Develop Production system/Machine more efficiently

3D Simulator MELSOFT Gemini

Before start-up, why not confirm "results"??

| Issue | Production capacity cannot be confirmed without actual equipments |

Measure **Confirm productivity for each layout/operation in digital**

- Verifying multiple production layouts before investment.
- Utilizing as a tool to improve KAIZEN process.

| Issue | Hard to convince best placement of workers, robots and AGVs |

Measure **Calculate the layout that minimizes investment and improves ROI**

- Verifying the number of workers, placement, and division of the work.
- Verifying the minimum required number of equipment such as robot/AGV.
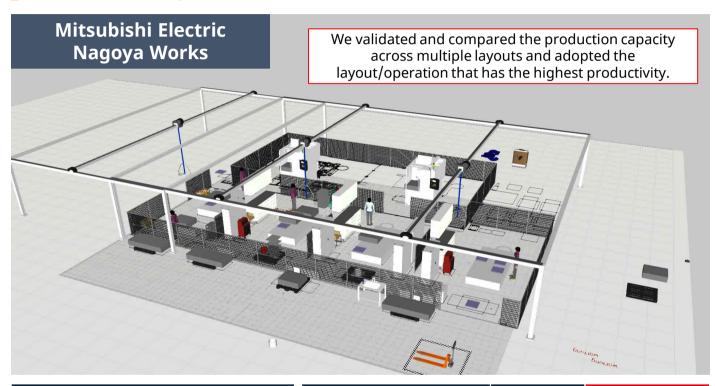
| Issue | When starting up, design rework inevitably occurs |

Measure **Detect potential design bugs in advance and reduce rework**

- Front-loading program debugging by combination with simulator.
- Preventing communication errors between designers by checking 3D models.

Case Study

Mitsubishi Electric Nagoya Works

We validated and compared the production capacity across multiple layouts and adopted the layout/operation that has the highest productivity.

Verification contents		Before	After
✓Target production volume is achieved or not. ✓The number and location of work-in-progress, storage areas. ✓Operating rate of equipment and workers.	Cycle Time	128 min/unit	93 min/unit
	Line efficiency	83.1%	88.9%

Benefits
①Achieved target cycle time: **103 min/unit**
②**Increased profit** by approximately **12 million yen/year.**
③**Reduced loss cost** by approximately **600,000 yen/year.**

Automating the World