NexGen IoT Acceleration Lab
(Advanced Model Businesses Promotion WG）
IoT Support Committee (Fourth Meeting)

Agenda

Date: 16:00-17:30, Wednesday, January 31, 2018

Location: Ministry of Economy, Trade and Industry
                   Main Building 17F 1～3 Shared Conference Room

Proceedings: Activity Report, etc. of NextGen IoT Acceleration Lab

[Handouts]

Material #1:   Member List
Material #2:   Activity Report, etc. of NextGen IoT Acceleration Lab

Reference Material #1: Lists of projects to be supported/selected through
                       3rd & 4th IoT Lab Selection
Reference Material #2: Implementation State of IoT Lab Demonstration by Themes

Reference Material #3: Connected Industries and IoT-related Budgets（Japanese only）

NextGen IoT Acceleration Lab IoT Support Committee Member

<Chairman>

Kazuhiko Toyama
Representative Director and CEO,
Industrial Growth Platform, Inc.

<Member>

Akira Sakakibara
Chief Technology Officer, Microsoft Japan Co., Ltd.

Fujiyo Ishiguro
President and CEO, Netyear Group Corp.

Hiroaki Nakanishi
Chairman of the Board, Representative Executive Officer,
Hitachi, Ltd.

Jun Murai
Dean of the Graduate School of Media and Governance /
Professor, Faculty of Environment and Information Studies,
Keio University

Junichi Tsujii
Director, Artificial Intelligence Research Center

Klaus Meder
President and Representative Director,
Bosch Corporation

Makiko Eda
Representative Director and President,
Intel K.K.

Makoto Takahashi
Executive Vice President, Representative Director,
KDDI CORPORATION

Masaaki Tanaka
Senior Global Advisor,
Pricewaterhouse Coopers International

Paul Daugherty
Chief Technology Officer, Accenture plc

Shinichi Koide
Executive Vice President, salesforce.com, inc.
Chairman and CEO, salesforce.com Co., Ltd.

Shiro Uchida
Chairman and Representative Director,
SAP Japan Co., Ltd.

Soichi Kariyazono
Chairman, Japan Venture Capital Association

Tadao Nagasaki
Representative Director and President,
Amazon Web Services Japan K.K.

Takayuki Hashimoto
Honorary Executive Advisor, IBM Japan, Ltd.

Takeshi Natsuno
Guest Professor, Graduate School of Media and Governance,
Keio University

Taro Shimada
Senior Executive Operating Officer & Division lead,
Digital Factory / Process Ind. & Drives Division,
Siemens K.K.

Tatsuya Harada   Professor, School of Information Science and Technology,
                        The University of Tokyo
Tony Blevins   Vice President, Apple Inc.
Wavde Mandar   Commercial leader, GE Digital Japan
                        General Electric International Inc.
Wayoh(Kazuhiro) Suzuki Managing Director, Strategic Solution and Business,
                        Development, Cisco Systems G.K.
Yasufumi Kanemaru   Chief Executive Officer, Chairman and CEO,
                        Future Corporation
Yoshitaka Sugihara   Head of Public Policy and Government Relations,
                        Google Japan G.K.

Activity Report, etc. of NextGen IoT Acceleration Lab

January 31, 2018
Commerce and Information Policy Bureau
Ministry of Economy, Trade and Industry

Our past activities

  In order to create new IoT business models, and discover/develop IoT platform creators as a driving force for new growth, the IoT Acceleration Lab has implemented:

① Support for regulatory reform of narrow-focus short term projects, as well as business matching, and

② Support of mid and long-term projects and regional/global collaboration

Efforts for the Fourth Industrial Revolution

- **Introduction of the concept of "Connected Industries"** as a future vision that Japan's industries should aim for
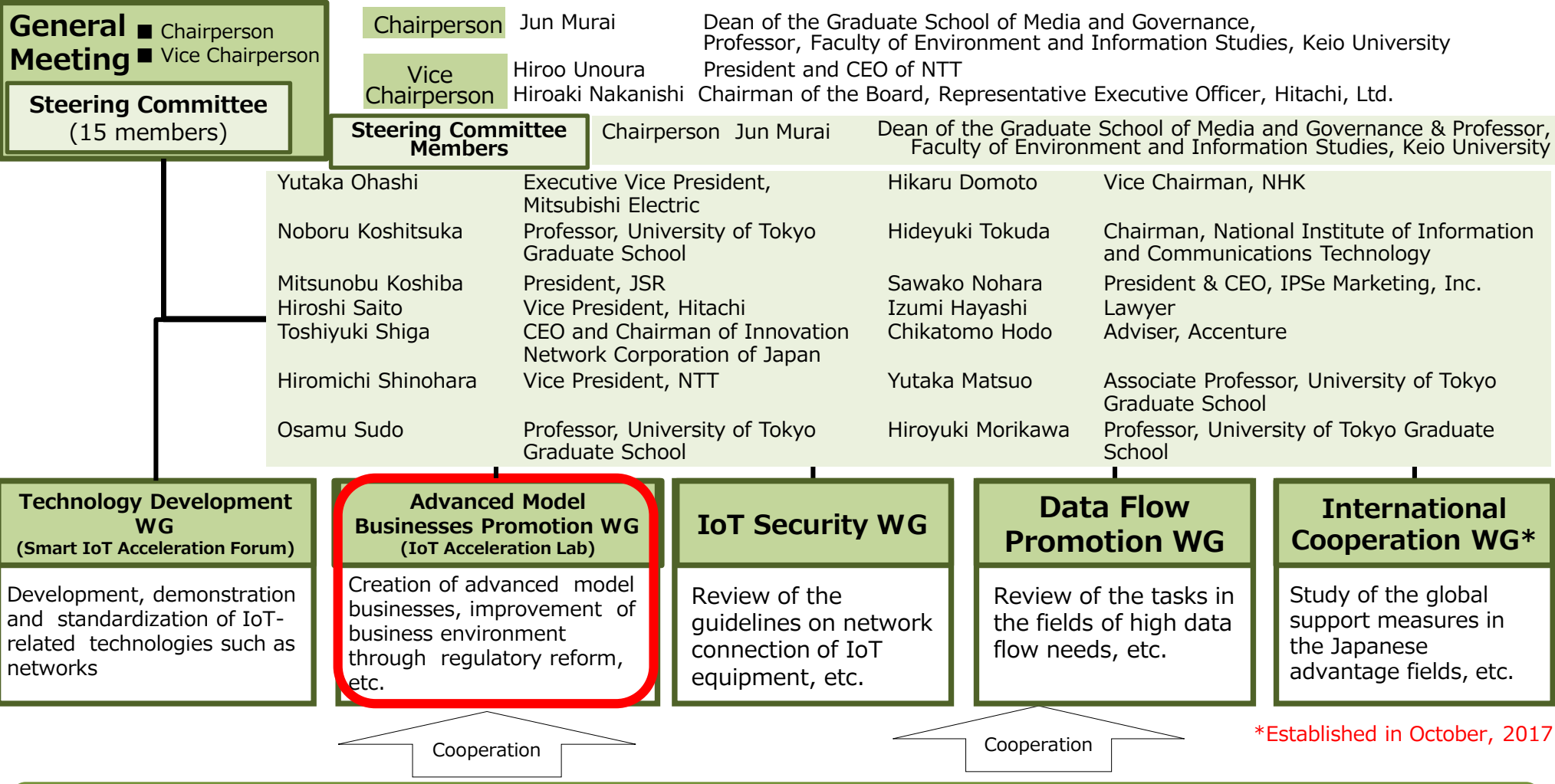
Others

- Free discussion

Activities of IoT Acceleration Lab

- In response to the era of IoT/Big Data/AI, the "**IoT Acceleration Consortium**" was established as an organization led by the private sector to **promote the use of IoT in industry, government, and academia beyond the framework of individual companies and industries**. (Established on Friday, October 23, 2015)
- Implements proposals, etc. on technological development and practical use of IoT, solutions for policy issues. Presently, there are **more than 3,300 member companies**.

General Meeting
■ Chairperson
■ Vice Chairperson

Steering Committee
(15 members)

Chairperson	Jun Murai	Dean of the Graduate School of Media and Governance, Professor, Faculty of Environment and Information Studies, Keio University
Vice Chairperson	Hiroo Unoura	President and CEO of NTT
	Hiroaki Nakanishi	Chairman of the Board, Representative Executive Officer, Hitachi, Ltd.

Steering Committee Members

Chairperson	Jun Murai		Dean of the Graduate School of Media and Governance & Professor, Faculty of Environment and Information Studies, Keio University
Yutaka Ohashi	Executive Vice President, Mitsubishi Electric	Hikaru Domoto	Vice Chairman, NHK
Noboru Koshitsuka	Professor, University of Tokyo Graduate School	Hideyuki Tokuda	Chairman, National Institute of Information and Communications Technology
Mitsunobu Koshiba	President, JSR	Sawako Nohara	President & CEO, IPSe Marketing, Inc.
Hiroshi Saito	Vice President, Hitachi	Izumi Hayashi	Lawyer
Toshiyuki Shiga	CEO and Chairman of Innovation Network Corporation of Japan	Chikatomo Hodo	Adviser, Accenture
Hiromichi Shinohara	Vice President, NTT	Yutaka Matsuo	Associate Professor, University of Tokyo Graduate School
Osamu Sudo	Professor, University of Tokyo Graduate School	Hiroyuki Morikawa	Professor, University of Tokyo Graduate School

Technology Development WG (Smart IoT Acceleration Forum)	**Advanced Model Businesses Promotion WG** (IoT Acceleration Lab)	**IoT Security WG**	**Data Flow Promotion WG**	**International Cooperation WG***
Development, demonstration and standardization of IoT-related technologies such as networks	Creation of advanced model businesses, improvement of business environment through regulatory reform, etc.	Review of the guidelines on network connection of IoT equipment, etc.	Review of the tasks in the fields of high data flow needs, etc.	Study of the global support measures in the Japanese advantage fields, etc.

Cooperation

Cooperation

*Established in October, 2017

Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry, etc.

- IoT Acceleration Lab supports the following projects through (1) **financial support, (2) regulatory support (review of regulations, establishment of rules),** and **(3) corporate collaboration support.**
    - **Short-term outstanding projects by individual companies** and
    - **Mid and long-term projects participated by multiple companies aiming at social implementation**

  Presently, there are **more than 2,900 member companies.**

  IoT Acceleration Lab

IoT Acceleration Consortium

Smart IoT Acceleration Forum (Technology Development WG)

IoT Acceleration Lab (Advanced Model Businesses Promotion WG)

IoT Security WG
Data Flow Promotion WG
International Cooperation WG

IoT Support Committee

- Provide advice on the IoT Lab management and IoT projects implemented by IoT Accleration Lab, as well as **administrative recommendations on regulations and systems,** etc.

Details of support

Financial support	Regulatory support	Corporate collaboration support

IoT Lab Demonstration (Test bed demonstration)

→Support for **mid and long-term thematic** projects by **multiple companies**

IoT Lab Selection (IoT Project Selection Meeting)

→Support for **short-term** outstanding projects by **individual companies**

IoT Lab Connection (Business matching)

→Organization of **matching events** for companies/ research organizations/ municipalities

<Themes (Draft)>

Manufacturing (*)	Mobility	Medical care/ health	Public infrastructure/ construction	Energy	Finance (**)	Smart house
Agriculture	Logistics	Administ-ration	Industrial safety	Educational services	Tourism	

*Work closely with Robot Revolution Initiative
** Work closely with Study Group on FinTech

- In order to create new IoT business models, and discover/develop IoT platform creators as a driving force for new growth, the IoT Acceleration Lab aims to provide short term project support and business matching, and also expand activities to mid and long-term project support and regional/global collaboration, linking them organically.

Financial support	Regulatory reform, standardization, etc.	Corporate collaboration support

Short-term projects

① IoT Lab Selection (IoT Project Selection Meeting)

Scout/select advanced IoT projects to provide financial support, mentor support, and regulatory reform support.

② IoT Lab Connection (Solution/matching)

Until now, matching has been conducted themed on tourism, smart factory, healthcare/sports, logistics/distribution/infrastructure, smart home, mobility, education, agriculture/food, fintech, work style reform, and sharing economy.

②-1 Big Data Analysis Contest

Competition for developing online algorithm based on big data provided by companies

②-2 IoT Lab Global Connection

Business matching, etc. between overseas and domestic companies

Mid & long-term PJ

③ IoT Lab Demonstration (Test bed demo.)

Mid and long-term demonstration involving multiple companies according to themes

Regional

④ Local IoT Acceleration Labs

Select regional efforts for creating IoT businesses as "Local IoT Acceleration Labs". Implement mentor dispatch, staff meetings, and support for exhibition at large-size events. At present, 74 regions are selected.

International cooperation

①, ②, ②－1 …Started in FY 2015

③～④, ②－2 …Started in FY 2016

⑤ International cooperation by IoT Acceleration Consortium

In order to promote global business of domestic companies in the IoT field, cooperate with overseas IoT consortiums and establish International Cooperation WG.

Activities and Future Schedule (after Support Committee 3rd Meeting)

* Events marked with the same numbers (★1, ★2) are held at the same time)
* Underlined red letters represent future plans.

①IoT Lab Selection

March 13, 2017	3rd IoT Project Selection Meeting ★1
October 5, 2017	4th IoT Project Selection Meeting (jointly with CEATEC)
March 6, 2018	5th IoT Project Selection Meeting ★2

[Jointly with CEATEC] October 4, 2017 1st-3rd IoT Project Selection Meetings Winners Presentation

②IoT Lab Connection

March 13, 2017	4th matching event [Themes: Fintech, education, agriculture] ★1
July 25, 2017	5th matching event [Themes: work style reform, sharing economy]
March 6, 2018	6th matching event 【Themes: risk management, entertainment, AI】 ★2

②-1 Big Data Analysis Contest

March 6, 2018 Award Ceremony of the 3rd contest ★2

②-2 IoT Lab Global Connection

October, 2017 Business matching [India, Israel, ASEAN and EU] (jointly with CEATEC)

③IoT Lab Demonstration

[FY2017 Demonstration]

May 31, 2017	Application deadline
From June, 2017	FS (feasibility study) survey
From April, 2018	Start demonstration

[FY 2016 Demonstration]
From April, 2017 Start public invitation / demonstration

④Local IoT Acceleration Labs

[Selection of the regions] March 13, 2017 2nd Selection ★1、August 7, 2017 3rd Selection
[National staff meeting] 1st: March 14, 2017 2nd: July 24, 2017 3rd: February 15, 2018

- In order to discover and help commercialize advanced IoT Projects, government agencies, financial institutions and venture capitals, etc. work together and implement **(1) Financial support, (2) Continuous, one-on-one Mentor support from mentors, and (3) Support for regulatory reform and standardization, etc.**
- **Select advanced projects** from the perspectives of **growth potential/leadership, influence, sociability, etc.** Up to now, **42 projects have been selected** and supported **through four-time Advanced IoT Project Selection Meetings**.
- Newly establish the "Regions Category", promoting invitation of project proposals that are eligible for support from the Local IoT Acceleration Labs or municipalities. **"5th Advanced IoT Project Selection Meeting" is scheduled** on March 6, 2018.

