

Digital Transformation (DX) x Smart Factory

Optimal mass customization of the factory with digital technology



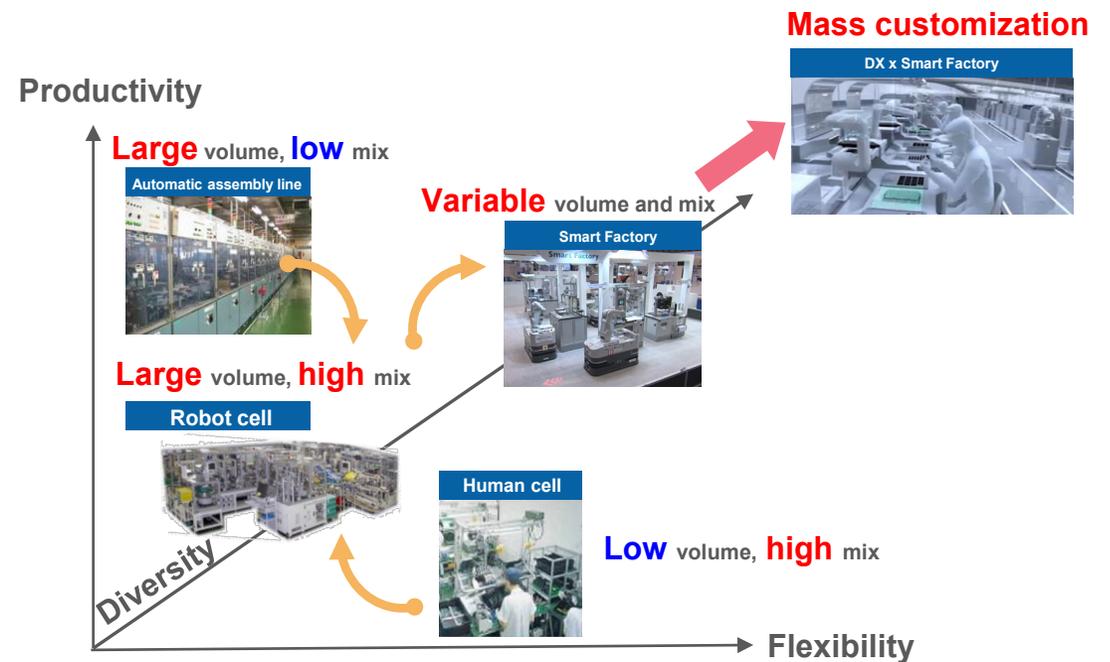
» Features

» Concept

Pre-production simulation of real-time effects, such as changes in orders and production conditions, enables optimized mass production of customized product.

The entire production system can be optimized, from process design to maintenance(ECM), and production planning to logistics(SCM), with MELFA Robots and FA Products.

