

# Private 5G Network Market Forecasts to 2034 – Global Analysis By Component (Hardware, Software, and Services), Spectrum, Frequency Band, Network Type, Application, End User and By Geography

<https://marketpublishers.com/r/P1518D1E0247EN.html>

Date: May 2026

Pages: 200

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

ID: P1518D1E0247EN

## Abstracts

According to Statistics MRC, the Global Private 5G Network Market is accounted for \$4.5 billion in 2026 and is expected to reach \$55.0 billion by 2034 growing at a CAGR of 36.5% during the forecast period. A Private 5G Network is a dedicated, localized cellular system that provides ultra-reliable, low-latency, and high-bandwidth connectivity exclusively for an enterprise or industrial campus. Unlike public networks, private 5G offers complete control over data routing, security policies, and quality of service. This technology enables mission-critical applications such as autonomous robotics, remote monitoring, and industrial automation. By ensuring seamless data flow without interference, private 5G enhances operational agility, supports real-time decision-making, and strengthens cybersecurity for sensitive enterprise operations.

### Market Dynamics:

#### Driver:

Rapid adoption of Industry 4.0

Modern factories require ultra-low latency and massive device connectivity to operate automated guided vehicles, collaborative robots, and real-time quality control systems. Traditional Wi-Fi and wired networks often suffer from interference, limited mobility, and security gaps. Private 5G delivers deterministic connectivity with sub-millisecond latency, allowing seamless coordination of thousands of sensors and actuators. This capability directly improves production line efficiency, reduces downtime, and enables

flexible reconfiguration of factory floors, driving strong demand across industrial sectors.

**Restraint:**

High initial capital expenditure and spectrum acquisition costs

Deploying a private 5G network requires investment in radio access network hardware, core network software, edge computing infrastructure, and specialized engineering skills. Additionally, enterprises must either purchase licensed spectrum or lease shared spectrum, which adds recurring expenses. For small and medium-sized businesses, these upfront costs can be prohibitive compared to Wi-Fi alternatives. The complexity of network planning and integration with legacy operational technology systems further increases total cost of ownership, slowing widespread adoption in price-sensitive markets.

**Opportunity:**

Expansion of greenfield industrial sites and

New manufacturing hubs, ports, airports, and energy facilities are being designed with digitalization as a core principle, allowing private 5G to be integrated from the ground up. This line-fit approach eliminates retrofitting challenges and optimizes network placement for coverage and capacity. Furthermore, government initiatives promoting industrial automation and spectrum sharing schemes, such as Citizens Broadband Radio Service, lower entry barriers. As more turnkey private 5G solutions become available, adoption across logistics, healthcare, and utilities will accelerate.

**Threat:**

Cybersecurity vulnerabilities associated with increased network

Private 5G networks connect thousands of IoT devices, sensors, and control systems, many of which have limited security hardening. A breach could allow malicious actors to disrupt production lines, manipulate sensor data, or cause physical damage to equipment. While 5G includes improved encryption and authentication, misconfigured edge nodes or unpatched software can create entry points. Enterprises without dedicated security teams may struggle to maintain continuous threat monitoring and incident response, making private networks a potential target for ransomware or

industrial espionage.

### **Covid-19 Impact:**

The COVID-19 pandemic initially delayed private 5G rollouts due to supply chain disruptions and restricted site access for installation engineers. However, the crisis also exposed the fragility of manual-dependent operations and centralized control rooms. Industries such as healthcare and logistics rapidly adopted private wireless to support social distancing and resilient supply chains. As a result, the pandemic acted as a catalyst, pushing enterprises to prioritize automated, remotely manageable networks for business continuity.

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

The hardware segment is expected to account for the largest market share during the forecast period, due to the essential requirement for physical infrastructure, including radio access network nodes, base stations, antennas, and core network servers. Enterprises cannot deploy private 5G without these tangible components, which represent the bulk of initial capital expenditure. The ongoing construction of smart factories and automated ports demands high-density hardware deployments to ensure seamless coverage and capacity, reinforcing the hardware segment's leading position.

The standalone private 5G network segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the standalone private 5G network segment is predicted to witness the highest growth rate. Standalone architecture utilizes a new 5G core and radio, unlocking advanced features like network slicing, ultra-low latency, and massive IoT connectivity. Unlike non-standalone versions that rely on existing LTE cores, standalone private 5G delivers true end-to-end performance for mission-critical applications such as autonomous crane control and telesurgery. As enterprises prioritize future-proof infrastructure, demand for standalone deployments is rapidly accelerating, making it the fastest-growing segment.

### **Region with largest share:**

During the forecast period, the North America region is expected to hold the largest market share, due to early adoption of industrial automation, substantial technology investments, and favorable spectrum policies like the Citizens Broadband Radio

Service. Major private 5G vendors and system integrators are headquartered in the United States, supporting large-scale deployments across manufacturing, defense, and logistics. Additionally, strong government funding for smart city initiatives and Industry 4.0 research accelerates market growth, solidifying North America's leadership position.

