

# **Cold Chain Monitoring Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025-2034**

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## **Abstracts**

The Global Cold Chain Monitoring Market reached USD 6.7 billion in 2024 and is anticipated to grow at a CAGR of 14% from 2025 to 2034. The growth is driven by the rising demand for temperature-sensitive goods across various industries. With pharmaceuticals, food, and beverage sectors relying heavily on cold storage and transportation, businesses are increasingly adopting advanced monitoring solutions to ensure product integrity and regulatory compliance. As companies continue to expand their global supply chains, the need for real-time tracking technologies is becoming more critical than ever.

The integration of IoT-enabled sensors, RFID devices, and telematics solutions is transforming the industry, offering businesses unparalleled visibility and control over their logistics networks. Regulatory authorities worldwide are imposing stringent guidelines to maintain optimal storage and transportation conditions, further propelling investments in cutting-edge monitoring systems. The market is poised for continued expansion as companies focus on mitigating risks, preventing spoilage, and enhancing operational efficiency. The adoption of AI-powered analytics and cloud-based monitoring platforms is reshaping the industry, enabling real-time decision-making and predictive maintenance to prevent temperature-related disruptions.

The increasing reliance on temperature-controlled logistics is fueling market expansion, with businesses recognizing the importance of maintaining product safety and compliance with evolving regulatory standards. Companies are prioritizing the implementation of robust monitoring solutions to track environmental conditions in real time, ensuring that perishable goods remain within prescribed temperature thresholds. The adoption of smart monitoring systems is not only enhancing supply chain

transparency but also reducing financial losses associated with product spoilage and recalls.

Segmented by components, the market consists of hardware and software solutions. The hardware segment generated USD 4.5 billion in 2024 and is set to grow at a CAGR of 14% throughout the forecast period. The increasing demand for temperature-sensitive logistics is driving the adoption of advanced hardware solutions, including sensors, RFID trackers, and telematics devices. These technologies provide real-time environmental data, enabling businesses to proactively address potential risks and maintain adherence to quality and safety standards. As the cold chain industry advances, companies are leveraging innovative hardware components to optimize efficiency and reliability, ensuring seamless operations across storage and transportation networks.

By temperature range, the market is categorized into frozen and chilled segments. The frozen segment accounted for 56% of the market share in 2024 and is expected to register a CAGR of 14% through 2034. The growing demand for ultra-low temperature storage solutions is accelerating adoption across industries that require strict thermal regulation, such as pharmaceuticals and biotechnology. Advanced monitoring technologies are playing a crucial role in preserving the efficacy and stability of temperature-sensitive products. As businesses strive to comply with rigorous storage requirements, they are investing in smart solutions that enhance traceability and minimize losses caused by temperature deviations.

North America led the global cold chain monitoring market with a 35% share in 2024, with the U.S. accounting for USD 2.1 billion in revenue. The region's strong market presence is attributed to the pharmaceutical sector's growing reliance on cold storage solutions to ensure product safety during transit. Strict regulatory guidelines in the U.S. emphasize the importance of maintaining temperature control, prompting companies to invest in advanced monitoring technologies. Additionally, the rising demand for fresh and frozen food deliveries through e-commerce platforms is accelerating the need for robust cold chain infrastructure. As businesses seek to meet evolving consumer expectations and regulatory mandates, investments in innovative monitoring solutions are expected to surge, reinforcing the reliability and security of temperature-sensitive supply chains.

## Contents

### CHAPTER 1 METHODOLOGY & SCOPE

- 1.1 Research design
  - 1.1.1 Research approach
  - 1.1.2 Data collection methods
- 1.2 Base estimates and calculations
  - 1.2.1 Base year calculation
  - 1.2.2 Key trends for market estimates
- 1.3 Forecast model
- 1.4 Primary research & validation
  - 1.4.1 Primary sources
  - 1.4.2 Data mining sources
- 1.5 Market definitions

