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5G Infrastructure Market Assessment, By Component [Hardware, Software], By Operational Frequency [Sub-6GHz, mmWave], By Service Type [Ultra-reliable Low Latency Communications, Massive Machine Type Communications, Enhanced Mobile Broadband], By Network Architecture [Non-standalone Infrastructure, Standalone Infrastructure], By Industry [Telecommunication, Technology, Automotive, Healthcare, Energy & Utilities, Entertainment, Manufacturing, Others], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

Global 5G infrastructure market has experienced significant growth in recent years and is expected to maintain a strong pace of expansion in the coming years. With projected revenue of approximately USD 10.7 billion in 2022, the market is forecasted to reach a value of USD 36.1 billion by 2030, displaying a robust CAGR of 16.4% from 2023 to 2030.

5G infrastructure has various advantages, such as ultra-fast data rates, minimal latency, and expanded network capacity. It offers real-time communication and supports IoT and autonomous cars. 5G improves mobile experiences, automates businesses, and enables remote work and telemedicine. Its efficiency and dependability inspire innovation in a variety of industries.

The endless need for faster data speeds and reduced latency supports the growth of

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the 5G infrastructure market, allowing real-time applications. In addition, the proliferation of IoT devices and their communication requirements pushes 5G adoption. Finally, companies are leveraging 5G to allow automation and innovation, changing areas such as healthcare, manufacturing, and smart cities.

5G is an industry shift enabling automation and innovation across sectors. It enables remote patient monitoring, telemedicine, and real-time data interactions in healthcare to improve medical care. 5G enables smart factories with real-time monitoring and predictive maintenance, increasing production and efficiency. Smart cities use 5G for traffic control, IoT connection, and optimizing public services, making urban living more sustainable and comfortable. The global adoption of 5G continues to rise, with 922 million connections expected by Q3 2022 and 1.1 billion by the end of the year. North America has the most 5G connections, with 108 million, reaching 30% penetration. Expectations are for over 2 billion 5G connections in 2023, rising to 5.9 billion by 2027, indicating the fast expansion of 5G networks globally.

For instance, in February 2023, Viettel and Qualcomm set a new standard in 5G infrastructure when they unveiled 5G Distributed and Radio Units at MWC Barcelona 2023. These O-RAN compatible solutions run on Qualcomm platforms and provide energy efficiency, enhanced performance, and cost-effective network deployment for digital transformation. Trials are scheduled to begin in Q2 2023, with commercialization following in Q4 2023.

5G Data Traffic Surge Drives the Growth of Market

Increased data traffic is an important catalyst for the 5G infrastructure market. Traditional networks struggle to meet the ever-increasing data needs as smartphones, IoT devices, and data-hungry apps proliferate. The ultra-fast speeds and huge network capacity of 5G offer a solution to this problem. It supports present data traffic and prepares the path for new applications such as augmented reality, 4K video streaming, and cloud gaming. As data consumption grows, companies and consumers alike are becoming more reliant on 5G to offer smooth and uninterrupted connectivity, fueling the fast construction of 5G infrastructure.

For example, in February 2023, Cisco and NEC expanded their partnership to include 5G xHaul and private 5G. They intend to offer scalable 5G transport networks with greater automation and routed optical networking.

Industry 4.0 and Automation Fuel the Market

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The proliferation of 5G infrastructure is strongly connected to the rise of Industry 4.0 and automation. Industry 4.0 is a significant turning point in manufacturing as IoT devices, robots, and data analytics come together to build smart factories. These sophisticated technologies rely heavily on high-speed, low-latency communication, which is 5G enabled. Machines can connect in real-time with 5G, allowing remote monitoring, predictive maintenance, and flexible manufacturing processes. The convergence of automation is reshaping companies by increasing operating efficiency, decreasing downtime, and lowering costs. As a result, companies embrace the revolutionary potential of Industry 4.0 and automation technologies, leading to the demand for 5G infrastructure.

For example, in September 2023, during HUAWEI CONNECT 2023, Huawei's CEO unveiled Pangu models for multiple industries and the debut of Huawei Cloud Ascend AI Cloud Service, highlight efforts to boost cloud-powered AI across sectors.

Dominance of Standalone Infrastructure in the Market

Standalone 5G infrastructure is leading the market as it operates independently without relying on older 4G networks. This independence brings benefits like fast response times, faster data speeds, and increased reliability. It is especially useful for self-driving cars, advanced manufacturing, and augmented reality applications. Standalone 5G's ability to provide these advanced features makes it the top choice for industries at the forefront of technology, which is why it is leading the 5G infrastructure market.

