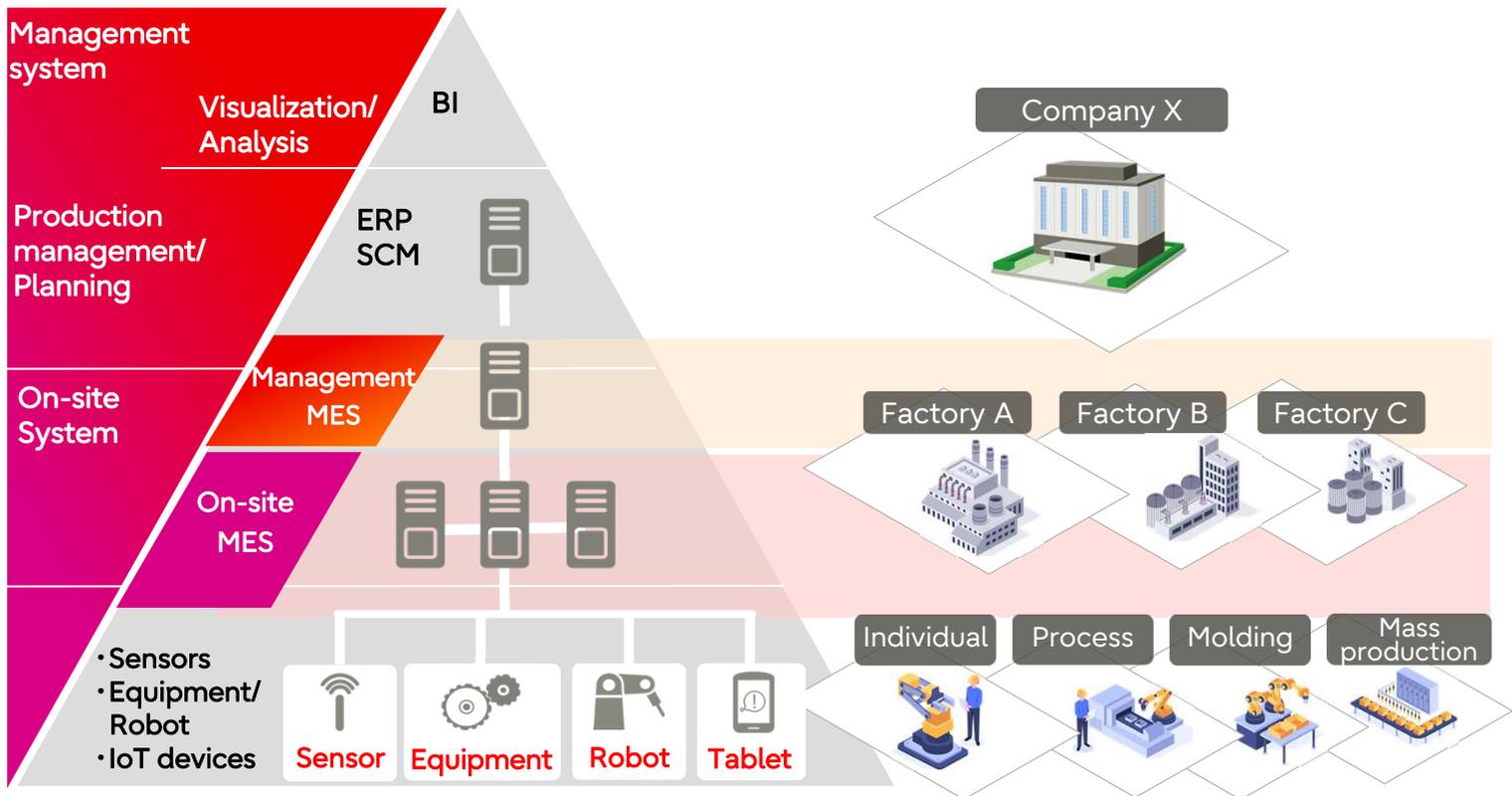# Manufacturing cluster that realizes manufacturing DX

FUJITSU

Improving productivity and quality of entire supply chain by combining management MES with on-site MES
Creation of on-site kaizen culture linked to visualization and management contribution across the entire company that is required for decision-making

Manufacturing cluster

■ Achieving sustainable manufacturing that can respond to changes by more firmly linking management systems and on-site systems throughout the supply chain

