

5G Network Densification Market by Location (Indoor & Outdoor), Spectrum Band, Small Cells and Carrier WiFi 2021 – 2026

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Abstracts

OVERVIEW

This 5G network densification report evaluates the market for small cells and WiFi to support cellular wireless communications. It provides market analysis and forecasts for the technologies, solutions, and infrastructure to support increasingly denser 5G networks. The report provides analysis and forecasts for 2021 through 2026.

Analysis includes consideration of outdoor deployments in a variety of form factors and locations as well as indoor deployment and extension of radio signals from outdoor-to-indoor. The latter is particularly important with 5G new radio, which leverages the millimeter wave (mmWave) spectrum band. Solutions from leading vendors such as Pivotal Commware will facilitate seamless 5G communications for indoor environments that otherwise may not receive a 5GNR mmWave signal.

SELECT REPORT FINDINGS:

Global small cell will reach \$5.7 billion by 2026, driven by outdoor densification and indoor penetration solutions

Global carrier WiFi will reach \$4.2 billion by 2026 with Asia Pac leading followed by North America and Europe, driven in part by WiFi6 upgrades

Increasing demand for enhanced mobile broadband capacity and coverage will continue to play a substantial role in carrier WiFi and small cell market's growth

5G will bring about fundamental structural economic changes, such as significantly lower broadband pricing as a whole, and also much greater flexibility for enterprise, industrial, and government market segments in terms of how they connect public to private networks.

A Heterogeneous Network (HetNet) that is based on a combination of cellular small cells, macro cells and carrier Wi-Fi is expected to play a pivotal role in addressing the capacity needs for such a traffic surge in the mobile networks. HetNets are important drivers for the evolution of LTE and critical for 5G networks, which rely upon a greater number of shorter-range radio units for continuous communications.

Physics dictates that higher frequencies need more power and/or more coverage as an RF signal fades more than a lower frequency signal. This is why there will need to be at least an order of magnitude more antennas than required for LTE. Putting this into perspective, the United States will go from roughly 30,000 antennas to 300,000 or more nationally.

5G antennas will be found virtually everywhere in metropolitan areas, but it will not be enough. While dramatically increased coverage will surely support many early 5G applications, such as fixed wireless (ISP alternative, back-haul, and front haul), it will not be enough to support continuous 5G mobility coverage. This will be vitally important for certain applications such as self-driving cars and connected vehicle services.

In terms of deploying radio access network infrastructure, carriers seek to leverage cloud RAN topologies that include centralization of baseband processing units (BBU) that may server multiple remote radio heads. This facilitates control of BBU for many different sites on a remote basis. This type of 5G densification strategy optimizes resource utilization and provides various operational improvements such as the ability to upgrade BBUs for different sites without the need to dispatch personnel to each site.

Driven by the growing surge for mobile broadband, carriers worldwide are investing in WiFi and small cells as part of HetNet infrastructure to expand network capacity and coverage. Not only do WiFi and small cell deployments minimize network planning, redesign and real estate costs, they also allow carriers to avoid or minimize new frequency allocation costs. In many cases, small cells can utilize the same frequency spectrum that carriers have allocated for macro cell deployment, while WiFi access points leverage unlicensed spectrum.

The associated savings in both capital expenditures and operational expenses,

combined with higher throughput rates, make WiFi and small cells a necessity for mobile network operators worldwide. Mind commerce expects the carrier WiFi and small cells infrastructure market will grow at a brisk rate over the next ten years. However, the market still faces a number of serious challenges including but not limited to interference management, optimization and backhaul.

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