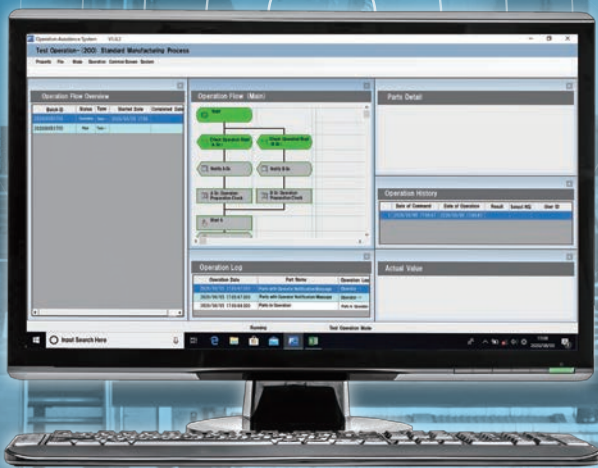


# MICREX-View **XX**

## Plant Operation Assistance System

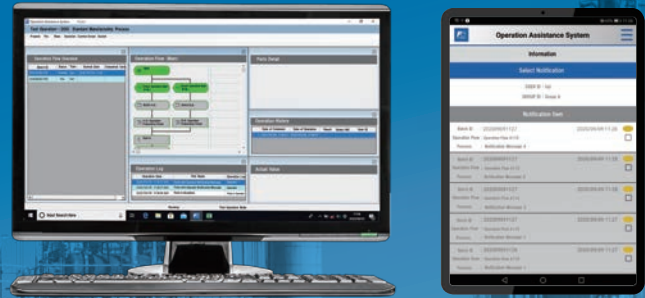
Solving the problems of “skill transfer” and “productivity improvement.” Supports plant operations and contributes to improved on-site capabilities.

- ✓ “Visualizes” the techniques of experienced workers. Eliminates dependence on specific workers
- ✓ Reduces waiting times for on-site workers. Improves productivity
- ✓ Prevents work mistakes. Improves worker skills and product quality



# Visualizes the “insights” and “tricks” of experienced workers to strengthen workplaces. Contributes to profit generation in plant operations.

The manufacturing industry is being required to further improve its competitiveness and production efficiency, including the need to handle multi-variety small-lot production, but is facing a major problem in factories due to a declining workforce of skilled production line workers who have reached their retirement age. Fuji Electric's plant operation assistance system visualizes the plant operation expertise of experienced workers and utilizes it to achieve effective operations on the production line in order to contribute to profit generation.



## Challenges faced by the production site

### Breaking away from dependence on veteran workers

- Responds to increased risk of stoppages due to retirement of specific workers
- Supports human resource development (transferring expertise to younger workers)

### Maximizes resource utilization

- Dealing with useless work, wait times, etc.
- Handling work omissions and resulting problems
- Flexibly and optimally allocating on-site personnel in accordance with changes in labor hours, etc.

### Respond to quality improvement and stabilization

- Responds to quality irregularities and product defects caused by skill inconsistencies
- Flexibly responds to post-operational improvements and updates, as well as flow changes
- Improves efficiency and accumulates expertise by making procedure updates easier and more frequent

## System operation image

### Operation assistance PC

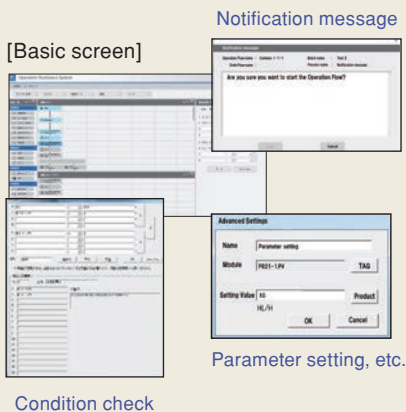
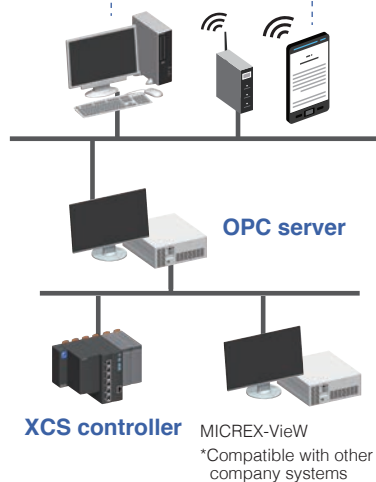
#### Reduces workload during monitoring operations

