

INDUSTRY OVERVIEW

The information and statistics set out in this section and other sections of this document were extracted from different official government publications, available sources from public market research and other sources from independent suppliers, and from the independent industry report prepared by Frost & Sullivan (the “Frost & Sullivan Report”). 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 [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], the [REDACTED], any of the [REDACTED], any of their respective directors and advisers, or any other persons or parties involved in the [REDACTED], and no representation is given as to its accuracy.

SOURCES OF INFORMATION

We commissioned Frost & Sullivan to analyze and prepare a report regarding global digital printing solutions industry and global POD industry. Frost & Sullivan is an independent global consulting firm founded in 1961 in New York that offers industry research and market strategies and provides growth consulting and corporate training. We agreed to pay a commission fee of RMB380,000 to Frost & Sullivan pursuant to a service agreement reached by arm’s length negotiation. Except as otherwise noted, all of the data and forecasts contained in this section are derived from the Frost & Sullivan Report. We have also referred to certain information in the “Summary”, “Risk Factors”, “Business” and “Financial Information” sections to provide a more comprehensive presentation of the industry in which we operate.

In preparing the report, Frost & Sullivan conducted (i) primary research, which involved discussing the status of the industry with certain leading industry participants, and interviews with industry experts on a best-effort basis to collect information to aid in-depth analysis; and (ii) secondary research, which involved reviewing government statistics, industry association publications, company reports, independent research reports and data based on its own research database.

Our Directors confirm that, to the best of their knowledge, after making reasonable inquiries and exercising reasonable care, there is no material adverse change in the market information since the date of the relevant data contained in the Frost & Sullivan Report which may qualify, contradict or have an impact on the information in this section.

OVERVIEW OF GLOBAL AND CHINA’S DIGITAL PRINTING SOLUTIONS INDUSTRY

Definition of Digital Printing Solutions

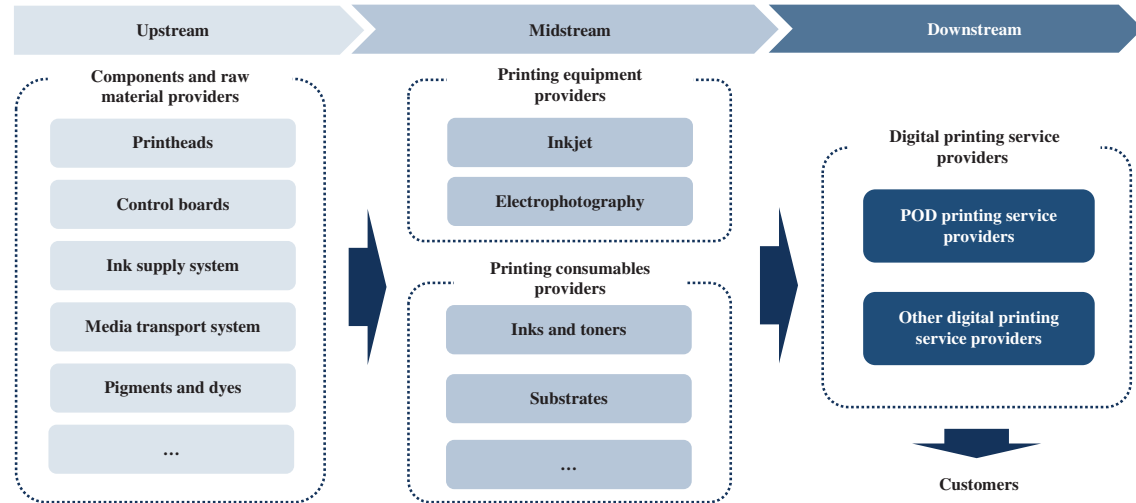
Digital printing refers to the process of directly transferring digital files onto a variety of substrates such as paper, packaging materials, textiles, and plastics, by leveraging technologies such as inkjet and electrophotography. Its core feature lies in fully digital workflows, eliminating the need for plate-making and enabling small-batch, diversified, personalized and variable-data production with rapid turnaround times.

The global digital printing solutions industry covers the full technology and services stack that enables digital printing. The industry can be broadly categorized into printing systems and essentials, POD services, and other digital printing software and services.