ECM: Engineering Chain Management
SCM: Supply Chain Management



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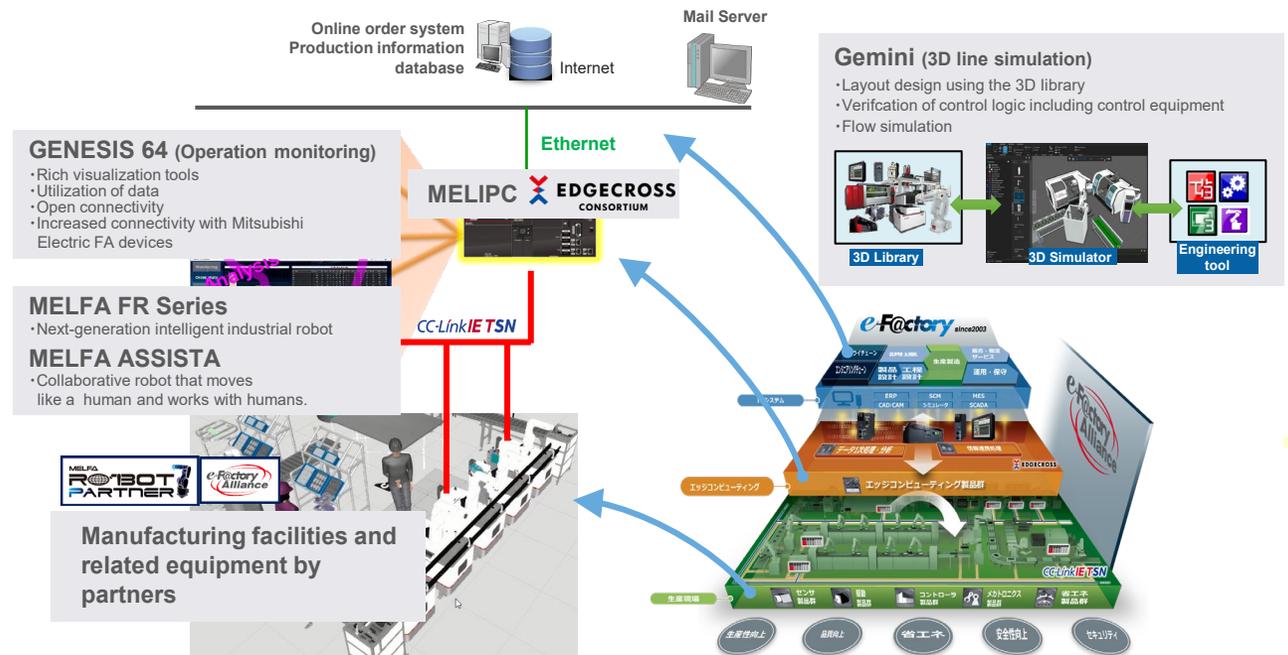
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All data from a production site can be collected by a CC-Link IE TSN network and analyzed by MEL IPC Industrial PC.

Using GENESIS 64 SCADA data can be processed and diagnosed in realtime to ensure stable operation.

MELSOFT Gemini can help optimize production facilities based on a “Digital Twin” in response to constantly changing orders and production conditions.



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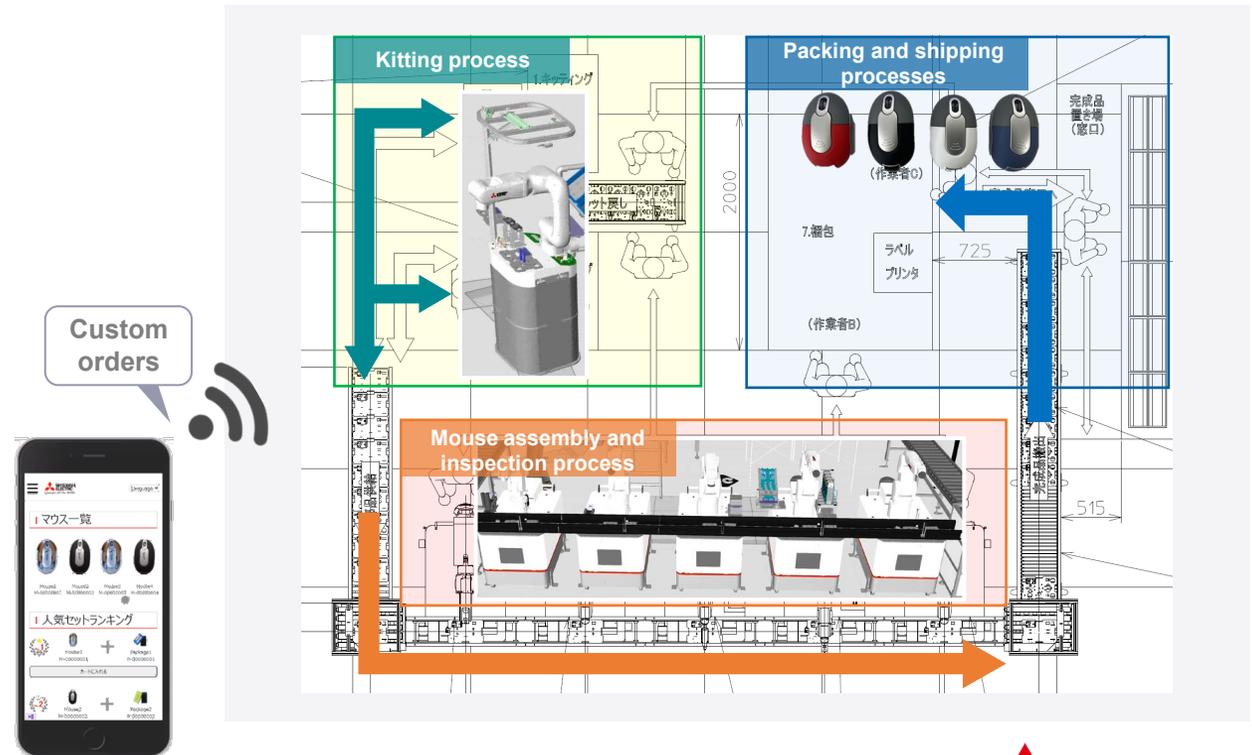
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Mass customization of wireless devices by custom orders from customers.

