

Circular Inventory Optimization Market Forecasts to 2034 – Global Analysis By Optimization Type (Demand Forecasting, Safety Stock Optimization, Inventory Rebalancing, Excess Inventory Optimization, Spare Parts Optimization and Other Optimization Types), Inventory Type, Circular Strategy, Deployment, End User, and Geography

<https://marketpublishers.com/r/C51C39874D1BEN.html>

Date: August 2026

Pages: 200

Price: US\$ 4,150.00 (Single User License)

ID: C51C39874D1BEN

Abstracts

According to Statistics MRC, the Global Circular Inventory Optimization Market is accounted for \$0.65 billion in 2026 and is expected to reach \$2.00 billion by 2034 growing at a CAGR of 15.1% during the forecast period. Circular inventory optimization refers to digital technologies that optimize inventory levels and material utilization across forward and reverse supply chains while incorporating reuse, refurbishment, repair, resale, and recycling opportunities. These solutions use artificial intelligence, predictive analytics, demand forecasting, inventory tracking, and lifecycle data to determine when materials and products should be reused, redeployed, refurbished, or replenished. Circular inventory optimization reduces excess inventory, material waste, storage costs, and unnecessary procurement while improving asset utilization. Growing adoption of circular supply chains and increasing focus on resource efficiency are driving the global demand for circular inventory optimization solutions.

Market Dynamics:

Driver:

Rising inventory waste reduction initiatives

Circular inventory optimization platforms help organizations reduce excess stock, improve reuse, and extend the productive life of inventory. Businesses are increasingly looking for ways to redirect excess inventory instead of sending usable products to disposal. Digital inventory tools can identify items suitable for reuse, refurbishment, resale, or redistribution. These approaches can reduce storage costs while improving material utilization. Growing circular economy commitments are also encouraging companies to integrate waste reduction into inventory planning. These factors are supporting wider adoption of circular inventory optimization solutions.

Restraint:

Complex reverse inventory management

Companies often need to track materials across multiple locations before determining their next use. Inconsistent product conditions can also make it difficult to establish accurate inventory values. Manual inspection and classification may increase processing time and operational costs. Organizations with fragmented inventory systems can face additional challenges when connecting forward and reverse flows. Limited visibility across secondary inventory channels can further reduce optimization efficiency. These complexities may slow the implementation of circular inventory management systems.

Opportunity:

AI-powered reuse inventory forecasting

Artificial intelligence can analyze historical inventory patterns, product conditions, return rates, and demand signals to identify potential reuse opportunities. Predictive models can help businesses determine when surplus inventory is likely to become valuable in another application. AI can also recommend redistribution between facilities based on expected demand and inventory availability. Automated forecasting may reduce unnecessary disposal and improve utilization of recovered materials. Integration with procurement and warehouse management systems can further strengthen decision-making. These capabilities are expected to increase demand for intelligent circular inventory optimization solutions.

Threat:

Fluctuating secondary material demand

Demand for recovered components and materials can change according to commodity prices, manufacturing activity, and consumer demand. When secondary markets weaken, companies may face higher storage costs for recovered inventory. Uncertain resale values can also make it difficult to determine the most profitable recovery strategy. Businesses may therefore hesitate to invest heavily in recovery systems when downstream demand is unpredictable. Stronger digital marketplaces and demand forecasting can help reduce some of these risks. However, market volatility remains an important threat to circular inventory programs.

Covid-19 Impact:

The COVID-19 pandemic disrupted inventory planning and created significant uncertainty across global supply chains. Changes in consumer demand caused shortages of some products while leaving other inventories underutilized. Supply chain disruptions encouraged companies to improve visibility into excess, returned, and slow-moving inventory. Businesses also became more interested in flexible inventory strategies that could reduce waste during periods of demand volatility. Digital inventory management tools gained importance as organizations sought to coordinate distributed warehouses and suppliers remotely. The recovery period further encouraged companies to strengthen supply chain resilience and resource efficiency.