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Value Chain of Digital Printing Solutions Industry

The digital printing solutions industry value chain consists of components and raw material providers, printing equipment providers, printing consumables providers, and digital printing service providers.



Source: Frost & Sullivan

Market Size of Global Digital Printing Solutions Industry

Digital printing technology enables on-demand, variable-data, and highly personalized printing production. Riding on the rapid growth of e-commerce, POD services, and the global shift toward sustainable and resource-efficient manufacturing, the global digital printing solutions industry has maintained steady expansion. The integration of AI, big data analytics, and cloud-based workflow management has transformed digital printing from a supplementary process into a core production technology, capable of meeting increasingly fragmented and time-sensitive demand. The market size of global digital printing solutions industry in terms of revenue increased from approximately USD36.9 billion in 2021 to approximately USD46.3 billion in 2025, with a CAGR of 5.8%, and it is projected to reach approximately USD63.1 billion by 2030, representing a CAGR of 6.4% from 2025 to 2030.

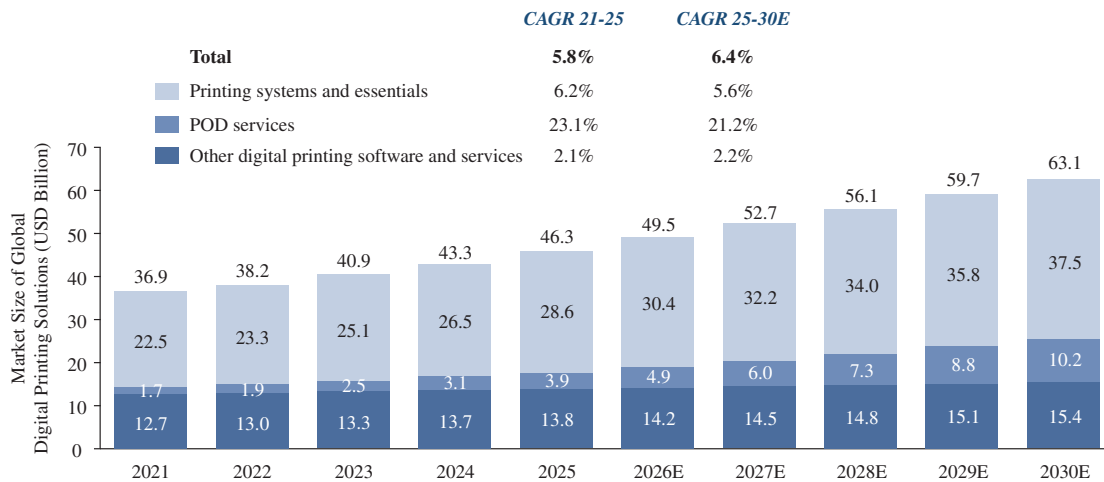
By segment, printing systems and essentials accounted for the largest portion of market revenue in 2025, reaching approximately USD28.6 billion from USD22.5 billion in 2021, with a CAGR of 6.2%. It is expected to reach approximately USD37.5 billion by 2030, representing a CAGR of 5.6% from 2025 to 2030.

The POD services market is a rapidly growing sub-segment of the global digital printing solutions industry. Demand for small-batch orders printing, product personalization and fast time-to-market, particularly in apparel, home décor, gifting, and small-format packaging continues to drive POD adoption. From 2021 to 2025, the market size of the global POD services market grew from USD1.7 billion to USD3.9 billion, representing a CAGR of 23.1%. Driven by cost optimization needs through inventory reduction, accelerated e-commerce fulfillment, and growing demand for product personalization, this market is expected to reach USD10.2 billion by 2030, representing a CAGR of 21.2% from 2025 to 2030.

Meanwhile, other digital printing software and services are projected to maintain a steady growth. Its market size increased from USD12.7 billion in 2021 to USD13.8 billion in 2025, with a CAGR of 2.1%. Supported by the digital transformation of print service providers, the market size is forecasted to reach USD15.4 billion by 2030, at a CAGR of 2.2% during 2025 to 2030.