Management system

Visualization/ Analysis — BI

Production management/ Planning — ERP SCM

On-site System — Management MES

On-site MES

- Sensors
- Equipment/ Robot
- IoT devices

Sensor Equipment Robot Tablet

Company X

Factory A Factory B Factory C

Individual Process Molding Mass production

Data-driven manufacturing realization with integrated information

Standardized information that supports the aggregation and analysis of information forms the basis of management decisions

- Sales Order/Purchase Information
- Master schedule/Intermediate schedule plan
- Order process instructions/ Results
- Quality assurance standards

Integration of standardized information and on-site information

Real information optimized for various manufacturing methods

- Detailed schedule/Daily planning
- Work instructions/Results
- Quality assurance compliance trail
- On-site/Real Information

The form of MES that enables new value creation by responding to changes with "Management MES" x "On-site MES"
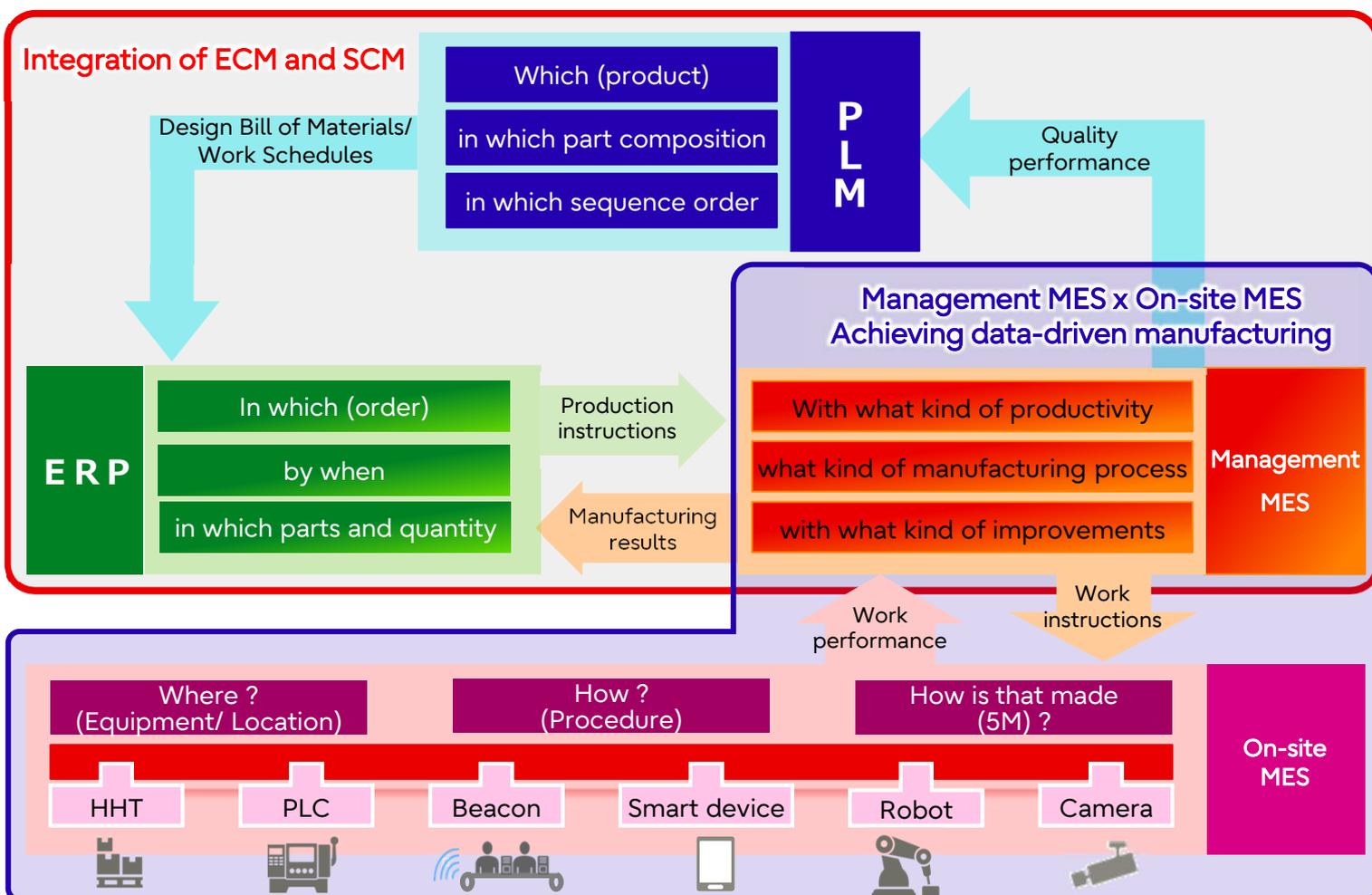
Management MES

Integrate with ERP information as a position of the site basic system. Global process standardization and centralized management of 5M (*1) information enable rapid management decisions.

