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GSMA 5G TRANSFORMATION HUB
The world's most innovative 5G solutions

5G Makes Manufacturing More Productive

Telkomsel is using 5G to enable manufacturers to increase output by 20%

In June 2021, Telkomsel deployed a 5G-based smart manufacturing solution with a leading multinational manufacturing company in Batam City in Indonesia. The manufacturer is using the solution to equip staff with virtual reality (VR) headsets that can help them fix faulty machinery, and to enable real-time reporting on plant operations.

Telkomsel
by Telkom Indonesia

MANUFACTURING

5G Makes **Manufacturing More Productive**

CASE STUDY LEAD: TELKOMSEL

⊕ CHALLENGE

In the manufacturing sector, the need to reconfigure machinery or fix faults can lead to the loss of valuable production time. Manufacturers are, therefore, looking for solutions that can help them anticipate adjustments and prepare accordingly, so that downtime is minimised.

⊕ SOLUTION

The manufacturer in Batam City is using Telkomsel's 5G network and its IoT Smart Manufacturing solution to collect real-time data from production lines, thereby giving it a continuous and comprehensive view of how the factory is performing. The connectivity is also used to support VR headsets that can be used to train staff in how to maintain and repair factory machinery.

⊕ IMPACT & STATISTICS

The manufacturer's managers no longer need to prepare weekly reports, while worker productivity has improved by about 17%, according to Telkomsel. The mobile operator estimates that smart manufacturing, enabled by 5G, can increase production output by 20%, machine utilisation by 20% and overall equipment effectiveness by 15%, while also reducing unplanned downtime by 30%.

⊕ WIDER IMPLICATIONS

A mobile VPN promises to improve efficiency and productivity across the economy, by enabling remote users to access internal networks as easily and securely as if they were on-premise. Huawei says its Mobile VPN solution is now being used by more than 500 organisations, including educational institutions, public services, healthcare clinics and enterprises within China. It is also trialling the solution with mobile operators in other countries.

⊕ STAKEHOLDERS

Telkomsel

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Highly reliable, low latency wireless connectivity can help manufacturers move faster, paving the way for major productivity improvements. In Indonesia, mobile operator Telkomsel has developed a 5G-based solution that enables manufacturers to monitor and control their operations, while also harnessing advanced technologies, such as automated guided vehicles, remote assistance, augmented reality (AR) and virtual reality (VR).

In June 2021, Telkomsel deployed its new IoT Smart Manufacturing solution with a leading multinational manufacturing company in Batam City. The manufacturer has used the solution to equip staff with VR headsets that can help them fix faulty machinery, and to enable real-time reporting on plant operations. As a result, managers no longer need to prepare weekly reports, while worker productivity has improved by about 17%, according to Telkomsel.

"This collaboration is the first use of industrial 5G technology services in Indonesia," says Alfian Manullang, Vice President Telkomsel Internet of Things (IoT). "Telkomsel IoT smart manufacturing will support a sustainable manufacturing industry by improving efficiency, productivity, and security at each operational level through accurate data analysis. By transforming to IoT smart manufacturing, production output will increase 20%, machine utilisation will increase 20%, overall equipment effectiveness will also increase 15%, as well as reducing unplanned downtime by 30%."

IoT SMART MANUFACTURING

PRODUCTION OUTPUT + **20%** ↑↑

MACHINE UTILISATION + **20%** ↑↑

EQUIPMENT EFFECTIVENESS + **15%** ↑↑

UNPLANNED DOWNTIME - **15%** ↓↓
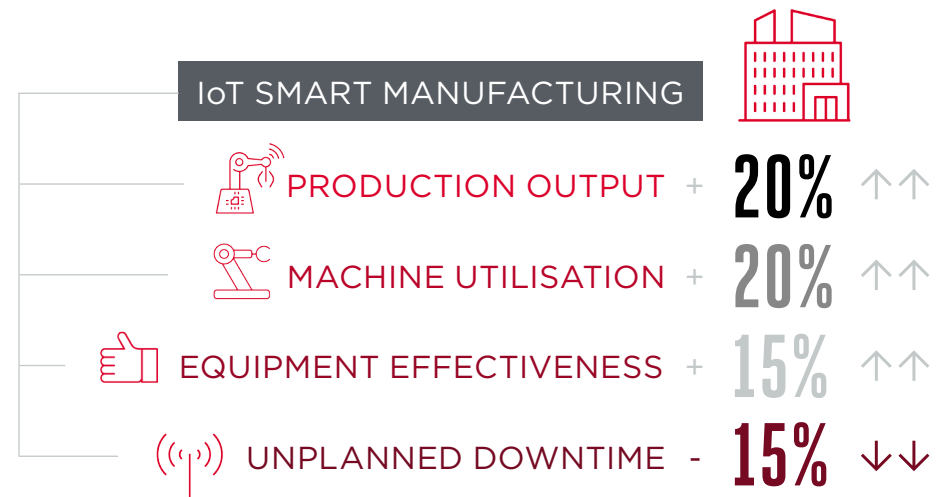
Telkomsel's IoT Smart Manufacturing solution is designed to enable the customer's end-to-end supply chain to become more integrated, while enhancing production control and monitoring, execution and traceability, warehouse management and energy management. It can be used to connect processes, peoples and machines to improve efficiency, increase automation and optimisation.