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Market Size of Digital Printing Solutions in terms of Revenue (Global), 2021-2030E



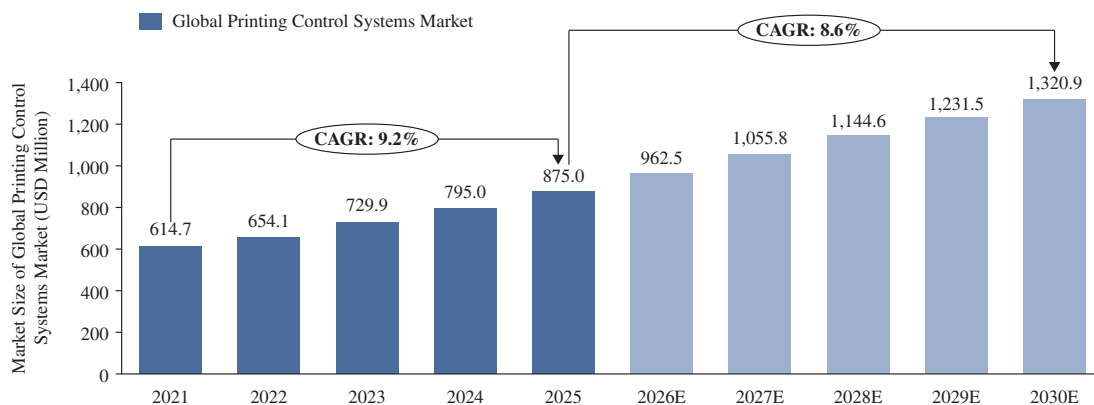
Source: Frost & Sullivan

Market Size of Global Printing Control Systems Industry

As a key component within the global digital printing systems and essentials segment, the global printing control systems market encompasses both software and hardware solutions designed to manage and optimize the end-to-end digital printing workflow. Printing control systems play an essential role in enhancing production efficiency, ensuring consistent color and quality across print runs, enabling variable-data printing, and reducing material waste through automated pre-press inspection and adjustment.

Measured by revenue, the global printing control systems market expanded from approximately USD614.7 million in 2021 to USD875.0 million in 2025, representing a CAGR of 9.2%. Growth during this period was primarily driven by the accelerated digitalization of printing processes, increased adoption of intelligent manufacturing systems, and rising demand for automation and data-driven production management across printing facilities. Looking forward, the market is projected to reach approximately USD1,320.9 million by 2030, reflecting a CAGR of 8.6% over the forecast period from 2025 to 2030. This anticipated expansion will be supported by continuous technological advancement, broader integration of AI-enabled workflow optimization, and the growing deployment of cloud-based production control platforms within the global printing industry.

Market Size of Global Printing Control Systems in terms of Revenue (Global), 2021-2030E



Source: Frost & Sullivan

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Competitive Landscape of Global Printing Control Systems Industry

The global printing control systems market was concentrated, with the top five providers accounting for 49.8% of the market in 2025.

In 2025, the Company ranked fifth in the global printing control systems market, with a market share of 5.9% in terms of revenue. The Company is also the only major digital printing solutions enterprise capable of providing a fully integrated, end-to-end solution covering all three segments of the POD solutions market, namely printing control systems, printing infrastructure, and printing innovative services.

Top Five Printing Control Systems Providers in terms of Revenue, 2025

Ranking	Printing Control Systems Providers	2025 Printing Control Systems Revenue (RMB million)	Global Market Share (%)
1	Company A	990	15.5%
2	Company B	810	12.7%
3	Company C	560	8.8%
4	Company D	440	6.9%
5	The Group	379	5.9%
Top five		3,179	49.8%
Total		6,400	100.0%

Source: Frost & Sullivan

Note:

1. The Company's data is provided by the Company.
2. Company A was established in 1939 and is headquartered in the United States. It is a public company listed on the New York Stock Exchange. It primarily focuses on personal systems and printing solutions, offering a comprehensive portfolio of consumer and commercial printing hardware, supplies, software solutions, and related services.
3. Company B was established in 1937 and is headquartered in Japan. It is a public company listed on the Tokyo Stock Exchange. It is engaged in imaging and printing solutions, with its core operations organized under the Printing Business Unit, serving commercial, industrial, and professional end markets.
4. Company C was established in 1934 and is headquartered in Japan. It is a public company listed on the Tokyo Stock Exchange. It operates across multiple business segments, including healthcare, electronics, and imaging, covering both consumer imaging and professional imaging solutions.
5. Company D was established in 1942 and is headquartered in Japan. It is a public company listed on the Tokyo Stock Exchange. It focuses on printing solutions spanning office and home as well as commercial and industrial applications, while also engaging in visual communications and other related businesses.

