METI
Ministry of Economy, Trade and Industry

April 3rd, 2019

13th German-Japanese Economic Forum, Hannover Messe 2019

Progress toward Realization of the “Connected Industries”

Hirofumi Takinami

Vice-Minister of Economy, Trade and Industry

METI “GLocal” growth strategy study group

A study group has been set up by the Parliamentary Vice Minister Mr. Takinami, consisting of variety of METI officials in charge of local economies, SME, energy, trade, human resource, R&D policies and etc.

- Study strategies to **achieve growth by linking global markets with local industries**.
- Study local models achieving growth **more than large cities** by exploring global markets, for example **in Central and Northern Europe, including Germany**, as well as **in US Silicon valley**.
- **By achieving growth in local cities, front-runners facing declining population**, break a stereo-typed notion that growth is not possible with declining or small population, and establish confidence that **growth can be achievable even under the constraints in population**.

➡ **“Growth in local areas is essential for Japan’s growth”**

Visiting companies in Fukui

Discussion with companies in Fukui

Connected Industries

Connecting a variety of industries, companies, people, machines, data and other social elements, contributing to...

Creating new value, products and services using AI, etc., and improving productivity for...

Solving social challenges, such as “aging society”, “labor shortages”, and “environment and energy restrictions”, etc.

2017.3 CeBIT

Angela Merkel
German Chancellor

Shinzo Abe
Prime Minister of Japan

- Enhancing industrial competitiveness
- Improving people’s lives
- Promoting the healthy development of the national economy

Society 5.0

2018.10 Joint Declaration

Peter Altmaier
Federal Minister

Hiroshige Seko
Minister

Strategic fields of “Connected Industries”

Automated Driving and Mobility Service

Autonomous driving, energy management for EV and mobility services, including logistics.

Manufacturing and Robotics

Overall optimization of production and smart-manufacturing utilizing advanced factory-floor capabilities and technological capabilities.

Bio technologies and Materials

Innovation in materials, healthcare and drug discovery, and expansion of the “bioeconomy”.

Plant / infrastructure Safety Management

Improvement of productivity and safety through utilizing new technologies, including IoT and drones.

Smart Life

Acceleration of new services utilizing life data, and accordingly, the reduction of time spent on housework to the benefit of the workforce.

Manufacturing and Robotics field

Connected Industries in Manufacturing and Robotics field

Robot Revolution & Industrial IoT Initiative (RRI)

Data Sharing among Industrial IoT Platforms

"Digital Triplet" Production System

Smart Manufacturing Supporters

Robot Revolution & Industrial IoT Initiative (RRI)

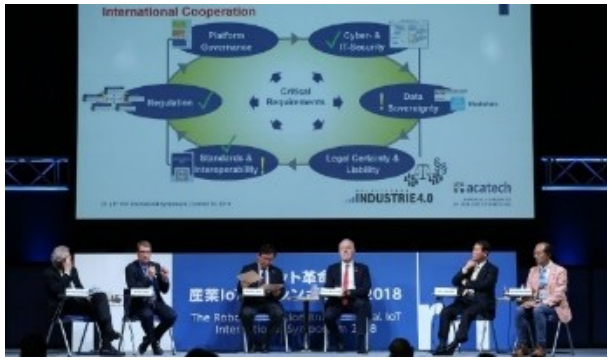
ロボット革命イニシアティブ協議会
Robot Revolution & Industrial IoT Initiative

Establishment	May 15th, 2015
Chairperson	Hideaki Omiya, Director and Senior Advisor, Mitsubishi Heavy Industries, Ltd.
Members	523（January 30th, 2019）

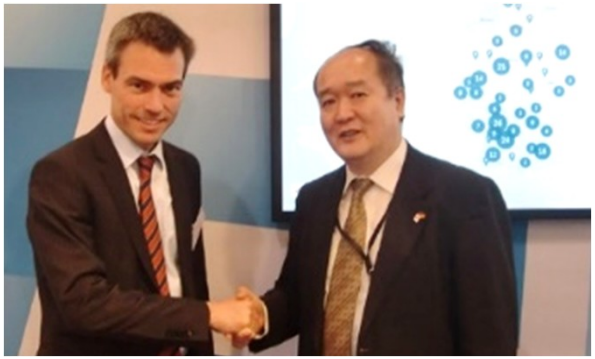
2015.5
Inaugural Meeting

2017.6
Connected Industries Symposium

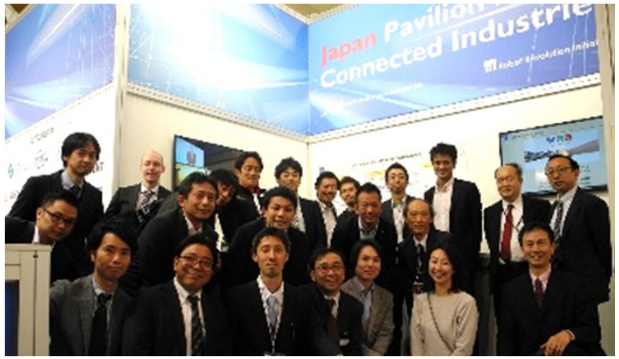
2018.10
International Symposium



2016.4
Joint Declaration with PI4.0



2018.4
Hannover Messe 2018



2018.12
Connected Industries Seminar

Cooperation between Japan's "Connected Industries" and Germany's "Industrie 4.0"