Target groups and Items Evaluated	**Target groups : <u>All advanced projects using IoT technologies, etc.</u>** (All types of businesses, including large enterprises, SMEs, and individuals) **Items evaluated**: to be selected considering the following **(1) Growth potential and leadership** **(2) Influence (openness)** **(3) Sociability (4) Feasibility**	**5th Advanced IoT Project Selection Meeting Schedule**
Support details	The following three types of support are available (multiple choices allowed) **(1) Financial support** **(2) Continuous, one-on-one support from mentors** **(3) Support for regulatory reform, standardization etc.** (Support in the procedures related to the System to Remove Gray Zone Areas, the System of Special Arrangements for Corporate Field Tests, etc. as well as research/demonstration for regulatory reform, standardization, establishment of rules, etc.)	Nov.9-Dec.15 → **Start accepting applications** Late Jan. Screening results announced → **1st Screening [documents]** Early Feb. (Scheduled) → **2nd Screening [Closed presentations]** March 6 @Bellesalle Tokyo Nihonbashi → **Selection Meeting [Open presentations] (Final presentation screening) 5-10 candidates**
Sharing of Application Content	At the desire of applicants, the application contents can be shared with **(1)Participating support organizations**, and **(2)Lab members** *Even if not selected for the final selection, applicants can share the details of their projects with support organizations, Lab member companies, etc.	March to April onwards → **[Financial support] Decide on support one by one** / **[Mentor support] Decide on support one-by-one** / **[Support for regulatory reform, etc.] Start discussions**
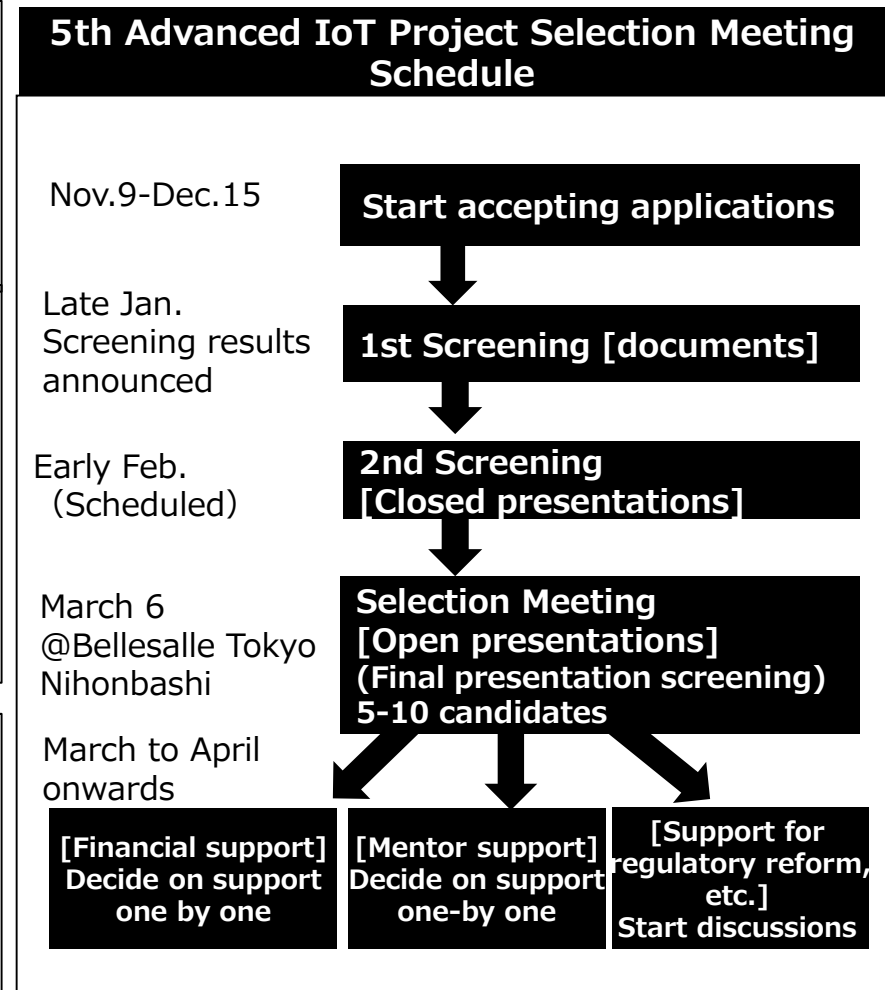
- For "Trans-platform Category" and "Regional Economy Vitalization Category" that were newly established from the viewpoints below, 8 projects were selected and supported.
  - Trans-platform Category… Projects to build a platform by developing basic technologies and systems available in many fields
  - Regional Economy Vitalization Category… Projects to contribute to problem-solving in the region and vitalization of the regional economy

★Grand Prize★
Coaido Inc.

Regional Economy Vitalization Category

-Turn Tokyo from the worst city for lifesaving into a city with advanced lifesaving systems -

Developed **"Coaido119", a simultaneous notification message dispatch system that activates** following a 119 call from the app, dealing with ①**a call for ambulance,** ②**a call for help to people around**③**a call to the fixed-line phone in the neighbor establishment equipped with AED at the same time.** The system aims to improve the survival rate of cardiac arrest patients by notifying without fail the emergency situation to the people in charge and also increasing the usage rate of AED.

Coaido119
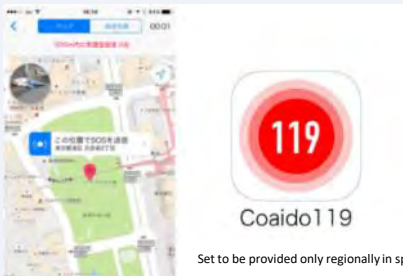
Set to be provided only regionally in spring 2017

Progress of Project

· IPA funding
· Mentor support

★Second Prize★
Hiroki Kobayashi
(Center for Spatial Information Science at the University of Tokyo)

Regional Economy Vitalization Category

-Time-space information network using the sensor network attached to wild animals -

Researched the system that enables the energy-saving non-contact data collection/retrieval and electric supply by taking advantage of wild animal behavior. Using the wild animals equipped with sensors, the system aims to get otherwise hard-to-obtain environmental information of the areas without infrastructure such as power sources, information and roads, and put them to practical use as countermeasures to contagious diseases of livestock, support for detection of earthquakes, etc.

Support for measures against contagious diseases of livestock

Support for detection of landmines

Information infrastructure to realize real measurement of the expansion speed of pandemic diseases

Information infrastructure for international support activities

Progress of Project

·NEDO funding (Time-space information network using the sensor network attached to wild animals)

Special Jury Prize
Keychain Pte. Ltd.

Trans-platform Category

- IoT Decentralized Authentication Platform by blockchain -

Based on the blockchain technology, developed a Decentralized Authentication Platform technology that realizes device authentication, the base of IoT, at low cost as well as **IoT Platform that secures the reliability of the data from the device and also protects the device from hacking.**
For rapidly-increasing IoT devices, the platform aims to avoid the risks such as "certificate authority hacking", "IoT device compromise" and "authentication history falsification".

Decentralized Authentication Platform

IoT Authentication Platform

認証・電子署名

暗号化通信
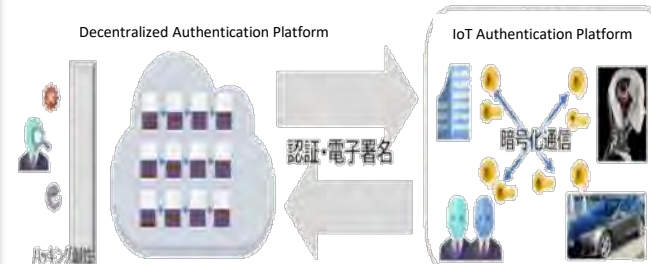
Progress of Project

· NEDO funding (IoT Authentication Platform development by blockchain technology)
· Mentor support

- As a task-setting style contest, under the theme of *"Monozukuri* (manufacturing) - Connected Industries -"*, IoT Lab Selection invites projects related to the following tasks.
  1. Realization of a "strong supply chain" that can continue optimal economic activities even in the case of diversification of customer needs or unexpected situations such as disasters
  2. Breakaway from manufacturing only for selling "goods"
  3. Creation of new materials and products based on the fusion of intuition and experience of human and AI/IoT
- The IoT Lab Selection selects five new projects, for which financial support, etc. is to be provided.

Grand Prize
O: Co., Ltd.

- the world's first: sleep improvement/ productivity enhancement through visualization of a body clock -

Developed the world's first non-invasive wristwatch-type device that **can visualize a body clock.**
By using the data obtained through the device on the app, a user can get to know about a lifestyle that improves the quality of sleep in a healthy way, and also use service that lessens the difference between their subjective evaluation and the objective sleep improvement data. The device is expected to keep the users from falling asleep at the wheel through sleep management and reduce the accidents in the transport industry, etc.

(1) Data acquisition from device
①デバイスから データ取得

(2) Analysis (machine learning)
②解析 (機械学習)

(3) CBT-i coaching (sunbathing & sleeping time)
③CBT-iコーチング (睡眠&光浴の時間)

Second Prize
OTON GLASS

- Smart Glass enhancing reading ability -

Developed a glasses-style device that takes characters before the user's eyes on a camera, and converts them into text data through character recognition technology, and then reads them out as a speech sound. The device aims to create "the world where everybody can read characters" for people who have difficulty in reading, such as the visually impaired, people with reading disorder (dyslexia) and international travelers.

Cloud
クラウド

Voice
音声

TEXT

Character information

People with substantially poor eyesight or visual field defects

People who travel to a country with a different language and have difficulty to read a local characters.

IoT Lab Selection List of Finalists
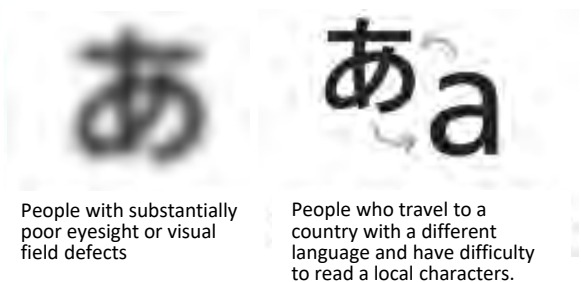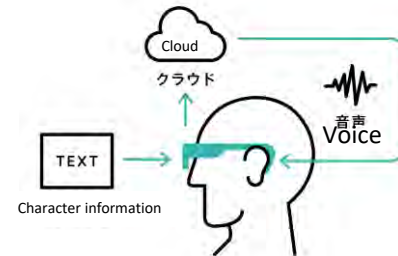
3rd Selection Finalists

Applicant	Category of Entry	Name of Project
★Grand Prize★ Coaido Inc.	Regional Economy Vitalization Category	Turn Tokyo into a city with advanced lifesaving systems through introduction of IoT into SOS emergency apps and fixed-line phone emergency contacts.
★Second Prize★ Hiroki Kobayashi（Center for Spatial Information Science at the University of Tokyo）	Regional Economy Vitalization Category	Time-space information network using the sensor network attached to wild animals
★Special Jury Prize★ Keychain Pte. Ltd.	Trans-platform Category	IoT Decentralized Authentication Platform by blockchain
CLUE, Inc.	General Category	Remote control system for multiple units shared by drone makers
THE Power Grid Solution	General Category	Global launch of the capacity building system for power distribution companies
fukule inc.	Regional Economy Vitalization Category	Aiming for the 4th Industrial Revolution of Japanese textile industry originated in Kiryu
ASIA AIR SURVEY CO., LTD.	General Category	Total platform of Sports × IoT × Entertainment
Mu Ltd.	General Category	Gastrointestinal imaging test system by mobile endoscopic mini robot

4th Selection Finalists

Applicant	Entry Theme	Name of Project
★Grand Prize★ O:Co., Ltd.	Breakaway from "Manufacturing only for selling goods"	Service to achieve sleep improvement/productivity enhancement/labor accident prevention through visualization of a body clock
★Second Prize★ OTON GLASS	Breakaway from "Manufacturing only for selling goods"	OTON GLASS ― Smart Glass enhancing reading ability
TANAKA ENGINEERING INC.	Fusion of (human) intuition/experience and AI/IoT	Research & development of automatic inspection/sorting machines for glass processing that can detect 10μm cracks/losses/foreign substances through deep learning in 0.5 second
LEXER RESEARCH Inc.	Strong supply chain	Development of global dynamic production management technology through the optimization of massively parallel simulation
Arblet Inc.	Breakaway from "Manufacturing only for selling goods"	Nursing care service utilizing IoT wearable devices and continuous blood-pressure check technology

● Information of the projects selected in the 1st-3rd IoT Lab Selections has been shared both at home and abroad.

✓ Since March 2017, two finalists from the past selections have been introduced through Cabinet Office International PR video "Innovation Japan" series.

1st IoT Lab Selection Grand Prize
Liquid, Inc.

FINGERPRINT AUTHENTICATION WITHOUT IMAGE DATA

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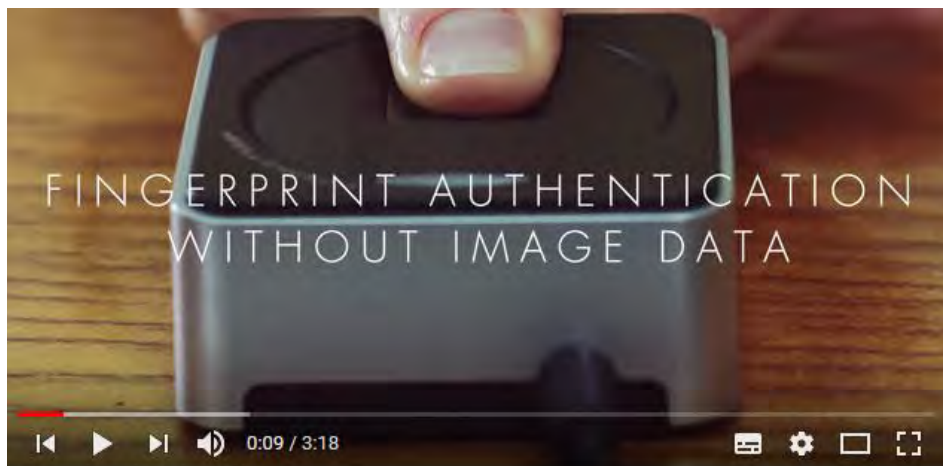
nnovation Japan【FINGERPRINT AUTHENTICATION WITHOUT IMAGE DATA】
https://www.japan.go.jp/innovation/fingerprint.html

2nd IoT Lab Selection Second Prize
Phoenix Solution Co., Ltd.

RFID TECHNOLOGY FOR METAL PRODUCTS

0:06 / 3:22

Innovation Japan【RFID TECHNOLOGY FOR METAL PRODUCTS】
https://www.japan.go.jp/innovation/rfidtechnology.html

✓ The projects of prize winners of the past IoT Lab Selections were introduced at the specially-built stage in Interop Tokyo 2017 held in June and in CEATEC JAPAN 2017 in October.

Interop Tokyo2017
2nd Special Jury Prize exMedio Inc.
3rd Grand Prize Coaido Inc.
    Second Prize Hiroki Kobayashi (Univ. of Tokyo)
    Special Jury Prize Keychain Pte. Ltd.

CEATEC JAPAN2017
1st Second Grand Prize Routrek Networks, Inc.
2nd Grand Prize Unifa Corporation
    Second Prize Zenrin Co., Ltd.
    Second Prize Phoenix Solution Co., Ltd.
3rd Grand Prize Coaido Inc.

Discovery of and support for project proposals leading to the regulatory reform

- Based on the IoT Lab Selection, four cases of regulatory support have made progress.
- Aiming for further discovery of and support for project proposals leading to regulatory discussion, the IoT Lab Selection transmits information on regulatory reform support examples as model cases, giving the widest possible publicity to the efforts for regulatory reform support.

✓ Information transmission about application examples of the System to Eliminate Regulatory Gray Zones

Liquid Inc. (1st Selection Grand Prize)
Elimination of Regulatory Gray Zones for the Inns and Hotels Act
Fingerprint authentication for foreign tourists visiting Japan (payment/identification)
→ Presented at the IoT Acceleration Lab event on March 13, 2017

UniFa Corporation (2nd Selection Grand Prize)
Elimination of Regulatory Gray Zones for the Child Welfare Act
Computerization of watching operations at nursery schools, including midday nap monitoring
→ Presented at the IoT Acceleration Consortium general meeting and a specially set-up stage in CEATEC held in October 2017.
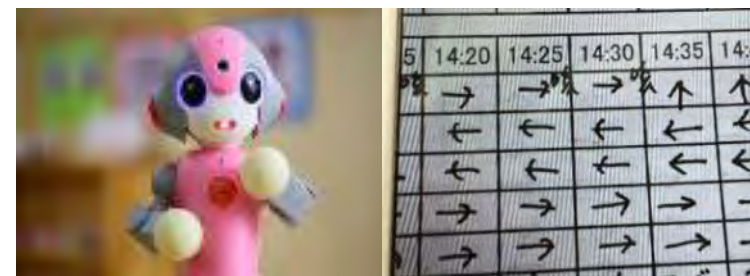
✓ Consideration of the reinforcement of advisory function for the legislative system

Work on the establishment of support environment for early-stage start-ups to get appropriate advice through the strengthening of cooperation with mentors in legal aspects as well as cooperation with outside support systems.

- Centering on the awarded companies, overseas development of the finalists has been in progress.
  <Examples of overseas development>
  - **Liquid Inc. (1st Selection Grand Prize)** -Fingerprint authentication for foreign tourists visiting Japan (payment/identification)-
    In March 2017, the company established a joint venture with a financial conglomerate of Indonesia. The project was adopted as the "Project for Nurturing New Industries in ASEAN and Japan" in July 2017, leading to the demonstration aiming for the establishment of the fingerprint authentication platform at a public organization in the Philippines.
  - **Routrek Networks, Inc. (1st Selection Second Prize)** -Agricultural system to optimally control water and liquid fertilizer for drip cultivation-
    In China, Vietnam and Thailand, the company is conducting demonstration experiment of ZeRo. agri. system. In the demonstration in Thailand, besides the open-field banana cultivation, the crop rotation of okra, red peppers and tomatoes using one ZeRo. agri. is implemented.
  - **UniFa Corporation (2nd Selection Grand Prize)** -Support for computerization of watching operations at nursery schools-
    The project won the grand prize at the Startup World Cup 2017 Final (March 2017, San Francisco) held with the participation of 16 winning companies of the preliminaries from 16 countries.
  - **Coaido Inc. (3rd Selection Grand Prize)** -Turn Tokyo from the worst city for lifesaving into the city with advanced lifesaving systems-
    The project was adopted in January 2018 in a program of the metropolitan government, supporting oversea businesses of the local companies and deciding the dispatch of personnel to Germany.

