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# Intelligence

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

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1

Executive summary

2

Global context: seeking a new wave of productivity gains

3

Key technologies set to accelerate digitisation of manufacturing

4

The role of operators in manufacturing today

5

Defining and capturing the 5G opportunity in manufacturing

- 1 Manufacturing is recognised as a key strategic sector due to its large share of economic output and, increasingly, its focal point in the wider trend of digital transformation. Shocks to demand and supply chains associated with the Covid-19 pandemic are likely to accelerate adoption of technologies (namely, cloud, automation and advanced IoT) for efficiency gains, even if a curtailment in business investment underpins a temporary slowdown in 2020.
- 2 From robotics and ERP systems to edge computing and IoT platforms, manufacturers have a large group of smart manufacturing technologies to orchestrate. These are being adopted at different speeds and to different degrees; the digital transformation of manufacturing is not a done deal for most factories. Throughout this process, manufacturers rely on various vendors and, as the technologies become more sophisticated, a typical commercial relationship often evolves into a longer term strategic partnership.
- 3 Operators have had limited involvement with the manufacturing sector, with relationships usually confined to traditional B2B connectivity and, to a lesser extent, services in cloud, security, analytics and IoT. This is, however, rapidly changing as a result of the enhanced capabilities offered by 5G and the advent of more customised forms of service provision through private networks and slicing. These can move the industry towards automated production lines with more sophisticated tracking and monitoring.
- 4 It is already well understood that 5G can enhance existing industrial use cases and enable new ones. In addition, it will help power next-generation manufacturing models, such as manufacturing-as-a-service and mass product customisation, requiring ultra-reliable and ubiquitous connectivity of physical assets.
- 5 5G in factories is in its early/trial stages. Over the next two years, technical specifications will be finalised, including those permitting standalone network deployments – a prerequisite for many low-latency applications such as robotic machinery. The biggest challenge for operators is monetisation, as connectivity pricing will be eroded over the long term with commoditisation. This clearly places more emphasis on a honed service offering, but there is significant competition in this domain. We therefore believe partnerships with equipment vendors, cloud companies and systems integrators will become the norm.

**29%**

**CAGR for smart manufacturing IoT connections, 2019–2025** – GSMA Intelligence forecasts smart manufacturing to be the fastest growing segment within enterprise IoT connections over the next five years. Furthermore, 68% of manufacturers surveyed plan to deploy an IoT solution in 2020.

**70%**

**Share of operators who cite manufacturing as a top vertical candidate for private wireless networks** – This is according to a GSMA Intelligence operator survey. Around half appear willing to lead the investment or co-invest with their manufacturing customers for such deployments.

**422,000**

**Annual installations of industrial robots in 2018** – This is according to the International Federation of Robotics. Flexible, industrial, robot-based automation helps manufacturers overcome challenges such as changing consumer habits, shortages in skilled labour and the need for local production.

**21%**

**Share of operators who believe automotive manufacturing will benefit the most from network slicing** – Among other 5G features such as higher data transfer speeds, edge computing and massive IoT, network slicing is the feature that stands to benefit automotive manufacturing the most.

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