For instance, in August 2023, Ericsson and TDC NET launched Denmark's first 5G Standalone (5G SA) network, which provides lower latency and improved efficiency while opening new opportunities for consumers and the industry.

North America Dominates 5G Infrastructure Market

North America's dominance in the 5G infrastructure market is supported by a multifaceted approach that includes robust spectrum allocation, supporting governmental regulations, and proactive industry actions. The region has allocated a significant spectrum across different frequency bands, ensuring adequate capacity and coverage for 5G services. The Federal Communications Commission (FCC) has played a critical role in modernizing laws, expediting infrastructure deployment, and allocating funds for 5G rollout, especially in rural areas. The favorable regulatory environment has spurred major investment and decreased deployment hurdles. Furthermore, North

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America's leading telecom carriers adopted 5G early, accelerating network rollout and stimulating innovation. This comprehensive plan has cemented North America's position as a worldwide leader in 5G infrastructure, drawing investments and propelling technological developments.

For instance, in March 2023, Nova, Marvell's first 1.6 Tbps PAM4 electro-optics platform, enables high-speed data transportation in cloud AI/ML and data center networks while lowering power and cost per bit.

Government Initiatives Acting as Catalyst for 5G Infrastructure Market

Government measures have aided in the growth of the 5G infrastructure market. These strategies include allocating spectrum resources for 5G services, encouraging investment-friendly regulatory conditions, and providing budgetary support for 5G rollout, especially in rural and underserved areas. Furthermore, governments have encouraged 5G technology research and development, cooperation with the commercial sector, and steps to safeguard national security in 5G networks. These collaborative initiatives provide a favorable environment for 5G deployment, fostering innovation, economic growth, and widespread acceptance of 5G technology.

For example, in February 2023, The FutureG & 5G Office and NTIA led the 2023 5G Challenge to encourage open 5G ecosystems and test Open RAN technology for future military base modernization. Participants were given cash and prizes, which helped to fund congressional mandates for increased interoperability in communication infrastructure upgrades.

Impact of COVID-19

Before COVID-19, the 5G infrastructure market saw rapid expansion, with increased expenditures, deployments, and technological advancements. The pandemic, on the other hand, provided both obstacles and opportunities. Initial disturbances in the global supply chain caused network rollout and equipment acquisition delays. Furthermore, economic uncertainty has caused several telecom operators to be cautious about spending. On the plus side, the pandemic highlighted the significance of resilient communication networks, speeding up the deployment of 5G for remote work, telemedicine, and e-learning. As a result, there has been a rebound in 5G infrastructure expenditures in the post-COVID-19 period, with governments and corporations recognizing its strategic importance for future resilience and digital transformation.

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Impact of Russia-Ukraine War

The Russia-Ukraine conflict substantially impacts the global 5G infrastructure market. Satellite operators, such as SES, had difficulties due to the disagreement in freeing up midband C-band spectrum for 5G in the United States. SES had to change its satellite transportation plans away from Ukrainian Antonov AN-124 aircraft, which impacted its satellite launch timetable. Consequently, it hampered the implementation of 5G services to rely on the C-band spectrum, including those provided by major carriers such as Verizon and AT&T. Furthermore, ongoing legal challenges and additional payments between operators like SES and Intelsat complicated the situation, potentially hindering market advancement.

Key Players Landscape and Outlook

Key 5G infrastructure market players include Huawei Technologies, Qualcomm, Nokia, Cisco Systems, and MediaTek. They compete fiercely in supplying cutting-edge solutions spanning network equipment and chipsets. The market forecast remains positive as global 5G adoption accelerates. The demand for high-speed connectivity, IoT developments, and low-latency services continues to drive market growth. With 5G becoming more prevalent in healthcare, automotive, and smart cities, these important companies are well-positioned to capitalize on the rising prospects, assuring their continued importance in the evolving 5G infrastructure market.

In September 2023, Qualcomm and Jaguar Land Rover collaborated to deliver 5G connectivity and safety to the next Jaguar Land Rover cars. The Snapdragon Auto 5G Modem-RF will power in-vehicle experiences, data exchange, and sophisticated services.

In May 2023, MediaTek collaborated with NVIDIA to provide powerful artificial intelligence (AI), connectivity, and processing capabilities for next-generation smart car cabins. They want to provide entire in-vehicle AI solutions for software-defined vehicles, leveraging their technological expertise to develop appealing solutions for connected automobiles.

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