Independent printing control systems providers are companies that develop, supply, and support printing control systems independently, rather than being owned or directly integrated by the manufacturers of the printing equipment.

In 2025, the top five independent printing control systems providers together accounted for approximately 12.9% of the global printing control systems market in terms of revenue.

In 2025, the Company ranked first among global independent printing control systems providers, with a revenue-based market share of 5.9%.

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Top Five Independent Printing Control Systems Providers in terms of Revenue (Global), 2025

Ranking	Independent Printing Control Systems Providers	2025 Printing Control Systems Revenue (RMB million)	Global Market Share (%)
1	The Group	379	5.9%
2	Company E	180	2.8%
3	Company F	100	1.6%
4	Company G	85	1.3%
5	Company H	84	1.3%
Top five		828	12.9%
Total		6,400	100.0%

Source: Frost & Sullivan

Note:

1. The Company’s data is provided by the Company.
2. Company E is a private company established in 2006 and headquartered in Beijing. It focuses on research, development, and sales of industrial inkjet printing control systems for OEM clients.
3. Company F, established in 1986 and headquartered in UK, is a public company listed on Euronext Brussels. It focuses on research, development, and sales of enterprise production software and printhead solutions.
4. Company G is a private company established in 2008 and headquartered in Shanghai. It focuses on the research, development, and production of inkjet printing control systems and related electronic components.
5. Company H is a private company established in 2014 and headquartered in Shenzhen. It specializes in providing inkjet printing control solutions, including hardware and software for printhead driving and system integration.

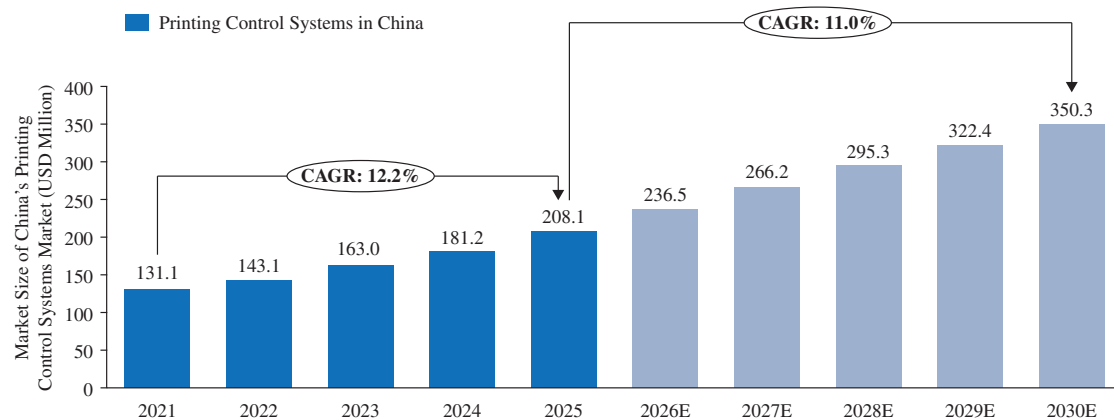
Market Size of China’s Printing Control Systems Industry

As an integral part of the global printing control systems segment, China’s printing control systems market is undergoing a pivotal transformation from traditional equipment-driven solutions toward intelligent and software-centric architectures. In line with global trends, both Chinese manufacturers and end users are rapidly evolving printing control systems from basic device controllers and color management tools into comprehensive production management platforms that span the entire workflow — from pre-press and in-press to post-press operations.

Driven by printing enterprises’ increasing demand for higher production efficiency, brand owners’ stringent requirements for rapid proofing, and downstream customers’ need for fast response and automated order processing, the China market has continued to experience strong growth. In terms of revenue, the market size of printing control systems in China increased from approximately USD131.1 million in 2021 to approximately USD208.1 million in 2025, representing a CAGR of 12.2%. By 2030, the Chinese printing control systems market is expected to reach approximately USD350.3 million, with a CAGR of 11.0% from 2025 to 2030.