Connected Industries

Industrie 4.0

METI

Hannover Declaration

March 19th, 2017

BMWi

RRI

ロボット革命イニシアティブ協議会

Robot Revolution & Industrial IoT Initiative

Joint Declaration

April 28th, 2016

PI4.0

PLATTFORM INDUSTRIE 4.0

Manufacturing Business Revolution through IoT WG

Experts Meeting

International Standardization

Industrial Cyber Security

Joint Papers

2018.4

2019.3

2018.5

2019.4

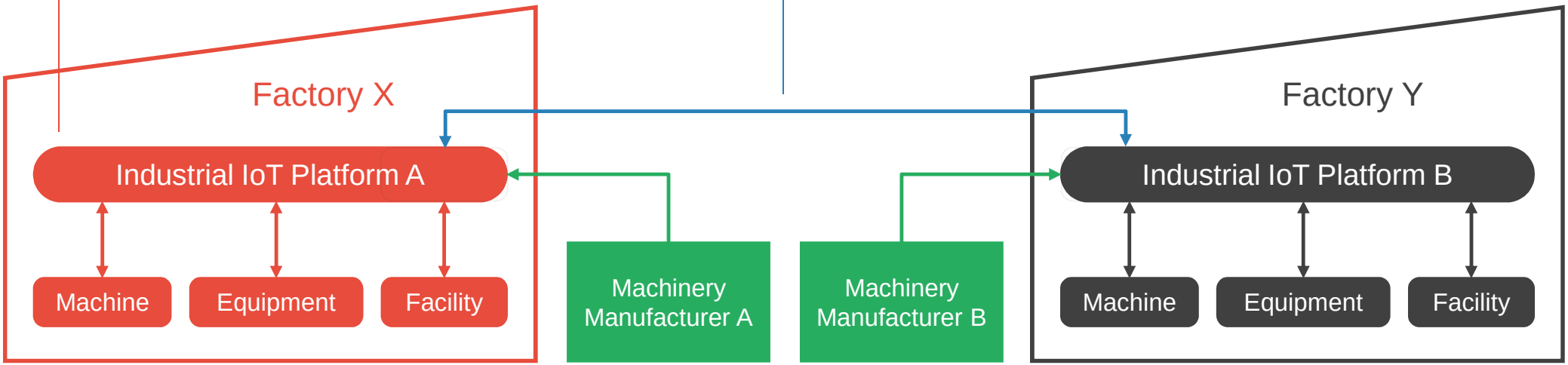
Industrial IoT Platform

Utilization of Industrial IoT Platforms

- Monitoring operation condition of the manufacturing machines to improve operation rate of the factory;
- Detecting malfunctioning of the machines to prevent breakdown; and
- Analyzing various data of the factories to optimize manufacture.

Data Sharing among Industrial IoT Platforms

- Utilize a processed program being produced and adjusted in Factory X, in Factory Y as well;
- Utilize inspection data comprising accumulated learning in Factory X, in Factory Y as well; and
- Manage progress of production operation of Factory Y to be aligned to that of Factory X.



Provision of Industrial IoT Platform Services

- Not only services related to manufacture, sales, and maintenance of machineries but also services related to data analysis and applications to improve productivity of factories.

Data Sharing among Industrial IoT Platforms

Organizer

Industrial Value Chain Initiative (IVI)

- Project Organization, Functional Designs of HCS and HCT, and API Design

Hitachi

- Server Implementation on Dictionary Management and Dictionary Conversion Functions, and HCT Implementation