Routrek Networks, Inc
ZeRo. agri. - equipped cultivated land in Vietnam Implement automatic control of water sprinkling and fertilizing in accordance with the growth of crops by ZeRo. agri.

UniFa Corporation
Startup World Cup 2017 Final awarding ceremony

- **The matching event** for member companies, organizations and municipalities with seeds and needs is held **as a place where enterprises aiming to create new business models meet other enterprises with related business models, technologies and services**.

- Past thematic events include "Tourism" and "Manufacturing"(1st), "Healthcare(Medical Care & Health)/Sports" and "Logistics/Distribution/Infrastructure"(2nd), "Smart Home" and "Mobility"(3rd), "Fintech", "Education" and "Agriculture/Food"(4th), and "Work Style Reform" and "Sharing Economy"(5th), leading to about 2,500 matching. The 6th Event is scheduled on March 6, 2018, themed on **"Risk Management", "Entertainment" and "AI".**

Details of 5th Event

Date: Tuesday, July 25, 2017, 10:00-18:00
Venue: Tokyo (Bellesalle Tokyo Nihonbashi)
Co-hosts: IoT Acceleration Lab, METI, and NEDO
Support entities: HR・Learning Technology & Big Data Analytics Consortium (LeBAC), Sharing Economy Association, Japan (SEAJ)

Joint Event : "Sharing Economy Association, Japan Superior Enterprise Certification Mark/Certification System Award Ceremony"

Joint Event : "HR-Technology Contest"

In collaboration with outside private organizations, joint events to **dispatch information on advanced cases** in various fields, etc.

① Business Matching (1:1 Matching)

Based on the needs and seeds submitted by companies, **a list of matching companies was prepared prior to the event. 20-minute individual sessions** were held on the day.

139 companies/organizations/ municipalities participated.
534 matchings were carried out.

② Presentation Matching (1:N Matching)

Popular matching companies, etc. made a presentation on their seeds and needs to unspecified multiple participants. Meetings were immediately arranged with **the companies who showed interest in them.**

6 companies made presentation.
Approx. **200** participated.

[4th event] Monday, March 13, 2017 @Hitotsubashi Hall, Tokyo
Theme : Fintech, Education and Agriculture (food)
About 131 companies/organizations participated, leading to about 461 matchings.
8 municipalities participated in "Municipality Matching". （Among them, 7 participated in Local IoT Acceleration Lab)
　(Average value of Questionnaire survey results)
　No. of companies interacted: 7.5
　No. of companies planning future interactions: 2.8

[5th event] Tuesday, July 25, 2017 @ Bellesalle Tokyo Nihonbashi
Theme : Work Style Reform and Sharing Economy
About 139 companies/organizations participated, leading to about 534 matching.
　(Average value of Questionnaire survey results)
　No. of companies interacted: 7.5
　No. of companies planning future interactions: 2.9

→Total of past 5 events
About 778 (512, excluding overlaps) companies/organizations participated, leading to about 2,517 matchings.
　(Average value of Questionnaire survey results)
　No. of companies interacted: 7.8
　No. of companies planning future interactions: 3.1

According to the information from the 93 companies/organizations responding to the secretariat's survey, about 27 cases of collaborative partnership were formed among them.

■ Seven Bank, Ltd. × Smile Works Inc.

Smile Works, a provider of Cloud ERP service to SMEs, and Seven Bank, a provider of safe/efficient settlement intermediary, **implemented a demonstration experience to link e-commerce operations - corporate order receiving/placing, billing, and payments - with banking service**. By connecting Cloud ERP of Smile Works to internet banking of Seven Banks, they realized a service system that links the automatic import/canceling of deposit/withdrawal details and the electronic transfer/payment of accounts payable through data cooperation. Thus, they aim for operational reforms and productivity improvement in SMEs. In the future, seek a service that coordinates companies' core system with banking service automatically.
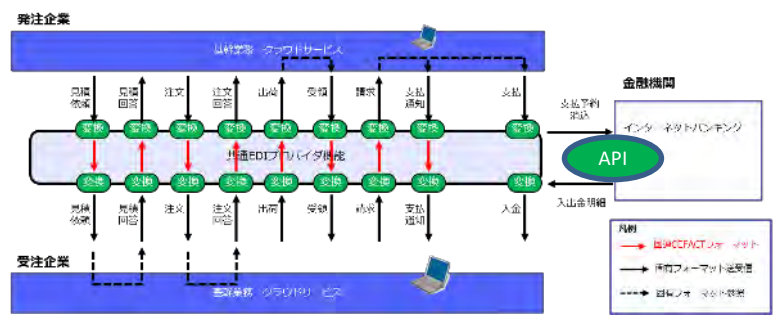
■ Sales One. Inc. × MIYAGAWA CO., LTD.

Sales One, a provider of workflow app linkable to IoT or RFID equipment, and MIYAGAWA, a provider of IoT solutions such as "RFID takeout and return system", worked together. Taking advantage of the characteristics of both companies, **they built a system to control the takeout and return of equipment & materials such as tools and propane gas equipment, etc. by attaching RF tags to them.**
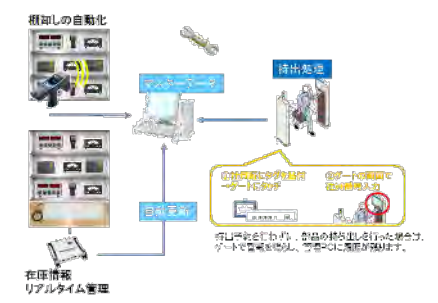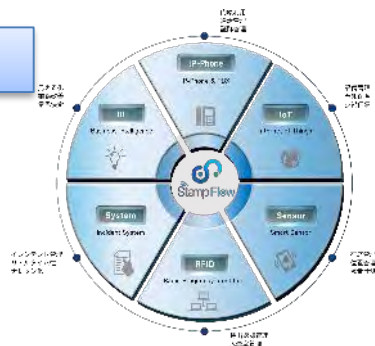
(Graphic display of StampFlow and other systems)   (Image of the takeout and return control)

■ Hoshiden Corporation × Sato Healthcare Ltd.

Collaboration between Hoshiden, a provider of the wristband-style device "MEDiTAG" that enables monitoring of vital information of human, and Sato Healthcare, that develops visualization of nurses' workload. **They made possible to visualize the location/vital information of patients, as well as nurses**. They exhibited at the INTERNATIONAL MODERN HOSPITAL SHOW 2017.

- **With the aim of competing on the accuracy of Big Data provided by companies, etc. and data analysis based on them, Algorithm development contest** is held in an easy-to-join online style by inviting public participation including students. Through the data analysis for challenges/data of the industrial world, the contest aims to discover excellent data scientists, matching them with data providers while training them.

- The first contest, themed on tourism, competed on algorithm development for predicting the number of tourists, while the second content viewed in algorithm development for sales forecast/new development, themed on distribution/retailing. The third contest competed on **algorithm development for predicting electric power output of solar power plants under the theme of "electricity/weather conditions"**. The award ceremony is scheduled to be held at the IoT Acceleration Lab event on March 6, 2018.

- The Big Data Analysis Contest is contributing to the discovery of human resources, including a prize winner employed by a company as a data scientist; a prize winner assigned by his/her company as a key member of the project based on data analysis.

〈Outline of 3rd Big Data Analysis Contest〉

Host organizations:	IoT Acceleration Lab, METI
Support organizations:	Ministry of Education, Culture, sports, Science and Technology, Japan Meteorological Agency, Japan Photovoltaic Energy Association, Center for Artificial Intelligence Research University of Tsukuba, Weather Business Consortium
Planning and operation:	Opt, Inc.
Implementation term:	October 2–December 21, 2017
Data:	Electrical power output of the three domestic solar power plants provided by Tokyo Electric Power Co., Inc.
No. of participants:	**131**
No. of applications:	**2,153** (multiple application allowed)

Business Matching of Overseas and Domestic Companies

- In order to promote business collaboration and global business of domestic companies and overseas companies (start-ups), invited overseas companies (start-ups) in India, Israel, ASEAN and EU to Japan, implementing Business Matching between them and Japanese companies at CEATEC Japan.
- Overseas companies (start-ups) set up exhibition booths at CEATEC JAPAN Hall.
- Oversea companies (start-ups) took part in Pitching Session, and Embassy and other experts had speech.

① Business Matching (1:1 matching)

A matching list of overseas/domestic companies based on their seeds/needs was prepared beforehand, <u>leading to 25-minute individual matchings.</u>
58 domestic companies/ organizations participated.
257 matchings organized.

③ Pitching Session

Speech by the French Embassy in Japan, venture capitals, etc.

40 overseas companies showed off their technologies through the pitch.

② Exhibition Booth

40 overseas companies set up exhibition booths.

Date : Tuesday, October 3 - Friday, October 6, 2017

Venue : Makuhari Messe（Hall 4）Special Theme Area for the IoT Acceleration Lab Business Matching

<u>No. of participating companies: 40 overseas companies and 58 domestic companies</u>
(reference : as for 2016, 29 overseas and 41 domestic companies)

IoT Lab Demonstration（Test-bed Demonstrations）

- **Demonstration project by multiple companies** aiming at **mid and long-term** social implementation
- It **aims to improve business environment** to share/use data beyond the framework of offices/enterprises/corporate groups **by making a sharp distinction between competitive areas and collaborative areas by fields**. (For details of the projects, see Reference Material #2)
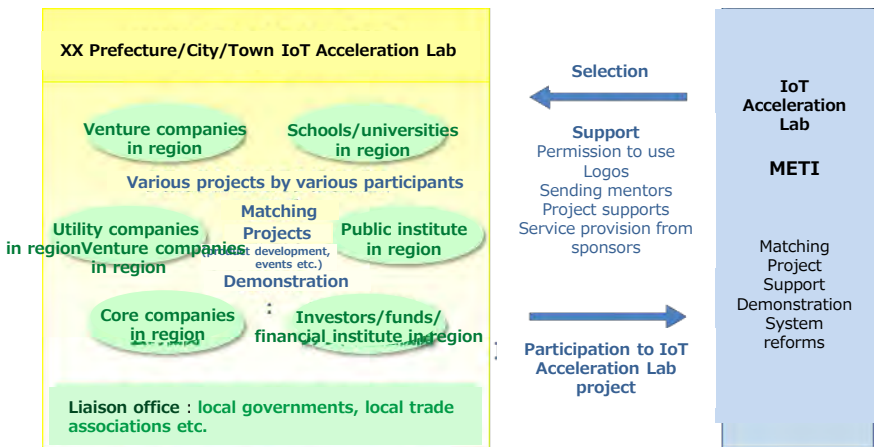
Flow of IoT Lab Demonstration

①**Inviting themes** (Discover potential needs)	②**FS survey** (Review demonstration architecture)	③**Test-bed demonstration**	④**Evaluation/ follow-up**
·Invite themes to be implemented from IoT Acceleration Lab members, etc.	·FS survey is conducted by clarifying the area of responsibility for the government and the private sector.	·Implement demonstration projects (test-bed demonstration) and reflect them in a budgetary request, etc.	·Implement evaluation and follow-up by support committee, etc.

Efforts in FY 2017

·During the application period (February 28-March 28, 2017), **73 proposals** were received.

(Breakdown of themes)
·Medical/health	19
·Logistics/ distribution	15
·Infrastructure/construction	7
·Manufacturing	6
·Energy	3
·Smart home	2
·Industrial safety	2
·Tourism	2
·Others	17

·Based on the content, **FS survey is being conducted on 13 proposals.**

(Examples of themes)
·Logistics/distribution (Electric tag)
·Medical care/health (Health management)
·Energy（Mine development)
·Public administration（welfare taxi ticket)
·Others (PDS／Data base), etc.
※Some surveys have advanced to ③.

·In addition to the themes implemented so far, **7 fields of demonstrations related to smart home, airplane, etc., are being conducted.**

(Ongoing demonstration themes)
·Manufacturing (Smart factory)
·Social infrastructure
·Industrial safety
·Public administration
·Tourism
·Airplane
·Smart home

➤ Through the demonstrations, IoT Lab aims for (1)**Review of regulations corresponding to new technologies** such as IoT, (2)**Establishment of rules** such as standardized data formats, etc.

- In order to solve regional problems, select regional efforts to promote IoT business as **Local IoT Acceleration Lab.** (**74 regions as of January 2018)**.
- Through Information-technology Promotion Agency, Japan (IPA)**,** support the activities of the Lab by **mentor dispatch and promotion of regional collaboration,** and also back up regional problem solving/creation of new businesses, etc. based on IoT.

System of Local IoT Acceleration Lab

XX Prefecture/City/Town IoT Acceleration Lab

Venture companies in region | Schools/universities in region

Various projects by various participants

Utility companies in regionVenture companies in region | Matching Projects (subject development, events etc.) | Public institute in region

Demonstration

Core companies in region | Investors/funds/ financial institute in region

Liaison office : local governments, local trade associations etc.

Selection
Support
Permission to use Logos
Sending mentors
Project supports
Service provision from sponsors

Participation to IoT Acceleration Lab project

IoT Acceleration Lab

METI

Matching
Project
Support
Demonstration
System reforms

Main support measures for Local IoT Acceleration Lab

1. Granting of the right to use "Local IoT Acceleration Lab" mark

2. PR to IoT Acceleration Lab members through e-mail magazine, Lab events, etc.

3. Dispatch of mentors who contribute to realizing/ developing regional projects/companies, etc.

*Also, examine support from cooperative companies and linkage with various subsidy systems according to business progress.

Selection Criteria (3 principles of Local IoT Acceleration Lab)

1. Regionality (regional uniqueness)

2. Enthusiasm and continuity of the municipality (scenario for independence, key persons)

3. Diversity and sense of unity (collaboration with various entities, etc.)

74 selected regions
※①-③ in the picture represent the time of the selection
① : 29 regions (July 2016 : 1st)
② : 24 regions (March 2017 : 2nd)
③ : 21 regions (August 2017 : 3rd)

Hokkaido Bureau(5)
-Sapporo(1) -Shihoro(1)
-Hakodate(2) -Sarufutsu(3)
-Kushiro(1)

METI Chubu (12)
-Toyama Pref.(1) -Gunjo(3) -Koda(3)
-Ishikawa Pref.(1) -Kagamigahara(3)
-Mie Pref.(1)
-Kaga(1) -Aichi Pref.(1)
-Hakusan(2) -Nagoya(2)
-Gifu Pref.(1) -Toyoda(2)

METI Tohoku (6)
-Yamagata Pref. -Senboku(2)
-Miyagi Pref.(1)
-Akita Horizontal Collaboration(3)
-Sendai(2) -Aizu Wakamatsu(1)

METI Chugoku (6)
-Tottori Pref.(3)
-Hiroshima Pref.(1)
-Okayama Pref.(3)
-Yamaguchi Pref.(2)
-Setouchi(3)
-Shimane Pref.(1)

Kanto Bureau of Economy, Trade and Industry(17)
-Ibaraki Pref.(1) -Kawakami(3) -Shonan Area(2)
-Gunma Pref.(3) -Yamanashi Pref.(3)
-Niigata Pref.(2) -Saitama Pref.(2)
-Kanagawa Pref.(2) -Nagaoka(3) -Ota-ku(3)
-Yokohama(2) -Shizuoka Pref.(1)
-Chiba Pref.(2) -Sagamihara(2) -Fujieda(3)
-Ina(1) -Yokosuka(2)

METI Kyushu (12)
-Fukuoka Pref.(1) -Nagasaki Pref.(2)
-Kitakyushu(1) -Nagasaki City(2)
-Fukuoka City(1)
-Minami Shimabara(3)
-Kahankei area(2)
-Kumamoto Pref.(1)
-Saga Pref.(2) -Miyazaki Pref.(2)
-Oita Pref.(2) -Kagoshima Pref.(1)

METI Kansai (12)
-Fukui Pref.(1) -Osaka City(1)
-Sabae(2) -Kobe(1)
-Eiheiji(3) -Awaji(3)
-Shiga Pref.(2) -Nara Pref.(1)
-Kyoto City(1) -Asuka(3)
-Osaka Pref.(2)
-Wakayama Pref.(1)

Okinawa General Bureau (1)
-Okinawa Pref.(1)

METI Shikoku (2)
-Kochi Pref.(1)
-Minami(3)

（1）Mentor Support

Mentor Dispatch Records

Total number as of the end of December, 2017: 250 cases
・Mentors from outside: 104 cases - Provision of expert knowledge
  e.g.: strategy/introduction support (Kochi, Senboku and Fukui), human resources development (Kaga and Mie), IoT utilization case studies (Shizuoka and Aichi), etc.
・IPA staff: 146 cases - Provision of advice on action policy

*Mentor is an expert with technical knowledge such as IoT, who provides support for formulation of business strategies/plans, etc. to solve regional needs. (University professors, the CEO of venture companies, etc.)

