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Automation in Cold Chain Logistics Market Forecasts to 2032 – Global Analysis By Component (Hardware, Software, and Services), Temperature Range (Chilled (0°C to 15°C), Frozen (-18°C to 0°C), and Deep-Frozen/Ultra-Low (Below -20°C)), Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Automation in Cold Chain Logistics Market is accounted for $1.24 billion in 2025 and is expected to reach $3.48 billion by 2032 growing at a CAGR of 15.9% during the forecast period. Automation in cold chain logistics uses technologies like IoT sensors, automated temperature control, and robotics to ensure the safe storage and transportation of temperature-sensitive products. This applies to food, pharmaceuticals, and chemicals, maintaining product integrity from origin to destination. Real-time monitoring and automated adjustments prevent spoilage and ensure compliance with stringent regulatory standards. Automation enhances efficiency, reduces human errors, and optimizes resource utilization. Increasing demand for perishable goods and vaccines drives growth, particularly in regions facing supply chain complexity and regulatory pressures.

Market Dynamics:

Driver:

Increasing need for temperature-sensitive supply chains

The global expansion of pharmaceuticals, biologics, and premium perishable foods mandates stringent temperature control to ensure product efficacy and safety.

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Regulatory compliance, such as the FDA's CFR Title 21, imposes strict guidelines on storage and transportation, compelling logistics providers to adopt automated solutions. Automation ensures unparalleled accuracy in maintaining specific temperature ranges, minimizing human error, and providing auditable documentation. This regulatory and product integrity requirement directly fuels investment in automated monitoring, storage, and retrieval systems within the cold chain, thereby propelling market growth significantly.

Restraint:

Integration difficulties with legacy systems

Many existing cold chain facilities operate on outdated infrastructure that lacks the digital interoperability required for modern automation solutions, such as IoT sensors and automated storage and retrieval systems (ASRS). Retrofitting these systems necessitates substantial capital expenditure and can cause operational downtime, presenting a major financial disincentive. Moreover, the complexity of ensuring seamless data communication between new automated technologies and old supervisory control and data acquisition (SCADA) systems often acts as a barrier to adoption, particularly for small and medium-sized enterprises.

Opportunity:

IoT integration for real-time tracking

IoT-enabled sensors facilitate granular, real-time tracking of critical parameters like temperature, humidity, and location throughout the logistics journey. This generates vast datasets that, when processed by analytics platforms, enable predictive maintenance, optimize route planning, and proactively alert managers to potential deviations before spoilage occurs. Additionally, this level of transparency enhances cold chain integrity, reduces insurance premiums, and builds stakeholder trust. This demand for end-to-end visibility and data-driven decision-making creates a lucrative avenue for automation solution providers.

Threat:

Equipment failures leading to spoilage

Automated systems, while highly reliable, are not infallible; malfunctions in refrigeration

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units, power failures in automated storage facilities, or software glitches in environmental controls can occur. Such events can lead to complete spoilage of temperature-sensitive cargo, resulting in massive financial losses and damaging brand reputation. Additionally, this vulnerability can erode trust in automated solutions and heighten operator caution, potentially slowing investment and adoption rates despite the overall efficiency gains offered by automation.

Covid-19 Impact:

The COVID-19 pandemic had a dual impact on the market. Initially, it disrupted global supply chains, causing logistical delays and highlighting vulnerabilities in manual monitoring processes. However, it ultimately acted as a potent accelerator for automation. The unprecedented demand for temperature-sensitive pharmaceuticals, especially vaccines requiring ultra-cold chain storage, underscored the critical need for resilient, automated logistics solutions. This urgent necessity drove rapid investment in automated storage, IoT-based monitoring, and contactless handling systems to ensure supply chain integrity and efficiency during the global health crisis.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is expected to account for the largest market share during the forecast period due to the high capital intensity required for foundational automation infrastructure. This segment includes essential components like automated storage and retrieval systems (ASRS), automated guided vehicles (AGVs), robotic palletizers, and advanced refrigeration units. These physical systems form the core of any automated cold chain operation, enabling high-density storage, efficient product movement, and precise environmental control. The significant upfront investment in these durable and mission-critical assets ensures that hardware will continue to dominate the market's revenue structure.

