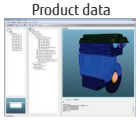
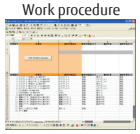
1. Problems with Process Planning, ICT Solutions

Current production line plans

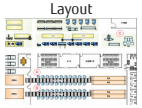
Product data



Work procedure



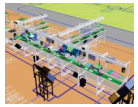
Layout

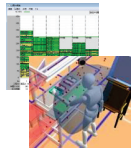


- No detailed descriptions
- Based only on imagination
- Impossible to guess what actual production will be like

Level of planning **Low**

Line plans developed using FJGP4D



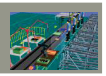


- Plans provide relative positions for different processes
- Specific procedures
- Processes can be examined

Level of planning **High**

2. FJGP4D to Improve Manufacturing Process Planning

FJGP4D develops multiple models for 3D line plans made during the planning stage.
The software can be used to assess layout designs, line balance, movement lines, and workability, as well as whether production indicators achieve target values– all without creating actual production lines.

		Target value	Plan A 	Plan B 	Plan C 
Assessment item			Layout design 	Line balance 	Movement lines  Workability  Plan C adopted
Assessment	Flow of materials	m	15.2m	20m	18.7m
	Area efficiency	%	22.3%	12.1%	13.5%
	Line efficiency	%	95%	91%	93%
	Productivity per ㎡	No. of products	10,000	10,500	12,000

	Minimum specifications	Recommended specifications
OS	Windows 7 (Professional, Ultimate, Enterprise) SP1	
CPU	Pentium 4 or higher	Pentium 4 3 GHz or higher
Physical memory (RAM)	512MB and above	2 GB or more
Hard disk capacity	Free space of 300 MB or more	Free space of 1 GB or more
Graphics card	OpenGL compatible	OpenGL 1.5 compatible
	Display resolution: 1280 x 768 pixels or higher	Display resolution: 1280 x 1024 pixels or higher
	Graphics memory: 16 MB or more	Graphics memory: 512 MB or more
Software	Microsoft Excel 2003 or higher is required for document output.	
	.NET Framework2.0 is required to run FJGP4DPES.	
Language	Japanese OS (supports Japanese and English)	
	English OS (supports only English)	

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FUJITSU

Overview of Service / Solution
FUJITSU Manufacturing Industry Solution FJGP4D

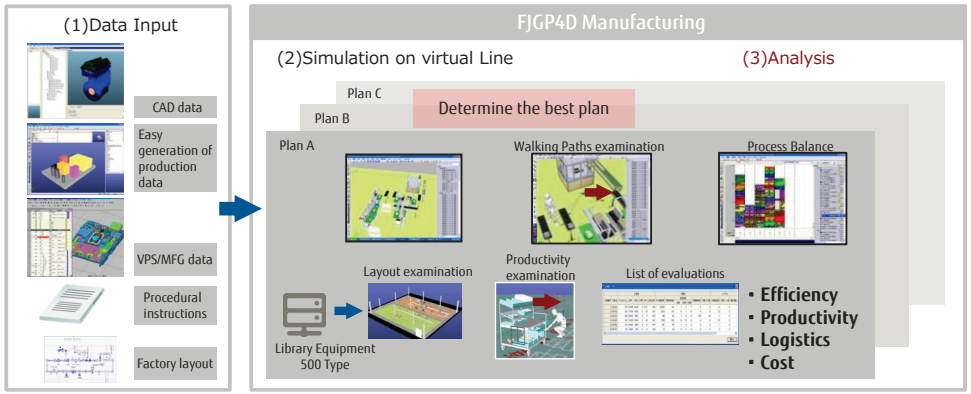
Virtual Product Line Simulator

FJGP4D

Customer Benefits

- Launch global mass production efficiently and reduce costs.
- Plan without running actual trials. Calculate productivity quantitatively. Determine the best plan theoretically.
- Realize "KAIZEN" and high productivity without stopping the current line.

FJGP4D is a powerful production support tool for visualizing process design.
We support effective process design and various kinds of evaluation in the field of assembly and logistics.

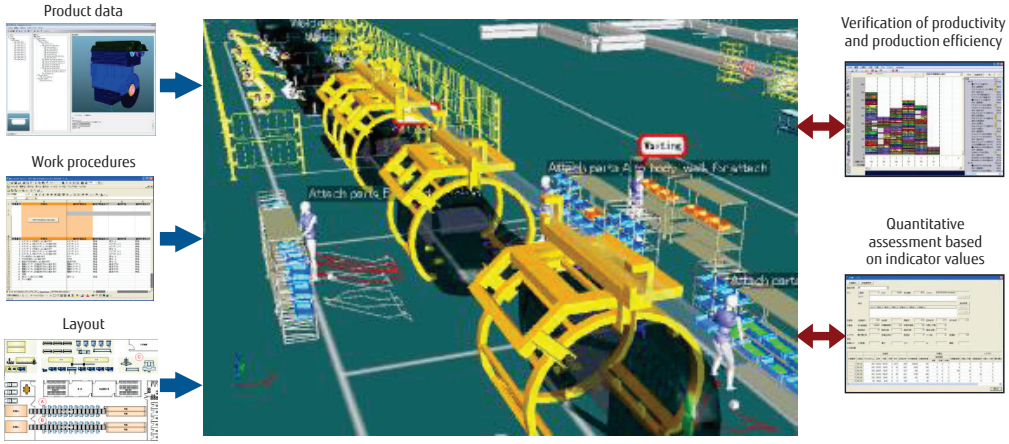


What is FJGP4D?

