

Renault Group launches the first industrial Metaverse

- Renault Group is reaching a new step in its digital transformation by launching the first industrial Metaverse.
- It is based on four dimensions: mass data collection, digital twins of processes, connecting the Supply Chain ecosystem and a set of advanced technologies.
- By 2025, the Metaverse will generate savings of €320 million, plus €260 million in inventory savings, a 60% reduction in vehicle delivery time, a 50% reduction in the carbon footprint of vehicle manufacturing and a contribution to the 60% reduction in warranty costs targeted by the Group.
- Renault Group presents its Metaverse ambition, illustrated by 32 use cases, during its Tech Industry Days at the Refactory in Flins.

Boulogne-Billancourt, November 14, 2022 – Renault Group is accelerating its digitalization with the first industrial Metaverse. Today, 100% of production lines are connected (8,500 pieces of equipment), 90% of supply flows are constantly monitored and 100% of Supply Chain data is hosted in the Renault Group Metaverse, a true replica of the physical world controlled in real time. Engaged in Industry 4.0 since 2016, digital technology has already led to savings of €780 million. By 2025, it will enable €320m in various savings, to which will be added €260m in savings on inventories, a 60% reduction in vehicle delivery time and a 50% reduction in the carbon footprint of its vehicle manufacturing, as well as a significant reduction in innovation cycles and a contribution to the 60% reduction in warranty costs targeted by the Group.

"Every day, a billion of data are collected within the Renault Group's industrial sites. The Metaverse provides real-time supervision that increases the agility and adaptability of industrial operations as well as the quality of production and the Supply Chain. Renault Group is becoming a pioneer in the sector."

Jose Vicente de los Mozos, EVP, Industry Group and Head of country Iberia

The Industrial Metaverse: four dimensions

- **It all starts with data.** To collect data from all its industrial sites, Renault Group has developed a unique data capture and standardisation solution, a platform for collecting mass data to feed the industrial Metaverse, and thus provide the levers for performance of the production process in real time. This solution is now marketed in partnership with ATOS to other industrial players, under the name of the ID@Scale project.
- Renault Group then **modelled its physical assets** into digital twins. Each factory has its replica in the virtual world. Like the factories, the Supply Chain has its own digitised universe. It is an integral part of the industrial Metaverse and is also controlled in real time by a control tower.
- Integration into an **extended ecosystem**. The use of digital twins is enriched with supplier data, sales forecasts, quality information, but also exogenous information such as the weather or road traffic, etc., as well as Artificial Intelligence allowing the development of predictive scenarios.

- The acceleration of this digital transformation is enabled by the convergence of **advanced technologies** (Cloud, real time, 3D, Big data...). Renault Group has developed a unique platform for the convergence of the technologies needed to run the digital twins and their ecosystems in a resilient way.

Together, these four dimensions constitute a complete, persistent, and real-time industrial Metaverse.

Leitmotiv: the Metaverse at the service of people

The supervision offered by the Metaverse through a better visibility of the work environment allows actors to gain agility and autonomy in decision making. Technologies from the world of gaming make user experiences more immersive. This is the case of painting training carried out in virtual reality. AI algorithms facilitate the ability of employees to anticipate, as do flow optimization and management functions for Supply Chain experts.

"The technological maturity of Renault Group allows the company to reach an important step in its digitalisation and transformation: the control of our data, the choice of advanced technologies, and the expertise of our teams are all levers to accelerate towards a Tech Company."

Frédéric Vincent, EVP, Information Systems and Digital

To illustrate its industrial Metaverse in concrete terms, Renault Group presented 32 case studies at its Tech Industry Days. Here are a few examples:

- The **Industrial Data Management Platform 4.0** (IDM4.0), developed by Renault Group, collects all the industrial data of Renault Group. Stored in the cloud (Google Cloud platform), this data feeds the industrial Metaverse, and allows to correct or improve the production process in real time. Since 2019, 300 alerts have been detected and 300 production stoppages avoided.
- The **Control Tower** of the extended Supply Chain is the point of convergence of the Supply Chain professions in a dedicated space: the Control Room. This global supervision tool, which concentrates information flows, alerts in real time to risks or anomalies in all transport operations and, thanks to Artificial Intelligence, proposes optimised crisis management scenarios.
- **Decarbonisation** of industry as a lever for energy independence. Renault Group is committed to being Net Zero Carbon by 2025 for the ElectriCity division and the Cléon plant, by 2030 for manufacturing sites in Europe, and by 2050 for all industrial facilities worldwide. Real-time monitoring of the carbon footprint of equipment and transport capacity will be an important lever for achieving the trajectory and a 50% renewable energy mix in France by 2026 and 100% by 2030.

"This industrial Metaverse is unique and enables us to activate previously invisible efficiency and performance levers, to the benefit of people and the environment. The management of data at Group level allows us to monitor, for example, the energy consumption of all our industrial and non-industrial sites in detail, and above all to optimise them in real time when a plant is stopped."

Patrice Haettel, VP, Industrial Strategy and Engineering

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About Renault Group

Renault Group is at the forefront of a mobility that is reinventing itself. Strengthened by its alliance with Nissan and Mitsubishi Motors, and its unique expertise in electrification, Renault Group comprises 4 complementary brands - Renault, Dacia, Alpine and Mobilize - offering sustainable and innovative mobility solutions to its customers. Established in more than 130 countries, the Group has sold 2.7 million vehicles in 2021. It employs nearly 111,000 people who embody its Purpose every day, so that mobility brings people closer. Ready to pursue challenges both on the road and in competition, Renault Group is committed to an ambitious transformation that will generate value. This is centred on the development of new technologies and services, and a new range of even more competitive, balanced and electrified vehicles. In line with environmental challenges, the Group's ambition is to achieve carbon neutrality in Europe by 2040.

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