- Operation support via messages and voice
- Ascertain the progress of on-site work
- Confirms on-site work results

### Operation assistance tablet

#### Reduces workload during on-site tasks

- Capable of confirming on-site process progress, and ascertaining process transition operations and on-site conditions
- Replaces work checklists (paperless)
- Capable of creating forms on tablets instead of handwriting them
- Enables sharing of on-site conditions through use of cameras
- Computerizes records of work evidence such as inspection results



Condition check

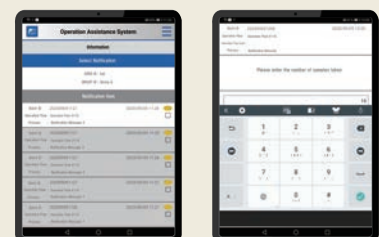
Notifies operation instructions to on-site control equipment and monitors condition data based on the created operation flow.

### System Linkage via General-Purpose Interfaces

Effective use of plant data

- Other systems' data can be used for the operational workflow of this system.
- Operational workflow can be created, regardless of lower layer system segmentation.

[Tablet screen]

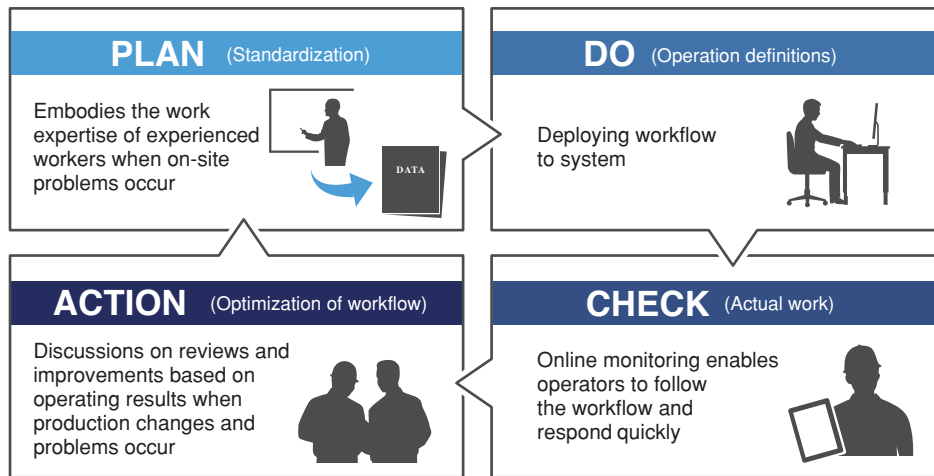


Check work content in a list. Operator selects work to be processed and performs confirmation and results entry.

