5G grants operators an opportunity to address manufacturing

INSIGHT SPOTLIGHT

The Covid-19 pandemic has highlighted several major challenges facing the manufacturing sector and the need for greater operational visibility, including in the supply chain. It is also accelerating digital transformation, which will fuel the growth of IoT connections, particularly in smart manufacturing. Data is the driving force behind digital transformation, and 5G and private networks offer one of many routes to connect manufacturing operations and processes.

Recent announcements suggest that operators have progressed in the way they are addressing the manufacturing sector, including SMEs, as they are increasingly offering simple out-of-the-box solutions. However, as 5G enables multiple modes of deployment, operators are no longer the default service providers. Competition from vendors means that operators must continue to search for the right commercialisation model.

Analysis

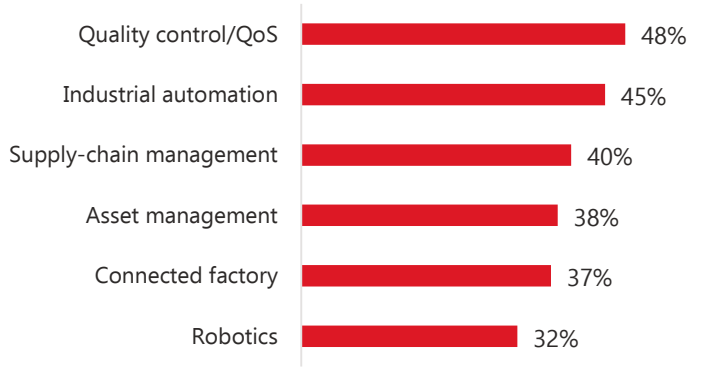
Covid-19 accelerates digital transformation – an in for IoT

Manufacturers have to handle a vast array of technologies, including robotics, ERP systems, edge computing and IoT platforms using multiple connectivity technologies. Overall adoption of IoT in the sector, however, has been slower than expected due to long replacement cycles and difficulties with retrofitting. Manufacturers are also averse to retiring systems, which predominantly use fixed, Ethernet and Wi-Fi connectivity to support legacy equipment.

The Covid-19 pandemic has exacerbated existing challenges and pain points for manufacturers, such as speed, resilience and cost reduction, but it is also accelerating digital transformation. In the short term, factories are having to adjust production levels to match demand through the use of digital tools such as cloud, IoT and analytics. In the longer term, manufacturer investments will be driven by the need for supply-chain visibility, adaptability and increased automation, as well as demand for customisation. To support digitisation, we expect smart manufacturing IoT connections to increase fivefold between 2019 and 2025 to 1.5 billion – the fastest growth rate across all enterprise IoT verticals.

Source: GSMA Intelligence Enterprise in Focus Survey 2019

Top IoT solutions adopted by manufacturing companies



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Data is key to digitisation

The manufacturing vertical has a wide range of use cases (see chart). The most important IoT solutions centre on data to control for quality, enable automation and facilitate the management of supply chains, systems and machinery. The Covid-19 crisis has highlighted the need for factories to have greater visibility and hastened their digital transformation journeys. To that end, ABB recently unveiled an analytics application and services suite to combine data from information technology (IT) and operational technology (OT) to release 80% of data still stuck in silos. Recent announcements also point to increasing efforts to digitise manufacturing in a simple out-of-the-box way. For instance, operators are partnering with manufacturers and bundling in cellular technologies to connect existing assets and onboard new IoT applications quickly. The currently underserved SME sector is one of the targets that require simple out-of-the-box solutions: T-Systems and KUKA offer a digital solution package to SMEs; Vodafone Germany's RedBox provides 5G in a box; and SK Telecom (SKT) has introduced a subscription-based smart factory service running on its 5G network, providing local manufacturing companies with customised big data analysis.

No one-size-fits-all

Some manufacturers will need dedicated network resources to achieve their business goals (according to our survey, 23% of manufacturers require location-specific coverage). The benefits of 5G for manufacturing span various use cases: ultra-reliable low-latency communication (automated guided vehicles), higher bandwidth (digital twin) and data security and isolation. A handful of manufacturers, such as Bosch, are able to take an active role in testing 5G private networks. Since 5G enables multiple modes of deployment, operators are no longer the default service providers. Operators are partnering with manufacturers to develop solutions utilising various deployment models, including network slicing and customised technical capabilities specific to manufacturing business needs e.g. up/down link and the option for equipment installation onsite for faster processing (edge compute). Some operators, including Deutsche Telekom and Vodafone, offer a hybrid 5G network solution to support both public and private access.

Implications

Mobile operators

- **Build upon your existing credentials in the enterprise space –** Our enterprise survey points to integration and security as key IoT deployment challenges. Security and systems integration (SI) capabilities are therefore particularly useful for attracting manufacturing clients. However, this opportunity is skewed towards larger operators with SI/IT capabilities or with a strong local channel to market via local SI/IT value-added resellers.
- **Align commercial realities –** The results of our operator survey indicate a difference in opinion in terms of the marketability of 5G's benefits. CTOs see private networks as a way to gain revenue, yet commercial teams are currently only marketing improved speeds as the primary 5G benefit. As a result, this could lead to unrealistic revenue targets.
- **Pay special attention to the next two years –** 5G hardware based on Release 16 will be commercially ready by 2022, which will enable operators to go to market with a richer set of offerings. This grants operators a window of opportunity to seek out industrial vendors and systems integrators to capture early movers in Industry 4.0.

Vendors

- **Have a 5G playbook ready –** As vendors experiment with 5G through pilots and trials, they develop references of use cases and best practices to accelerate commercial deployments. Having a portfolio of 5G deployments and use cases (an easy-to-follow framework of references with technical, network and business requirements, KPIs etc.) will serve as a competitive advantage and attract partners across the ecosystem.
- **Prepare customers for future risks –** 5G comes with its own set of risks that will have to be mitigated to fulfil manufacturers' data security and privacy requirements. The use of data for real-time operations enhances the security risk from a breach. Equipment vendors have the opportunity to provide advisory services to prepare manufacturers for future security challenges.

Manufacturers

- **Spell out business needs clearly –** The technical benefits of 5G are now widely understood. The conversation has moved on to tangible examples of value created by 5G and how these are meeting manufacturers' KPIs. Manufacturers should start proofs of concept and trials with warehousing analytics and factory floor automation to sync up with existing IT/OT systems.
- **Learn from others' mistakes –** There are currently many field trials being publicised by governments, academia and the private sector, so there is a strong opportunity to learn from others' mistakes. Iterative trials should therefore focus on deployment configurations to find the best fit for the required business need.

Related reading

Digital transformation of manufacturing and the role of operators in the 5G era

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