The demand forecasting segment is expected to be the largest during the forecast period

The demand forecasting segment is expected to account for the largest market share during the forecast period as accurate demand visibility helps organizations prevent excess and obsolete inventory. Forecasting tools allow businesses to align procurement and production with expected consumption. Better demand estimates can reduce unnecessary stock accumulation and associated storage costs. These platforms can also identify opportunities to redistribute inventory before products become obsolete. Integration with sales, procurement, and warehouse data improves the accuracy of inventory planning. Growing pressure to reduce material waste is further strengthening the importance of predictive inventory management.

The recovered materials segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the recovered materials segment is predicted to witness the

highest growth rate due to increasing efforts to extract value from surplus and end-of-use inventory. Companies are seeking alternatives to disposing of materials that can still be reused or processed. Digital platforms can help organizations identify recovered materials and match them with potential internal or external demand. Rising raw material costs are also encouraging businesses to maximize the value of existing resources. Improvements in sorting, grading, and material tracking technologies are making recovery processes more efficient. Circular economy strategies are further encouraging companies to incorporate recovered materials into production cycles.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share owing to strong enterprise technology adoption and growing investment in circular supply chain practices. The United States represents the leading market, supported by advanced warehouse management systems and established secondary inventory channels. Canada is also increasing its focus on resource efficiency and sustainable supply chain management. Large retailers, manufacturers, and logistics companies are investing in digital tools to reduce surplus and obsolete inventory. The region's mature technology ecosystem supports integration between inventory optimization, procurement, and reverse logistics platforms.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR driven by rapid manufacturing expansion and increasing focus on resource-efficient supply chains. China is strengthening circular manufacturing practices while expanding digital inventory management across industrial sectors. India is witnessing growing adoption of supply chain technologies as manufacturers and retailers seek to reduce inventory losses. Japan continues to emphasize lean inventory management and efficient resource utilization across production networks. South Korea is also investing in advanced digital supply chain technologies and automated inventory systems. Rising e-commerce activity is generating additional volumes of surplus, returned, and reusable inventory.

Key players in the market

Some of the key players in Circular Inventory Optimization Market include SAP SE, Oracle Corporation, IBM Corporation, Microsoft Corporation, Blue Yonder Group, Inc., Kinaxis Inc., Manhattan Associates, Inc., E2open Parent Holdings, Inc., ToolsGroup,

Anaplan, Inc., RELEX Solutions, Luminate Worldwide, Inc., Flowlity, Inventory Planner and Netstock.

Key Developments:

In May 2026, Microsoft Corporation launched circular supply chain features within Dynamics 365 Supply Chain Management, embedding automated return-stream routing and sustainable stock optimization. The cloud-native update leverages Azure AI to evaluate the economic and carbon impact of restocking versus recycling inventory. This expansion supports enterprise zero-waste goals by preventing premature product write-offs.

In March 2026, SAP SE integrated advanced circular inventory analytics into its SAP Integrated Business Planning (IBP) suite to help enterprises reduce raw material waste and track re-usable stock assets. The software updates deliver real-time visibility into reverse logistics, enabling closed-loop material flows and remanufacturing operations. This launch aligns with global corporate compliance frameworks for sustainable supply chain management.

In January 2026, Oracle Corporation upgraded Oracle Fusion Cloud Supply Chain & Manufacturing (SCM) with specialized circular inventory optimization tools. The enhancement features dynamic lifecycle forecasting and reverse inventory tracking algorithms that manage returned, refurbished, and recycled goods across multi-echelon networks.

Optimization Types Covered:

Demand Forecasting

Safety Stock Optimization

Inventory Rebalancing

Excess Inventory Optimization

Spare Parts Optimization

Other Optimization Types

Inventory Types Covered:

Raw Materials

Work-in-Process

Finished Goods

Spare Parts

Recovered Materials

Other Inventory Types

Circular Strategies Covered:

Reuse Planning

Refurbishment Planning

Remanufacturing Planning

Recovery Planning

Redistribution Planning

Other Circular Strategies

Deployments Covered:

Cloud-Based

On-Premise

End Users Covered:

Manufacturers

Retailers

Distributors

Logistics Providers

Aftermarket Service Providers

Recycling Companies

Other End Users

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

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