Hyundai Motor Group jump-starts the future of mobility

Hyundai Motor Group is reinventing mobility and automobile manufacturing with Dell Technologies as its trusted partner.

At the Hyundai Motor Group Innovation Center in Singapore, engineers use 3D digital twins to reimagine the future of physical mobility — both Metamobility and the Mobility of Things — as well as how they can transform manufacturing in a first-ever Meta-Factory pilot facility powered by Dell Technologies solutions.

Transformations

- Flexible IT enables Hyundai Motor Group to transform car manufacturing and the concept of physical mobility.
- Data innovations let Hyundai Motor Group extend its products and manufacturing innovation reach worldwide.

Outcomes

- Makes the Meta-Factory vision a reality.
- Uses digital twin to optimize production and virtually solve factory problems.
- Offers endless 3D simulations to determine the best designs and processes.
- Serves as an open innovation hub for revolutionizing the future mobility value chain.
When visionaries at Hyundai Motor Group look into the future of their business as one of the world’s most innovative car companies, they see more than sleek bodyworks over wheels and drivetrains. They imagine innovative, smart mobility solutions of all kinds with the ability to move us literally, figuratively and emotionally.

These Metamobility solutions — combining both Metaverse and mobility — range from wearable robotic exoskeletons that remove people’s physical limits to a Mobility of Things world where objects can move themselves. “Our future lies in expanding human reach to bring about the next wave of change and drive human progress,” says Jung Sik Suh, CEO, Hyundai AutoEver.

From the Metaverse comes the Meta-Factory

To accelerate its innovation efforts and achieve this vision, the company opened its Hyundai Motor Group Innovation Center in Singapore (HMGICS) as a global open innovation hub. HMGICS combines 5G, AI, Internet of Things (IoT), robotics, edge and cloud computing, and other advanced technologies, such as a 3D digital twin. As virtual proxies, the latter enables engineers to simulate products and processes in the Metaverse without the time, cost and risk associated with physical design and process validations.

HMGICS provides the world with a human-centered, smart manufacturing platform — the world’s first Meta-Factory — Metaverse-based digital twin factory that will be verified through a small pilot electric vehicle production facility and adjacent test track. Researchers and engineers can interact with their 3D virtual simulations in real time, either shoulder to shoulder or over great distances.

Flexible IT and innovating with data

Operating HMGICS requires a flexible IT model backed with a wide range of sophisticated technologies. These include powerful computing workstations, displays, software, servers, storage, security and ultra-fast networking. To better use and share data to drive innovation, the facility added an OpenStack cloud computing platform.

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Jung Sik Suh
CEO, Hyundai AutoEver

Hyundai Motor Group chose Dell Technologies as its strategic technology provider and trusted partner to make HMGICS a reality. “Our engineers can imagine the future much faster and with less cost and risk using the end-to-end solutions and expertise from Dell Technologies,” Mr. Suh says, also noting that the company now has one point of contact for all its technology needs.

Hyundai Motor Group values the global logistics and supply chain of Dell Technologies. Compliance-certified hardware arrives at HMGICS in just six weeks, reducing deployment times by 40% versus other vendors.

Partners for the future

At HMGICS, 3D digital twin simulations offer researchers and engineers endless possibilities to innovate. They can use their innovations to optimize product designs and manufacturing processes by visualizing every aspect of production before bringing the smart manufacturing models to life. “Our collaborations with Dell Technologies are central to our ability to innovate,” Mr. Suh concludes. “To make breakthroughs, we need breakthrough technology solutions, like what our partner Dell Technologies consistently delivers.”