▶ Integration of information related to manufacturing, both inside and outside the company

▶ Cross-organizational visualization necessary for decision-making

▶ Standardization of manufacturing processes

On-Site MES

Support the "on-site kaizen culture". Digitally create an environment where one can concentrate on manufacturing. (Digital Working Standard)

▶ Centralization of on-site information

▶ Digitalization of on-site information without burden

▶ Flexibility according to manufacturing site conditions

Integration of ECM and SCM

Design Bill of Materials/ Work Schedules

Which (product)

in which part composition

in which sequence order

P L M

Quality performance

Management MES x On-site MES Achieving data-driven manufacturing

E R P

In which (order)

by when

in which parts and quantity

Production instructions

Manufacturing results

With what kind of productivity

what kind of manufacturing process

with what kind of improvements

Management MES

Work performance

Work instructions

Where ? (Equipment/ Location)

How ? (Procedure)

How is that made (5M) ?

On-site MES

HHT | PLC | Beacon | Smart device | Robot | Camera

*1 The 5M stands for Men, Method, Machines, Materials, Measurement

All MES solutions provided by Fujitsu

Management MES

SAP® Digital Manufacturing Cloud （DMC）

Cloud-based manufacturing execution management and analysis solution

DMC for Execution
DMC for Resource Orchestration
DMC for Insights

▶ Industry 4.0 Manufacturing on-site solutions
▶ Cloud-based work level scheduling
▶ Enable data-driven performance management

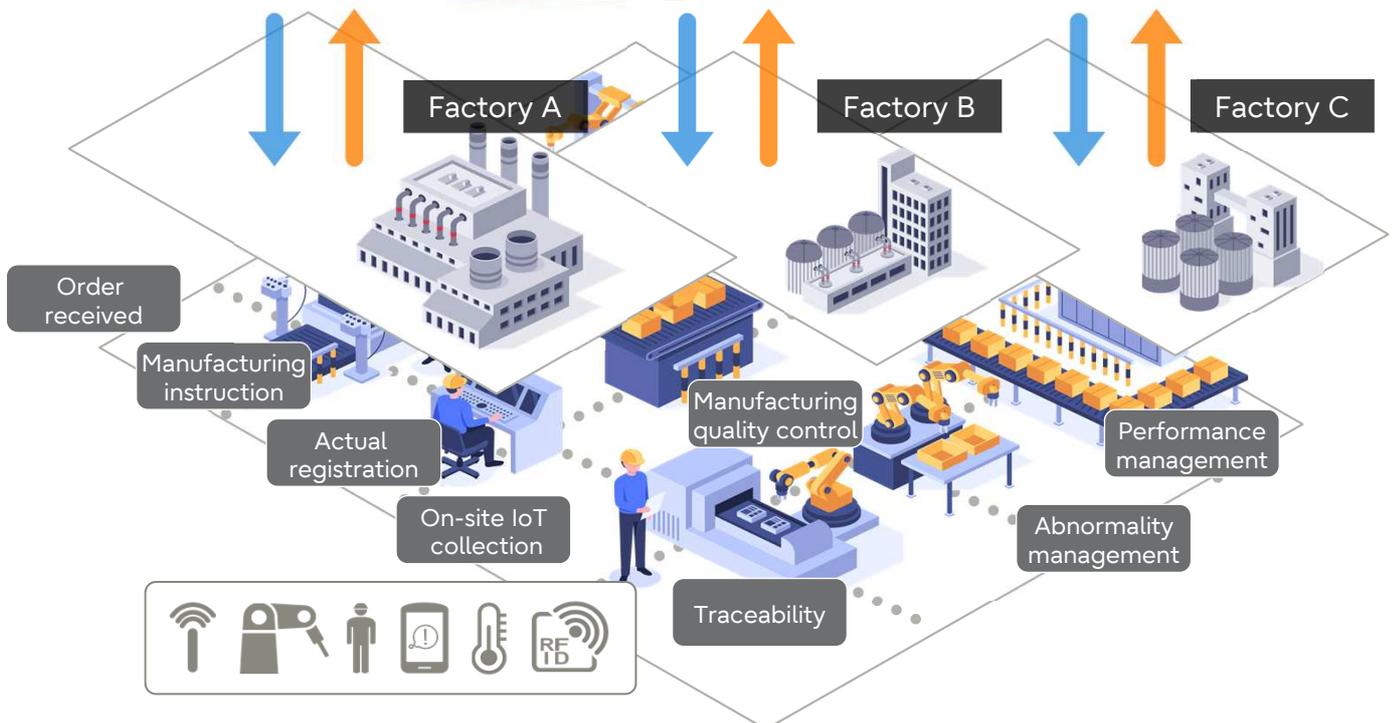| Cloud-based management MES	Performance management	MES global deployment	Work schedule

