IoT Acceleration Lab
(Advance Project Acceleration WG)

IoT Support Committee (Fifth Meeting)

Agenda

Date & Time: Tuesday, September 25, 2018
                  9:00-11:00

Location: Room 10 and 11, Belle Salle Tokyo Nihonbashi

Proceedings: Activity Report and Future Action Plans of
                  IoT Acceleration Lab

[Handouts]

Material #1:   List of Committee Members
Material #2:   Activity Report and Future Action Plans of IoT Acceleration Lab

Reference Material #1: 5th IoT Lab Selection Lists of projects to be supported
Reference Material #2: Implementation State of IoT Lab Demonstration FY2018
                       by Themes
Reference Material #3: J-Startup
Reference Material #4: Local IoT Acceleration Labs
                       Summary of Regions Selected in the 4th Selection
Reference Material #5: Connected Industries and IoT-related Budgets, etc.

IoT Acceleration Lab　IoT Support Committee
List of Members

(Titles omitted)

[Chairman]

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

[Members]

Akira Sakakibara	Chief Technology Officer, Microsoft Japan Co., Ltd.
Fujiyo Ishiguro	President and CEO, Netyear Group Corporation
Hiroaki Nakanishi	Chairman of the Board, Executive Officer, Hitachi, Ltd.
Jun Murai	Professor, Faculty of Environment and Information Studies / Graduate School of Media and Governance, Keio University
Junichi Tsujii	Director, Artificial Intelligence Research Center (AIST)
Klaus Meder	President and Representative Director, Bosch Corporation
Makoto Takahashi	President, KDDI CORPORATION
Masaaki Tanaka	President & CEO, Japan Investment Corporation
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.
Takako Fujiki	Executive Officer, Sales Director 3rd Sales Region Regional sales Group Japan, Intel K.K.
Takayuki Hashimoto	Honorary Executive Advisor, IBM Japan, Ltd.
Takeshi Natsuno	Guest Professor, Graduate School of Media and Governance, Keio University
Tatsuya Harada	Professor, Department of Mechano-Informatics, Graduate School of Information Science and Technology, The University of Tokyo
Taro Shimada	Process Ind. & Drives Division, Siemens K.K. Senior Executive Operating Officer & Division lead, Digital Factory
Tony Blevins	Vice President, Apple Inc.
Wavde Mandar	Commercial leader, GE Digital Japan, General Electric International Inc.
Wayoh (Kazuhiro) Suzuki	Chairman & Business Development, Executive, Cisco Systems G.K.

Yasufumi Kanemaru   Chief Executive Officer, Future Architect, Inc.

Yoshitaka Sugihara   Head of Public Policy and Government Relations, Google Japan G.K.

