

Predictive Analytics And Maintenance In Supply Chain Market ? Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Component (Solutions, Services (Managed Services, Professional Services)) By Deployment (On-Premises, Cloud) By Application (Inventory Management, Predictive Maintenance, Predictive Route Planning, Demand Forecasting, Others) By Organization Size (Large Enterprises, SMEs) By End-Use Industry (Retail, Manufacturing, Aviation, Healthcare, Energy and Power, Others) By Region & Competition, 2021-2031F

<https://marketpublishers.com/r/PBF600B41CFFEN.html>

Date: January 2026

Pages: 185

Price: US\$ 4,500.00 (Single User License)

ID: PBF600B41CFFEN

Abstracts

The Global Predictive Analytics And Maintenance In Supply Chain Market is projected to experience substantial growth, expanding from USD 11.79 Billion in 2025 to USD 48.34 Billion by 2031, representing a Compound Annual Growth Rate (CAGR) of 26.51%. This sector leverages historical data, machine learning algorithms, and statistical modeling to forecast equipment malfunctions and refine maintenance timelines before operational interruptions occur. The market is primarily driven by the critical need to reduce unplanned downtime, which severely impacts profit margins, and the necessity of extending the operational life of high-value assets. Consequently, organizations are actively directing capital toward these efficiencies; as highlighted in the '2025 MHI Annual Industry Report', 55% of supply chain leaders indicated in 2025 that they are increasing investments in technology and innovation to enhance operational resilience.

However, a major obstacle hindering broader market expansion is the challenge of merging modern analytical tools with aging legacy infrastructure. Many supply chain networks depend on fragmented data silos that obstruct the seamless aggregation of information needed for precise modeling. This technical barrier complicates the implementation process and delays the realization of return on investment, causing some enterprises to hesitate in adopting comprehensive predictive maintenance solutions despite their clear benefits. As a result, the difficulty of overcoming these infrastructural disparities remains a significant friction point for widespread adoption within the industry.

Market Driver

The rapid proliferation of Industrial IoT and connected devices acts as the primary technical catalyst for the Global Predictive Analytics And Maintenance In Supply Chain Market. By embedding networked sensors throughout logistics infrastructure and production assets, organizations generate the continuous, granular data streams necessary to identify early warning signs of equipment failure. This extensive connectivity converts static supply chains into responsive digital ecosystems, enabling operators to monitor asset health in real-time rather than depending on scheduled manual inspections. According to Rockwell Automation's '9th Annual State of Smart Manufacturing Report' from March 2024, 95% of manufacturers are now using or evaluating smart manufacturing technology, establishing the essential digital foundation for robust predictive maintenance strategies.

In parallel, the increasing integration of Artificial Intelligence and Machine Learning serves as the intelligence engine that processes this influx of data to optimize maintenance schedules. These algorithms analyze historical performance and real-time telemetry to predict breakdowns before they disrupt operations, significantly mitigating the financial impact of idle machinery. Highlighting this trend, Zebra Technologies' '2024 Manufacturing Vision Study' from June 2024 reveals that 61% of manufacturing leaders globally expect AI to drive growth by 2029. This adoption is further accelerated by resource constraints; the Descartes Systems Group reported in 2024 that 76% of supply chain and logistics leaders faced notable workforce shortages, compelling enterprises to rely on automated predictive tools to maintain operational continuity with fewer personnel.

Market Challenge

The difficulty of integrating modern analytical tools with outdated legacy infrastructure

serves as a primary restraint on the Global Predictive Analytics And Maintenance In Supply Chain Market. Advanced predictive models require high-quality, centralized data to accurately forecast equipment failures and optimize schedules. However, a significant portion of the industry continues to operate on fragmented, manual systems that create deep data silos, making seamless information flow nearly impossible. This disconnection forces organizations to expend excessive resources on data retrieval and cleaning rather than analysis, thereby neutralizing the efficiency gains that predictive maintenance promises to deliver.

According to the Institute for Supply Management's (ISM) '2024 Data and Analytics Survey', 92% of supply management organizations in 2024 reported utilizing Excel "always or very often" as their primary data tool, while 32% of respondents indicated they spend at least 21% of their operational time simply locating data. Such entrenched reliance on non-integrated, manual tools complicates the deployment of automated predictive solutions. Consequently, many enterprises are forced to delay adoption due to the sheer complexity involved in modernizing their foundational data architecture to support advanced analytics.

Market Trends

The integration of Generative AI and Advanced Machine Learning is fundamentally transforming how maintenance teams interact with data and execute repairs. While traditional predictive models merely flag anomalies, generative AI functions as an intelligent co-pilot, capable of synthesizing vast amounts of technical documentation to generate instant, step-by-step repair guides and troubleshoot complex issues via natural language prompts. This shift democratizes technical expertise, allowing less experienced technicians to perform high-level maintenance tasks and significantly accelerating the time-to-resolution for equipment faults. According to Rockwell Automation's '10th Annual State of Smart Manufacturing Report' from June 2025, the number of organizations investing in generative and causal AI increased by 12% year-over-year, marking a decisive shift from experimental pilots to scalable deployments.

Simultaneously, the focus on sustainability and green supply chain analytics is reshaping market priorities by leveraging predictive insights to meet rigorous environmental, social, and governance (ESG) standards. Organizations are increasingly deploying analytics not just to prevent downtime, but to optimize the energy consumption of aging assets and extend their operational life, thereby reducing the carbon footprint associated with manufacturing new spare parts and machinery. This "green maintenance" approach transforms asset management into a critical component

of corporate decarbonization strategies. According to the '2025 MHI Annual Industry Report' released in March 2025, 44% of supply chain professionals identified environmental concerns and sustainability initiatives as the most significant trend impacting their operational strategies.

Key Market Players

international Business Machines Corporation

Microsoft Corporation

SAP SE

General Electric Company

Schneider Electric SE

Google LLC

Oracle Corporation

Hewlett Packard Enterprise Co.

SAS Institute Inc.

TIBCO Software Inc.

Siemens AG

Robert Bosch GmbH

Cisco Systems, Inc.

Dell, Inc.

Intel Corporation

Report Scope

Predictive Analytics And Maintenance In Supply Chain Market ? Global Industry Size, Share, Trends, Opportunity...

In this report, the Global Predictive Analytics And Maintenance In Supply Chain Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Predictive Analytics And Maintenance In Supply Chain Market, By Component

Solutions

Services (Managed Services

Professional Services)

Predictive Analytics And Maintenance In Supply Chain Market, By Deployment

On-Premises

Cloud

Predictive Analytics And Maintenance In Supply Chain Market, By Application

Inventory Management

Predictive Maintenance

Predictive Route Planning

Demand Forecasting

Others

Predictive Analytics And Maintenance In Supply Chain Market, By Organization Size

Large Enterprises

SMEs

Predictive Analytics And Maintenance In Supply Chain Market, By End-Use

Industry

Retail

Manufacturing

Aviation

Healthcare

Energy and Power

Others

Predictive Analytics And Maintenance In Supply Chain Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Predictive Analytics And Maintenance In Supply Chain Market.

Available Customizations:

Global Predictive Analytics And Maintenance In Supply Chain Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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