Fujitsu's FJGP4D automatically estimates production capacity from a process plan in order to obtain maximum performance.

Review of a new production line

Making improvements in advance

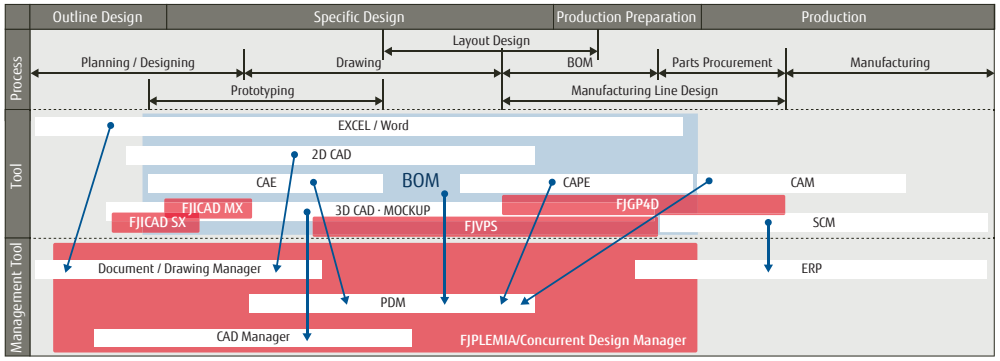


FJGP4D (semi-) automatically simulates the movements of persons and flows of materials.

- **Predicts productivity, work efficiency, and costs**
- **Develops measures to prevent potential problems**

Why Fujitsu?

- Fujitsu is a manufacturer that designs and manufactures products on its own, including supercomputers, servers, telecommunications equipment, and mobile devices. Based on its experience in manufacturing, Fujitsu provides PLM package software solutions.
  - · CAD: FJICAD SX and FJICAD MX
  - · MOCKUP: FJVPS
  - · PDM: FJPLEMIA/Concurrent Design Manager
  - · Virtual Product Line Simulator: FJGP4D
- Based on 30 years of experience in the industry, Fujitsu provides package software that caters to customers' needs.
- By developing its own package software, Fujitsu maintains high product quality to meet customers' needs.
- Fujitsu is capable of providing customers with a full range of services, including hardware (e.g., PCs and servers) as well as networks, telecommunications equipment, and software.
- As an SI vendor, Fujitsu has helped many customers construct business operation systems for many years.



Case Study

Company A

Challenge:

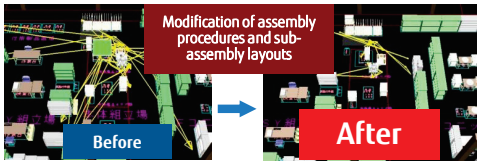
- Due to rapid changes in production resulting from external causes, it was difficult to match operators' skill levels with work levels.

Effects:

- **Walking distance: Reduced 43%**
- **Value of in-process items in stock: Reduced by 20-30%**
- **Productivity: Increased 40%**

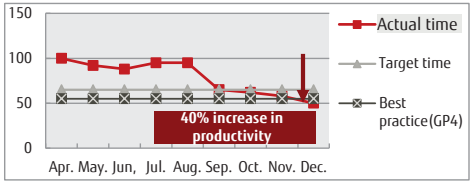
Before improvement (cell): problem detected by FJGP4D

After improvement (cell): effects quantitatively analyzed



	Before	After
Walking distance	174.1 m	133.5 m
Cycle time	55 min.	39.6 min.

Production time/Product



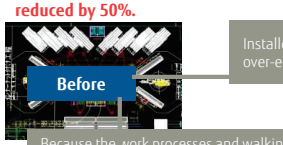
Company B

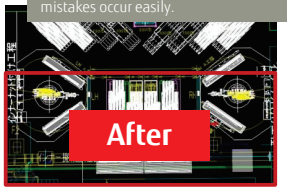
Issue :

Use of the 2D tool-based process design does not allow enough time for an examination to be performed during the production preparation period.

Effects:

- **FJGP4D makes it possible to reduce the examination time by 50% and to increase the efficiency of the process design for the heavy load process.**
- **By implementing KAIZEN activities before the start of mass production, the number of scheduled workers was able to be reduced by 50%.**





	Cycle Time	NET Time	Accompany	NET Rate	Walk	Capacity Utilization
Plan A (current)	248.6s	160s	88.6s	64%	66M	83%
Plan B (KAIZEN)	226.8s	160s	64.8s	71%	42M	92%
Effect	Reduction of 21.8s	0s	Reduction of 23.8s	Increase of 7%	Reduction to 24M	Increase of 9%