### **Region with highest CAGR:**

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR. Rapid industrialization in China, India, and Southeast Asia drives demand for smart factories and automated ports. Governments are actively allocating local 5G spectrum for private enterprise use and subsidizing digital transformation projects. The region also hosts major electronics and automotive production hubs, where private 5G enables flexible assembly lines and real-time quality control. Expanding 5G infrastructure investments and a growing base of technology-savvy manufacturers fuel this exceptional growth.

### **Key players in the market**

Some of the key players in Private 5G Network Market include Telefonaktiebolaget LM Ericsson, Nokia Corporation, Huawei Technologies Co., Ltd., Samsung Electronics Co., Ltd., ZTE Corporation, Cisco Systems, Inc., AT&T Inc., Verizon Communications Inc., Deutsche Telekom AG, Vodafone Group Plc, BT Group plc, Juniper Networks, Inc., Mavenir Systems, Inc., Altiostar, and Celona Inc.

### **Key Developments:**

In March 2026, Nokia announced the expansion of its Industrial 5G device portfolio, introducing seven new ruggedized routers and scanners designed for extreme temperatures and hazardous environments. The new devices integrate seamlessly with Nokia's Digital Automation Cloud, enabling mining and oil & gas operators to deploy private wireless connectivity without custom engineering.

In January 2026, Ericsson and Qualcomm completed the first live trial of 5G network slicing over a private cellular network at a automotive manufacturing plant in Germany. The trial demonstrated simultaneous operation of latency-critical robotic control and high-throughput video analytics on a single infrastructure, validating the commercial viability of dynamic resource allocation.

**Components Covered:**

Hardware

Software

Services

**Spectrum Covered:**

Licensed Spectrum

Shared Spectrum

Citizens Broadband Radio Service

Dynamic Spectrum Sharing

**Frequency Bands Covered:**

Sub-6 GHz

mmWave

Hybrid Spectrum

**Network Types Covered:**

Standalone Private 5G

Non-Standalone Private 5G

Private LTE

Network Slicing-based Private Networks

### Applications Covered:

Industrial IoT (IIoT)

Autonomous Robots / AGVs

Remote Monitoring & Maintenance

AR/VR & Smart Wearables

Asset Tracking & Logistics Optimization

Smart Surveillance

Mission-Critical Communications

### End Users Covered:

Manufacturing

Transportation & Logistics

Healthcare

Energy & Utilities

Mining

Retail

Government & Public Safety

Smart Cities

IT & Telecom

### Regions Covered:

## North America

US

Canada

Mexico

## Europe

Germany

UK

Italy

France

Spain

Rest of Europe

## Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

## South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & 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, 2029, 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

## Contents

### **1 EXECUTIVE SUMMARY**

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

### **2 RESEARCH FRAMEWORK**

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
  - 2.4.1 Data Collection (Primary and Secondary)
  - 2.4.2 Data Modeling and Estimation Techniques
  - 2.4.3 Data Validation and Triangulation
  - 2.4.4 Analytical and Forecasting Approach

### **3 MARKET DYNAMICS AND TREND ANALYSIS**

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

### **4 COMPETITIVE AND STRATEGIC ASSESSMENT**

- 4.1 Porter's Five Forces Analysis
  - 4.1.1 Supplier Bargaining Power
  - 4.1.2 Buyer Bargaining Power
  - 4.1.3 Threat of Substitutes
  - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

## **5 GLOBAL PRIVATE 5G NETWORK MARKET, BY COMPONENT**

- 5.1 Hardware
  - 5.1.1 Radio Access Network (RAN)
  - 5.1.2 Core Network
  - 5.1.3 Backhaul & Transport
  - 5.1.4 Antennas & Base Stations
- 5.2 Software
  - 5.2.1 Network Management Software
  - 5.2.2 Security Solutions
  - 5.2.3 Virtualization & Orchestration
- 5.3 Services
  - 5.3.1 Installation & Integration
  - 5.3.2 Data Services
  - 5.3.3 Support & Maintenance

## **6 GLOBAL PRIVATE 5G NETWORK MARKET, BY SPECTRUM**

- 6.1 Licensed Spectrum
- 6.2 Shared Spectrum
- 6.3 Citizens Broadband Radio Service
- 6.4 Dynamic Spectrum Sharing

## **7 GLOBAL PRIVATE 5G NETWORK MARKET, BY FREQUENCY BAND**

- 7.1 Sub-6 GHz
- 7.2 mmWave
- 7.3 Hybrid Spectrum

## **8 GLOBAL PRIVATE 5G NETWORK MARKET, BY NETWORK TYPE**

- 8.1 Standalone Private 5G
- 8.2 Non-Standalone Private 5G
- 8.3 Private LTE
- 8.4 Network Slicing-based Private Networks

