

Smart Post-Harvest Storage Solutions Market Forecasts to 2034 – Global Analysis By Component (Hardware, Software and Services), Storage Type, Monitoring Parameter, Technology, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Smart Post-Harvest Storage Solutions Market is accounted for \$6.8 billion in 2026 and is expected to reach \$18.4 billion by 2034 growing at a CAGR of 13.2% during the forecast period. Smart post-harvest storage solutions refer to hardware sensor systems, AI-powered software platforms, and managed monitoring services that optimize cold storage, warehouse storage, and controlled atmosphere storage facility management through real-time temperature, humidity, ethylene, and gas composition monitoring combined with AI predictive analytics for energy optimization, quality deterioration prediction, spoilage risk alerting, and automated climate control adjustment that extend produce shelf life, reduce food waste, optimize energy consumption, and maintain cold chain integrity throughout agricultural commodity post-harvest storage and distribution operations.

Market Dynamics:

Driver:

Food Waste Reduction Economic and Regulatory Imperative

Global food waste representing 30 percent of all food produced creating annual economic losses of over one trillion dollars combined with expanding food waste reduction regulatory requirements across EU, UK, and multiple national legislative frameworks is compelling post-harvest facility operators to invest in smart storage

optimization systems that demonstrably extend produce storage life, reduce quality deterioration losses, and document food waste reduction outcomes required for regulatory compliance reporting and corporate sustainability commitment fulfillment programs.

Restraint:**Cold Chain Facility Retrofit Complexity**

Smart storage monitoring system integration with diverse existing cold storage facility control architectures including legacy temperature controllers, proprietary refrigeration management systems, and heterogeneous building automation infrastructure creates substantial retrofit engineering complexity that increases deployment cost and timeline for brownfield cold storage facility upgrades compared to greenfield installations incorporating smart monitoring from initial design, limiting adoption pace among operators with extensive existing cold storage asset portfolios requiring costly infrastructure modernization.

Opportunity:**Pharmaceutical Cold Chain Premium Applications**

Pharmaceutical and vaccine cold chain storage management representing life-critical temperature excursion detection and regulatory compliance documentation requirements creates a premium smart storage monitoring market opportunity where monitoring system failure consequences justifying substantially higher investment per monitored asset than conventional produce storage, generating premium platform revenue from pharmaceutical cold chain customers whose regulatory compliance and product safety obligations mandate comprehensive validated continuous monitoring systems.

Threat:**IoT Data Overload Operational Management**

Smart cold storage sensor network data volumes overwhelming facility operator analytical capacity without AI-powered exception alert management and automated response systems creates implementation value realization failures where extensive sensor data generates limited operational improvement because monitoring information

is not effectively transformed into automated corrective actions or actionable management interventions within operationally meaningful timeframes for produce quality preservation.

Covid-19 Impact:

COVID-19 supply chain disruptions amplifying food system vulnerability and highlighting cold chain monitoring gaps that contributed to temperature excursion spoilage during pandemic logistics disruption periods generated post-pandemic cold chain modernization investment. Growing pharmaceutical cold chain regulatory scrutiny following COVID-19 vaccine distribution infrastructure development created institutional investment in precision cold chain monitoring. Post-pandemic food security investment, sustainable food system development, and food waste reduction regulatory pressure continue driving smart post-harvest storage market growth.

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

The services segment is expected to account for the largest market share during the forecast period, due to dominant cold storage and warehouse facility operator adoption of smart post-harvest monitoring through managed monitoring service subscriptions providing system installation, sensor maintenance, platform management, and 24/7 alert response services that cold chain operations requiring continuous monitoring without internal IoT infrastructure management capability depend on for reliable storage quality protection and food safety documentation compliance.

The cold storage segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the cold storage segment is predicted to witness the highest growth rate, driven by global cold storage capacity expansion driven by fresh produce trade growth, pharmaceutical cold chain expansion, and processed food distribution infrastructure investment creating large new smart monitoring installation opportunities, combined with existing cold storage asset modernization programs incorporating AI-powered temperature management optimization generating measurable energy cost reduction and produce quality extension outcomes that justify monitoring system investment through operational cost savings.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share, due to the United States hosting extensive cold storage infrastructure serving the world's largest fresh produce, frozen food, and pharmaceutical distribution markets with leading smart storage solution providers including Carrier Global, Emerson Electric, and AgroFresh Solutions generating substantial domestic revenue from commercial cold chain operator customer relationships across food and pharmaceutical sector verticals.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, due to rapidly expanding cold chain infrastructure investment in India, China, and Southeast Asian markets driven by growing fresh produce consumption and food safety regulation enforcement, government cold chain modernization programs enabling smart monitoring adoption, and large new cold storage facility construction incorporating smart monitoring from design inception providing the fastest growing installation market for smart post-harvest storage solution vendors globally.

Key players in the market

Some of the key players in Smart Post-Harvest Storage Solutions Market include Carrier Global, Daikin Industries, Johnson Controls, Emerson Electric, Danfoss, Lineage Logistics, Americold Realty Trust, AgroFresh Solutions, BayWa AG, Trimble Inc., IBM Corporation, Microsoft Corporation, Zebra Technologies, SAP SE, Honeywell International, Siemens AG, and Schneider Electric.

Key Developments:

In April 2026, AgroFresh Solutions launched a new AI-powered apple and pear controlled atmosphere storage optimization platform combining ethylene monitoring with predictive quality modeling for automated CA management extending storage season by 30 to 45 days versus conventional protocols.

In March 2026, Emerson Electric introduced an integrated cold chain monitoring cloud platform providing real-time multi-site cold storage temperature analytics with AI predictive maintenance for refrigeration system failure prevention across distributed facility networks.

In December 2025, Lineage Logistics deployed AI-powered automated temperature

optimization software across its 400 global cold storage facilities achieving 15 percent energy consumption reduction while maintaining superior produce quality maintenance metrics.

Components Covered:

Hardware

Software

Services

Storage Types Covered:

Cold Storage

Warehouse Storage

Controlled Atmosphere Storage

Monitoring Parameters Covered:

Temperature Monitoring

Humidity Monitoring

Gas Composition Monitoring

Pest & Mold Detection

Technologies Covered:

IoT-Based Monitoring Systems

AI-Based Storage Optimization

Blockchain-Based Traceability

Smart Sensors

Applications Covered:

Fruits & Vegetables

Grains

Dairy Products

Meat & Seafood

End Users Covered:

Farmers

Food Processing Companies

Logistics Providers

Retailers

Regions Covered:

North America

United States

Canada

Mexico

Europe

United Kingdom

Germany

France

Italy

Spain

Netherlands

Belgium

Sweden

Switzerland

Poland

Rest of Europe

Asia Pacific

China

Japan

India

South Korea

Australia

Indonesia

Thailand

Malaysia

Singapore

Vietnam

Rest of Asia Pacific

South America

Brazil

Argentina

Colombia

Chile

Peru

Rest of South America

Rest of the World (RoW)

Middle East

Saudi Arabia

United Arab Emirates

Qatar

Israel

Rest of Middle East

Africa

South Africa

Egypt

Morocco

Rest of 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 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- 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:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

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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