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Market Size of Printing Control Systems in terms of Revenue (China), 2021-2030E



Source: Frost & Sullivan

Market Drivers and Future Trend of China’s Printing Control Systems Market

Upgrading of Domestic Printing Equipment and Accelerated Digital Transformation: China’s printing industry is undergoing rapid digitalisation, supported by the wider adoption of digital inkjet technologies, UV curing systems and advanced colour-management solutions. These developments are driving printing control systems from hardware-centric modules toward software-integrated platforms that enhance production efficiency, stability and defect-control performance, thereby supporting strong replacement and upgrade demand among domestic printing enterprises.

Policy Support for Environmental Compliance and Cost Reduction: China’s increasingly stringent environmental regulations, together with the industry’s emphasis on reducing energy consumption and overall operating costs, are driving a shift toward low-emission inks, energy-efficient equipment and more controllable production processes. Printing control systems that support the use of low-emission consumables, enable energy-efficient operations and provide enhanced process management are expected to receive growing adoption among printing enterprises.

Growing Demand for Flexible, Short-Run and On-Demand Printing: Driven by China’s e-commerce expansion, rapid branding cycles and the rise of personalised consumer products, printing enterprises face increasing short-run, multi-batch and fast-switching production needs. Control systems offering rapid job changes, standardised colour reproduction and flexible workflow management are expected to gain faster penetration across small to mid-sized printing service providers in China.

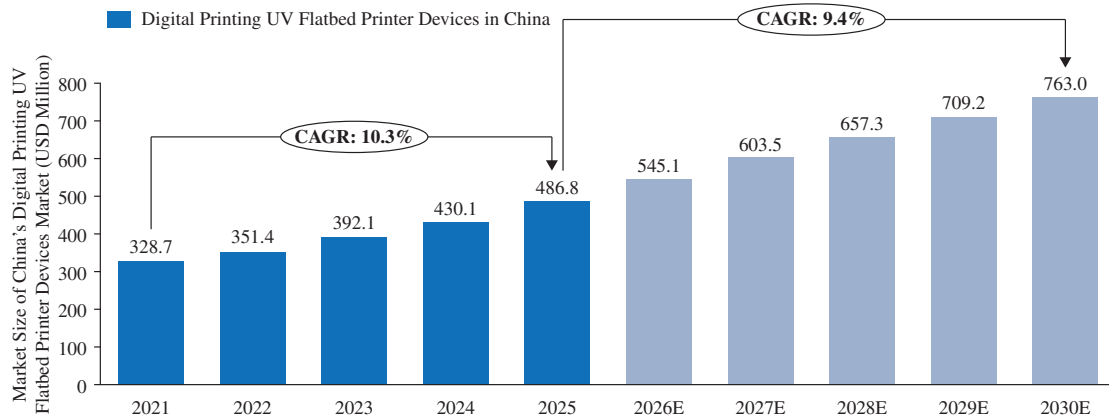
Market Size of China’s Digital Printing UV Flatbed Printer Devices Industry

Digital Printing UV Flatbed Printer Devices refer to a category of digital printing equipment that utilise ultraviolet (UV) curing technology to instantly cure inks on a wide range of rigid and flexible substrates. In terms of revenue, the market for digital printing UV flatbed printer devices has exhibited steady expansion in recent years, supported by rising adoption across packaging, signage, décor and customised manufacturing applications. The market size of digital Printing UV flatbed printer devices in China increased from approximately USD328.7 million in 2021 to approximately USD486.8 million in 2025, representing a CAGR of 10.3%.

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Market growth has been underpinned by the shift toward digital, on-demand and multi-substrate printing solutions, driving sustained demand for high-precision UV flatbed systems, the revenue scale of the UV flatbed printer segment is expected to maintain an upward trajectory over the forecast period, with its contribution to the overall digital printing equipment market gradually increasing. In terms of revenue, by 2030, the digital Printing UV flatbed printer devices in China is expected to reach approximately USD763.0 million, with a CAGR of 9.4% from 2025 to 2030.

**Market Size of Digital Printing UV Flatbed Printer Devices
in terms of Revenue (China), 2021-2030E**



Source: Frost & Sullivan

Market Drivers and Future Trend of China’s Digital Printing UV Flatbed Printer Devices

Rapid Adoption of High-Value Digital Printing Applications: Demand for UV flatbed systems in China has been driven by fast growth in signage, point-of-sale, décor, and short-run packaging applications that require high print quality, durability and multi-substrate capability. This application diversification underpins steady revenue expansion for flatbed devices.