# Work improvement by building a PDCA cycle

**Can improve workflow, while flexibly incorporating on-site situations and opinions**

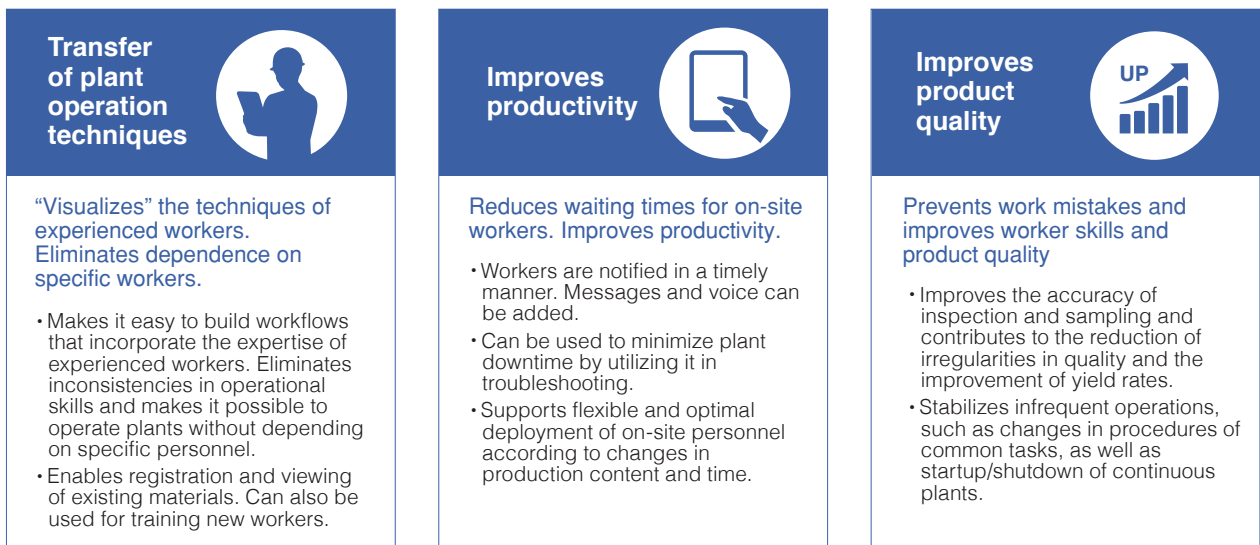
Makes it easy to create work procedures and later revise them. Enables operators to deal with problems that become apparent after the start of actual operations and make necessary adjustment additions or revisions anytime.



## Benefits of the Plant Operation Assistance System

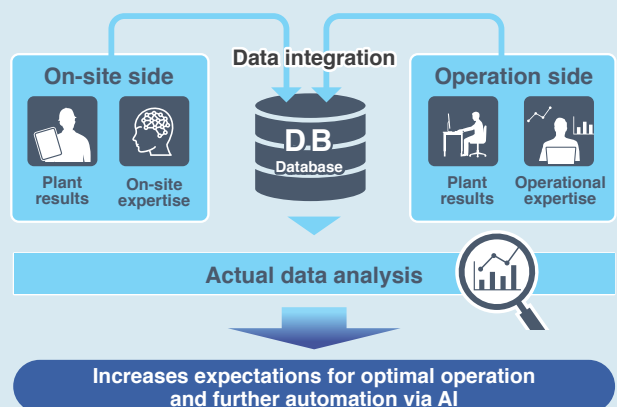
**Creating a system that focuses on standardizing on-site work and transferring expertise**

By visualizing and standardizing the “insights” and “tricks” of experienced workers, it eliminates various factors that impair production efficiency and contributes to operational stability when procedures are changed.



### Bedrock of “data-driven factories”

Stores data, such as designs, utilized operation flows and acquired plant conditions, in the database. In the future, the system will use these types of data to assist in the designing of operation flows by selecting operations that correspond to the characteristics and conditions of the plant, while positioning itself to help achieve “data-driven factories” by connecting with AI used to automatically create operation flows and deploy them to automated operations.



## Function overview

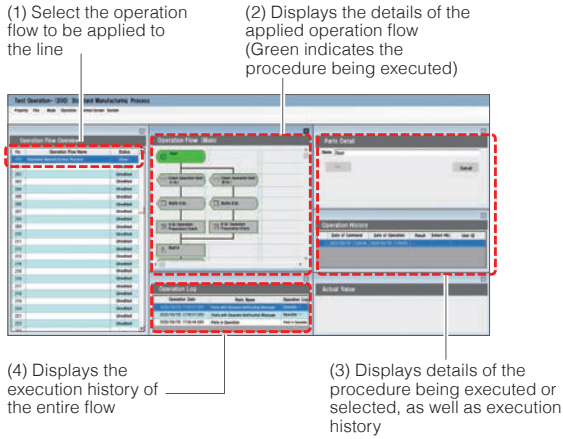
No specialized programming knowledge is required. Makes the creation of work procedures intuitive and easy.

