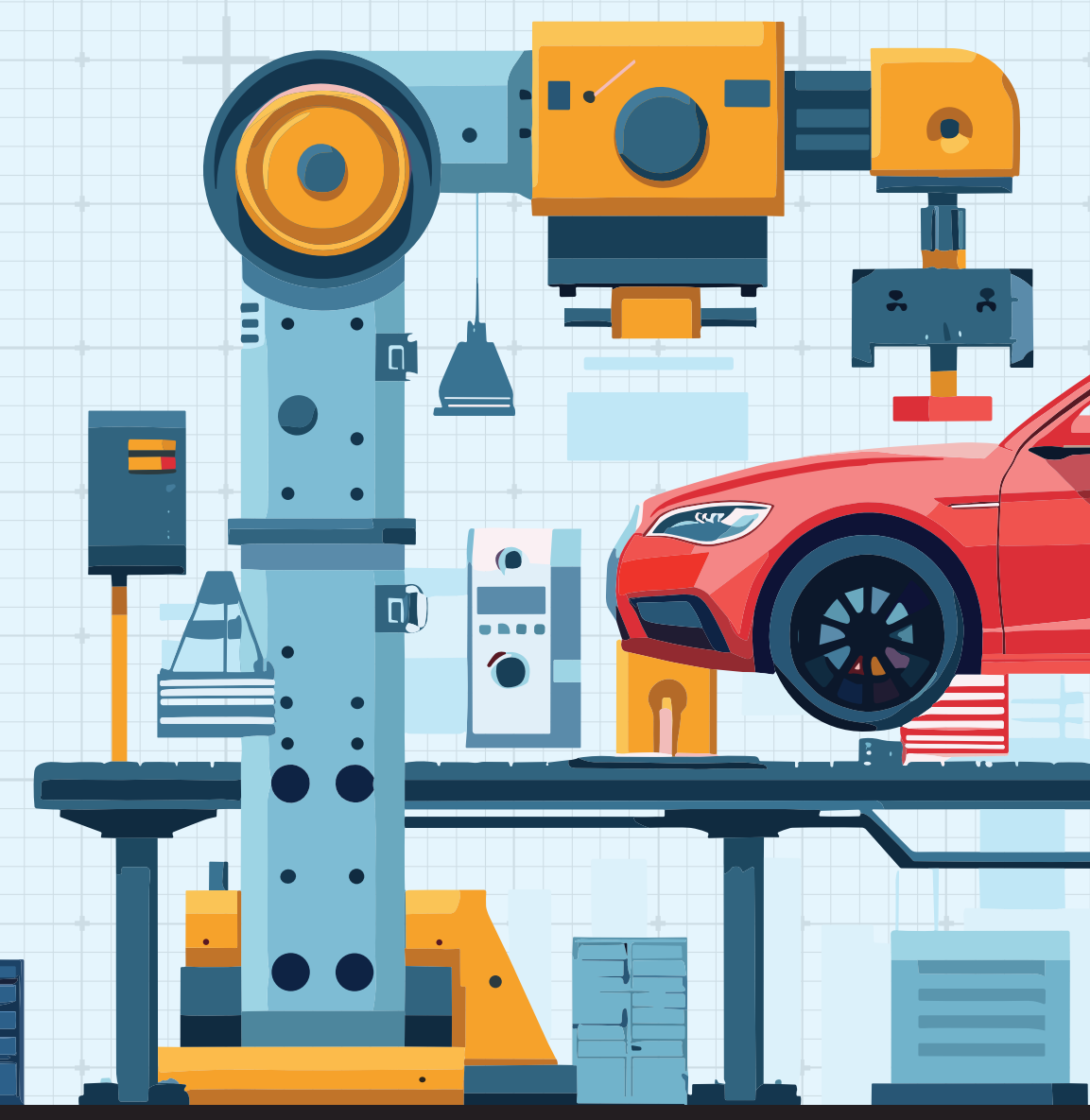


# Transforming Industry 5.0 in Singapore

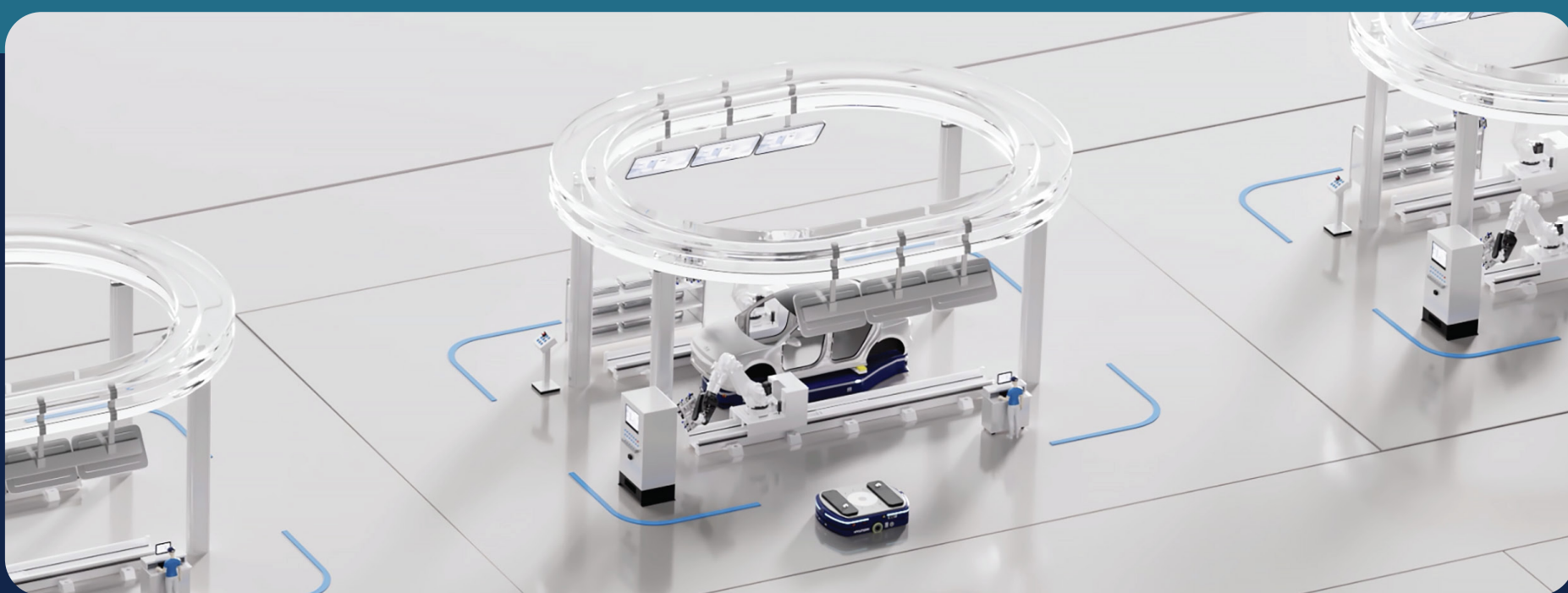


## Shaping the future of manufacturing with 5G

Singapore's manufacturing sector is at a turning point.<sup>1</sup> Global supply chain disruptions, rising operational costs, and the urgent need for sustainable practices are prompting manufacturers to rethink their operational strategies.<sup>2</sup>

Manufacturers are under increasing pressure to stay competitive by embracing faster, smarter, and more resilient operations.

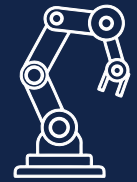
The benefits of 5G in manufacturing and Industry 5.0 are numerous, including faster data transfer, reduced latency, and the ability to connect a large number of devices simultaneously, leading to more efficient and responsive operations.



## A smart factory in Singapore powered by 5G

Hyundai Motor Group Innovation Center Singapore (**HMGICS**) is harnessing **Singtel's ultra-reliable, low-latency 5G network** to power a next-generation innovative manufacturing platform in Singapore.

From collaborative robots (cobots) and connected production lines to immersive mixed reality inspections, HMGICS has unlocked advanced capabilities with 5G connectivity, enhancing automation, precision, and operational efficiency.



### Seamless human-robot collaboration

Cobots can safely work alongside human operators, performing precision tasks without latency interruptions.



### Real-time quality inspections

5G enables high-definition video streaming and AI-powered defect detection directly on the production line, reducing errors and wastage.



### Digital twin simulations

By connecting physical assets with real-time data, HMGICS can create virtual replicas of the factory floor to test and optimise processes without disrupting operations.



### Predictive maintenance

Continuous sensor data helps anticipate equipment issues before they cause downtime, improving reliability and operational efficiency.