IoT Acceleration Lab

経済産業省
Ministry of Economy, Trade and Industry

NEDO

JiPDEC

Activity Report and Future Action Plans of IoT Acceleration Lab

September 25, 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
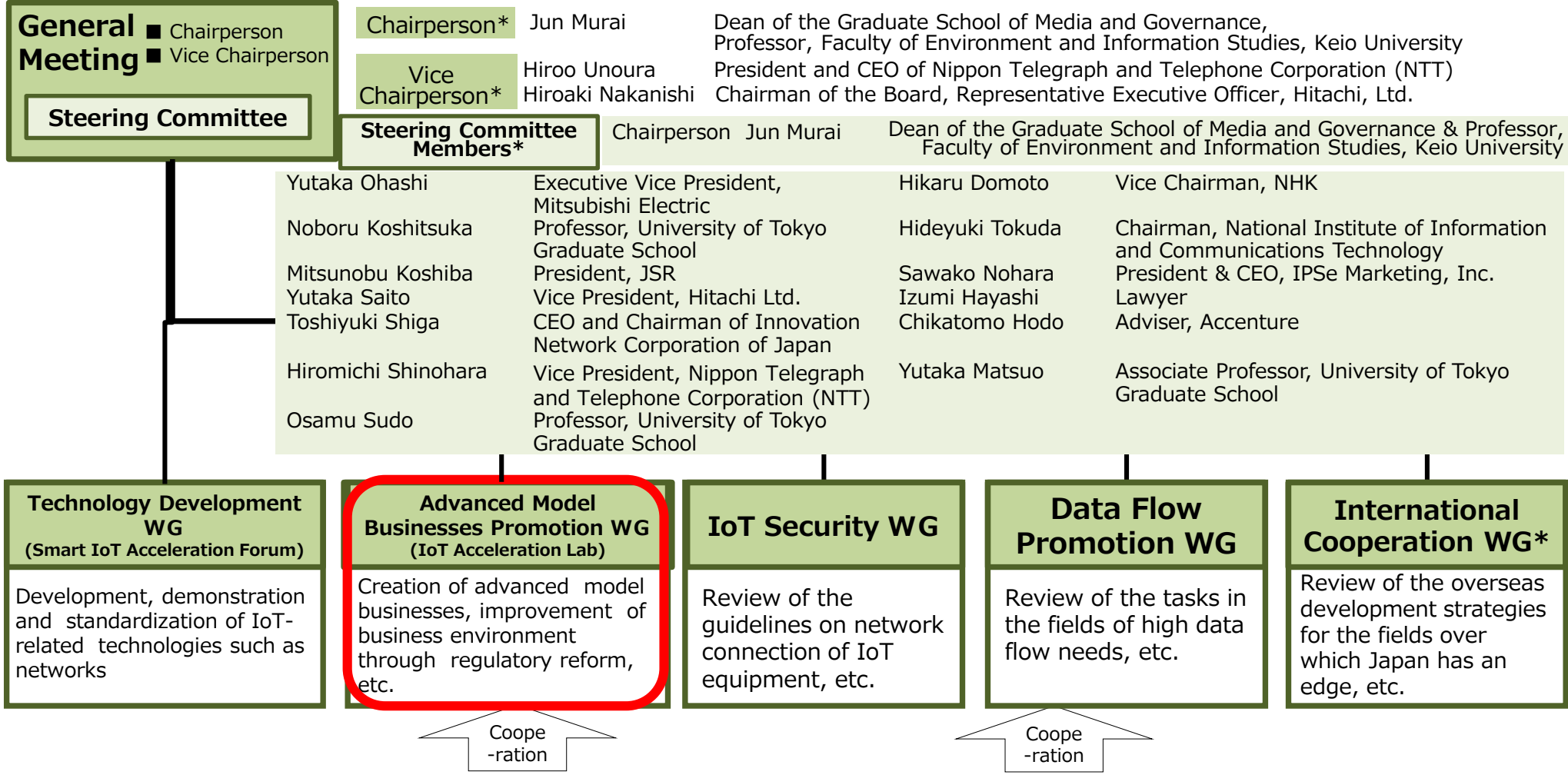
Future Action Policy

Mostly achieved goals such as creation of IoT business models during the starting-up period of IoT/AI/Big Data-related projects.

Examine future activities of IoT Acceleration Lab from two perspectives (global/local) for further spread of IoT/AI use and application.

Activities of IoT Acceleration Lab

IoT Acceleration Consortium

- 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)
- Makes proposals on technological development and practical use of IoT, solutions for policy issues, etc. Currently, there are **more than 3,600 member companies**.

General Meeting
- Chairperson
- Vice Chairperson

Steering Committee

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 Nippon Telegraph and Telephone Corporation (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.
Yutaka Saito	Vice President, Hitachi Ltd.	Izumi Hayashi	Lawyer
Toshiyuki Shiga	CEO and Chairman of Innovation Network Corporation of Japan	Chikatomo Hodo	Adviser, Accenture
Hiromichi Shinohara	Vice President, Nippon Telegraph and Telephone Corporation (NTT)	Yutaka Matsuo	Associate Professor, University of Tokyo Graduate School
Osamu Sudo	Professor, University of Tokyo Graduate School		

Technology Development WG (Smart IoT Acceleration Forum)
Development, demonstration and standardization of IoT-related technologies such as networks

Advanced Model Businesses Promotion WG (IoT Acceleration Lab)
Creation of advanced model businesses, improvement of business environment through regulatory reform, etc.