Mass production (approx. 30 seconds/unit) while reducing inventory risk by producing only after receiving orders.

Promotes carbon neutrality by producing only what is needed, when it is needed



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Solutions by Role

Role-based solutions provided by GENESIS64.

Realtime processing and diagnosis of necessary information (operation monitoring and order analysis).

Example:

For site/maintenance managers:

- Production situation
- Capacity utilization rate
- Maintenance, etc.

For site and maintenance managers



For managers and product developers

For facility designers



For customers

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Rapid response to changing conditions

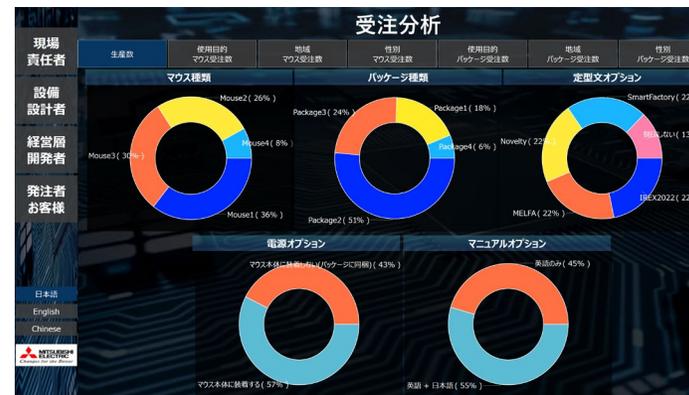
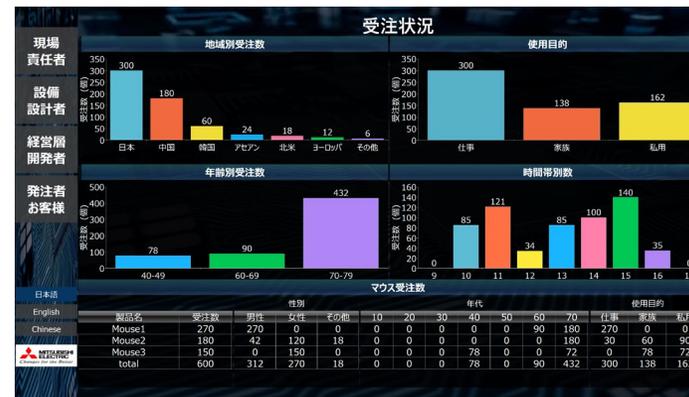
Realtime analysis of order status during production allows prediction of demand and a quick response to changes in areas from material procurement to production facilities, etc.

Order information:

- Orders by region
- Intended use
- By time zone, etc.

Order analysis:

- Number of mouse orders
- Production volume, etc.



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Stable plant operation

By analyzing equipment status in realtime, while production is in progress, signs of equipment abnormalities and defective products can be detected quickly. By performing predictive and preventive maintenance, stable operation of the factory can be achieved.

