

Efficient
Design/Start-up



**Line simulation can
reduce cycle time by
approx. **28%**!**

Company A faced an urgent need to enhance the production capacity to respond to increase in demand. By introducing line simulation, the company was able to identify a bottleneck in the manufacturing process for a shorter cycle time before actual line construction, and thus achieving an increased production capacity without rework.

● What is the secret to its success?

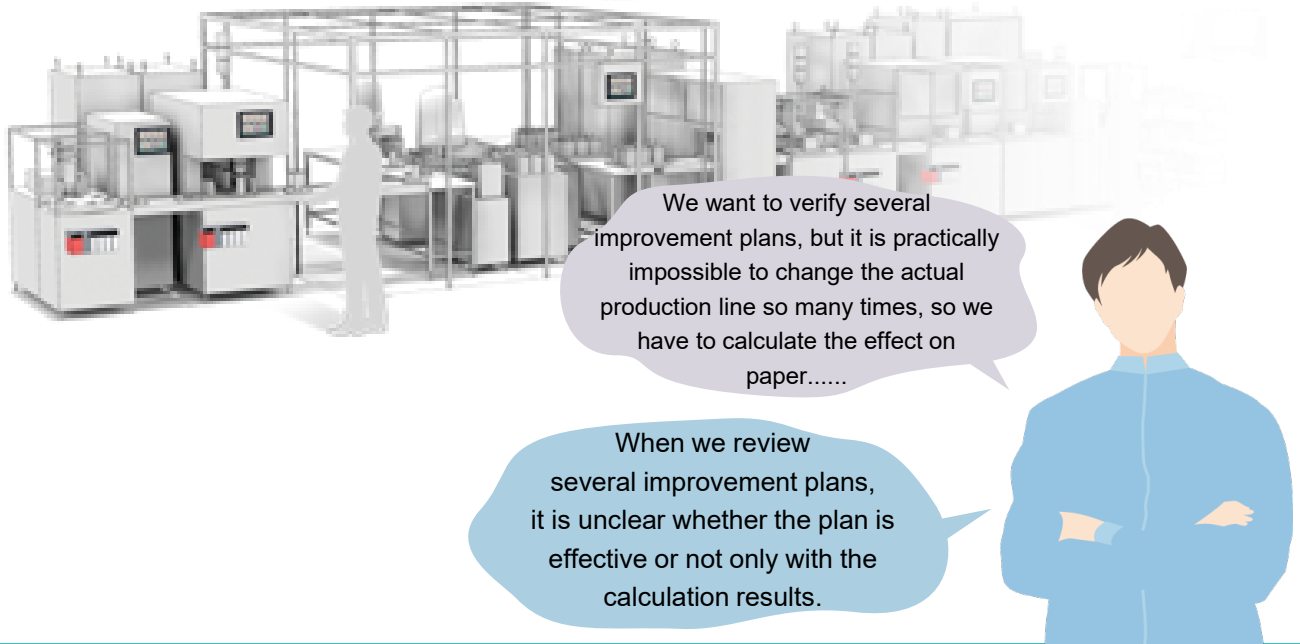
See inside
for details!



Customer's Concern

Company A faced an urgent need to enhance the production capacity to respond to increase in demand. They considered installing more work stations for a shorter cycle time, however, rework frequently occurred with the conventional design/verification method using table calculation software.

The company was seeking a design/verification method without rework.



What has improved

By utilizing the line simulation of 3D Simulator MELSOFT Gemini, multiple improvement plans can be verified, and their improvement effects can be visualized, which makes reviewing plans easy. As a result, cycle time reduced by approximately 28% (36 minutes) by eliminating rework such as redesign or an additional construction.





Point 1

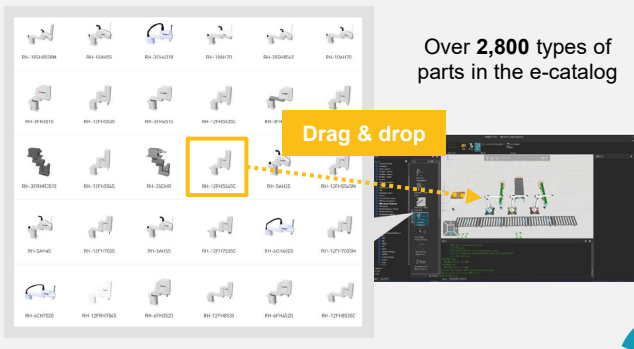
You can easily create a simulation model utilizing an abundant e-catalog and verify multiple line improvement plans.

Point 2

Worker flow lines and equipment operations are visualized in animation and graphs. You can easily identify challenges such as bottlenecks in the manufacturing process.

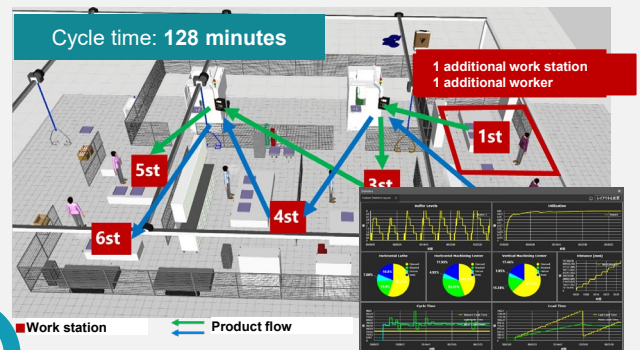
Point 1

Drag and drop parts from the e-catalog to the settings screen. A model is easily configured and verified with a simple setting.