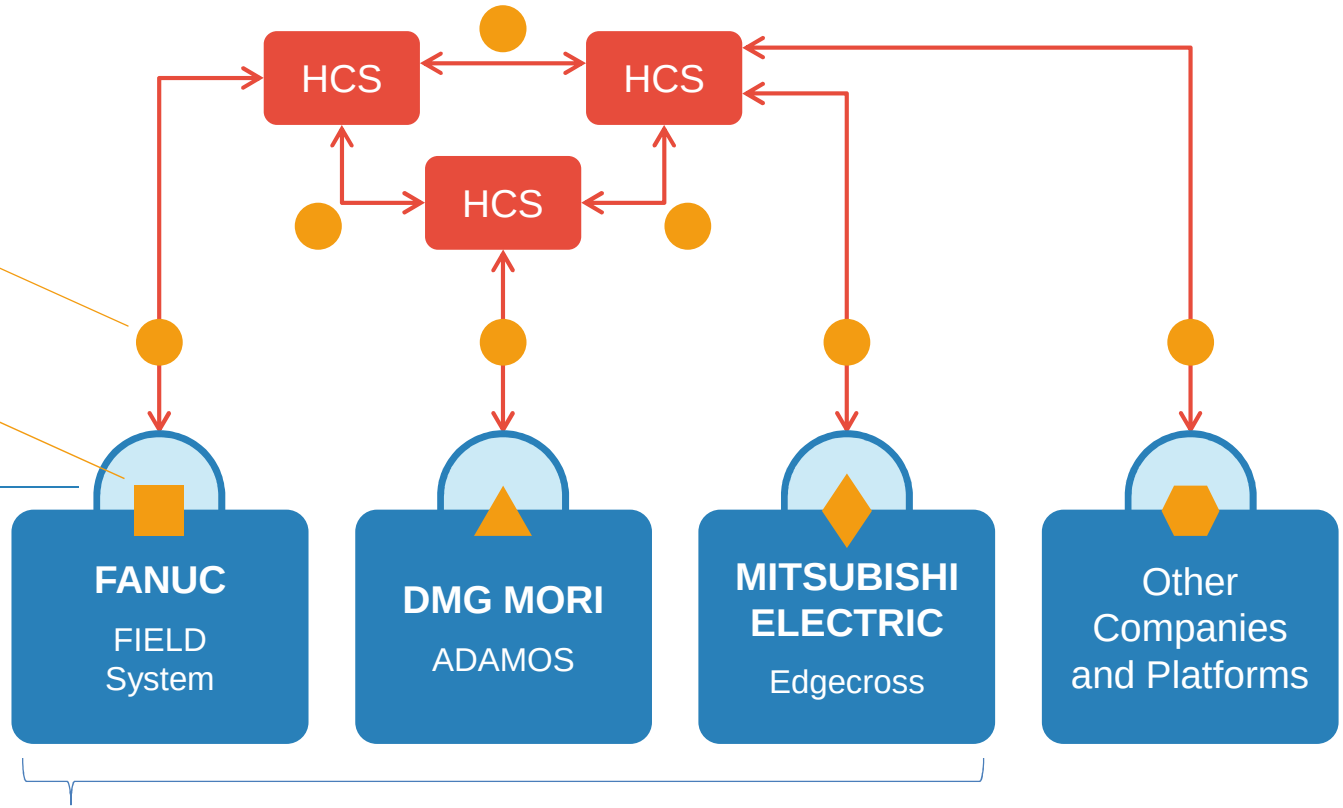
Hyper Connection Server (HCS)

Data Converted by a **Common Dictionary**

Data Based on an **Actual Dictionary**

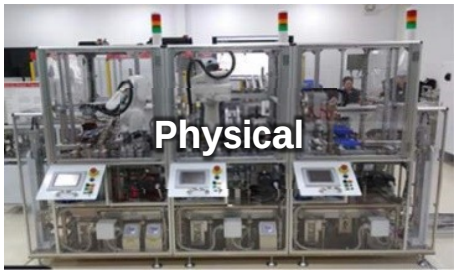
Hyper Connection Terminal (HCT)

Industrial IoT Platform



- A data dictionary will be created which corresponds to individual actual scenarios.
- A feasibility study will be conducted using edge side components and an HCT.

“Digital Triplet” Production System



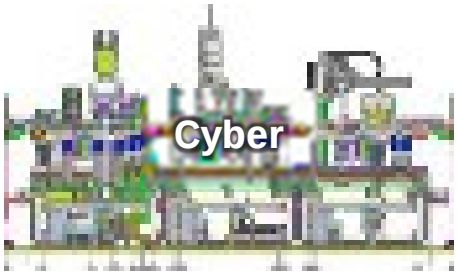
Digital Twin

1

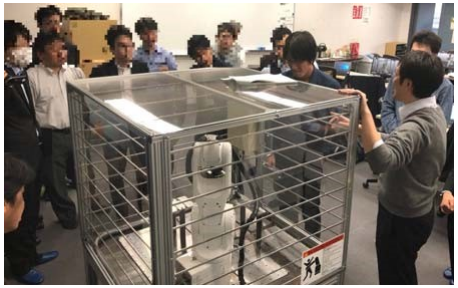
Physical World

2

Cyber World



“Digital Triplet”



3

Intelligent Activities World

Know-how of Kaizen

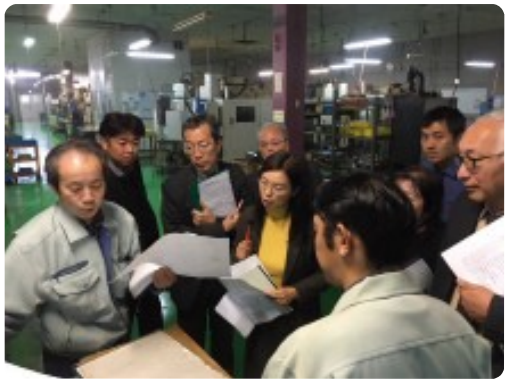
Implicit knowledge

Smart Manufacturing Supporters

Training → **Supporting**

smart manufacturing supporters

SME's smart manufacturing



Smart Manufacturing Supporting Hub

(31 hubs)