## **9 GLOBAL PRIVATE 5G NETWORK MARKET, BY APPLICATION**

- 9.1 Industrial IoT (IIoT)
- 9.2 Autonomous Robots / AGVs
- 9.3 Remote Monitoring & Maintenance
- 9.4 AR/VR & Smart Wearables
- 9.5 Asset Tracking & Logistics Optimization
- 9.6 Smart Surveillance
- 9.7 Mission-Critical Communications

## **10 GLOBAL PRIVATE 5G NETWORK MARKET, BY END USER**

- 10.1 Manufacturing
- 10.2 Transportation & Logistics
- 10.3 Healthcare
- 10.4 Energy & Utilities
- 10.5 Mining
- 10.6 Retail
- 10.7 Government & Public Safety
- 10.8 Smart Cities
- 10.9 IT & Telecom

## **11 GLOBAL PRIVATE 5G NETWORK MARKET, BY GEOGRAPHY**

- 11.1 North America
  - 11.1.1 United States
  - 11.1.2 Canada
  - 11.1.3 Mexico
- 11.2 Europe
  - 11.2.1 United Kingdom
  - 11.2.2 Germany
  - 11.2.3 France
  - 11.2.4 Italy
  - 11.2.5 Spain
  - 11.2.6 Netherlands
  - 11.2.7 Belgium
  - 11.2.8 Sweden
  - 11.2.9 Switzerland

- 11.2.10 Poland
- 11.2.11 Rest of Europe
- 11.3 Asia Pacific
  - 11.3.1 China
  - 11.3.2 Japan
  - 11.3.3 India
  - 11.3.4 South Korea
  - 11.3.5 Australia
  - 11.3.6 Indonesia
  - 11.3.7 Thailand
  - 11.3.8 Malaysia
  - 11.3.9 Singapore
  - 11.3.10 Vietnam
  - 11.3.11 Rest of Asia Pacific
- 11.4 South America
  - 11.4.1 Brazil
  - 11.4.2 Argentina
  - 11.4.3 Colombia
  - 11.4.4 Chile
  - 11.4.5 Peru
  - 11.4.6 Rest of South America
- 11.5 Rest of the World (RoW)
  - 11.5.1 Middle East
    - 11.5.1.1 Saudi Arabia
    - 11.5.1.2 United Arab Emirates
    - 11.5.1.3 Qatar
    - 11.5.1.4 Israel
    - 11.5.1.5 Rest of Middle East
  - 11.5.2 Africa
    - 11.5.2.1 South Africa
    - 11.5.2.2 Egypt
    - 11.5.2.3 Morocco
    - 11.5.2.4 Rest of Africa

## **12 STRATEGIC MARKET INTELLIGENCE**

- 12.1 Industry Value Network and Supply Chain Assessment
- 12.2 White-Space and Opportunity Mapping
- 12.3 Product Evolution and Market Life Cycle Analysis

## 12.4 Channel, Distributor, and Go-to-Market Assessment

## **13 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES**

- 13.1 Mergers and Acquisitions
- 13.2 Partnerships, Alliances, and Joint Ventures
- 13.3 New Product Launches and Certifications
- 13.4 Capacity Expansion and Investments
- 13.5 Other Strategic Initiatives

## **14 COMPANY PROFILES**

- 14.1 Telefonaktiebolaget LM Ericsson
- 14.2 Nokia Corporation
- 14.3 Huawei Technologies Co., Ltd.
- 14.4 Samsung Electronics Co., Ltd.
- 14.5 ZTE Corporation
- 14.6 Cisco Systems, Inc.
- 14.7 AT&T Inc.
- 14.8 Verizon Communications Inc.
- 14.9 Deutsche Telekom AG
- 14.10 Vodafone Group Plc
- 14.11 BT Group plc
- 14.12 Juniper Networks, Inc.
- 14.13 Mavenir Systems, Inc.
- 14.14 Altiosstar
- 14.15 Celona Inc.