Technology Improvements and Operational Efficiency Gains: Advances in UV-LED curing, printhead precision, and digital front-end workflow software have materially improved throughput, colour accuracy and uptime, prompting replacement cycles and new purchases among domestic printers seeking higher productivity and lower total cost of ownership.

Acceleration of On-Demand, Short-Run and Customisation Production: Growth in e-commerce, rapid brand refresh cycles and personalised products will increase the share of short-run and quick-turn jobs; control systems and flatbed platforms that enable rapid job changeover, automated colour management and stable multi-substrate performance will gain market share.

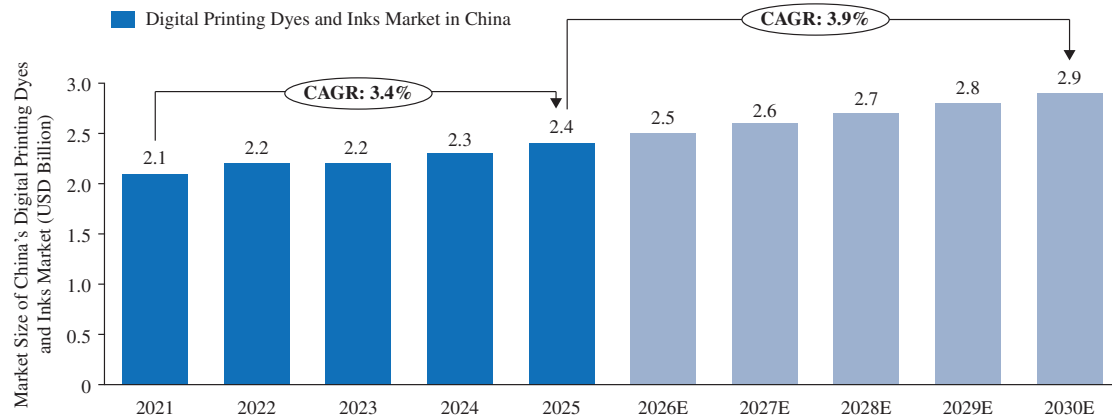
Market Size of China’s Digital Printing Dyes and Inks Industry

Digital Printing Dyes and Inks refer to colourants and ink systems specifically formulated for application in digital printing technologies. As the core colouring component within digital printing ink formulations, dyes play a critical role in determining colour performance and print quality. Both dyes and inks are engineered to satisfy the technical requirements of digital printheads and processes.

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Driven by printing enterprises’ increasing demand for higher production efficiency, brand owners’ stringent requirements for rapid proofing, and downstream customers’ need for fast response and automated order processing, the China market has continued to experience strong growth. In terms of revenue, the market size of digital printing dyes and Inks in China increased from approximately USD2.1 billion in 2021 to approximately USD2.4 billion in 2025, representing a CAGR of 3.4%. By 2030, the market size of digital printing dyes and Inks in China is expected to reach approximately USD2.9 billion, with a CAGR of 3.9% from 2025 to 2030.

Market Size of Digital Printing Dyes and Inks terms of Revenue (China), 2021-2030E



Source: Frost & Sullivan

Market Drivers and Future Trend of China’s Digital Printing Dyes and Inks

Product Differentiation Through Functional and Specialty Formulations: Demand for advanced and application-specific digital printing inks has continued to rise as end-users seek higher functional performance, broader substrate compatibility and improved print durability. Manufacturers capable of delivering stable output on technically demanding printing conditions are able to command pricing premiums and strengthen long-term customer retention.

Expansion of High-Consumption End-Markets: Growth in digital textile printing, short-run packaging and large-format décor has substantially increased total ink volumes consumed in China; these end-markets demand application-specific chemistries such as textile dyes, flexible packaging inks, UV coatings, thereby enlarging the revenue base for digital printing dyes and inks.

Shift toward higher-performance pigment and functional inks: As end-users demand improved colour stability, greater durability and more reliable output across diverse substrates, pigment-based and function-enhanced inks are anticipated to gain a larger share of adoption. This shift will support the industry’s move toward higher-value, application-specific consumables and drive ongoing innovation in formulation chemistry, printhead compatibility and performance optimisation.

