8%. China is emerging as one of the largest and fastest-growing markets for green supply chain circular services globally, with the green supply chain circular service market significantly outpacing the growth of the traditional packaging market.

China’s green supply chain circular service market holds enormous growth potential and market penetration opportunities. From a sector-specific perspective, the liquids sector (covering food, chemicals, etc.) demonstrates strong growth momentum, reaching RMB224.1 billion in 2025 with a CAGR of 7.2% from 2021 to 2025, and is projected to reach RMB299.2 billion by 2030, with a CAGR of 6.0% from 2025 to 2030, outperforming the overall industry average.

China Supply Chain Packaging Solutions Market Size, by Value
RMB Billion, 2021-2030E

	CAGR	2021-2025	2025-2030E
Total		4.0%	2.9%
Liquids (Food, Chemicals, etc.)		7.2%	6.0%
Automotive		4.6%	2.9%
Consumer Goods		4.4%	3.0%



Source: Frost & Sullivan

Market Driving Factors Analysis on the Green Supply Chain Circular Service Industry

- The “Dual Carbon” Goals and the Global Consensus on Emissions Reduction:** Against the backdrop of a growing global consensus on carbon reduction, various countries continue to introduce policies and regulations related to carbon neutrality, the circular economy, and green supply chains, urging businesses to reduce resource consumption and carbon emissions. Policies such as China’s “dual carbon” goals are accelerating the adoption of green production, green logistics, and resource recycling. At the same time, international regulations such as the EU’s Carbon Border Adjustment Mechanism (CBAM) are raising low-carbon compliance requirements for supply chains, further driving the development of the market for green supply chain circular service industry.

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- **Logistics Infrastructure in the Chinese Market, New Industrialization, and Demand for High Value-Added Products in the Context of the 15th Five-Year Plan:** Driven by the 15th Five-Year Plan, China is accelerating the development of a modern logistics network and advancing new industrialization, with logistics infrastructure undergoing continuous upgrades toward digitalization, intelligentization, and greening. At the same time, the growth of high-value-added industries has increased corporate demand for efficient, low-carbon supply chain management. Consequently, the adoption of reusable packaging, standardized logistics carriers, and digital supply chain services has grown, driving the development of the market for green supply chain circular economy technologies.
- **Cross-regional supply chain collaboration:** As cross-regional coordination within industrial and supply chains continues to strengthen, demand for standardized logistics and packaging systems among enterprises is steadily increasing. Traditional logistics models are gradually transitioning toward circular, traceable systems featuring shared packaging and reverse logistics. At the same time, the development of pallet pools, returnable container pools, and digital supply chain platforms has improved the utilization efficiency of reusable assets, driving the growth of the green supply chain circular service market.
- **Technological progress represented by AI improves refined operation capabilities:** Leveraging the IoT enables real-time digital visibility for every packaging. AI autonomously optimizes network layout, resource allocation, and maintenance schedules based on comprehensive data, transforming operations from reactive responses to proactive predictions. This technological convergence not only delivers significant efficiency gains but also resolves the critical cost and reliability challenges essential for scaling circular models. For the industry, IoT-driven AI is no longer optional, and it is becoming the core foundation of next-generation green supply chains.
- **Increasing demand for enterprises to reduce costs and improve efficiency, expand their business overseas and advance ESG transformation:** Different from the traditional packaging procurement logic, the circular packaging converts high fixed asset investment into pay-per-use service fees, reducing enterprises’ cash flow pressure and warehousing management costs. Adopting the circular packaging model is no longer a passive compliance choice for enterprises, but a proactive layout to build long-term brand value and implement sustainable development strategies. In the market environment where ESG governance systems are increasingly stringent, the application of circular packaging not only helps enterprises effectively fulfill their social responsibility of energy conservation and emission reduction, but also serves as a key to brands’ differentiated competition. It can not only attract capital focused on ESG values and meet the capital market’s assessment requirements for sustainable development capabilities, but also strengthen internal employees’ sense of social responsibility and unify development consensus. This comprehensive value empowerment enables enterprises to build irreproducible strategic advantages in the fierce market competition and inject lasting vitality into their long-term development.

Analysis on Market Development Trends in the Green Supply Chain Circular Service Industry

- **The industry is undergoing a structural transformation from product sales to service-oriented:** Historically, enterprises relied on one-time product transactions for revenue, with value mainly reflected in hardware performance and delivery scale. Nowadays, customer demands tend to be refined, scenario-specific and operationally sustainable, which promotes the industry’s upgrade from “selling products” to “outputting long-term value” and strengthens customer stickiness and business resilience.