IoT Security WG
Review of the guidelines on network connection of IoT equipment, etc.

Data Flow Promotion WG
Review of the tasks in the fields of high data flow needs, etc.

International Cooperation WG*
Review of the overseas development strategies for the fields over which Japan has an edge, etc.

Coope-ration

Coope-ration

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

*As of October 3, 2017 (The 3rd General Meeting of IoT Acceleration Consortium)

- 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 suppor**

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, sharing economy, risk management, entertainment, and smart life.

②-1 Big Data Analysis Contest

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

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 promoting the creation of IoT businesses as "Local IoT Acceleration Labs". Implement mentor dispatch, staff meetings, and support for exhibition at large-scale events. At present, 93 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 development of domestic companies in the IoT field, cooperate with IoT-related organizations overseas and establish International Cooperation WG.

Latest events and Future Schedule (after Support Committee 4th Meeting)

* Underlined red letters represent future plans.

① IoT Lab Selection

March 6, 2018   5th IoT Project Selection Meeting
October, 2018   Start public invitation for 6th IoT Project Selection Meeting

② IoT Lab Connection

March 6, 2018   6th matching event [Themes: risk management, entertainment, AI]
September 18, 2018 7th matching event [Theme: smart life]
February, 2019   8th matching event [Theme: TBC]

②-1 Big Data Analysis Contest

March 6, 2018   3rd Award Ceremony (Subject: PV power generation prediction)
October 2018 -   Start 4th Contest

②-2 IoT Lab Global Connection

October 16, 2018   Business matching, etc. [ASEAN, EU, India, Israel and Russia] (jointly with CEATEC)

③ IoT Lab Demonstration

[FY 2018 Demonstration]
February 2018 -   Started public invitation/demonstration for Tourism field
March 2018 -   Started public invitation/demonstration for Smart home field
May 2018 -   Started public invitation/demonstration for Distribution field (electronic tag, trade procedure)
     Start public invitation/demonstration for Infrastructure field (thermal power generation, hydroelectric power generation)
   *Regarding Infrastructure field (water supply and sewerage), Industrial safety field, and Airplane field/Automated driving field, demonstration has been implemented since last fiscal year.

④ Local IoT Acceleration Labs

[National staff meeting] 3rd: February 15, 2018
[Selection of the regions] September 7, 2018   Announcement of the 4th Selection results

- In order to discover and help commercialize advanced IoT projects, government agencies, private 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**. Up to now, **49 advanced projects have been selected and supported** through five Advanced IoT Project Selection Meetings.

- The 5th Meeting set "General Category" and "Regions Category" as Category of Entry, and **selected 7 advanced projects**. Regions Category applicant included companies/organizations, etc. participating in the Local IoT Acceleration Labs.
  (1) General Category: projects other than (2) (6 projects)
  (2) Regions Category: projects contributing to the solution of regional problems and the revitalization of regional economy (1 project)

★Grand Prize★ — General Category
BONX Inc.

- Accelerating Communication On-the-Spot BONX for Business -
Realized **simultaneous calls by up to 30 people, no distance restriction with the other persons on the phone, and elimination of crossed line** - merits that had been unsupported by conventional transceiver/intercom system. Through this project, the function was further enhanced by **the development of interactive interface perfect for the audio-based business scenes**, etc.

★Second Prize★ — General Category
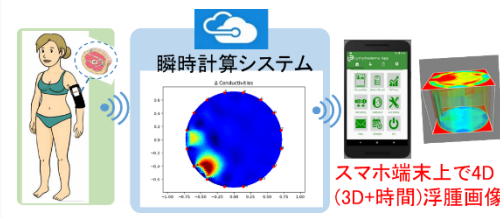### Optical Comb, Inc.

- Mounting machine learning to automobile production lines for realizing Industrie 4.0-
This project implemented the **development of software that makes suggestions for improvement of criterion for the testing process** through **machine learning based on high-capacity three dimension data stored in the cloud**, measured results collected during the testing process.

