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Global AI-based Predictive Maintenance Market Size Study, by Component (Solution, Service), Monitoring Technique (Torque Monitoring, Vibration Monitoring, Oil Analysis, Thermography, Corrosion Monitoring, Others), by Deployment (On-Premises, Cloud-based), by Enterprises Type (Large Enterprises, SEMs), Application (Condition Monitoring, Predictive Analytics, Remote Monitoring, Asset Tracking, Maintenance Scheduling) and Regional Forecasts 2025-2032

https://marketpublishers.com/r/GD16D1136E01EN.html
Date: February 2026
Pages: 285
Price: US$ 3,750.00 (Single User License)
ID: GD16D1136E01EN

Abstracts

The Global AI-based Predictive Maintenance Market was valued at approximately USD 12.94 billion in 2025 and is poised to expand at an exceptional pace, reaching nearly USD 177.83 billion by 2035, registering a robust CAGR of about 26.90% over the forecast period of 2025–2035. AI-based predictive maintenance refers to advanced, data-driven solutions that leverage artificial intelligence, machine learning, and advanced analytics to anticipate equipment failures before they occur, thereby enabling organizations to cut down unplanned downtime, extend asset lifecycles, and optimize maintenance schedules. As industries increasingly pivot toward Industry 4.0 and smart factory ecosystems, predictive maintenance platforms are being rolled out as mission-critical tools that translate raw operational data into actionable intelligence, driving both operational resilience and cost efficiency.

The accelerating pace of industrial automation, coupled with rising pressure to reduce operational expenditure, has significantly stepped up the demand for AI-powered

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predictive maintenance solutions. Manufacturing plants, energy utilities, transportation networks, and heavy industries are being compelled to move away from reactive and preventive maintenance models and lean into predictive strategies that proactively flag anomalies and degradation patterns. At the same time, the proliferation of IoT sensors, edge computing, and cloud-based analytics has widened the funnel for real-time condition monitoring. While high initial deployment costs and data integration complexities may slow adoption in certain regions, continuous advancements in AI algorithms and falling sensor prices are steadily ironing out these constraints, setting the stage for sustained long-term growth.

The detailed segments and sub-segments included in the report are:

By Component:

Solution

Service

By Monitoring Technique:

Torque Monitoring

Vibration Monitoring

Oil Analysis

Thermography

Corrosion Monitoring

Others

By Deployment:

On-Premises

Cloud-based

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By Enterprises Type:

- Large Enterprises
- SEMs

By Application:

- Condition Monitoring
- Predictive Analytics
- Remote Monitoring
- Asset Tracking
- Maintenance Scheduling

Among the various segments, vibration monitoring is expected to dominate the Global AI-based Predictive Maintenance Market during the forecast period. Vibration-based techniques are widely recognized for their effectiveness in detecting early-stage mechanical faults in rotating machinery, making them indispensable across manufacturing, automotive, and energy sectors. When augmented with AI models that continuously learn from historical and real-time data, vibration monitoring systems can forecast failures with remarkable accuracy. This capability has positioned the segment as a preferred choice for large-scale industrial operators seeking to scale predictive maintenance initiatives across diverse asset portfolios.

From a revenue contribution perspective, the solution segment currently commands the largest share of the market. AI-driven predictive maintenance solutions are increasingly being adopted as comprehensive platforms that bundle data ingestion, analytics, visualization, and decision support into a single ecosystem. Organizations favor these solutions as they offer long-term value through continuous performance optimization rather than one-off services. Although service offerings—such as consulting, system integration, and managed services—are gaining traction, particularly among first-time

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adopters, core solution platforms continue to anchor revenue generation due to recurring licensing and subscription-based models.

The market exhibits strong regional dynamics, with North America holding a leading position owing to early adoption of AI technologies, a well-established industrial base, and aggressive investments in digital transformation. Europe follows closely, supported by stringent efficiency standards, strong manufacturing heritage, and government-backed Industry 4.0 initiatives. Asia Pacific is projected to be the fastest-growing region over the forecast period, fueled by rapid industrialization, expanding manufacturing capacity, and growing awareness of cost-efficient asset management in countries such as China, Japan, and India. Meanwhile, Latin America and the Middle East & Africa are gradually catching up as infrastructure modernization and smart industrial investments gather momentum.

Major market players included in this report are:

Siemens AG

IBM Corporation

General Electric Company

Schneider Electric SE

Honeywell International Inc.

ABB Ltd.

Microsoft Corporation

SAP SE

Oracle Corporation

Bosch Rexroth AG

Emerson Electric Co.

Hitachi Ltd.

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Rockwell Automation, Inc.

Cisco Systems, Inc.

NVIDIA Corporation

Global AI-based Predictive Maintenance Market Report Scope:

Historical Data – 2023, 2025

Base Year for Estimation – 2025

Forecast period – 2025–2035

Report Coverage – Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Regional Scope – North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope – Free report customization (equivalent to up to 8 analysts' working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define the market size of different segments and countries in recent years and to forecast their values for the coming years. The report is designed to weave together both qualitative insights and quantitative analysis to deliver a comprehensive understanding of the industry landscape across the regions under consideration. It further sheds light on critical growth drivers, structural challenges, and emerging opportunities within micro-markets, while also mapping out the competitive environment and strategic positioning of leading players.

Key Takeaways:

Market estimates and forecasts spanning 2025 to 2035.

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Annualized revenue analysis at regional and segment levels.

In-depth geographical insights with country-level coverage.

Comprehensive competitive landscape and profiling of major players.

Strategic evaluation of business approaches and future growth pathways.

Balanced demand-side and supply-side assessment of the market.

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CHAPTER 11. COMPETITIVE INTELLIGENCE

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