（2）Horizontal Collaboration（inter-Labs）Support

Horizontal Collaboration（inter-Labs）and Business Matching Achievements

・**Staff meeting (Meeting attended by Lab-related people nationwide)**
Local IoT Acceleration Lab staff meeting : Held semiannually (March & July 2017, February 2018)
・**Regional Bureau jurisdiction area staff meeting (Meeting held by each region)**
The Kanto Bureau of Economy, Trade and Industry (METI-Kanto) (April 18, 2017), etc.: Held at each bureau
・**Thematic staff meeting (Meeting held in each region attended by Lab-related people in each field)**
Staff meeting for selected regions working on the agricultural field (December 11-12, 2017@Yamanashi Prefecture)
・**Exhibition at events**
"IoT Japan2017" hosted by Nikkei Business Publications, Inc. (Osaka, Nagoya, Sapporo, Fukuoka) (March-June 2017)
CEATEC JAPAN 2017 (@Makuhari Messe. Inc., October 2017): Joint exhibition by 27 regions

Exhibition at CEATEC JAPAN2017

■ Shihoro Town, Hokkaido (agriculture)

IoT Acceleration
Shihoro town Lab

- **The agricultural IoT device "e-kakashi" was installed in** the demonstration farms, etc. owned by **the local Shihoro High School. Through biological analysis of the collected environmental data,** students learned cultivation technique based on the data (① automation of cultivation record, ②the way to analyze/utilize cultivation data, ③growth prediction), which led to the practice of scientific agriculture and also contributed to the excellent human resources development in agriculture.
- Through **formularization of cultivation methods (=recipe)** based on the data, **cultivation technique has been handed down by the high school students, and productivity in the whole region has been improved due to the horizontal development to the local farmers.**
- Acquired a nationally-rare, agricultural high school-led **"GLOBAL G.A.P"** (October 2017, garlic/carrot). In the future, the staple crops of the town such as wheat and potatoes are expected to be added to the item list.

Agricultural IoT device
"e-kakashi"

■ Sendai City, Miyagi (fisheries)

IoT Acceleration
Miyagi pref Lab

- Based on **the industry-academia-government collaboration** centering on the 3 **IoT-related organizations specializing in sensor, cloud and drone/Sendai City/Tohoku University IIS Research Center, work on the regional problem solving using IoT** in the industries such as manufacturing, agriculture, fisheries, food processing, and wholesaling.
- **Under the partnership of the fishermen's cooperative, IT companies , Tohoku University, etc.,** developed the equipment **for male-female discrimination using ultrasonic echo image of cods. It is** expected **to be made into a product in the spring of 2018.**

Discriminated result

○：soft roe   ○：cod roe   ○：Others

仙台市
東北大学IIS研究センター

東北IT新生コンソーシアム
クラウド・ビッグデータ

マシンインテリジェンス研究会
画像処理・センシング

ドローンテックラボ仙台
ドローン・通信

MITOOS
Machine Intelligence TOHOku Society

Drone Tech Lab 仙台

地域・社会の課題解決！

「せんだいIoT推進ラボ」設立の趣旨
・3つのIoT関連団体の枠を超えた活動推進
・IoT適応領域の開拓（食品加工や第3次産業等）。
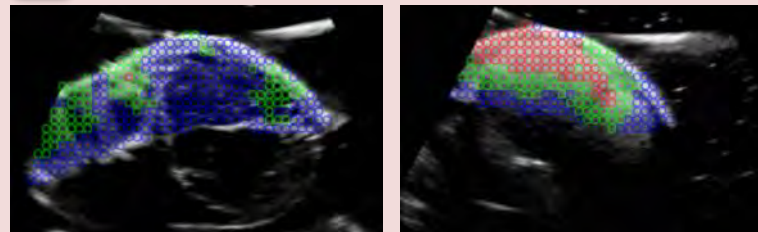
Picture provider：Tohto C-tech Corporation

■ Kaga City, Ishikawa (Human resources development) IoT Acceleration Kaga city Lab

Programming course for children

- Using IoT, work on **IT human resources development, aiming for increased added value and promotion of creation/inauguration of attractive companies in the city's industrial fields (monodukuri(manufacturing), agriculture, tourism)**

①**Programming education**
Prior to the start of compulsory programming education in 2020, **implement programming classes at all the elementary schools in the city (19 schools).** Train programming educators at the seminars for teachers. Distribute Raspberry Pi Zero to all those who were interested, aiming to **expand the range of human resources for industries.**

②**IoT Introduction Seminar for small and mid-sized companies**
Implement **IoT Introduction Seminar and high-level technician training courses** for the management and company employees. **Aim to raise the level of productivity of the companies in the city.**

Raspberry Pi Zero

■ Shonan Area, Kanagawa (Town planning) IoT Acceleration Shonan Lab

・**Fujisawa City, etc. open/provide field and data** through **the IoT Data Distribution Platform of Keio Research Institute at SFC.,** companies, etc. provide services to the residents based on the various real time information and existing open data. Aim for **the QOL improvement of the residents** by solving various regional problems.

・Specifically, aim for **practical implementation of the services and products that contribute to solving regional problems on a business basis** through information collection/analysis.

①**Garbage/resources collection information, atmospheric information, and road surface condition information collected by garbage truck** (Utilization of the **road marking scratch auto discovery technology, etc.**)

②**Detection/discovery of illegal dumping, graffiti, etc**. through AI technology

③**Personal data centering on the elderly** provided by regionally specialized SNS

Data collection by garbage truck (conceptual drawing)

- **In order to promote introduction/utilization of IoT, etc., collected and released IoT utilization examples** of small and mid-scale manufacturers, etc. in March 2017. Also in private organizations, prepared and released "IoT utilization examples of smaller high-rated manufacturers".
- In order to **develop regions' efforts horizontally**, **held meetings according to field themes** attended by IoT Acceleration Local Lab parties. Following the meeting on agriculture in December 2017, the one themed on Monozukuri (manufacturing) and Human resources development is scheduled in March 2018.
- In order to **promote facilitation of public data utilization or "open data" in companies and municipalities**, **held "Data Innovation Workshop" on the new data utilization** for companies and municipalities, who came together, each bringing information on their open data.

✓ Release of IoT utilization Examples

✓ Agriculture IoT Staff Meeting

IoT utilization examples for manufacturing SMEs
(Kanto Bureau of Economy, Trade and Industry, March 2017)

In December 2017, the IoT Acceleration Local Lab selected regions engaged in agricultural fields got together locally in Yamanashi, exchanging opinions through the demonstration field study, etc.

Field trip @ grape farm

✓ Holding of the workshop on data utilization

As a place for companies and municipalities to discuss new data utilization by bringing their own open data, "Data Innovation Workshop" was held in March 2017.
Aiming at ①suggestion for the promotion of data circulation from private to public, and ②creation of data utilization-related ideas, held Ideathon under the themes of healthcare/snow removal (supported by Aizuwakamatsu City).

- ITAC sighed MoU with the National Association of Software and Services Companies (NASSCOM) in India in February 2017, and also with the Alliance for IoT Innovation (AIOTI) in Europe in March the same year.
- In order to promote domestic companies' global business in the IoT fields, in cooperation with MoU signatory organizations, etc., make positive efforts to invite overseas companies into IoT Acceleration Lab operations (IoT Lab Selection, etc.).
- In partnership with JETRO, introduce excellent Japanese companies/technologies/efforts to overseas.

✓ Outline of MoU signatory organizations

MoU (Memorandum of Understanding): an agreement between multiple parties including executive organizations

National Association of Software and Services Companies (NASSCOM) **NASSCOM®**	Alliance for IoT Innovation (AIOTI) **AIOTI**
<Outline of the organization> It is an IT business-related industry group established in 1988 in India. About 2,000 member companies include Indian enterprises and multinational enterprises for IT, software, web services, e-commerce, etc. (as of February 2017) Specifically, it makes efforts for the expansion of IT businesses, establishment of strategic partnership, etc. under multiple committees.	<Outline of the organization> It is an IoT promotion organization established by EC in March 2015. About 160 member companies include Industrie 4.0 participating members, communication carriers, chip vendors, etc. (as of March 2017) The steering committee members include the EC staff. Specifically, it makes efforts for IoT, ecosystem, standardization, policy issues, etc. under 13 WGs.
<Aim of MOU (February 2017)> Work on information exchange on good practice, etc., the study on the fields for cooperation, etc., mutual visits by the member companies of the two organizations, etc.	<Aim of MOU (March 2017)> Proceed with information exchange on good practice, sharing of IoT field policy proposals, and cooperation for the challenges of IoT-related standardization or IoT promotion.

✓ Partnership with JETRO

Currently, the IoT Acceleration Lab "Global Connection" (business matching with overseas companies, etc.) is implemented with the cooperation of JETRO.

In the future, through a deeper relationship with JETRO, consider dispatch of domestic corporate missions abroad, invitation of overseas companies to Japan, etc.

Efforts toward the Fourth Industrial Revolution

- Introduced in March 2017 the concept of "**Connected Industries**" - intended for a creation of new value based on the various connections among humans, stuff, technologies, organizations, etc. - as a future vision of Japanese industries.
- In October 2017, released "**Connected Industries Tokyo Initiative 2017**" in order to promote "Connected Industries". Aim to realize the conditions for Japan's victory in the global competition for real data by deploying policy resources with priority into the five designated key areas as well as promoting horizontal policies.

What is "Connected Industries"?

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

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

Solving social challenges, such as aging society, labor shortages, Environment and Energy restrictions

Through these processes, **enhancing industrial competitiveness → Improving people's lives Promoting the healthy development of the national economy**

For realization of "Connected Industries," there are a variety of ways depending on sectors or business conditions, levels of effort necessary for introducing IT, and other issues.
Some businesses may keep their connection within their factories, while others may connect with their business partners or other companies in the same sector, or directly connect with their customers or markets.
Connecting industries beyond the existing business relationships may establish a new industrial structure.

"Society 5.0" and "Connected Industries"

<Society>

Primitive society → Agricultural society → Industrial society → Digital society → **Society 5.0** Ultra-smart society

Creation of a new society (Human-centric & Solution-oriented)

Connected Industries

- New value created by various connections
- Collaboration of Individuals
  → **Creating new business models**

<Industry>

Development of private companies

Things × Things
Humans × Machines/Systems
Companies × Companies
Humans × Humans
(Dissemination of knowledge and skills)
Suppliers × Customers
Large companies x SMEs
Regions × Regions
Fields × Digital
Various forms of collaboration

<Technology>

First Industrial Revolution
- Acquisition of power (steam engine)

→ Second Industrial Revolution
- Power innovation (electric power, motors)

→ Third Industrial Revolution
- Advance of automation (computers)

→ **Fourth Industrial Revolution**
- Autonomy based on Big-data, AI and IoT

28

"Connected Industries"
- New vision for future Japanese Industries -

Current situation Japanese industries are advancing digitalization of data for their establishments and factories as well as technologies and techniques, but the companies tend to manage the data in-house and tend not to collaborate on conducting these activities.

Industry-academia-government collaborative efforts for encouraging discussions and study

Sector-based efforts, e.g., mobility, manufacturing, biotechnology and materials, plant safety, smart life

Cross-sectoral efforts, e.g., data utilization, standardization, IT human resources, cybersecurity, AI R&D

Future goals Connecting data and using data efficiently will encourage innovation, better productivity and dissemination of technology.

"Connected Industries" will become a strength for Japanese industries, such as Made-in-Japan products, "Industrial Robots", "*Kaizen*" , etc.

Analyzing data by AI

Data for better productivity

New services and solutions based on data

Humans and robots working (in concept) together

Dissemination of know-how by data

Disseminating to regional companies and SMEs.
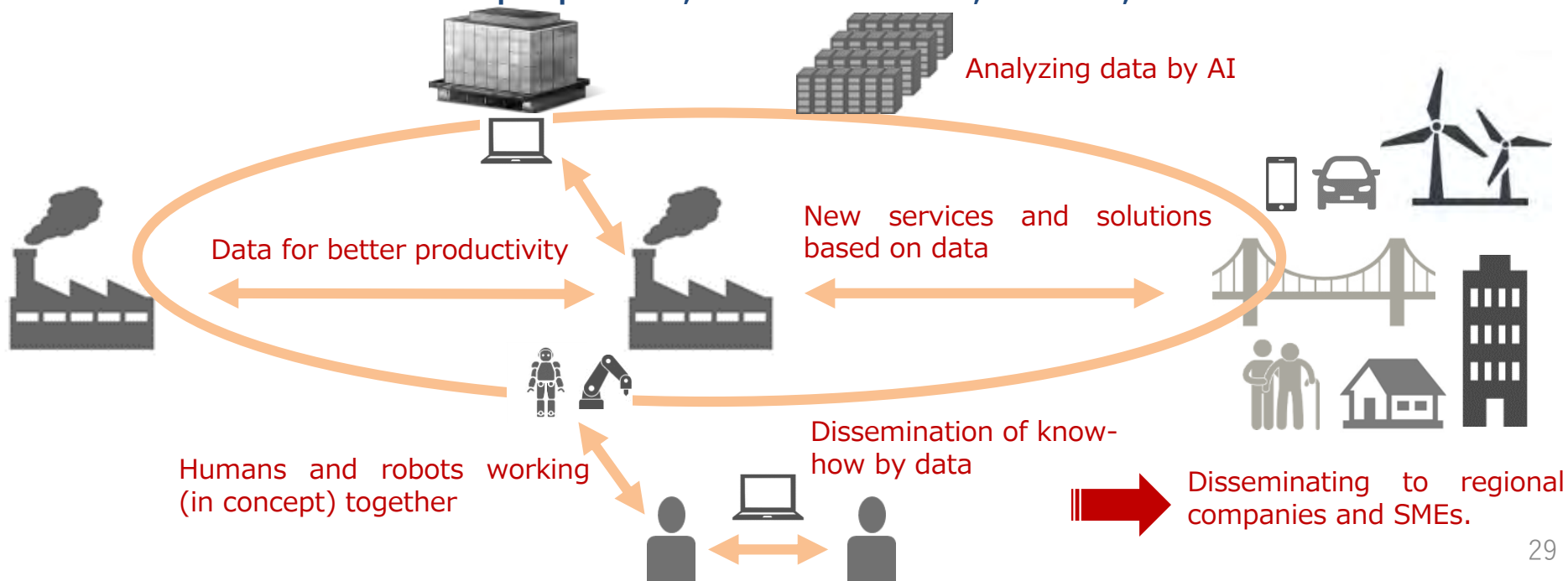
Automated Driving and Mobility Service

- Identifying approaches for data harmonization
- Enhancing AI and related human resource development
- Establishing future vision of mobility service concerning logistics and EVs

Manufacturing and Robotics

- International standardization of data rules including formats
- Enhancing inter-company collaboration in harmonized fields (e.g., cyber security and human resource development)
- Environmental improvement for the IoT introduction for SMEs, e.g., IoT tools

Biotechnologies and Materials

- Achieving joint utilization of data across companies in harmonized fields
- Establishing an AI technology platform for commercialization
- Obtaining public acceptance
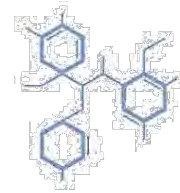
Plant/Infrastructure Safety Management

- Improving technological capability for safety through utilizing IoT
- Developing guidelines and other common rules for harmonizing data across companies
- Promoting further reform of regulation systems

Smart Life

- Discovering potential needs and materializing possible services
- Data collaboration through inter-company alliances
- Developing other rules for further data utilization

Developing cross-sectoral support measures that bolster these efforts.