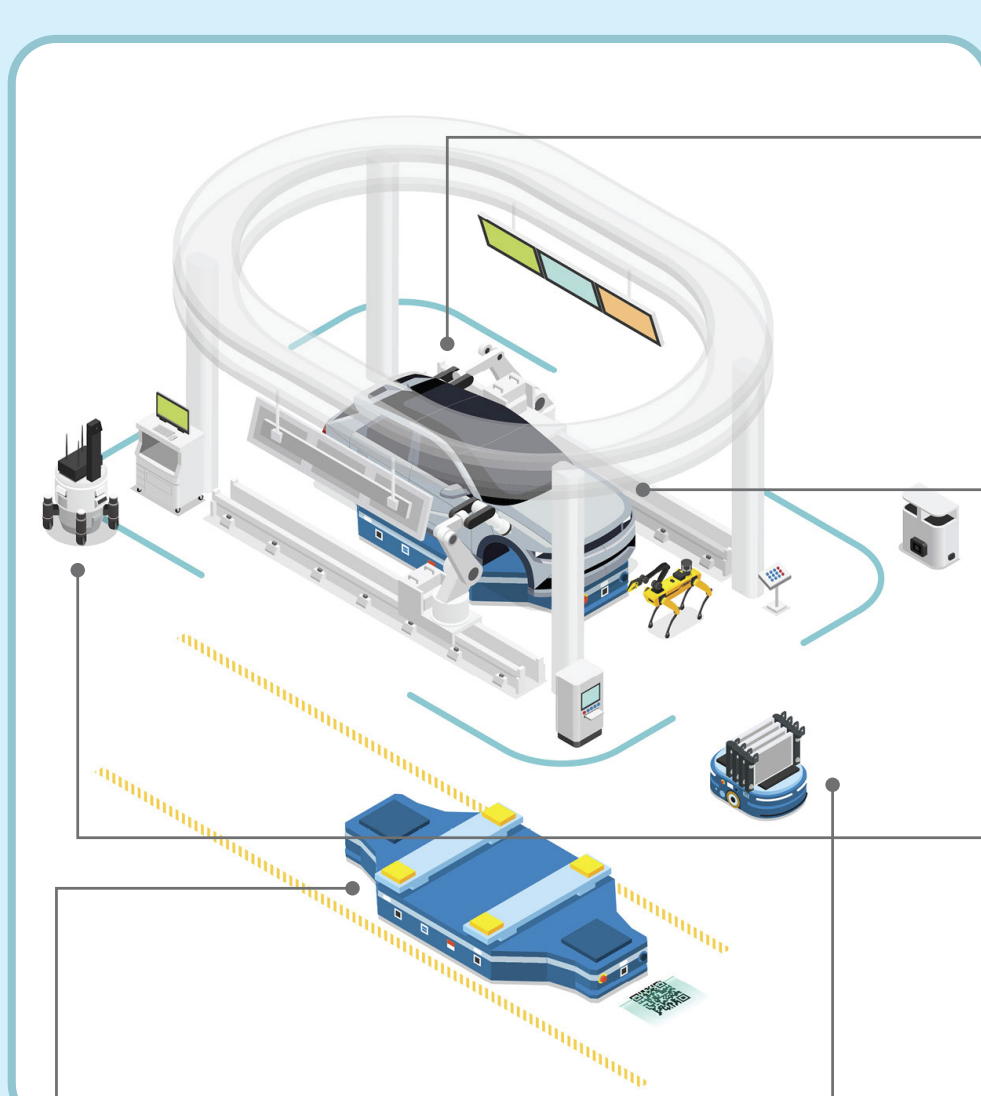


### Secure data exchange

All data from connected machinery and systems is processed securely within HMGICS' environment, ensuring IP protection and operational privacy.

## 5G: The backbone of smart, agile EV manufacturing at HMGICS

5G technology not only enhances existing wired and Wi-Fi networks with ultra-reliable, low-latency, and congestion-free connectivity, ensuring smooth operations even for complex tasks, but it has also enabled HMGICS to operate with unparalleled agility and precision, setting a new benchmark for cell-based production of electric vehicles (EV) in Singapore.



**Real-time precision and control:** 5G powers ultra-low-latency communication between robots, AI systems, and AGVs—enabling seamless coordination and exact execution across every production cell.

### Flexible, multi-model production at scale:

With 5G, HMGICS can simultaneously build different EV models in the same facility, dynamically adapting to demand without compromising speed or quality.

### AI-driven quality, accelerated by 5G:

High-speed 5G data transfer fuels AI-powered inspections and predictive analytics, ensuring every vehicle meets the highest standards—instantly and intelligently.

### Conveyor belts replaced by intelligence:

Automated Guided Vehicles, orchestrated via 5G, move vehicles through production cells with unmatched agility—transforming linear assembly into a smart, responsive ecosystem.

### Built for innovation, ready for the future:

5G enables scalable, software-defined production lines that can adapt quickly to new models, technologies, and customer expectations—setting a new benchmark for EV manufacturing.

## Enabling Singapore's next era of smart industry

Singtel 5G, now 5G+ with the enhancement of the 700MHz spectrum, is empowering manufacturers to take bold strides toward Industry 5.0 and beyond, where intelligent connectivity fuels greater efficiency, resilience, and innovation.

Through strategic partnerships with global leaders like Hyundai and Singtel, the development of 5G networks and technologies is enabling the rise of smart factories that not only produce high-quality products with precision but also contribute to Singapore's vision of a sustainable, tech-driven economy.



**Future-ready for Industry 5.0**



**Enhanced network slicing for mission-critical operations**



**Optimised for AI and robotics at scale**

**Singtel 5G+, empowering the future of Singapore's manufacturing industry.**

[Learn more about Singtel 5G+](#)

### References

<sup>1</sup> The Straits Times, Budget 2025: Singapore's manufacturing sector at a 'significant turning point', says SMF, 2025.

<sup>2</sup> Supply Chain Management Review, U.S. tariffs create urgent need for supply chain agility, 2025.

<sup>3</sup> The Hyundai Motor Group Metaplant America is an all-new \$7.6 billion EV factory [link]