ERP
SAP S/4HANA

SAP® Digital Manufacturing Cloud （DMC）

Centralized manufacturing management	Multi-site operation analysis	Corporate level KPI dashboard

ERP/MES integrated information (Management MES)

Factory A   Factory B   Factory C

Order received

Manufacturing instruction

Actual registration

On-site IoT collection

Manufacturing quality control

Performance management

Abnormality management

Traceability

RF ID

Global manufacturing analytics dashboard

| 99.5 | 43.1 | 1187 | 6455 | 26.0 |

All information from multiple locations
Sharing / comparison / analysis

Worker OEE Dashboard

| ⊘ 63.63 | ⊘ 8.882 | ⊘ 100 | ⊘ 91.85 |
| ⊘ 8.882 | ⊘ 13.05 | ⊘ 13.05 | ⊘ 94.18 | ⊘ 79.47 |

Operability analysis based on detailed performance information

Operation routing definition

Issuing of Order-based design/configuration/ work process instructions

Resource orchestration

Collecting detailed manufacturing procedures and manufacturing quality performance information

All MES solutions provided by Fujitsu

COLMINA MES

Site-specific MES solution

▶ Site-specific manufacturing execution management and productivity improvement support solution
▶ Flexible response to production forms and management units
▶ Achieving "no waiting" and "no thinking" on site

On-site-specific MES	Flexible device application	Support for various types of production

ERP

Management MES

Loose coupling

On-site MES

Multifunctional work support

Cell production digital instruction	Workplan workforce assignment
Input of HHT/smartphone sensors	Real-time dispatch

Teamwork support

Real-time serving instruction	Digital indicator light
3 Plan model	Signboard
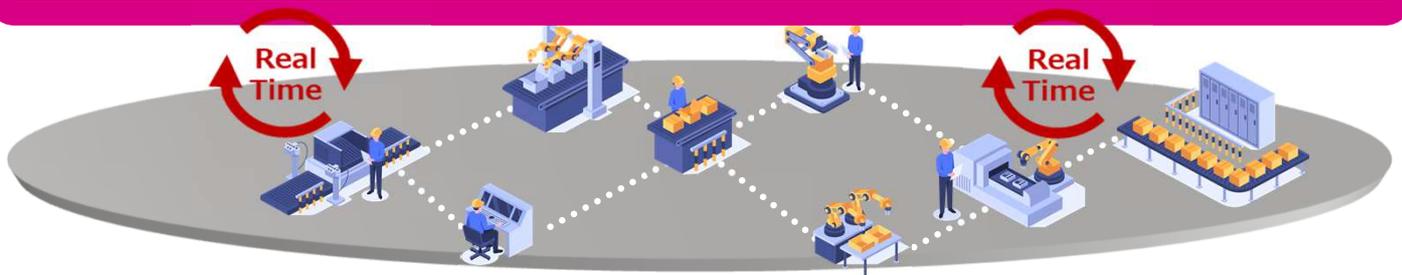
Real Time

Real Time

Result collection and digital instruction with reduced burden on workers

Real-time monitoring of production status linked to on-site information

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Contact

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FUJITSU Manufacturing Industry Solution COLMINA MES

https://www.fujitsu.com/jp/solutions/industry/manufacturing/monozukuri-total-support/solutions/emes/

We support the Sustainable Development Goals (SDGs)

8 働きがいも経済成長も

9 産業と技術革新の基盤をつくろう

12 つくる責任つかう責任

17 パートナーシップで目標を達成しよう