Sharing and Utilization of "Real-Data"

- Establishing a new system for certifying data-sharing-businesses and introducing new tax-break programs.
- Supporting measures for developing AI systems through collaboration between large/medium companies, which hold "real-data", and AI venture businesses
- Creating advanced models and then developing rules based on demonstration programs
- Revising the Contract Guidelines on Data Utilization Rights

Environmental improvement for Data Utilization
R&D, human resource development and cyber security

- Promoting development of innovative AI chips
- Enhancing efforts for human resource development in the field of data. (e.g., hybrid-type in both virtual and physical systems, and in AI technologies)
- Building a framework to attract outstanding human resources from around the world
- Enhancing cybersecurity measures

Further expansion of initiatives
Global, venture and local companies and SMEs

- Enhancing worldwide cooperation especially with EU and Asian countries
- Promoting exports of Japan's systems through the International Collaboration Working Group
- Further improving the quality and quantity of human resources related to international standardization efforts
- Building Japanese venture ecosystems
- Enhancing support measures for local companies and SMEs by providing programs for developing or dispatching experts

Enhancing support measures placing "real-data", as its core.

● Due to the IoT development, the data distribution amount is increasing exponentially. In order to break down individual company's closed data policy or excessive data securing and thus **promote data utilization toward the solution of social problems**, consider the system in which **competent ministers certify/support private business operators' efforts for data utilization in cooperation areas (sharing/coordination) under the condition of security guarantees, etc**. Aim to **submit the bill to the current ordinary session of the Diet**.

Certification Scheme for Industrial Data Utilization Program (draft)

○Formulation of basic policies

Government (competent ministers)

Duties of the heads of related administrative agencies to response/answer (including the Personal Information Protection Commission)

Application 申請   Certification 認定

○Check with the Personal Information Protection Commission
○Industrial Data Provision Request System (provisional name) (Check with the ministers)
*Limited to the business operators who have an official guarantee of certain security measures.

Data possessing business operators

データ保有事業者

データ保有事業者

データ保有事業者

Provision of data データ提供

Industrial Data Utilization Program

Certified business operators for industrial data utilization

Data utilizing business operators

データ利活用事業者

データ利活用事業者

データ利活用事業者

Provision of data データ提供

Support, etc, (under consideration)

✓Confirmation of security measures by specialized agencies
✓special cases for the taxation system
✓support for SMEs, etc.

Examples of data:
・energy data
・industrial machinery data
・logistics data, etc.

Points (draft)

(1) Establishment of the system to certify the Industrial Data Utilization Program
➢ Competent ministers certify the "Industrial Data Utilization Program" for collection/utilization of industrial data in cooperation areas.
➢ As competent ministers, Minister of Internal Affairs and Communications and Minister of Economy, Trade and Industry; while as the ministers having jurisdiction over the business, the minister in charge of industrial data utilization works are assumed to take on the positions.

(2) Establishment of the system to request the data provision
➢ The system in which the certified business operators for industrial data utilization engaged in designated safety control can request via competent ministers the provision of data from related ministries and agencies/public institutions, etc. who own specific data.

(3) Confirmation of security measures
➢ In order to confirm cyber security measures taken by the business operators for industrial data utilization, specialized agencies implement the inspection of countermeasure situations, the investigation to determine the cause of incidents, etc.

(4) Support measures
  *Consider the response in the IoT taxation system as well.
  *Consider support for SMEs as well.

(5) Request for and cancellation of the reports

Source: December 13, 2017 Commerce, Distribution and Information Committee (4th) Material #2

(income tax/corporate tax/corporate residents' tax/enterprise tax)

- As for **the efforts to improve productivity** through **coordination/use of data** protected by **a certain cyber security measures**, **special depreciation of 30% or tax exemption of 3% (5% in the case of collateral salary raise)** is applied for the **introduction of the systems or sensor robots** required for the purpose.

- Companies **work out a business plan** related to the contents of efforts concerned, **which is to be certified by the competent minister. The equipment included in the certified plan is subject to tax measures (applicable period: until the end of FY2020).**

[Requirements of certification of the plan]

①**Content of data coordination/use**
　・Link external data or unacquired data to company data.
　・Share important data related to the company competitiveness between group companies or offices.

②**Security aspects**
　The existence of firm security measures is guaranteed by security specialists (Registered Information Security Specialist, etc.).

③**Productivity improvement goal**
　・During a certain period from the investment year, both of the below are expected to be achieved.
　　–Labor productivity: average annual increase 2% and over
　　–Investment return: annual average 15% and over

Contents of special treatment of taxation

➢ Take the following measures in the capital investment based on the certified business plan.

Facilities to be covered	Special depreciation	Tax exemption
Software Furniture and fixtures Machinery and equipment	30%	Upper limit:15% of corporate tax amount
		Upper limit:20% of corporate tax amount

[Examples of facilities to be covered]
　data collection equipment (sensor, etc.), robots/machine tools that are automated through data analysis, systems required for data coordination/analysis (server, AI, software, etc.), products for cyber security measures, etc.

Minimum investment amount : 50 million yen

※ In the case of year –on-year increase rate of the average salary payments being 3％ and over in addition to the certification of the plan.

- All over the world, the situation to draw in new technologies/businesses accompanying the Fourth Industrial Revolution is becoming more and more competitive . Countries that have introduced the Regulatory Sandbox have begun the competition to call in new technologies/human resources.
- Some countries are trying to become a hub of demonstration/experiment by taking advantage of the regulatory environment they are in, even without the Regulatory Sandbox.
- **Japan may fall behind implementing new technologies socially, if it fails to take actions immediately.**

[Government]: Regulatory Sandbox to survive the global competition

[Government]: The country itself is generous to demonstration and also keen on industrialization.

- In Britain, regarding Fin Tech, **42 companies have already launched the Sandbox Project**. Financial Services Authority directly supports venture companies providing innovative business models.

- In Singapore, Fin Tech is promoted based on the recognition that it brings about a fundamental revolution in various fields not limited to financing. The government is making a positive approach to foreign countries with the aim of turning Singapore into a Mecca for demonstration.

- UAE (United Arab Emirates) is **taking a strategy of bringing in overseas start-ups** centering on Fin Tech **by inviting Singaporean specialists**. (Other than UAE companies, 16 companies of foreign nationality such as Britain, Canada, India, Italy, Lebanon, Saudi Arabia, Mauritius and Singapore are participating in UAE's Regulatory Sandbox.)

- After succeeded in Fin Tech new business (small lot securitization by crowdfunding) in Estonia, the world-famous Japanese company Crowd Realty is now **conducting discussion/coordination with the Sandbox team in Singapore, Hong Kong and UAE** towards Sandbox utilization.

- **African countries such as Rwanda and Ghana are promoting the use and demonstration of drones in the fields of tourism, health service and e-commerce**. They have established the status as the world's experiment site. Fundraising has also been increasing.

- Besides Western companies, some Japanese ventures are proceeding with demonstration, setting a course for a series of business process — demonstrate drones in Rwanda or Ghana, and export/sell them to all over the world with Tanzania as a base, and then list stocks in Singapore.

- **The world share of the drones** manufactured in Shenzhen, China, **accounts for about 80%**. **It is making strenuous efforts in development, demonstration, and industrialization by the joint cooperation of government and people.** Export value stands at 472 million dollars, 7-fold increase from a year earlier. Almost of all the export goes to the West and Hong Kong.

\<Legal position of demonstration\>
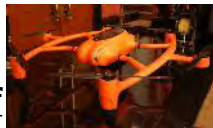
- Social experimental demonstration of new technologies/business models unassumed under the current regulations - which is conducted through certain procedures based on the cross-sectoral/across-the-government promotion system in the environment where related regulations are not applied directly due to the limited participants and the implementation period.

\<Basic schemes\>

- For the implementation project of new technologies/business models suggested by private entities, after hearing the opinions of the committee, related administrative agencies confirm that the project in question is in line with the regulatory enactments, etc., and then authorize it.

- The administrative agencies or the committee that authorized the project in question supports the demonstration. After the demonstration, they consider reforming each individual law based on the collected data so that other private entities could use the new technology/business model.

\<Sandbox implementation system\>

- Establish a cross-sectoral/across-the-government promotion system for Regulatory "Sandbox" System.
    - Accept the proposals from private entities at home and abroad widely and unitarily, and then allocate them to related administrative agencies.
    - Establish a committee that evaluates from the technical/objective viewpoints the effect innovation brought about by new technologies/business models implementation projects has on the whole range of Japanese economy.

NextGen IoT Acceleration Lab
3rd & 4th Selection Meetings for
Innovative IoT Projects
IoT Lab Selection

List of Supported Projects

- Contents -

Coaido Inc.

- Turn Tokyo into a city with advanced lifesaving systems through introduction of IoT into SOS emergency apps and fixed-line phone emergency contacts -

Outline of Project

The average arrival time for an ambulance in Tokyo is the longest among the municipalities in Japan, and the return-to-the-community rate of cardiac arrest patients in need of emergency procedures is one of the worst in the country. The capital city is failing to take advantage of its world's best environment for AED installation. With quick cardiopulmonary resuscitation (CPR) and the use of AEDs, the return-to-the-community rate of the patients improves 10 times. "Coaido119" is an app being developed by Coaido Inc., whereby an emergency case finder calls an ambulance and calls for help to people around with a 119 call from the app. The app registrants who receive a notice can rush to the scene based on the information showed on the display. The app also makes calls simultaneously to the fixed-line phones at neighbor establishments equipped with AED, conveying information on the patient situation correctly, thus improving the AED usage rate dramatically.

Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)
・Escort-type support such as guidance/advice of mentors

Future Vision

In cooperation with various IoT equipment of other companies, realize more effective services. In tandem with mobility services, establish a solution model that is materialized even in rural areas. Aim for overseas development in the future.

Coaido119

Set to be provided only regionally in spring 2017

Hiroki Kobayashi
(Center for Spatial Information Science at the University of Tokyo)

- Time-space information network using the sensor network attached to wild animals -

Outline of Project

In deserted regions, wide-area data collection requires much efforts and also much power energy for automatic collection. The Center for Spatial Information Science at the University of Tokyo researched non-contact communication mechanism for sensor information collection taking advantage of the territories or behaviors of wild animals. Record/share wide-area data while saving power (many hours) by combining sensors that activate following animal behaviors such as threat behaviors with network mechanism based on ad-hoc communication. Also for data collection, power supply and recorded information collection are done by non-contact communication, taking advantage of animal behaviors. Thus, realized advanced spatial information network based on the sensor network attached to wild animals. Aim to put the network to practical use as countermeasures to contagious diseases of livestock, support for detection of landmines, etc. in the areas without infrastructure such as power sources/information/roads where data collection is otherwise difficult.

Outline of Required Support

·Financial support (Public support for technological development, funds, etc.)

Support for measures against contagious diseases of livestock

Information infrastructure to realize real measurement of the expansion speed of pandemic diseases

Support for detection of landmines

Information infrastructure for international support activities

Support for air traffic control blank area response

Reception of a signal from a flying aircraft

Future Vision

This project is supposed to make technical measures applicable to the social challenges of the reconstruction work from the nuclear disaster. By clarifying the position of these technical measures in the whole framework to solve the social challenges, and also choosing the way of proceeding towards total optimization in light of consistency with other measures, we will be able to establish the social meaning of these technical measures in this theme.

Keychain Pte.Ltd.

- IoT Decentralized Authentication Platform by blockchain -

Outline of Project

For explosively increasing IoT, security is a crucial issue in light of cyber attacks such as DDOS attack with a device as a stepping stone that is caused by a weak device connected to the network. Keychain Pte. Ltd. developed decentralized authentication technology and IoT authentication platform using blockchain. Through blockchain technology, risks such as "certificate authority hacking", "hijacking of IoT devices" and "falsification of authentication history" can be avoided. Also, the technology brings substantial cost reduction to conventional digital certificates.

Outline of Required Support

·Financial support (Public support for technological development, funds, etc.)
·Escort-type support such as guidance/advice of mentors
·Deregulation (Deregulation of the Act on Electronic Signatures and Certification, taking decentralized authentication technology into consideration)

Future Vision

① Establish decentralized authentication platforms focused on specific business categories/services and inspect their actual operations. Inspect system auditing.
② Demonstration experiment of authentication software installation into IoT devices
③ Experiment of IoT authentication software installation into hardware (joint study with hardware design/manufacturing companies)
④ Demonstration experiment of authentication communication between decentralized authentication platform and IoT authentication platform as well as between IoT authentication platforms.
⑤ Launch a joint discussion by the public and private sectors toward cross-industrial standardization. Carry out the proposal to worldwide standardizing organizations.

Decentralized Authentication Platform

IoT Authentication Platform

Hacking resistance
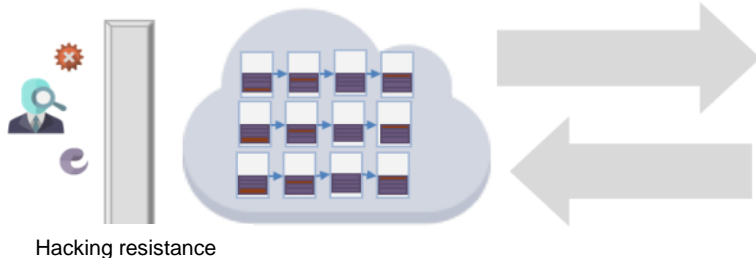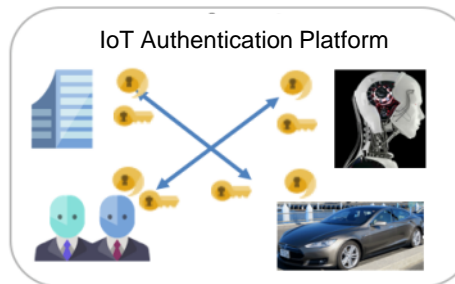
THE Power Grid Solution Ltd.

- Global launch of the capacity building system for power distribution companies -

General Category
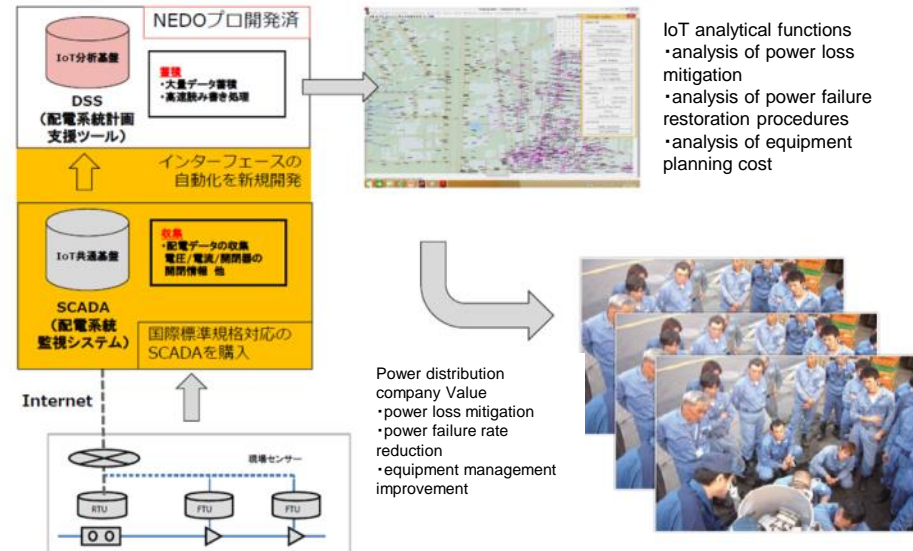
Outline of Project

Export a package of "Japan's system tools, operation technologies and on-site education to acquire operation procedure" as a capacity building system intended for power supply companies in India. By adding a system for collecting power supply equipment information based on IoT to these results, develop a project toward the solution of economically-growing emerging nations' challenges such as "frequent power failure", "power loss and increase of equipment failure", and "system stabilization". Also, by utilizing AI as technology of power system operation, establish a support infrastructure whereby ordinary people can deal with jobs that are the same levels of those for experts, while experts can enhance their skills.

Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)

Future Vision

Based on Japan's technology enabling stable power supply, they have been working on the export of a package of "electric system equipment, operation technology, and education for establishing/advancing effective use of them", trying to give root to it among local people. The development system they intend to apply this time will make a new merchandise to be exported and fixed in India.

NEDOプロ開発済

IoT分析基盤

・大量データ管理
・高速読み書き処理

DSS
(配電系統計画
支援ツール)

インターフェースの
自動化を新規開発

IoT共通基盤

・配電データの収集
電圧/電流/開閉器の
開閉情報 他

SCADA
(配電系統
監視システム)

国際標準規格対応の
SCADAを購入

Internet

現場センサー

RTU   FTU   FTU

IoT analytical functions
・analysis of power loss mitigation
・analysis of power failure restoration procedures
・analysis of equipment planning cost

Power distribution company Value
・power loss mitigation
・power failure rate reduction
・equipment management improvement

Mu Ltd.