## List Of Tables

### LIST OF TABLES

Table 1 Global Private 5G Network Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Private 5G Network Market Outlook, By Component (2023-2034) (\$MN)

Table 3 Global Private 5G Network Market Outlook, By Hardware (2023-2034) (\$MN)

Table 4 Global Private 5G Network Market Outlook, By Radio Access Network (RAN) (2023-2034) (\$MN)

Table 5 Global Private 5G Network Market Outlook, By Core Network (2023-2034) (\$MN)

Table 6 Global Private 5G Network Market Outlook, By Backhaul & Transport (2023-2034) (\$MN)

Table 7 Global Private 5G Network Market Outlook, By Antennas & Base Stations (2023-2034) (\$MN)

Table 8 Global Private 5G Network Market Outlook, By Software (2023-2034) (\$MN)

Table 9 Global Private 5G Network Market Outlook, By Network Management Software (2023-2034) (\$MN)

Table 10 Global Private 5G Network Market Outlook, By Security Solutions (2023-2034) (\$MN)

Table 11 Global Private 5G Network Market Outlook, By Virtualization & Orchestration (2023-2034) (\$MN)

Table 12 Global Private 5G Network Market Outlook, By Services (2023-2034) (\$MN)

Table 13 Global Private 5G Network Market Outlook, By Installation & Integration (2023-2034) (\$MN)

Table 14 Global Private 5G Network Market Outlook, By Data Services (2023-2034) (\$MN)

Table 15 Global Private 5G Network Market Outlook, By Support & Maintenance (2023-2034) (\$MN)

Table 16 Global Private 5G Network Market Outlook, By Spectrum (2023-2034) (\$MN)

Table 17 Global Private 5G Network Market Outlook, By Licensed Spectrum (2023-2034) (\$MN)

Table 18 Global Private 5G Network Market Outlook, By Shared Spectrum (2023-2034) (\$MN)

Table 19 Global Private 5G Network Market Outlook, By Citizens Broadband Radio Service (2023-2034) (\$MN)

Table 20 Global Private 5G Network Market Outlook, By Dynamic Spectrum Sharing (2023-2034) (\$MN)

Table 21 Global Private 5G Network Market Outlook, By Frequency Band (2023-2034)

(\$MN)

Table 22 Global Private 5G Network Market Outlook, By Sub-6 GHz (2023-2034) (\$MN)

Table 23 Global Private 5G Network Market Outlook, By mmWave (2023-2034) (\$MN)

Table 24 Global Private 5G Network Market Outlook, By Hybrid Spectrum (2023-2034)

(\$MN)

Table 25 Global Private 5G Network Market Outlook, By Network Type (2023-2034)

(\$MN)

Table 26 Global Private 5G Network Market Outlook, By Standalone Private 5G (2023-2034) (\$MN)

Table 27 Global Private 5G Network Market Outlook, By Non-Standalone Private 5G (2023-2034) (\$MN)

Table 28 Global Private 5G Network Market Outlook, By Private LTE (2023-2034) (\$MN)

Table 29 Global Private 5G Network Market Outlook, By Network Slicing-based Private Networks (2023-2034) (\$MN)

Table 30 Global Private 5G Network Market Outlook, By Application (2023-2034) (\$MN)

Table 31 Global Private 5G Network Market Outlook, By Industrial IoT (IIoT) (2023-2034) (\$MN)

Table 32 Global Private 5G Network Market Outlook, By Autonomous Robots / AGVs (2023-2034) (\$MN)

Table 33 Global Private 5G Network Market Outlook, By Remote Monitoring & Maintenance (2023-2034) (\$MN)

Table 34 Global Private 5G Network Market Outlook, By AR/VR & Smart Wearables (2023-2034) (\$MN)

Table 35 Global Private 5G Network Market Outlook, By Asset Tracking & Logistics Optimization (2023-2034) (\$MN)

Table 36 Global Private 5G Network Market Outlook, By Smart Surveillance (2023-2034) (\$MN)

Table 37 Global Private 5G Network Market Outlook, By Mission-Critical Communications (2023-2034) (\$MN)

Table 38 Global Private 5G Network Market Outlook, By End User (2023-2034) (\$MN)

Table 39 Global Private 5G Network Market Outlook, By Manufacturing (2023-2034) (\$MN)

Table 40 Global Private 5G Network Market Outlook, By Transportation & Logistics (2023-2034) (\$MN)

Table 41 Global Private 5G Network Market Outlook, By Healthcare (2023-2034) (\$MN)

Table 42 Global Private 5G Network Market Outlook, By Energy & Utilities (2023-2034) (\$MN)

Table 43 Global Private 5G Network Market Outlook, By Mining (2023-2034) (\$MN)

Table 44 Global Private 5G Network Market Outlook, By Retail (2023-2034) (\$MN)

Table 45 Global Private 5G Network Market Outlook, By Government & Public Safety (2023-2034) (\$MN)

Table 46 Global Private 5G Network Market Outlook, By Smart Cities (2023-2034) (\$MN)

Table 47 Global Private 5G Network Market Outlook, By IT & Telecom (2023-2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) are also represented in the same manner as above.

## I would like to order

Product name: Private 5G Network Market Forecasts to 2034 – Global Analysis By Component (Hardware, Software, and Services), Spectrum, Frequency Band, Network Type, Application, End User and By Geography

Product link: <https://marketpublishers.com/r/P1518D1E0247EN.html>

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

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/P1518D1E0247EN.html>