### Operation assistance PC

Easy to build and change workflows.

#### [Basic screen]

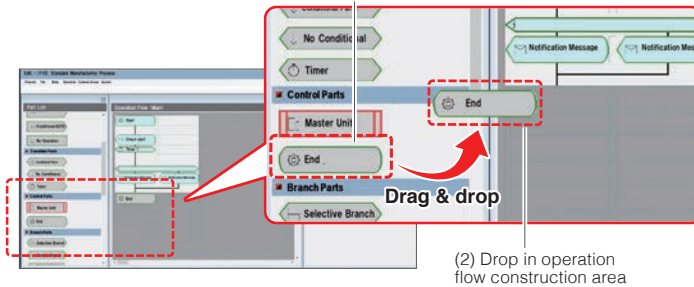
Multiple workflows can be registered. Enables you to intuitively understand the entire flow being selected or applied as well as the details of individual work elements.



#### [Work procedure construction screen]

Makes it easy to construct by simply dragging and dropping pre-assembled work elements such as processing parts, transition parts, tablet parts, etc.

(1) From the parts list area, select the work element you want to insert



### Operation assistance tablet

The information you need, when you need it.

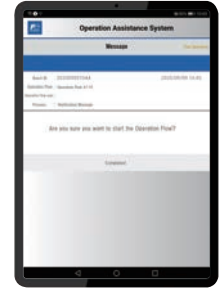
Contributes to the optimization of plant operations by achieving efficient communication of information to on-site personnel through linkage with tablets.

#### [Information list]



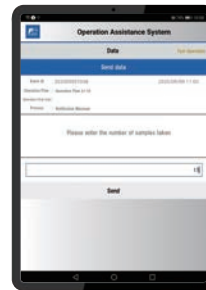
Select the required task from the listed work instructions.

#### [Operation start instructions]



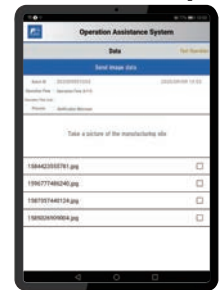
Returns "OK" or "Not OK" messages sent from the server.

#### [Results data input]



The actual data confirmed on-site is entered and sent to the server.

#### [Transmission of on-site data]



The on-site video and photos taken by the tablet are sent to the server.

## Hardware requirement specifications

Item	Function	Remarks (required specifications, etc.)
Operation assistance PC	Combines processing parts, transition parts and tablet parts to create an operation flow. Furthermore, it notifies operation instructions to on-site control equipment and monitors condition data based on the operation flow. The operation assistance PC can be used as a standalone or client-server computer, and can also display the operation flow screen using remote desktop functionality.	For standalone configuration Windows 10 IoT Enterprise 2016 LTSB (64bit) For client-server configuration (server) Windows Server 2016 Standard (64bit)
Operation assistance client	Displays a screen equivalent to that of the operation assistance PC as a dedicated client terminal.	For client-server configuration (client) Windows 10 IoT Enterprise 2016 LTSB (64bit)
Operation assistance tablet device	In addition to the simple display of the operation flow screen, you can check the details of work requests in a list. The operator selects the work to be processed, and performs confirmation and results entry.	Android 8, Android 9
Wireless LAN router	Enables communication with the operation assistance tablet device.	Data transmission

### ⚠ Safety precautions

- Before use, please read the "Operation Manuals" and "Specifications" thoroughly or consult us or the sales agent from which you purchased this equipment to ensure it is used correctly.
- This system must only be handled and operated by relevant specialists.

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