- Gastrointestinal imaging test system by mobile endoscopic mini robot -

Outline of Project

  Digestive tract cancer accounts for about half of the cancer deaths in Japan. Problems to hinder the early detection of this cancer include "pains or embarrassment related to endoscopy using a tube" and "long hours of examination required for capsule endoscope". After many years of research, Mu Ltd. developed a self propelling endoscopic mini robot that can solve these problems. Already completed a prototype of a movable image sensor that sends intracorporeal image outside the body and then makes a diagnosis. Also, aim for the development of a system that enables remote medicine in the regions with no medical specialists or remote indication by skillful doctors.

Outline of Required Support

·Financial support (Public support for technological development, funds, etc.)
· Escort-type support such as guidance/advice of mentors
·Deregulation (Partial easing of the Medical Practitioners' Act or review of the inspection information handling rules)

Endoscopic Mini-robot

Operating Endoscopic mini-robot   Driving gear

Endoscopic mini-robot put into mouth for inspection

Endoscopic mini-robot moving inside stomach of a human

Image of human stomach wall shot by endoscope mini-robot

Future Vision

This project is expected to realize the early detection of serious diseases and the reduction of medical expenses. Also, in cooperation with remote medicine, it will enable clinical examination in the regions with few doctors. In the future, primary diagnosis by automatic examination or AI may ease the burden on doctors and also bring about revolutionary changes in medical services.

CLUE, Inc.

- Remote control system for multiple units based on the cooperation between drone makers -

Outline of Project

The process of the drone usage is advancing in the fields such as civil engineering/surveying, and infrastructure inspection. However, the difficulty of system development by an individual drone maker, the need for dispatching operators to the site, as well as insufficient labor saving/automation are acting as barriers to the expanded use of drones. CLUE, Inc. developed "AeroBase", an external device that can operate multiple drones by remote control based on the cooperation between drone makers to solve these problems. The device equipped with the functions of remote control, real-time data collection/processing, air traffic control flight log provision, etc. is the world's first. Work on the drone automatic operation solutions using 4G·LTE as a forerunner in Japan.
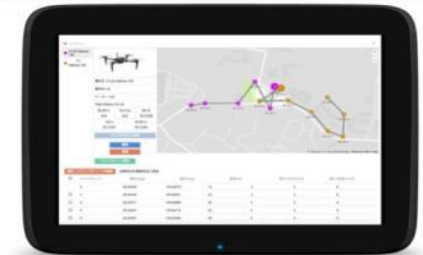
Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)
・Deregulation (Deregulation of the use of 4G/LTE in the operation of drones and the Radio Law/the Civil Aeronautics Law related to the beyond visual flight)

Hardware 「AeroBase」   Cloud 「DroneCloud」

Future Vision

Provide industry-classified solutions based on AeroBase and DroneCloud.
By providing solutions for automatic airframe operation, automatic upload of required data to cloud or their processing in the service geared toward civil engineering/surveying or inspections using drone, realize labor saving/man-saving of the service provision using drone.

fukule inc

- Aiming for the 4th Industrial Revolution of Japanese textile industry originated in Kiryu -
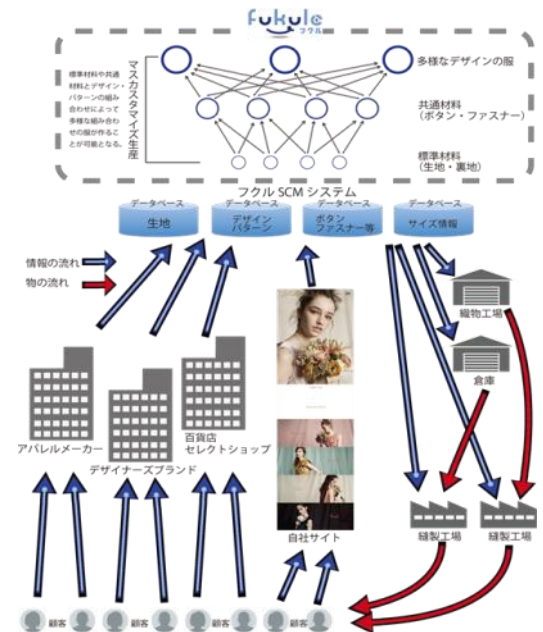
Outline of Project

Affected by mass production in newly emerging nations, Japanese textile industry ridden with low wages, a high turnover rate and aging employees, has been in a decline. Kiryu City in Gunma Prefecture, one of the famous weaving areas in Japan, is no exception to this trend with the number of garment factories decreasing sharply. Aiming for the revival of the waning garment factories in Kiryu, the founder of fukule inc, who was born and raised at a garment factory in Kiryu, launched a mass customization service catering for individual preference by establishing a system that "shares" unemployed capital of garment factories through exhaustive use of IT in the process other than sewing. Starting from this service, develop a AI-based recommendation function that recommends desired ones from among a large quantity of fabric as well as IoT system in the production process.

Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)
・Escort-type support such as guidance/advice of mentors

Future Vision

Aim to be a model case of Japanese garment factory that brings about the fourth Industrial Revolution of Japanese textile industry originated in Kiryu.

ASIA AIR SURVEY CO., LTD.

- Total Platform of Sports × IoT × Entertainment -

Trans-platform Category

Outline of Project

Work on the development of a strategic system for professional sports including soccer, by uniting real-time sensing system of ASIA AIR SURVEY CO., LTD., sports tactics analytical technology of Kansai University, and motion measurement/wearable technology of Mizuno Co., Ltd. Also, based on Kansai University's know-how of guidance and knowledge put into a Big data base, expand an amateur sport guidance service. Furthermore, by providing spectators with players' information in real time and sharing the perspectives of managers or players, turn sports into entertainment whereby spectators can feel bodily sensations as well.

Outline of Required Support

・Financial support (Escort-type mentor support, funds, etc.)
・Escort-type support such as guidance/advice of mentors
・Deregulation (Deregulation of the Radio Law, Official rules of various sports associations, Personal information handling, Civil Aeronautics Law, and Broadcast Act)

Future Vision

Aim to contribute to the development of the sports field through global development of a platform that can make a quantitative judgment about the physical abilities of people enjoying outdoor sports. By establishing world-standard horizontal platform business model through service release, bring about disruptive innovation against enclosure businesses of sport analysis or wearable devices. For the future, proceed with the consideration of collaboration with video and also an application to indoor sports.

ASIA AIR SURVEY CO., LTD
アジア航測株式会社

Kansai University
関西大学

Mizuno Co.
Mizuno

O : Co., Ltd.

- The world's first service to improve sleep/productivity through visualization of a body clock -

Outline of Project

Co-developed a watch-style device (non-invasive, the world's first) that can visualize a body clock by multiple biosensors as well as a body clock coaching app based on CBT-I (a cognitive-behavioral therapy for insomnia) for the device users, thus developing a business aiming to decrease a national disease, insomnia. Aiming at a creation of a society where improvement/prevention of psychosomatic disorders caused by insomnia, circadian rhythm sleep disorder, jet lag, shift work, and disordered body clock can be realized through self-care, call on hospitals to encourage their patients to use the service above. Also, develop B2B service that improves productivity by addressing mental health management, industrial accident prevention, and setting of optimal working hours.

Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)
・Escort-type support such as guidance/advice of mentors
・Support for standardization, establishment of rules, etc.
(Stress check rules, sleep information handling, elimination of regulatory gray zones for the Medical Practitioners' Act/the Pharmaceutical Affairs Law, etc.)

(1)Data acquisition from device　(2) Analysis (machine learning)　(3) CBT-i coaching (sunbathing & sleeping time)

①デバイスから データ取得　②解析 （機械学習）　③CBT-iコーチング （睡眠＆光浴の時間）

Future Vision

In cooperation with various IoT equipment of other companies, realize more effective services. In tandem with mobility services, establish a solution model that is materialized even in rural areas. Aim for overseas development in the future as well.

OTON GLASS

- OTON GLASS – Smart Glass enhancing reading ability -
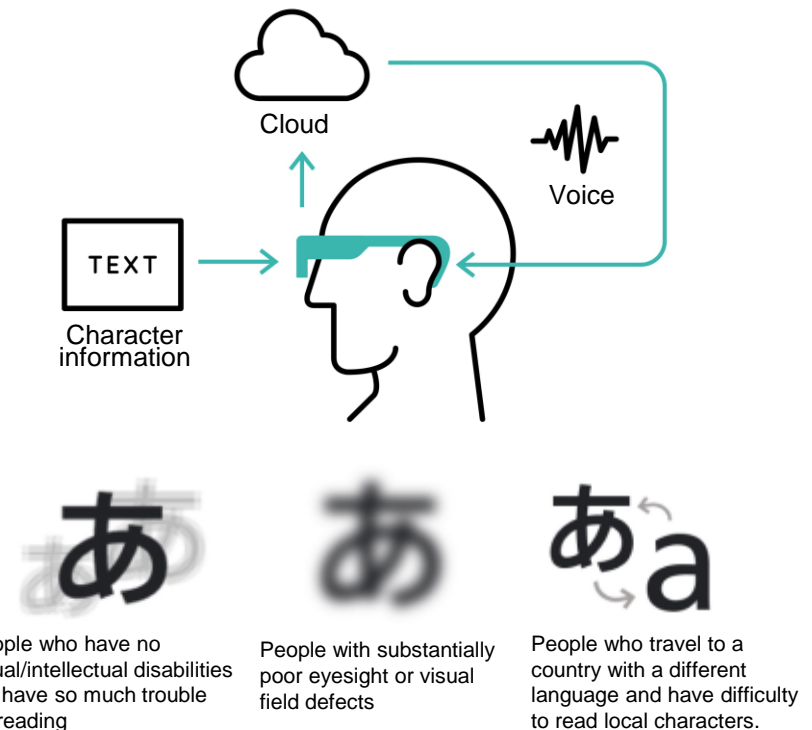
Outline of Project

Develop, manufacture and sell "OTON GLASS," the eye glasses that read out characters. When a user puts on OTON GLASS, it takes characters before their eyes on a camera, converting them into text data through character recognition technology, and then read them out as a speech sound, thus enabling the user to understand the content. Although the device's fundamental functions are completed, the development of a trigger for natural photographing is still required. They work on the development of services including educational support using automatic speech sounds and life-log data.

Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)
・Escort-type support such as guidance/advice of mentors
・Deregulation (Inspection for privacy issues caused by glasses-style devices, communication-related problems, etc.)

Future Vision

Solve the potential problems caused by the current situation and also manufacture/sell miniature edition products. Eventually, deliver OTON GLASS to those who really need it, thus creating "a world where everybody can read characters" intended especially for the visually impaired, people with reading disorder (dyslexia), etc.

Cloud

Voice

TEXT

Character information

あ

People who have no visual/intellectual disabilities but have so much trouble on reading

あ

People with substantially poor eyesight or visual field defects

あ
a

People who travel to a country with a different language and have difficulty to read local characters.

LEXER RESEARCH Inc.

- Production management innovation and reinforcement of *monozukuri* (manufacturing) basis through the optimization of new AI/massively parallel simulation -
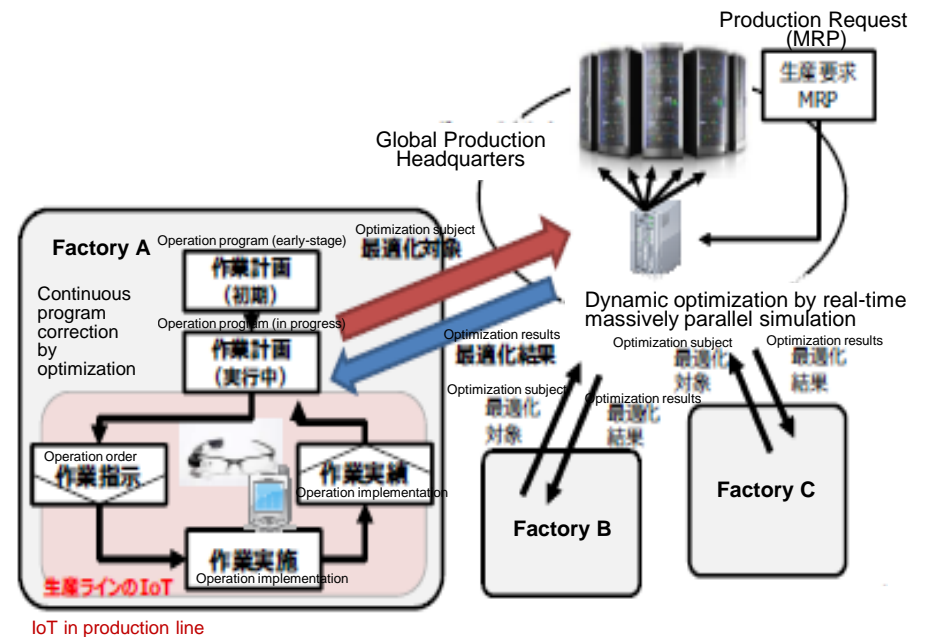
Outline of Project

Japan's *monozukuri* (manufacturing) depends significantly on the production site, and so the detailed activity data is often confined to the individual site. As a result, in the light of production management in the global strategy, cooperation between production site and global management is not enough. This project describes the realities of each site in detail by production simulation, and also realizes the optimization of production schedule of each site in the global manufacturing industry dynamically through massively parallel simulation under development.

Outline of Required Support

·Financial support (Public support for technological development, funds, etc.)

Future Vision

The technology developed in this project should be core technology for the manufacturing industry as the basis of Japan to fight globally. It is necessary to develop this technology as public service to support the country instead of retaining it only as our company's property. Aim to spread this service widely once the technology is developed successfully.

Arblet Inc.

- Vital network supporting Elderly People Watching System -

Outline of Project

This project demonstrates the prediction of biotransformation such as dehydration and excretion using "MIW Wear", a wearable device that can measure blood pressure continuously. Currently, due to the aging population, the number of people in need of nursing care is increasing sharply. Thus, against the backdrop of the shortage of caregivers, the operational efficiency improvement is required. It is estimated academically that biotransformation such as dehydration and excretion are related to blood pressure, and so they can be predicted with high efficiency by using AI. By detecting multiple biotransformation using "MIW Wear", we aim for the realization of smart monitoring service without the need of multiple nursing care equipment.
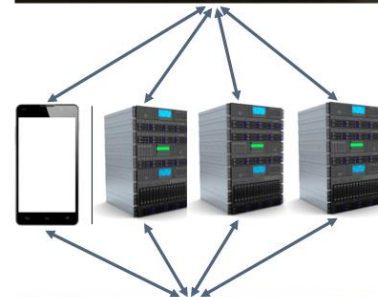
Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)
・Escort-type support such as guidance/advice of mentors

The world's first wearable device that can measure blood pressure continuously

Future Vision

Aim for the realization of intelligent monitoring service by predicting multiple biotransformation through the bio-information measured continuously by "MIW Wear". This project aims to contribute to the resolution of manpower shortage in the nursing care fields through the partial automation of monitoring service and operational efficiency improvement. Following the introduction in Japan, we aim to launch into foreign countries ridden with the same kind of problem.

Solve the communications problems in the nursing care fields using edge servers.

Nursing care AI that predicts biotransformation through big data on the cloud

TANAKA ENGINEERING Inc.

- Automation of IR cut filter visual inspection from the viewpoint of glass precision machining industry -
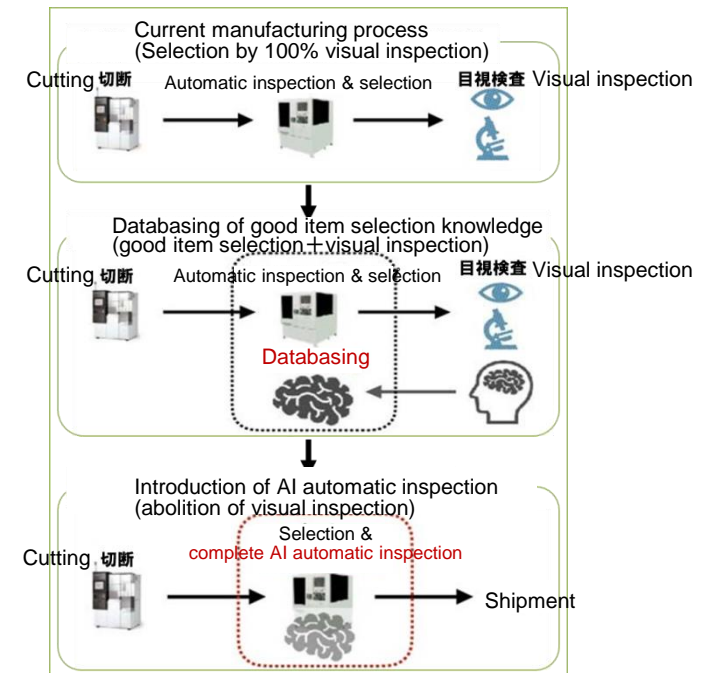
Outline of Project

According to the IR cut filter quality standard, chipping/flaw/water stain of10μm at the smallest is regarded as material defects. Currently, appearance inspection is mainly done visually, making an eradication of the flow of defects caused by variations in judgment a challenge to be tackled. Also, the inspection requires intense concentration, making it difficult to secure workers. Develop an appearance inspection machine that does IR cut filter inspection and separation of defective products automatically, and put inspection and separation of defective products into a database by multi-spectrum based on the wavelength responding to visible light region and specified substances, and analyze/judge by deep learning, and then try to detect within 0.5 second, which is faster than visual inspection.

