# NEC Industrial IoT Connected Factory Solution Map

Legend : Software | Service | AI/Advanced Technology

Supplier

## Design/Production Engineering

**PLM** — Obbligato Ⅲ

BOM / BOP

## Manufacturing /Purchasing

**SCM** — IFS Applications

- Production Plan
- Actual production
- Procurement
- Inventory Management
- Traceability

## Manufacturing Instruction /Actual Production

**MES** — IFS for MES

- 5M※1 Masters
- Instructions
- Manufacturing Results
- Machine Management

※1 5M＝Material, Machine, Man, Method, Measurement

## Applications

NEC Industrial IoT Apps

### Onsite Operation Improvement Solution

- Factory Operation/Quality
- Human Operation Analysis

Digital Kaizen Approach (DX-KAIZEN)

### Through-put Improvement Solution

- Stock and Flow Visualization
  - Supply Chain
  - In Factory
- Inventory Transition
- Stagnation between items and orders
- Stagnation Heat Map

Manufacturing Innovation by Meister Consultation (Value Stream Mapping)

### Quality Improvement Solution

- Traceability
- Quality Data Platform

## NEC Advanced Analytics Platform Solution Templates

### AI Solutions

Heterogeneous Mixture Learning

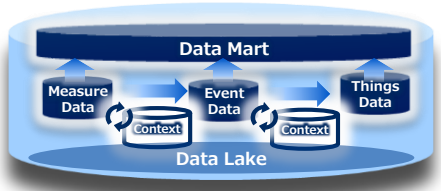
- Product Demand Forecast
- Maintenance Parts Demand Forecast
- Quality Analysis

## Data Platform

**NEC Industrial IoT Platform**

NEC Industrial IoT Platform digitalizes manufacturing onsite facts and promotes data utilization for business application.

The platform realizes the following.
- IoT data collection and storage
- Operation monitoring and notification
- Applications and AI utilization




## Shipping/Logistics

- WMS — Autonomous Adaptive Control
- Global Traceability — NeoSurf/Logi
- Delivery Planning Support — ULTRAFIX / GISAp

## Sales/Service

- Order Delivery — IFS Applications
- SFA — SalesForce.com
- Call Center — Voice/Emotion Recognition / Text Connotation Recognition

## Maintenance

- Service Management — Machine Management — IFS Applications
- Remote Operation Support — AR

Customer

## Manufacturing-onsite Improvement and Digitalization

### Human Operation
Human Operation Solution
- Voice instructions and work log collection

### Individual Identification
Fingerprint of things authentication
- Identify individuals by fingerprint of things

### AI Visual Inspection
AIVI
- Visual inspection utilizing deep learning.

### Anti-Spoofing
Face Recognition
- Facial feature is converted into data and stored at QR code/IC card. This is used for identification.

### Health Management
Emotion Analysis
- Utilizing wearable device and cloud to visualize human emotion.

### Robot Control
AGV Optimization
- Link with production line and optimize AGV's flow.

### Location Finding
Hearable
- Indoor location finding by terrestrial magnetism
- Biometrics authentication by echo of the ear canal

### Visualization Trial
Industrial IoT Starter Kit
- Auto-collect, visualize, analyze for machine operating information

## Edge Computing

EDGECROSS　ORiN

## Infrastructure

Factory Computer | Cloud Service | High Reliable Wireless | Security | Machine/Sensor Linkage

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