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5G Industrial IoT Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Component (Hardware, Solutions, and Services), By End User (Process Industries and Discrete Industries), By Application (Predictive Maintenance, Business Process Optimization, Asset Tracking and Management, Logistics and Supply Chain Management, Real-Time Workforce Tracking and Management, Automation Control and Management, Emergency and Incident Management, and Business Communication), By Region & Competition, 2021-2031F

https://marketpublishers.com/r/57BE1ED29533EN.html
Date: May 2026
Pages: 182
Price: US$ 4,500.00 (Single User License)
ID: 57BE1ED29533EN

Abstracts

The Global 5G Industrial IoT Market is projected to expand substantially, growing from USD 7.39 Billion in 2025 to USD 21.95 Billion by 2031, demonstrating a robust CAGR of 19.89%. This market involves integrating 5G cellular connectivity into industrial settings to enable highly reliable communication between automated systems and machinery. The primary factors fueling this growth include the increasing need for predictive maintenance to minimize operational downtime and the requirement for flexible production lines demanding high-bandwidth wireless capabilities. These drivers are distinct from broader digital trends, specifically targeting efficiency improvements in manufacturing processes and automation.

A major obstacle to rapid market expansion is the significant complexity and expense

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involved in deploying private network infrastructure alongside existing legacy equipment. Nonetheless, industrial dedication to this technology remains firm as businesses prioritize securing long-term operational resilience. In 2025, 1,907 organizations globally had deployed private mobile networks, with manufacturing being the leading sector, highlighting the industry's commitment to cellular connectivity for mission-critical applications.

Market Driver

The swift embrace of Industry 4.0 and smart manufacturing is fundamentally transforming industrial connectivity needs, requiring networks that can manage immense data volumes and provide ultra-low latency. As manufacturing facilities evolve from isolated automated systems to fully integrated ecosystems, the incorporation of advanced technologies like artificial intelligence and machine learning becomes crucial for optimizing production efficiency. This digital transformation fuels the demand for 5G Industrial IoT solutions, essential for real-time data processing in predictive maintenance and autonomous operations. A Rockwell Automation report from June 2025 indicated that 95% of manufacturers have invested or plan to invest in AI and machine learning within five years, underscoring the vital need for resilient connectivity infrastructure such as 5G to support these data-intensive applications.

Concurrently, the increasing deployment of private 5G networks acts as a significant catalyst, providing industrial enterprises with dedicated bandwidth, heightened security, and customized network performance superior to public infrastructures. These private networks enable facilities to avoid public grid congestion, ensuring the reliability critical for mission-critical control systems and robotics. The clear financial advantages of this technology are accelerating its adoption across various heavy industries. A Nokia report from September 2025 showed that 87% of businesses implementing on-premise edge and private networks achieve ROI within a single year. Additionally, Verizon Business reported a 350% increase in private 5G revenue in the previous year by July 2025, emphasizing the rapid commercial viability and market focus on these specialized industrial solutions.

Market Challenge

The primary obstacle hindering the expansion of the Global 5G Industrial IoT market is the inherent complexity and substantial cost of deploying private network infrastructure alongside existing legacy equipment. Many manufacturing plants utilize older machinery with incompatible communication standards, necessitating extensive and expensive

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retrofitting to enable interaction with advanced 5G networks. This integration process requires significant technical expertise and specialized bridging hardware, which substantially increases the total cost of ownership. Such financial and technical barriers often lead organizations to postpone full-scale implementation, favoring pilot programs that restrict immediate market revenue and slow the overall adoption rate.

These integration difficulties are compounded by the enormous scale of connectivity demanded in contemporary production settings. As companies strive to connect thousands of sensors and machines, managing and securing the network architecture becomes progressively more challenging. The GSMA reported that global IoT connections reached 25 billion in 2025, illustrating the immense operational complexity enterprises encounter when attempting to integrate new cellular connections with diverse legacy systems. This creates a challenging environment that often deters risk-averse industrial operators from pursuing comprehensive network upgrades.

Market Trends

A pivotal evolution in the market is the shift from Non-Standalone (NSA) to Standalone (SA) 5G architectures, which removes the performance bottlenecks associated with relying on legacy 4G cores. Unlike NSA, SA architectures inherently support network slicing, enabling operators to establish virtualized, isolated channels that guarantee quality of service for critical industrial operations. This transition is crucial for achieving the ultra-reliable, low-latency communications necessary for precise robotic control and safety systems. The commercial implementation of this technology is rapidly advancing; Ericsson reported in November 2025 that 65 network slicing cases have progressed beyond proof-of-concept to commercial services, driven by the increasing deployment of 5G SA cores. This maturing infrastructure signifies a clear move from experimental connectivity to scalable, dependable industrial networks.

Simultaneously, the integration of Multi-Access Edge Computing (MEC) with 5G is transforming data processing by bringing computation closer to the data source. Processing information locally, rather than sending it to centralized cloud systems, significantly reduces latency, a critical requirement for real-time applications such as digital twins and autonomous mobile robots. This architectural approach not only keeps sensitive operational data secure within the facility but also facilitates immediate automated responses to production anomalies. This trend has seen broad adoption; a Nokia report from September 2025 indicated that 94% of industrial enterprises surveyed have deployed on-premise edge technology alongside private wireless networks to support AI-driven use cases. This high rate of penetration confirms edge computing as

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an indispensable element of contemporary industrial connectivity strategies.

Key Market Players

China Mobile Limited

China United Network Communications Group Co. Ltd.

Vodafone Group plc

Advantech Co. Ltd.

ASOCS Ltd.

Intel Corporation

Bosch.IO GmbH

Deutsche Telekom AG

Thales Group

NTT DATA Corporation

Report Scope

In this report, the Global 5G Industrial IoT Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

5G Industrial IoT Market, By Component

Hardware

Solutions

Services

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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 5G

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Industrial IoT Market.

Available Customizations:

Global 5G Industrial IoT 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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