Outline of Required Support

・Financial support (Public support for technological development, funds, etc.)

Future Vision

Aim to establish basis for IoT introduction into the factory. If IR cut filter appearance inspection is automated, it will make an advanced case that makes a way for appearance inspection of precision glass processing as well as IR cut filter, which will lead to the substantial expansion of application range.

Current manufacturing process
(Selection by 100% visual inspection)

Cutting 切断   Automatic inspection & selection   目視検査 Visual inspection

Databasing of good item selection knowledge
(good item selection＋visual inspection)

Cutting 切断   Automatic inspection & selection   目視検査 Visual inspection

Databasing

Introduction of AI automatic inspection
(abolition of visual inspection)

Selection &
complete AI automatic inspection

Cutting 切断   Shipment

IoT Lab Demonstration
(IoT-related Demonstration Budgets)

FY 2017 Implementation Summary by Themes

- Contents -

1. New Industry Model Creation Base Development Project for promoting IoT (shift of budget amount)

FY2015 Supplementary: 1.12 Billion yen
FY2016 Initial: 2.04 Billion yen / Supplementary: 1.1 Billion yen
FY2017 Initial: 2.34 Billion yen / Supplementary draft: 0.3 Billion yen
FY2018 Draft: 2.54 Billion yen

2. R&D/Demonstration Project for the social implementation of advanced automated driving system ·································· 9
(shift of budget amount)

FY2016 Initial 1.88 Billion yen
FY2017 Initial 2.60 Billion yen
FY2018 Draft   3.50 Billion yen

① [Manufacturing] Smart Factory Demonstration Project

\<Creation of advanced cases: a task to be tackled\>

- In Japan, where "Bottom-top approach to management" is the mainstream, efforts for smartification have been made to some extent mainly for each single factory. **Meanwhile, efforts for total optimization are not enough, and especially efforts for smartification beyond factories or companies in a supply chain are falling far behind.**
- Thus, **work on the promotion of national efforts through visualization/sharing of results ※ by supporting creation of such advanced cases.**

\<Formulation/demonstration of data profile for the international standardization\>

- **Formulate a data profile (compatible format of data) plan that will be the key to sharing/using data beyond the border of companies, and demonstrate it in the advanced cases by key issues created by the above**. Also, utilize it in the future discussions on international standardization, etc.

Examples of creation/permeation of advanced cases through specific challenges（solution）setting

Design & proposal support	e.g.) <u>System that enables a required processing without regard for equipment specifications</u> under co-reference through function to convert different processing programs into the programs appropriate for the object equipment by machine tools.
Receiving/placing of orders	e.g.) Multiple factories share order situation or operation situation, <u>aiming to bring about the leveling of business fluctuation or the increase of order opportunities.</u>
Production optimization	e.g.) <u>System that enables predictive maintenance, product traceability securing, etc</u>. by establishing a cross-industrial mechanism for integrated management of some major manufacturers' equipment data.
Quality control	e.g.) <u>System that enables production efficiency improvement or lead time reduction</u> by matching company workers with equipment or works in view of their skill and seeking the optimization of people as well as machines.
Distribution & inventory control	e.g.) Realize the visualization of supply chain connecting production and distribution by information interface while confirming the effectiveness of block chain basic technology.

Demonstration through compatible data format formulation, etc. & advanced cases above

|	
Data profile standard, etc.	<u>Draw up a data profile standard plan or a security guideline plan</u>, which are compatible format to share/use data acquired from PLS, NC devices, robots, etc. between companies.

*Work on the disclosure of the results of standard model, etc., permeation/standardization by business organizations, sharing/propagation of the results by the manufacturing IoT organizations (IVI, RRI), etc.

② [Social Infrastructure] Social Infrastructure Advancement Promotion Project

- **The efficient and sustainable business operations in the field of social infrastructure is a major social issue.** Amidst the dwindling population, declining birthrate and aging population, social infrastructure businesses are facing the decrease of return on investment following deterioration/glut/decrease in demand of facilities.

- As for such a social infrastructure field, carry out standardization for introducing IoT into a series of business processes (facilities management, operational management), aiming for management streamlining through the use of IoT. Thus, **enhance the efficiency of routine operations as well as realize optimum asset maintenance management, etc.**

- In this project, targeting at water utility, conduct a demonstration while considering the standardization of data format and security standard of linking systems.

<Details of demonstration>

Improve the environment of data usage by establishing the rules of data circulation between applications and field equipment, etc., (devices or systems). Thus, aim to streamline management and also prevent the occurrence of vendor lock-in.

Concept image of standardization

<Examples of IoT-based promotion of streamlining>
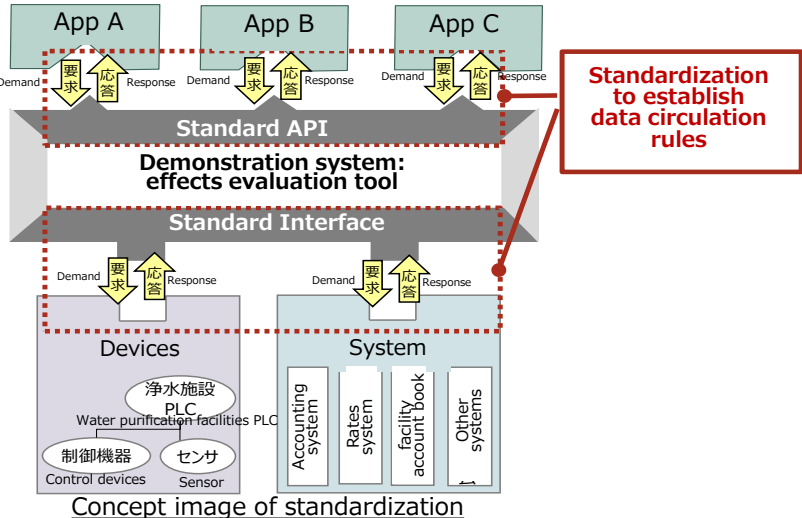
1．Effective asset management in light of LCC

Support effective facility renewal plans by running a simulation for consolidation of facilities/equipment based on information on population change, operation, maintenance, etc.
※LCC : Life Cycle Cost
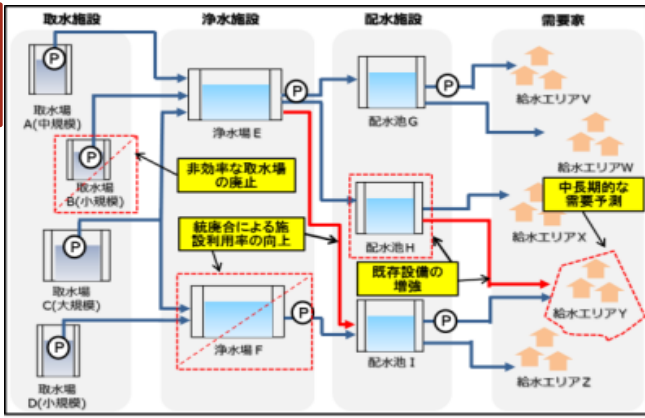
2．Centralization of operation management following business expansion

Operate facilities effectively by conducting operation monitoring and remote control through the centralization of operation information/water supply information of multiple facilities dotted in a wide area.
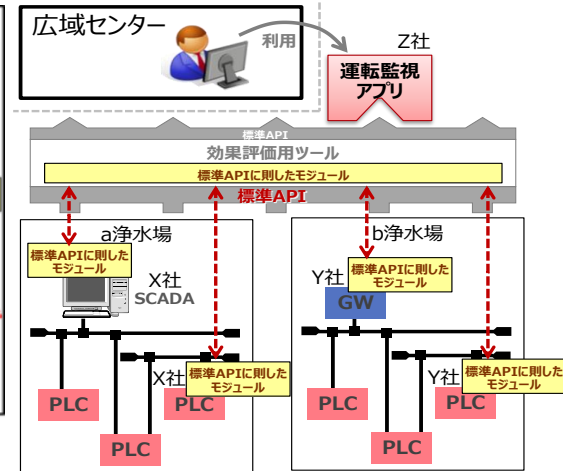
③ [Industrial Safety] Independent Safety Measures Advancement Project (Oil refinery, Chemical plant, etc.)

- In the fields of industrial safety (Oil refinery, Chemical plant, etc.), implement **a demonstration of the mechanism for early detection of abnormalities**. based **on the analysis of** the real-time **operation data (temperature/pressure/the amount of flowing, etc.)** acquired continuously through sensors, etc.
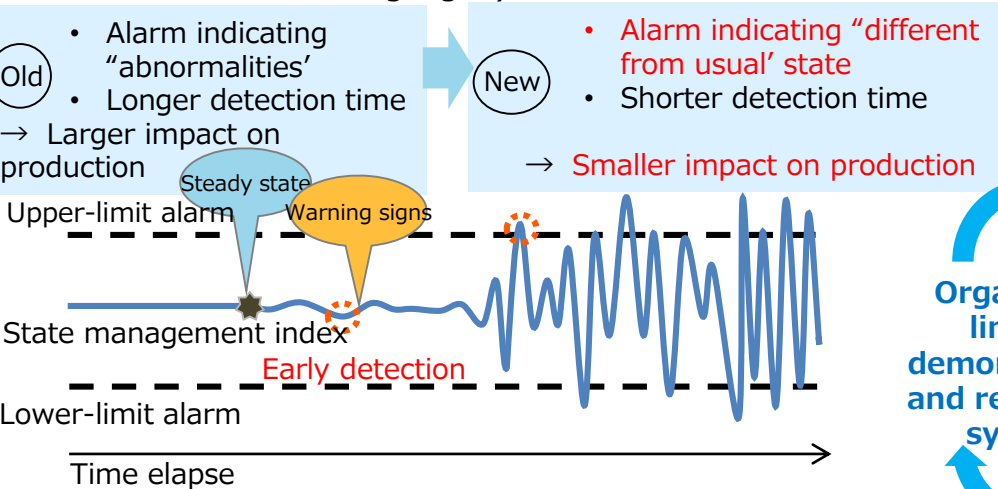- Based on the confirmation of effectiveness of the new mechanism above, reflect it in the new regulatory system for the High Pressure Gas Safety Act (Super Certified Operator System), promoting the introduction of IoT, etc.
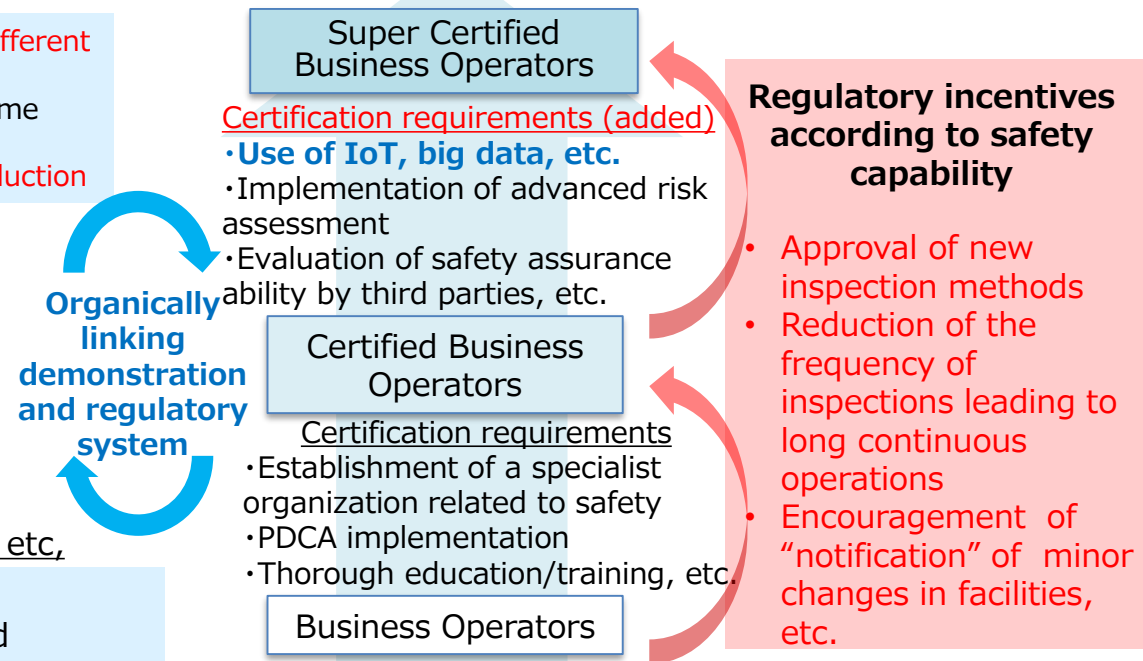
<Case examples of demonstration>

1 .Constant monitoring of operation condition (Early detection of abnormalities/warning signs)

Old
- Alarm indicating "abnormalities'
- Longer detection time
→ Larger impact on production

New
- Alarm indicating "different from usual' state
- Shorter detection time
→ Smaller impact on production

Steady state
Warning signs
Upper-limit alarm
State management index
Early detection
Lower-limit alarm
Time elapse

2. Establishment of a piping corrosion prediction model, etc,

Establish a prediction model, etc. that enables an early detection of abnormalities of equipment by collecting and analyzing data of internal piping corrosion at oil refineries, etc./external corrosion under a heat insulator at chemical plants.

<Regulatory system realizing advanced independent safety measures>

Organically linking demonstration and regulatory system

Super Certified Business Operators

Certification requirements (added)
- **Use of IoT, big data, etc.**
- Implementation of advanced risk assessment
- Evaluation of safety assurance ability by third parties, etc.

Certified Business Operators

Certification requirements
- Establishment of a specialist organization related to safety
- PDCA implementation
- Thorough education/training, etc.

Business Operators

Regulatory incentives according to safety capability

- Approval of new inspection methods
- Reduction of the frequency of inspections leading to long continuous operations
- Encouragement of "notification" of minor changes in facilities, etc.

4

④ [Aircraft] Aviation System Advancement Project for Supporting Piloting, etc.

- Global air transportation demand is expected to increase at an annual rate of about 5% in years to come. While the number of pilots required globally is predicted to double in 2030, the number of shortage is expected to amount to as many as 8,000 per year, raising concerns for the shortage of skilled pilots.
- Based on **the use of accumulated flight data, etc. and AI technologies**, conduct a demonstration for the realization of advanced, safe aviation systems, including **pilot support system for changes of a flight plan in bad weathers**, which is currently dealt with by pilots manually.

<To date> Each agent uses data individually.

Meteorological data

Air traffic control data

Flight data

Value chain of transportation

Aircraft manufacturing

Flight

Piloting based on pilots' experience

Transportation service

·Safety
·Low fuel consumption
·Comfort

Air traffic congestion → Shortage of pilots

<Future> **Best route choice in bad weather/air turbulence/emergency situation (Safety·Comfort·Low fuel consumption)**

Preceding aircraft/surrounding situation

Weather condition

Own aircraft/surrounding situation

Transmission to the following aircraft

Air traffic control situation (including other aircrafts)

AI analysis based on accumulated data
- Meteorological data
- Air traffic control data
- Flight data

Aircraft manufacturing

Flight

Transportation service

·Safety
·Low fuel consumption
·Comfort

Aircraft that can choose the best route based on the synthetic analysis of meteorological/air traffic control/flight data

→ Aircraft substitutes a part of added value of pilots.

5

⑤ [Smart home] Promotion Project for Improving Data Usage Environment in Smart Home

- In the future, with the increase of household equipment coordinating each other, the quantity/quality of accessible data will increase. Thus, it is expected that innovative data coordination services are created beyond visualization of energy consumption or On/Off operation of household electrical appliances, leading to the solution of social problems (alleviation of domestic duties, senior citizens policy, stress-free society, etc.).
- Through the demonstration, draw up common guidelines, etc. for the issues in data coordination with other companies (①data profile, ②security/product safety, ③privacy and data usage rules), and work on the development of connected environment required for the creation of new services.