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- **The platformization of industry solutions and the layout of a collaborative ecosystem represent the future trend:** As the application scenarios for circular packaging rapidly expand, it has become challenging for individual enterprises to simultaneously possess asset investment capabilities, operational networks, digital systems, and complex fulfillment capacities. Platform-based companies, through diverse business models, provide packaging assets, operational capabilities, and digital tools to various types of participants. This enables service providers without assets or with limited networks to quickly enter the market. As more participants join, platform-based enterprises are gradually evolving into hubs and green infrastructure that support industry scaling.
- **Expanding green supply chain services with circular services as the entry point:** Enterprises are taking circular services as the entry point to extend towards a more comprehensive green supply chain service system. The circular packaging business possesses the characteristics of high-frequency recycling, full-process tracking and multi-node collaboration, enabling enterprises to grasp supply chain operation data, customer operation rhythms and physical asset flow rules. After the implementation of circular services, enterprises can leverage their existing digital systems, recycling networks and operational capabilities to extend to services such as green warehousing and logistics, thereby forming a complete green supply chain solution.
- **Implementation and Global export of standardized Product and Service Offerings:** Leading enterprises are taking the lead in formulating circular solution standards (such as material standards, operational processes, and digital interfaces) suitable for different scenarios, which, after being verified and matured, can be reused across scenarios, reducing the operational threshold for small and medium-sized service providers and accelerating the industry’s scaling and standardization. At the same time, China’s standards, platforms and technologies in the circular ecological technology field are expected to be exported to overseas markets, amid the growing global demand for green supply chain, promoting the globalization of service models and technical standards and enhancing the industry’s international competitiveness.
- **Increased market concentration:** As external changes such as stricter environmental regulations and the integration of high and new technologies drive the transformation and upgrading of the industry, the demands of customers are becoming increasingly complex, placing higher and more varied requirements on service providers. In this context, some technologically advanced enterprises are better equipped to meet these complex and evolving demands by leveraging their own technological and data advantages. Meanwhile, small and medium-sized enterprises face greater competitive challenges. As more customers opt for these technologically leading enterprises, these enterprises accumulate more resources and data, enabling continuous optimization and further improving customer satisfaction. This, in turn, attracts more clients, creating a competitive moat that is difficult to replicate. Consequently, market concentration is expected to increase in the future.

Key Success Factors in the Green Supply Chain Circular Service Industry

- **Integrating capabilities in artificial intelligence, the Internet of Things, and the accumulation and management of data assets:** In the field of green supply chain circular service, companies integrate AI, IoT, and digital platforms to enable real-time management of circular packaging assets and logistics nodes. Based on operational data, AI can perform demand forecasting, route optimization, and asset scheduling, thereby improving turnover efficiency. As data assets continue to accumulate, companies gradually develop data-driven operational capabilities and competitive advantages.

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- Global Network Deployment Capability:** The key to successful overseas expansion lies in the deep integration of manufacturing, technology, and branding capabilities at an international level. On the manufacturing front, it is essential to establish a flexible production network that combines owned facilities with regional partners to ensure localized delivery and supply chain resilience. On the technology front, localized teams must be formed to gain a deep understanding of industry standards, regulatory requirements, and customer scenario needs, enabling the development of tailored solutions. On the branding front, a brand protection and recognition system must be established, with continuous product innovation and service refinement building an internationally recognized proprietary brand. This holistic, synergistic globalization capability effectively breaks through geographical barriers and achieves the transition from product export to value export, serving as the cornerstone for enterprises to establish a foothold in overseas markets.
- Profound scenario understanding and commercialization capability:** The core value of the industry lies in the ability to deeply integrate circular packaging services with customers’ actual business scenarios, while there are significant differences in the demand for circular packaging among various industries. Enterprises with profound scenario comprehension can build a tailored and proprietary material technology system based on the characteristics of different business scenarios, and transform their technical capabilities and service systems into customized solutions that address the pain points of various industries, which not only accurately solve customers’ practical operational problems, but also deeply embed themselves in customers’ supply chain systems, ultimately forming strong customer stickiness.
- Platform ecosystem and standard establishment capability:** The future industry leaders are bound to be the dominant builders of platform ecosystems. Successful enterprises can break down inter-enterprise barriers, attract partners across the entire industry chain including green material suppliers, intelligent hardware and technology providers, and downstream customers to access their platforms, thus forming a collaborative ecological network. On this basis, enterprises can work with ecosystem partners to jointly formulate unified industry standards covering technical specifications, data interfaces and operational processes, realize resource sharing and efficient collaboration, and further strengthen the network effect of the platforms.