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Market Drivers and Future Trends of China’s Digital Printing Solutions Industry

Accelerated digital transformation across downstream industries: The ongoing digital transformation of key downstream sectors, including textile and apparel, publishing, packaging, advertising and photo printing, continues to drive demand for digital printing solutions. Apparel brands increasingly adopt small-batch and quick-response production to shorten product launch cycles and reduce inventory risks. In publishing, the growth of digital education and personalized content has increased demand for short-run and on-demand printing. In packaging and advertising, brand owners are pursuing faster product cycles, greater design flexibility and data-driven customization.

Rising demand for personalization and small-batch production: With rising household income and the rapid development of pan-entertainment economy, livestream e-commerce, and the cultural and creative industries, consumers increasingly demand personalized and differentiated products. Demand for small-batch, customized and on-demand printing across books, photo products, cultural merchandise and packaging continues to grow. Digital printing technologies, which enable flexible and cost-efficient production without traditional setup constraints, are increasingly essential to meeting diversified and rapid-turnaround market needs.

Technological advancement and service model innovation: Continuous improvements in core technologies, particularly digital inkjet printing, have enhanced printing speed, resolution and media compatibility, expanding application scenarios. Meanwhile, emerging service models such as POD are extending digital printing into customized e-commerce packaging, textile printing and labeling. These developments improve production efficiency, enable new business models and support the long-term growth of China’s digital printing solutions industry.

OVERVIEW OF GLOBAL POD INDUSTRY

The POD market refers to the segment of the digital printing industry that provides on-demand, order-based printing and fulfillment services. Under the POD model, products are produced only after a customer order is placed, typically without minimum order quantities. The process often integrates with dropshipping, whereby the finished products are printed to order and shipped directly from the manufacturer to the end customer on behalf of the seller.

Market Size of Global POD Industry

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Measured by revenue, the global POD market increased from approximately USD5.7 billion in 2021 to approximately USD12.9 billion in 2025, representing a CAGR of 22.7%. The market expansion was primarily supported by the rapid growth of e-commerce and evolving consumer preferences toward personalization and immediacy. Increasing demand for customized, on-demand, and short-cycle delivery products has led to a surge in small-batch and diversified printing orders, driving higher requirements for production flexibility, automation, and digital workflow integration. These factors collectively underpin the sustained growth momentum of the global POD industry.

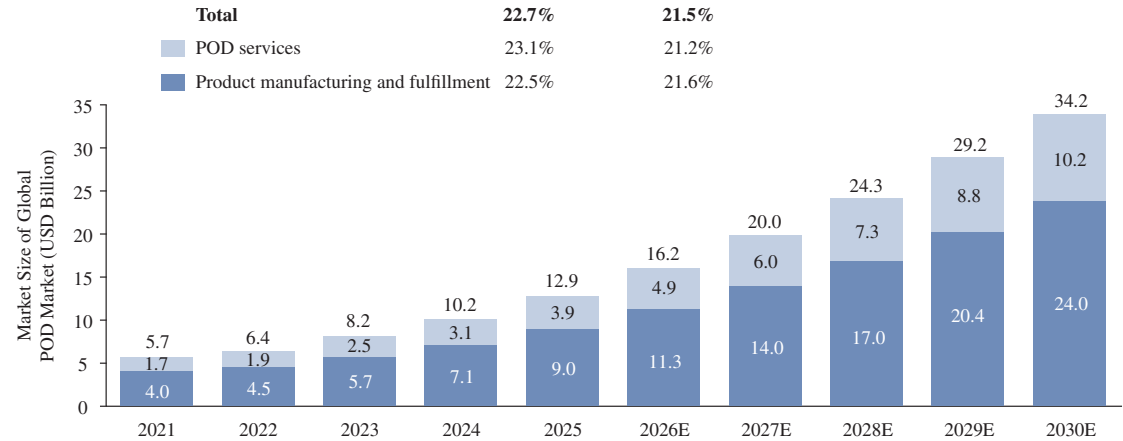
Driven by sustained market demand and expanding production capabilities, the global POD market is expected to maintain robust growth momentum. The increasing adoption of integrated digital printing solutions enables printing factories to optimize order scheduling, equipment utilization, and material management, thereby realizing large-scale flexible manufacturing. These

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technological and operational advancements are anticipated to further stimulate demand across key POD segments. It is expected that by 2030, the global POD market will reach approximately USD34.2 billion in terms of revenue, with a CAGR of 21.5% from 2025 to 2030.