○ Through the corporate consortium made up of housing manufacturers, household electrical appliance manufacturers, electric utilities, service providers, etc., establish connected environment whereby equipment wired into the Internet is brought into households, enabling to acquire/provide data in an open module-oriented manner.

○ By utilizing various data related to households, conduct demonstrations for the creation of use cases, such as comprehensive services in the product life cycle and lifestyle-related services in line with user needs.

<Development of Connected Environment>
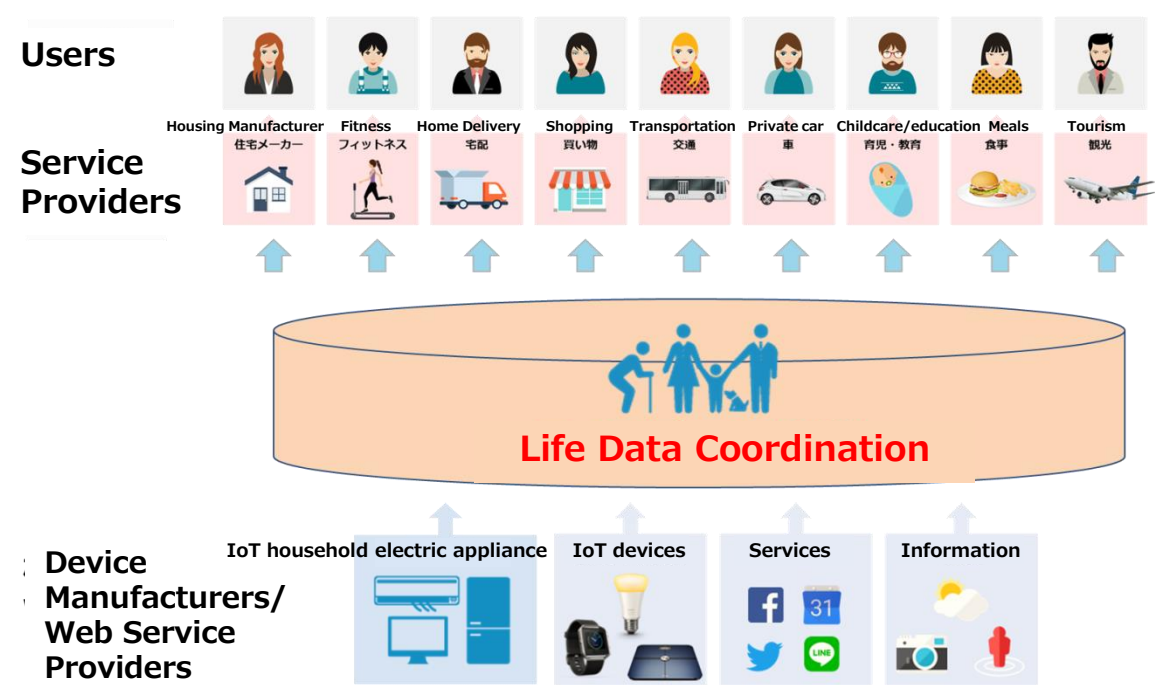
①Data profile
Service providers adjust data catalogues in order to promote the use of equipment data, etc.

②Security/Product safety
Adjust security requirements imposed on each entity or the items related to product safety including remote control of equipment.

③Privacy data
Adjust the privacy data circulation mechanism assuming participation of various equipment/service providers as well as the appropriate acquisition of consent.

<Concept image of the provision of life data coordination services>

Users

Service Providers

Housing Manufacturer 住宅メーカー | Fitness フィットネス | Home Delivery 宅配 | Shopping 買い物 | Transportation 交通 | Private car 車 | Childcare/education 育児・教育 | Meals 食事 | Tourism 観光

Life Data Coordination

Device Manufacturers/ Web Service Providers

IoT household electric appliance | IoT devices | Services | Information

⑥ [Tourism] IoT-based *Omotenashi* (Hospitality) Demonstration Project

- Aiming to realize *Omotenashi* services, conduct a demonstration whereby **service providers share/use** date related to the attribute information (sex/age/nationality, etc.) and action history (accommodations, shopping, transportation, etc.) of foreign tourists visiting Japan based on their consent in order to **provide various services, etc**.

- In this demonstration, in addition to response to institutional aspects of individual service, **lay down rules of data format, etc. for sharing/using data between various service providers who have different systems, etc.,** as well as conduct local demonstrations in 10 regions in the country.

ID --Attribution information
--History information
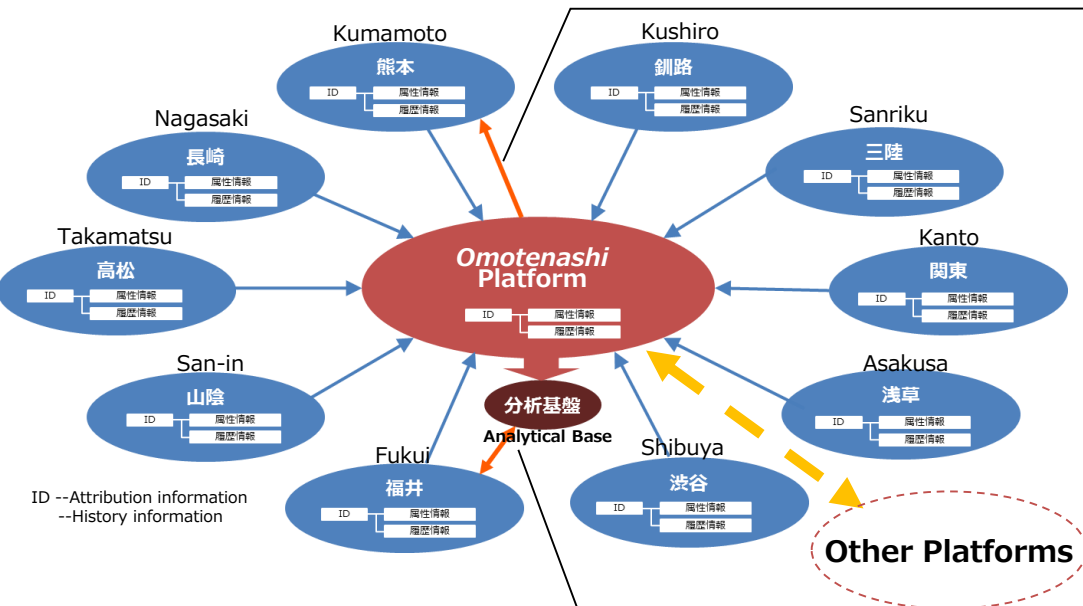
・Foreign tourists visiting Japan registered for Omotenashi Platform can enjoy the service at Local Platforms nationwide.
⇒ Through information sharing with Omotenashi Platform, simplify the procedures of the launch of Local Platform services.（introduction of One-stop Service）

・Through Local Platforms, service providers can analyze data accumulated in *Omotenashi* Platform.
⇒ Local Platform is utilized in tourism strategy etc.

[Details of Implementation]
Establishment of "*Omotenashi* Platform"
・Realize information sharing between various service platforms.

Establishment of "Local Platforms"
・Provide various services in cooperation with *Omotenashi* Platform.

Consideration of regulations/rules
・Consideration of standardization of privacy policy and terms of service required for the realization of information sharing, personal information handling, etc.
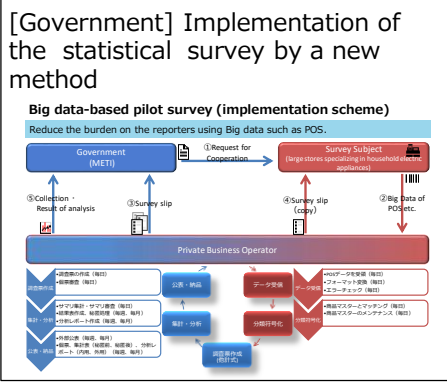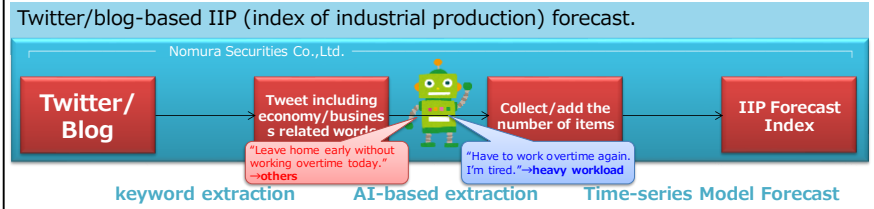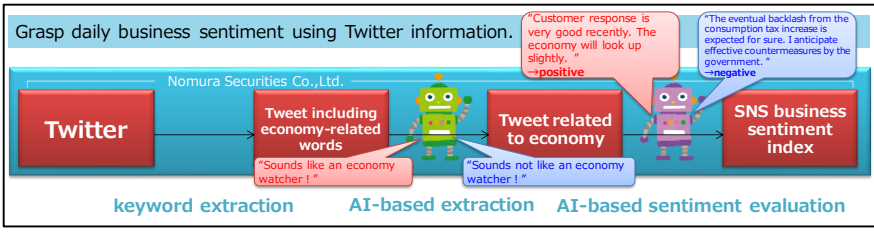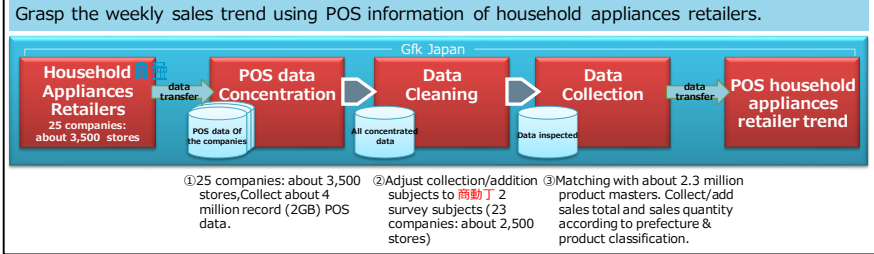
⑦ [Public Administration] New Indicator Development Project Using Big Data

- **Amidst the mounting importance of the speedy policy making, the use of Big Data contributing to the early, exhaustive grasp of economic trend** is considered to be **a task to be tackled.**
- Thus, **develop a new indicator that enables adequate policy/decision making by grasping economic activities quickly and accurately based on POS data** owned by private companies, **Big Data including SNS data etc.** accumulated on cyber space **as well as AI technology.**
- **Through the implementation of statistical survey by a new method based on Big Data, the effects of the reduction of the burden on the reporters are also expected.**

In FY 2016 & 2017, **developed the indicators below with greater need for speedy report that can grasp economic trend more accurately, disclosing them experimentally.**
・"POS electronics retail store trend indicator", "SNS×AI business sentiment index (SME AI, watcher AI)", "SNS×AI industrial production forecast Index"
From FY 2018 onward, **implementation of statistical survey by a new method** and **creation of new businesses based on SNS×AI technology** are planned by the government and the private sector, respectively.

<Development of a new indicator: September 2016- March 2018><Experimental release: July 2017- March 2018><Social implementation April 2018->

Grasp the weekly sales trend using POS information of household appliances retailers.

①25 companies: about 3,500 stores,Collect about 4 million record (2GB) POS data. ②Adjust collection/addition subjects to 商動丁 2 survey subjects (23 companies: about 2,500 stores) ③Matching with about 2.3 million product masters. Collect/add sales total and sales quantity according to prefecture & product classification.

Grasp daily business sentiment using Twitter information.

keyword extraction   AI-based extraction   AI-based sentiment evaluation

Twitter/blog-based IIP (index of industrial production) forecast.

keyword extraction   AI-based extraction   Time-series Model Forecast

[Government] Implementation of the statistical survey by a new method

Big data-based pilot survey (implementation scheme)
Reduce the burden on the reporters using Big data such as POS.

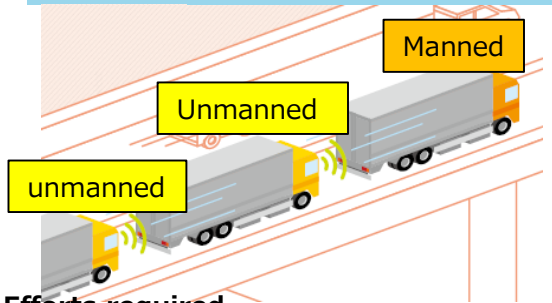[Private sectors] Creation of new businesses based on SNS×AI technology

8

⑧ [Mobility] R&D/Demonstration Project for the social implementation of advanced automated driving system

Objective and project overview:

In order to contribute to the promotion of energy saving in the transportation sector, this project considers the technology, operating environment, etc. required for the social implementation of advanced automated driving system through its demonstration, etc., taking safety/social acceptability/economy/global trend, etc. into account.

⇒ advanced automated driving system: Convoy Driving, Automatic Valet Parking, and Last One Mile Automated Driving based on the use of exclusive spaces, etc. (terminal transportation system)

Convoy Driving
·Choose demonstration site in FY
·Demonstration experiment at the test course in FY2017

Future vision: Realization of the convoy truck driving with over 3 unmanned trucks following on the highway at night

Manned / Unmanned / unmanned

Implementation system-coordination: Toyota Tsusho
○Test vehicle production/ demonstration experiment promotion:
　Isuzu Motor Co., Hino Motor Co., Mitsubishi Fuso, UD Trucks
○Technology development required for convoy driving:
　Advanced Smart Mobility Co., JTEKT, Nabtesco, Wabco Japan, Nippon Signal Co.
○Evaluation of project model, etc.:
　Yamato Transport, Sagawa Express, Nippon Express, Japan Trucking Association

Efforts required
○Development of electronic linkage technology (including the brake)
○Enhancement of social acceptability (Demonstration starts with the convoy including two manned vehicles following), etc.

Automatic Valet Parking
Demonstration experiment in FY2018

Future vision: Realization of the Automatic valet parking at exclusive parking lots (with no pedestrians)
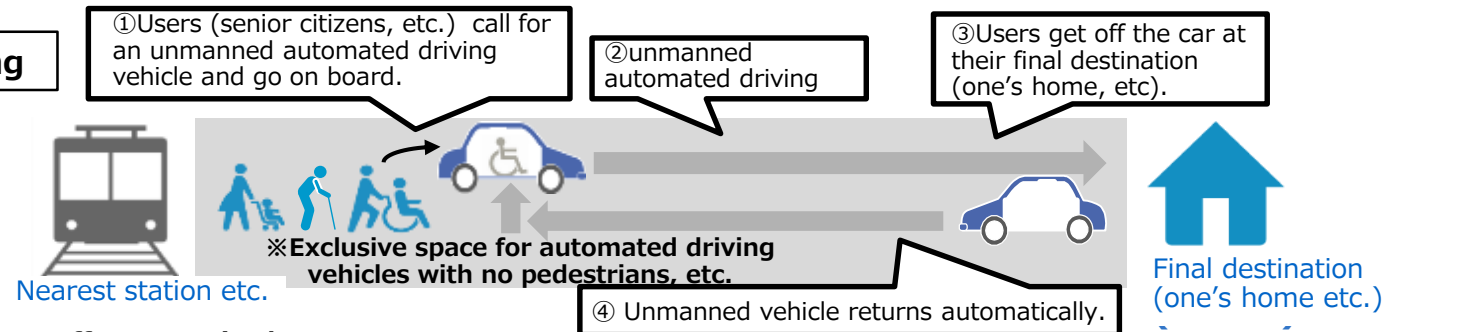

(Honda Motor Co. HP)

Implementation system-coordination: Japan Automobile Research Institute
○Control center specification development: Fujitsu Ten
○Parking control format development: Aishin Seiki Co.
○Mapping, localizer specification development: Pioneer

Efforts required
○Consensus building between involved parties
○Allocation of responsibilities among vehicles/parking lots/control centers (standardization), etc.

Last One Mile Automated Driving

- **Choose demonstration site by public subscription in FY2016**
- **Demonstration experiment expected by FY2018**

Future vision : Realization of the new transportation service based on the exclusive zone "Last one mile" that connects the nearest station, etc. and the final destination

①Users (senior citizens, etc.) call for an unmanned automated driving vehicle and go on board.

②unmanned automated driving

③Users get off the car at their final destination (one's home, etc).

Nearest station etc.

※**Exclusive space for automated driving vehicles with no pedestrians, etc.**

④ Unmanned vehicle returns automatically.

Final destination (one's home etc.)

Efforts required
○Choosing of the exclusive zone for introduction
○Establishment of the system t o minimize arrangement or operating cost, etc.

Implementation system-coordination: National Institute of Advanced Science and Technology
○development of small electric carts and systems:
　Yamaha Motor Co., Hitachi, Toyota Tsusho
○Establishment of small buses based on automated driving technology:
　SB Drive, The Japan Research Institute