The pharmaceuticals & healthcare segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the pharmaceuticals & healthcare segment is predicted to witness the highest growth rate driven by stringent regulatory requirements and the increasing global distribution of complex biologics, vaccines, and trial medications. These products often have very narrow temperature tolerances and require unbroken cold chain integrity from manufacture to patient. Automation provides the necessary accuracy, monitoring, and documentation for compliance with standards like Good

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Distribution Practice (GDP). Moreover, the rising global focus on healthcare and lessons learned from COVID-19 vaccine distribution are fueling substantial investment in automated logistics within this sector.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share. This dominance is attributed to its mature and advanced pharmaceutical and food & beverage sectors, which have early and high adoption rates of automation technologies. The presence of strict regulatory frameworks from agencies like the FDA and a strong focus on reducing supply chain risks further propels investment. Additionally, the region has a high concentration of leading automation solution providers and the necessary capital infrastructure to implement large-scale automated cold chain facilities, consolidating its leading market position.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. This accelerated growth is fueled by rapid economic expansion, increasing international trade in perishable goods, and significant government investments in upgrading cold chain infrastructure. The growing pharmaceutical manufacturing base, especially in India and China, coupled with rising domestic demand for processed foods and vaccines, creates a potent demand for automated logistics solutions. Moreover, the increasing penetration of automation and IoT technologies to improve supply chain efficiency supports the region's high growth potential.

Key players in the market

Some of the key players in Automation in Cold Chain Logistics Market include Americold Logistics, Lineage Logistics, NewCold, Burris Logistics, Daifuku, Dematic, Honeywell International, K?rber, KNAPP, Swisslog, TGW Logistics Group and Vanderlande.

Key Developments:

In August 2025, Americold announced the opening of its first import-export hub in partnership with Canadian Pacific Kansas City (CPKC). This 335,000-square-foot facility in Kansas City represents a strategic collaboration to streamline cross-border trade and reduce transit times for temperature-sensitive goods. President Rob Chambers

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emphasized their focus on 'attacking inefficiencies in the supply chain by co-locating cold storage with rail access'.

In July 2025, NewCold deepened its strategic partnership with CtrlChain to develop a fully integrated, technology-driven solution for cold storage and transportation. The partnership aims to create a connected supply chain ecosystem that anticipates risks, improves demand forecasting, and automates operations. CEO Bram Hage emphasized pushing 'the industry toward greater transparency by breaking down barriers and integrating data from all supply chain stakeholders into a single, centralized place

In April 2025, Lineage announced plans to deploy approximately $1 billion in capital for acquisitions and greenfield developments. The expansion includes acquiring four existing cold storage warehouses from Tyson Foods for $247 million, and developing two fully automated cold storage warehouses totaling over 80 million cubic feet and nearly 260,000 pallet positions. The new facilities will utilize LinOS, Lineage's proprietary warehouse execution technology.

In October 2024, Lineage celebrated the grand opening of a fully automated cold storage warehouse in Hazleton, Pennsylvania. This facility represents a significant investment in automation to meet growing demand.

Components:

- Hardware
- Software
- Services

Temperature Ranges Covered:

- Chilled (0°C to 15°C)
- Frozen (-18°C to 0°C)
- Deep-Frozen/Ultra-Low (Below -20°C)

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Applications Covered:

- Storage Automation
- Transportation Automation

End Users Covered:

- Food & Beverages
- Pharmaceuticals & Healthcare
- Chemicals & Specialty Materials
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy
  - France
  - Spain

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- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

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- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar
- South Africa

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Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

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Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

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Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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