In 2025, the global POD market, by downstream product segmentation, can be divided into apparel, home decoration, drinkware, accessories, and others, accounting for 36%, 30%, 18%, 14% and 2% of the market, respectively.

Market Size of Global POD Market in terms of Revenue, 2021-2030E



Source: Frost & Sullivan

Market Drivers of Global POD Industry

Demand for Intelligent Transformation and Supply-Side Upgrades: As global manufacturing advances toward intelligent and flexible production, POD has become a key enabler of operational efficiency and responsiveness. Through the integration of intelligent control systems, automated order management, and coordinated utilization of printing equipment and consumables, POD solutions connect the production workflow seamlessly. These technologies enable rapid market response, shorter production cycles, and optimized cost structures, while maintaining a high degree of customization and color consistency. In the long run, the ongoing evolution of intelligent manufacturing and digital workflow integration is expected to further enhance scalability, flexibility, and profitability across the POD value chain, solidifying its role as a major growth engine within the global digital printing industry. On the supply side, the advancement of POD technologies is reshaping brand and manufacturer strategies. The capability to efficiently handle small and diversified orders enables low-risk market testing through small-batch production. This flexibility allows enterprises to validate concepts and gauge consumer preferences before large-scale rollout, improving product success rates and reducing inventory risk. Consequently, POD solutions have evolved into a strategic enabler for agile product development and responsive supply chain management.

Growth of Personalized and Trendy Orders in E-commerce Markets: The rapid rise of global e-commerce, especially in the U.S. and Europe, is fueling strong demand for trendy, personalized, small-batch, and fast-delivery products. Sales of apparel, home goods, office supplies, and customized gifts in these regions continue to grow at double-digit rates, with personalized items taking a significant share. Younger consumers who value unique design and instant gratification, further boost this trend. As a result, POD have become essential tools for the “order-driven, small-batch rapid response” model, by reducing inventory pressure, shortening delivery cycles, and meeting global demand for customized products.

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Technological Advancement and Equipment Upgrades: Continuous technological innovation is driving the steady enhancement of POD in terms of efficiency, precision, and scalability. Ongoing advancements in printing control systems, and printing equipment have significantly improved production throughput and quality consistency. Upgrades in digital printing systems and essentials enable rapid, cost-efficient small- and medium-batch production, while accelerating the industry’s transition toward efficient, flexible, and intelligent manufacturing models. These developments are further expanding the application boundaries of POD across diverse end-use sectors, reinforcing their role as a core driver of growth in the global digital printing market.

Future Trends of Global POD Industry

Transition from Equipment Sales to Integrated Solution Offerings: The global POD market is shifting from the traditional model of standalone equipment sales toward integrated solution offerings that combine control systems, printing equipment, consumables, and value-added services. Leading providers are increasingly integrating software implementation, order management, and quality control functions into comprehensive digital printing solutions, delivering end-to-end production capabilities rather than standalone hardware. This transition enhances quality stability, operational efficiency and production flexibility, enabling high-frequency, small-batch, and personalized manufacturing, thereby unlocking substantial growth potential for the POD industry.

Expansion of Application Scenarios and Penetration into Niche Industries: POD applications are rapidly expanding beyond conventional commercial printing into apparel, home décor, gifts, cultural and creative merchandise, corporate customization, and entertainment-related products. The rising demand for personalization, rapid delivery, and flexible production across diverse sectors is driving deeper digital printing penetration. In particular, the growth of cross-border e-commerce, brand collaborations, and creative industries has made POD a critical enabler of customization and differentiation, further fueling market expansion.

Accelerated Adoption of High-Speed Inkjet Technology: The advancement and adoption of high-speed inkjet technology are accelerating the digitalization of mid- to high-end printing markets. Enhanced printing speed, precision, and stability enable cost-efficient production of small-batch and diversified orders while improving product quality and differentiation. As high-speed inkjet technology becomes more widespread, it is expected to significantly expand the overall market capacity and stimulate additional demand for upstream consumables, software, and intelligent control systems.