

Operators currently play a limited role in the nascent but growing private LTE/5G networks market

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The private LTE/5G market is nascent: detailed information is only available for 101 private LTE/5G networks as of 3Q 2020 (see Analysys Mason's *Private LTE/5G networks tracker*).¹ However, the market is growing rapidly. Indeed, 62 of the 101 networks were announced after January 2019, and 17 of these 62 were announced in 2Q/3Q 2020.

Operators are currently playing a limited role in the market, and as such, they may be missing out on revenue growth opportunities. Only 29 of the 101 networks have operator involvement (according to the publicly available data); most deployments are led by vendors. Many operators have not even entered the market.

Most private networks are still using LTE, despite the common association with 5G. Only 17 of the 101 networks use 5G, though several LTE networks are described as '5G-ready'. The shift to 5G may create opportunities for operators, but they must act quickly to take advantage.

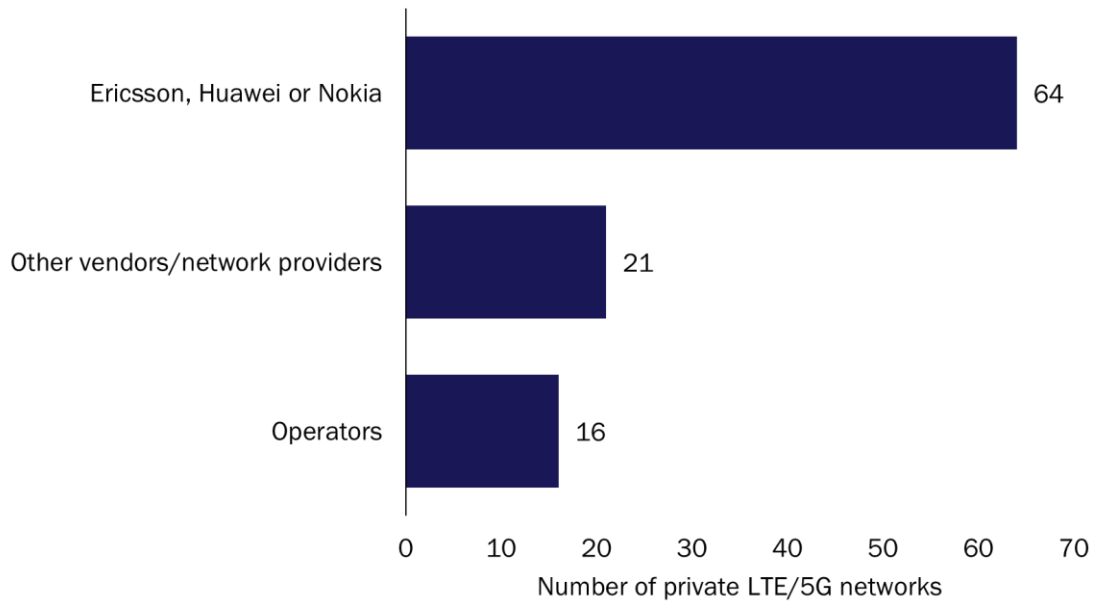
Operators are seldom the main contractors in private LTE/5G network deployments

Operators are the main contractors in just 16 of the 101 networks in our tracker (Figure 1). Operators provide the networks (and licensed spectrum) for these projects, and may also supply services such as network planning, network management and hardware support. However, operators play little or no role in the other private LTE/5G networks, which are instead predominately led by established vendors (notably Ericsson, Nokia and Huawei). Operator involvement in these networks is typically limited to spectrum provision. Some private networks shut out operators completely because they use unlicensed spectrum or spectrum awarded for use by non-operators (for example, in Germany and Japan). Fujitsu's 5G smart factory is a good example of this: it will use spectrum in the 28.2–28.3GHz band that was awarded to Fujitsu by the Japanese government (Fujitsu has not disclosed if any partners are involved in the deployment).²

¹ Other networks are operational/under contract, but information (for example, on suppliers and spectrum) is not public.

² Fujitsu (2020), *Fujitsu Launches Japan's First Commercial Private 5G Network*. Available at: <https://www.fujitsu.com/global/about/resources/news/press-releases/2020/0327-01.html>.