Equipment efficiency:

- OEE (Utilization x Performance x Quality)
Red 50% or less, Yellow 51-80%, Green 81% or more

Maintenance:

- AI based wear analysis(predictive maintenance)
- Battery life



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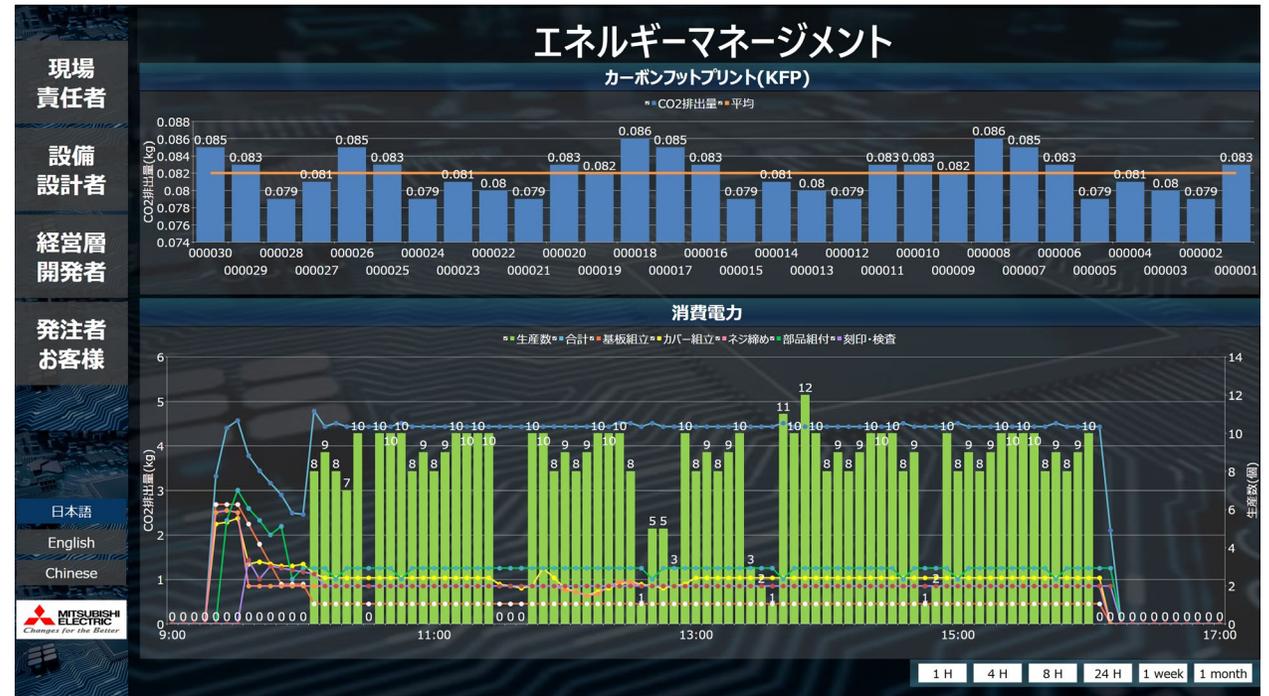


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Energy management

Eco Adviser monitors and analyzes the energy used by various types of equipment in real time to calculate the carbon footprint (CO2 emissions per product), identify energy losses, diagnose causes, and promote measures for carbon neutrality.



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Optimization of production facilities through pre-verification

MELSOFT Gemini verifies the operation of equipment and devices in factories and production lines in advance in a digital space. It greatly contributes to the reduction of reworking man-hours and start-up time.

Real-time order information (provided by GENESIS64) and production information (from MEL IPC) are feedback to MELSOFT Gemini for further optimization of production facilities through more accurate process simulation.

Example:

For example, the 3D simulation system helps select the most appropriate process according to order information and status. It also receives feedback from the factory floor with accurate cycle time required for each process such as screw tightening and assembly.