ANALYSIS ON THE COMPETITIVE LANDSCAPE IN THE GREEN SUPPLY CHAIN CIRCULAR SERVICE INDUSTRY

Market Competitive Landscape Ranking of Global and China Green Supply Chain Circular Service Industry

Top 5 Chinese Mainland Players in Global Green Supply Chain Circular Service Market, Ranked by Total Revenue in 2025

No.	Company Name	2025 Total Revenue RMB billion	Overseas Revenue and as % of Total in 2025 (RMB100 million, %)	Independent Company
1	Company A	~2.2	Approx. 3.5 (~16%)	No
2	Company B	~0.8	Not higher than 0.1 (not higher than 2%)	Yes
3	Issuer	0.48	Approx. 2.3 (~48%)	Yes
4	Company C	~0.4	Not higher than 0.2 (not higher than 5%)	Yes
5	Company D	0.30	Not higher than 0.1 (not higher than 5%)	Yes

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Notes:

- (1) Company A, established in 1980 and headquartered in Shenzhen, Guangdong Province, China, is a leading diversified equipment manufacturing and logistics services group in China. The company is listed on both the Shenzhen Stock Exchange and the Hong Kong Stock Exchange, with business operations covering reusable transport equipment and related solutions.
- (2) Company B, established in 2016 and headquartered in Suzhou, Jiangsu Province, China, is a supplier specializing in reusable packaging solutions and shared leasing services. The company provides shared operation, leasing, and warehousing management services for reusable containers to automotive parts manufacturers and OEM customers. The company is listed on the Hong Kong Stock Exchange.
- (3) Company C, with its predecessor established in 2005, is headquartered in Ningbo, Zhejiang Province, China. It is a professional service provider of comprehensive reusable plastic packaging solutions, covering the entire supply chain including manufacturing of reusable packaging products, custom design, leasing, and operational services. The company is listed on the Shenzhen Stock Exchange.
- (4) Company D, established in 2011 and headquartered in Shanghai, China, is a provider of reusable logistics packaging solutions. The company primarily supplies reusable packaging, returnable containers, pallets, and related cyclic operation services to clients in manufacturing, processing, and distribution industries. It operates as a privately-owned enterprise.

In 2025, the total product sales revenue of the top five Chinese Mainland players in the green supply chain circular service market was approximately RMB4.18 billion. In terms of revenue, the Issuer was the third-largest Chinese Mainland enterprise in the market. Furthermore, from the perspective of overseas business layout, the Issuer’s overseas revenue as a percentage of total revenue is significantly higher than that of other competitors, making it the leading mainland Chinese enterprise with the highest degree of business internationalization.

Top 5 Global Players in the Green Supply Chain Circular Service Industry, Ranked by Number of Authorized Relevant Invention Patents in 2025

No.	Company Name	Number of Authorized Invention Patents
1	Issuer	357
2	Company E	~255-270
3	Company F	~254-269
4	Company G	~150
5	Company H	~105

Notes:

- (1) Company E, established in 1913 and headquartered in the United States, is a supplier of reusable packaging and material handling equipment. The company specializes in providing reusable plastic crates, pallets, and shipping containers, serving the food, beverage, consumer goods, and industrial sectors. It operates as a private company.
- (2) Company F, established in 1992 and headquartered in Germany, is a global leader in reusable packaging solutions, particularly holding a leading market position in reusable containers for the fresh food supply chain. The company is not publicly listed.
- (3) Company G, established in 1998 with its parent company founded in 1849, is headquartered in the United States. It is a supplier of reusable packaging and transportation solutions, specializing in the design, manufacturing, and leasing of reusable plastic pallets, containers, and other reusable logistics products, serving the manufacturing, retail, and food industries. The company is not separately listed on public exchanges and holds a prominent position in the reusable packaging market.

INDUSTRY OVERVIEW

- (4) Company H, formed through the merger of two companies in 2025, is a significant participant in the global reusable packaging industry. Headquartered in Ireland, the company specializes in providing reusable transport packaging equipment and sustainable logistics packaging solutions, covering end-use scenarios in food, industrial, agricultural, and retail sectors. It operates as a private enterprise.

In 2025, the total number of invention patents held by the top five companies in the global green supply chain circular service market was approximately 1,136. By the number of invention patents in 2025, the issuer was the company with the most invention patents in the global green supply chain circular service sector.

Top 3 Players in China’s Green Supply Chain Circular Service Industry, Ranked by Number of Authorized Relevant Invention Patents Held by Mainland Chinese Players in 2025

No.	Company Name	Number of Authorized Invention Patents
1	Issuer	357
2	Company A	45
3	Company C	14

In 2025, the total number of invention patents held by the top 3 Chinese Mainland players in the green supply chain circular service market was approximately 416. By the number of invention patents in 2025, the issuer was the Chinese company with the most invention patents in the green supply chain circular service sector.

Top 5 Players in China’s Green Supply Chain Circular Service Industry, Ranked by Gross Margin of Relevant Business in 2025

No.	Company Name	2025 Gross Margin (%)
1	Issuer	37.9%
2	Company B	~22.0%
3	Company C	~15.3%
4	Company D	~15.0%
5	Company A	~13.0%

Ranked by gross margin in 2025, the issuer was the Chinese company with the highest gross margin in the green supply chain circular service sector.

Between 2023 and 2025, the issuer’s CAGR of revenue during this period was 33.8%, which was higher than other Chinese companies. Ranked by CAGR of revenue between 2023 and 2025, the issuer had the highest CAGR in Chinese green supply chain circular service industry.