Figure 1: Main contractors in publicly disclosed private LTE/5G networks, 3Q 2020³



Source: Analysys Mason, 2020

Operators are trying to play a greater role in private networks, either by reselling complete solutions from vendors or by building a more unique proposition on top of components supplied by vendors. Telenor Sweden is taking the former approach: it partnered with Ericsson in February 2020 to resell Ericsson’s private LTE/5G solution for factories and warehouses. It will offer Ericsson’s solution to Telenor’s customers with the option to use either Telenor’s licensed spectrum or unlicensed spectrum.⁴

Smart factories and transport hubs are the most popular use cases

The manufacturing sector currently accounts for the majority of private networks (Figure 2). This includes deployments in smart factories for automotive firms such as BMW, Toyota and Ford. The manufacturing sector is also leading in terms of the deployment of 5G private networks: 12 of the 17 5G private networks in our tracker are in the manufacturing sector.

Figure 2: Private LTE/5G networks by sector, 3Q 2020

Sector	Number of networks	Sub-sectors	Use cases
Manufacturing	25	Automotive and industrial	Automated guided vehicles (AGVs), heavy equipment and machine tools
Transport	23	Airports, ports and railways	AGVs, asset tracking and voice/video communications

³ The “Ericsson, Huawei or Nokia” category includes deployments by TD Tech, a joint venture between Nokia and Huawei.

⁴ Ericsson (2020), *Telenor Sweden accelerates Industry 4.0 with Ericsson Industry Connect*. Available at: <https://www.ericsson.com/en/press-releases/2020/2/telenor-sweden-accelerates-industry-4.0-with-ericsson-industry-connect>.

Sector	Number of networks	Sub-sectors	Use cases
Mining and oil and gas	20	None	Heavy equipment, machine tools and voice/video communications
Public sector	15	Education, government and smart cities	Drones, security cameras and voice/video communications
Utilities	10	None	Smart grid
Other	8	Agriculture, entertainment and retail and healthcare	Irrigation sensors, voice/video communications and healthcare devices

Source: Analysys Mason, 2020

Private networks are also being used in the transport sector in ports and airports. These private networks are being used for real-time asset tracking and connecting autonomous vehicles and drones. Airports are also using private networks to connect the devices of airport staff and provide voice and video communications. Groupe ADP and Air France is a good example of this: it selected Ericsson to deploy a private LTE network across three airports in Paris.⁵ Ericsson states that the network will serve more than 120 000 employees.

Western Europe, China and North America are dominating the private networks market

Most private LTE/5G networks are in high-income countries, plus China. These countries have the most advanced IoT markets in general, but the local presence of the large network vendors (Ericsson and Nokia in Western Europe, and Huawei in China) may also be driving adoption in these regions.

Western Europe has the most deployments of any geographical region (37), China has 23 and North America has 20. There appears to be limited private networks activity elsewhere: our tracker captures details of just 21 networks in the rest of the world.

Operators will face increasing competition in the private networks market

An operator is named as a partner in only 1 of the 12 USA-based private networks in our tracker: that of energy firm Phillips 66 (AT&T is providing the spectrum and Accenture is installing the network).⁶ CBRS has opened up the US private LTE/5G networks market to new entrants through the provision of commercially available spectrum.⁷ It is being used for a wide range of use cases including sports venues, shopping malls and schools. Many private network suppliers (such as Athonet and Connectivity Wireless) are using CBRS, which may undermine the ability of US operators to offer their own spectrum.

Regulators in other countries are allowing enterprises to have their own spectrum for use in private networks, therefore potentially limiting the opportunity for operators. For example, the German regulator BNetzA awarded

⁵ Ericsson (2020), *Ericsson to deploy private mobile network at Paris Airports for Groupe ADP, Hub One and Air France*. Available at: <https://www.ericsson.com/en/news/2020/7/ericsson-private-network-to-serve-paris-airports>.

⁶ Accenture (2020), *Accenture and AT&T Bring Mobile Connectivity to Phillips 66 with Private Cellular Network*. Available at: <https://newsroom.accenture.com/news/accenture-and-atandt-bring-mobile-connectivity-to-phillips-66-with-private-cellular-network.htm>.

⁷ CBRS is a band of spectrum in the 3.5–3.7GHz range that was previously reserved for the US military and fixed satellite stations. CBRS became available for commercial use by enterprises in 2019, via licences from the FCC.

74 licences for spectrum in the 3700–3800MHz band to firms including Audi, Bosch and Lufthansa to use in local 5G networks.⁸

The private LTE/5G networks is moving quickly and operators face competition for both LTE and 5G networks. Operators with ambitions in private networks will need to act soon to gain a position in the market.

⁸ BNetzA (2020), *Numerous frequency assignments for 5G campus networks*. Available at: https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2020/20200921_5GCampusNetworks.html?nn=404530.