### CHAPTER 2 EXECUTIVE SUMMARY

- 2.1 Industry 360° synopsis, 2021 - 2034

### CHAPTER 3 INDUSTRY INSIGHTS

- 3.1 Industry ecosystem analysis
- 3.2 Supplier landscape
  - 3.2.1 Hardware providers
  - 3.2.2 Software & platform developers
  - 3.2.3 System integrators
  - 3.2.4 Connectivity providers
  - 3.2.5 Service providers
- 3.3 Profit margin analysis
- 3.4 Technology & innovation landscape
- 3.5 Patent analysis
- 3.6 Use cases
- 3.7 Cold chain logistics statistics
- 3.8 Key news & initiatives
- 3.9 Regulatory landscape
- 3.10 Impact forces
  - 3.10.1 Growth drivers
    - 3.10.1.1 Increasing demand for perishable goods

3.10.1.2 Stringent regulatory requirements imposed on the transportation and storage of temperature-sensitive products

3.10.1.3 Advancements in technology, IoT, and data analytics

3.10.1.4 Increasing focus on food safety and quality

3.10.2 Industry pitfalls & challenges

3.10.2.1 Infrastructure challenges in developing regions

3.10.2.2 High implementation costs and complexity

3.11 Growth potential analysis

3.12 Porter's analysis

3.13 PESTEL analysis

## **CHAPTER 4 COMPETITIVE LANDSCAPE, 2024**

4.1 Introduction

4.2 Company market share analysis

4.3 Competitive positioning matrix

4.4 Strategic outlook matrix

## **CHAPTER 5 MARKET ESTIMATES & FORECAST, BY COMPONENT, 2021 - 2034 (\$BN)**

5.1 Key trends

5.2 Hardware

5.2.1 Sensors

5.2.2 RFID devices

5.2.3 Telematics

5.2.4 Networking devices

5.2.5 Others

5.3 Software

5.3.1 Real-time monitoring

5.3.2 Analytics and reporting

## **CHAPTER 6 MARKET ESTIMATES & FORECAST, BY TEMPERATURE, 2021 - 2034 (\$BN)**

6.1 Key trends

6.2 Frozen

6.3 Chilled

## **CHAPTER 7 MARKET ESTIMATES & FORECAST, BY LOGISTICS, 2021 - 2034 (\$BN)**

- 7.1 Key trends
- 7.2 Storage
- 7.3 Transportation

## **CHAPTER 8 MARKET ESTIMATES & FORECAST, BY END USE, 2021 - 2034 (\$BN)**

- 8.1 Key trends
- 8.2 Pharmaceutical & healthcare
- 8.3 Food & beverage
- 8.4 Logistics & distribution
- 8.5 Chemical
- 8.6 Others

## **CHAPTER 9 MARKET ESTIMATES & FORECAST, BY REGION, 2021 - 2034 (\$BN)**

- 9.1 Key trends
- 9.2 North America
  - 9.2.1 U.S.
  - 9.2.2 Canada
- 9.3 Europe
  - 9.3.1 UK
  - 9.3.2 Germany
  - 9.3.3 France
  - 9.3.4 Italy
  - 9.3.5 Spain
  - 9.3.6 Russia
  - 9.3.7 Nordics
- 9.4 Asia Pacific
  - 9.4.1 China
  - 9.4.2 India
  - 9.4.3 Japan
  - 9.4.4 South Korea
  - 9.4.5 ANZ
  - 9.4.6 Southeast Asia
- 9.5 Latin America
  - 9.5.1 Brazil

9.5.2 Mexico

9.5.3 Argentina

9.6 MEA

9.6.1 UAE

9.6.2 Saudi Arabia

9.6.3 South Africa

## **CHAPTER 10 COMPANY PROFILES**

10.1 Berlinger & Co

10.2 CargoSense

10.3 Cold Chain Technologies

10.4 Controlant

10.5 Descartes Systems Group

10.6 Digi International

10.7 ELPRO-BUCHS

10.8 Emerson Electric

10.9 Honeywell International

10.10 Infratab

10.11 Intellex

10.12 Monnit

10.13 ORBCOMM

10.14 Roambee

10.15 Sensaphone

10.16 Sensitech

10.17 Swisslog Holding

10.18 Testo SE & Co

10.19 Tive

10.20 Zebra Technologies

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