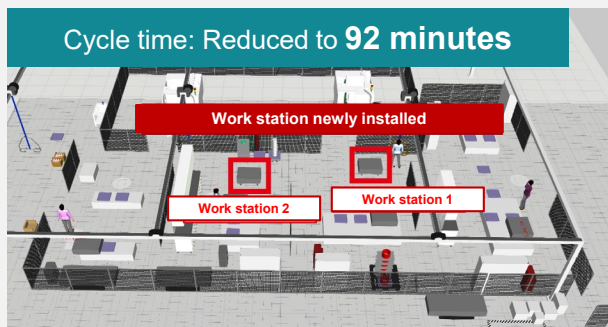


Point 2

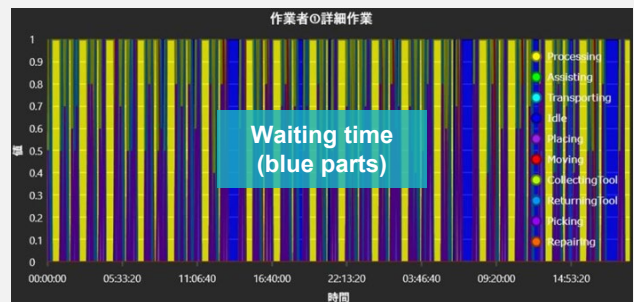
Simulation results are visualized in videos and graphs, which allows you to easily identify bottlenecks and confirm the operation rate.



Consider solutions to the challenge by repeatedly creating and simulating a model before launching an actual line change.



Identify a challenge to be solved (**worker waiting times**) in the line layout under consideration!



See the next page for configuration of this system

Return on investment (ROI)

Cost

Approx. **4.4** million yen
(Gemini + training cost)

Effect

Cycle time
Approx. **28** % (36 mins) reduction
+ worker time loss reduction (50 thousand/month)
+ additional construction reduction with reduced rework (240 thousand yen)

Construction period

Approx. **10** days (16 person-days)
* Verification with Gemini

Payout period

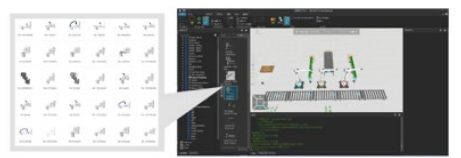
Approx. **4** months
(* Assuming a profit increase with a shorter cycle time is 1 million yen/month,
(4.4 million yen - 24 thousand yen) ÷
(1 million yen + 5 million yen) = 4 months

System overview

This system is easy to set up just by installing **3D Simulator MELSOFT Gemini** on a personal computer. Additionally, Mitsubishi Electric offers several services such as a two-day basic training (paid, Japan only) to help you learn basic MELSOFT Gemini operations and how to set up line simulations, and a simulation model creation service with e-catalog (paid, Japan only), which provides a simplified model of customer's production line.



3D Simulator MELSOFT Gemini



Simple equipment layout with an abundant e-catalog



Operating Environment for MELSOFT Gemini (recommended configuration)

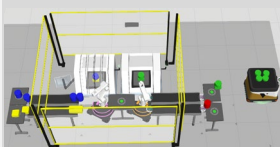
Item	Content
CPU	Equivalent to/greater than Intel® Core™ i7-8xxx processor
Memory	8GB
Hard Disk Drive	3GB available space
Graphics Card	NVIDIA® GPU with at least 4GB dedicated memory (Equivalent to/greater than GeForce® GTX 1080)
Graphics Display	1920×1080(Full HD) or more
Mouse	3 buttons
Operating System	64-bit Microsoft® Windows®10, Windows®11



Basic Training

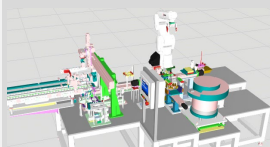
Learn the basics of how to use MELSOFT Gemini with exercises (paid, two-day training)

Day 1: Line simulation



You will be able to build simple lines and simulate them

Day 2: Machine simulation



You will be able to configure and simulate the motion of the 3D CAD model of a machine

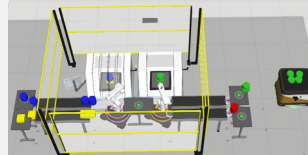


Simulation Model Creation Service with E-catalog

A paid service that provides a simplified model of customer's production line, which is created with the e-catalog that is included with MELSOFT Gemini as standard

Created model

A 3D model for line simulation



Included products

- MELSOFT Gemini installer
- 30-day evaluation license

* For customers who have not purchased the product

Product line-up Please separately prepare a personal computer to run the software listed below.

Type	Model	Overview
3D Simulator MELSOFT Gemini		
MELSOFT Gemini Essentials Standalone (Perpetual)	SW1DND-3DSIME-MQ12	A simplified version that allows only imported 3DCAD fixed data and 3D models already registered in the product to be used (with annual maintenance). Node-locked license
MELSOFT Gemini Essentials Standalone Limited time only (12 months)	SW1DND-3DSET-MQ12	MELSOFT Gemini Essentials Standalone license and maintenance contract usable for 12 months
MELSOFT Gemini Essentials Network (Perpetual)	SW1DND-3DSEK-MQ12	A simplified version that allows only imported 3DCAD fixed data and 3D models already registered in the product to be used (with annual maintenance). Can be used by multiple client PCs.
MELSOFT Gemini Essentials Network Limited time only (12 months)	SW1DND-3DSEKT-MQ12	MELSOFT Gemini Essentials Networks license and maintenance contract usable for 12 months

*Consider purchasing the Professional type if mechanisms and motion need to be added to the imported 3D CAD.

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Safety precautions

To use the products listed in this publication properly, be sure to read the relevant manuals before use.