For example, the 5G-based solution can enable factory layouts to quickly be reconfigured for new products, while providing visibility across all operations to allow real-time decision-making, detect faults, and support safety monitoring. Telkomsel says that, on average, manufacturers anticipate the solution can deliver costs savings of about 38%.

Embedded with Telkomsel's 5G Enterprise network, the IoT Smart Manufacturing solution could also help manufacturers to enhance existing or new businesses by adding data from multiple sources (such as sensors and tools), access data that can minimise errors and improve the quality of decision-making. At the same time, the reliable and responsive 5G connectivity can be used for the remote control of machines operating in hazardous environments.

5G can deliver
high throughput and density

Telkomsel describes 5G as a "game-changer for manufacturers", noting that the consulting firm STL Partners has estimated the benefits of 5G to the global manufacturing industry could be worth US$740 billion by 2030.

As well as providing highly reliable and secure telco-grade connectivity, 5G can also deliver the high throughput and density that manufacturers need, according to Telkomsel. "For the past four years, Telkomsel has invested significantly in building out our 5G know-how, talent development, and setting up a comprehensive set plan to bring 5G to Indonesia," says Alfian Manullang. "With 5G, we can transfer a big amount of data in real-time. 5G will facilitate

advanced technology, artificial intelligence, automation and industrial IoT. 5G is expected to be one of the mainstream technologies of the future, with alternate technologies playing complementary and selective roles."

The deployment in Batam City is the first stage in the development of Telkomsel's 5G portfolio for manufacturers. It is working closely with the government, partners and associations to further build out Indonesia's digital infrastructure and support the implementation of Industry 4.0 concepts, such as greater automation, customisation and responsiveness. It underlines "our commitment to present Telkomsel 5G service ecosystem by building partnerships with stakeholders, especially industry players," adds Alfian Manullang.

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Alfian Manullang - Vice President Telkomsel Internet of Things (IoT)

Telkomsel advises mobile operators to forge partnerships with app developers and vendors to identify 5G use cases that fit specific industry opportunities "because each vertical is different with unique connectivity, latency and reliability requirements – not to mention legislative sensitivities."

In December 2021, Telkomsel and the Ministry of Industry (Kemenperin) of the Republic of Indonesia signed a memorandum of understanding and launched Indonesian Digital Industry Center 4.0 (PIDI 4.0). Telkomsel has also established a 5G

Experience Centre to support the government's Making Indonesia 4.0 roadmap.

In addition, to its IoT Smart Manufacturing solution, Telkomsel offers end-to-end fleet management solutions to provide real-time visibility over supply chain and logistics, as well as a smart connectivity solution. "We support Indonesia to be at the forefront of technology, facing the Industry 4.0 competition," says Alfian Manullang. "To be the first mover, we give a strong and clear signal to our ecosystem of partners."

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Alfian Manullang - Vice President Telkomsel Internet of Things (IoT)

About the GSMA

The GSMA is a global organisation unifying the mobile ecosystem to discover, develop and deliver innovation foundational to positive business environments and societal change. Our vision is to unlock the full power of connectivity so that people, industry, and society thrive. Representing mobile operators and organisations across the mobile ecosystem and adjacent industries, the GSMA delivers for its members across three broad pillars: Connectivity for Good, Industry Services and Solutions, and Outreach. This activity includes advancing policy, tackling today's biggest societal challenges, underpinning the technology and interoperability that make mobile work, and providing the world's largest platform to convene the mobile ecosystem at the MWC and M360 series of events.

For more information, please visit the GSMA corporate website at **www.gsma.com.**

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GSMA 5G Transformation Hub

The GSMA 5G Transformation Hub is a source of information on some of the most innovative 5G solutions in the world. This portal contains case studies detailing design, benefits, key players, measured value and the future impact of scaling up these 5G solutions worldwide. The 5G Era is now firmly established and this family of standardised GSM technologies, including mmWave, are being rolled out successfully across the globe. The GSMA 5G Transformation Hub, launched at MWC Barcelona in 2022, provides details of how 5G is best placed to deliver real value for a range of key sectors including manufacturing, energy, transportation, media and live entertainment, smart cities and construction.. Many more case studies will be added, in the coming months, covering even more industries and the GSMA is asking Members to nominate innovative 5G case studies to add to this global digital showcase. The 5G Transformation Hub and this particular Case Study are both sponsored by Qualcomm.

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About this case study

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