自動車分野における測定結果のイメージ

Special Jury Prize — General Category
Team TOMO Cloud

- LT Monitoring (Lymphedema Tomography) Relieving Pain in Patients by Early Discovery -
Developed technology that enables visualization measurement of the substance suspected of causing lymphedema. This project, by advancing such technology, implemented the **development of software enabling AI-based staging and progression prediction for lymphedema**.

瞬時計算システム

スマホ端末上で4D
(3D+時間)浮腫画像

Finalist — Regions Category
TagFIT Association

- Regional revitalization by QR code (Born in Oita Prefecture) -
Established a mechanism in which foreign tourists to Japan can get translation services by scanning via smart phones, etc. the QR code issued to the sightseeing information written in Japanese.

TagFIT
②写真をアップロードすると...
①施設の人が専用アプリで
日本語を撮影して...
③QRコードを即発行（無料）

5th Selection Finalists

Applicant	Category of Entry	Name of the Project
★Grand Prize★ BONX Inc.	General Category	Accelerating Communication On-the-Spot BONX for Business
★Second Prize★ Optical Comb, Inc.	General Category	Mounting machine learning to automobile production lines for realizing Industrie 4.0
★Special Jury Prize★ Team TOMO Cloud	General Category	LT Monitoring (Lymphedema Tomography) Relieving Pain in Patients by Early Discovery
Stream Technology Corporation	General Category	Development of High Performance Data Compression LSI for IoT Equipment
Konica Minolta, Inc. Business Innovation Center Japan	General Category	Non-destructive inspection solutions for visualizing internal steel fractures in bridge beams by magnetic sensing and AI
Liberaware Co., Ltd.	General Category	Swarm of Drones Project : Development of Drones with Group Control Technology
TagFIT Association	Regions Category	Regional Revitalization by QR Code (Born in Oita Prefecture)

IoT Lab Connection (Solution Matching)
Matching Events for Promoting Corporate Collaboration

- 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 with other enterprises with related business models, technologies/services, etc.**
- 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), "Work Style Reform" and "Sharing Economy" (5th), and "Risk Management," "Entertainment," and "AI" (6th), leading to about 3,100 matching.
- The 7th event took place on September 18, 2018 under the theme of "**Smart Life**," one of the priority areas of "Connected Industries" efforts, leading to 352 matching. Also included were a panel discussion about living or the provinces as well as information dispatch from municipalities that can offer demonstration fields (Hiroshima Prefecture, Fukuoka City, etc.).

Details of 7th Event

Date: Tuesday, September 18, 2018, 13:00-18:30
Venue: Tokyo (Bellesalle Shinjuku Grand)
Co-hosts: IoT Acceleration Lab, METI, and NEDO
Theme: Smart Life

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-minite individual sessions were held on the day.

108 companies/organizations/municipalities participated.
352 matching were carried out.

② Presentation Matching (1:N Matching)

Popular matching companies, etc. made **presentations** on their seeds and needs.

10 companies made presentations.
Approx.300 people participated.

[Presenter companies]
Yahoo Japan Corporation, LINE Corporation, Le Grand Co., Ltd, Gunze Limited, Kotozna, Inc., ADWELL, Inc., Strobo Inc., Neuro Space Inc., Hmcomm Co. Ltd., mui Lab, Inc.

③ Booth Exhibition (1:N Matching)

Local IoT Acceleration Labs (8 regions) set up booths. Meetings were immediately arranged with the companies/organizations who showed interest in them.

[Exhibitors]
Akita Horizontal Collaboration Lab, Yokohama city Lab, Yamanashi Prefecture Lab, Ina city Lab, Fujieda city Lab, Hakusan city Lab, Hiroshima Prefecture Lab, Minami Lab

No. of times	Date	Themes	No. of participating groups	No. of matching	(Average value of questionnaire survey results)	
					No. of companies interacted per participant	No. of companies up for future interactions
1st	January 28, 2016	Tourism, Manufacturing (Smart factory)	190	550	10.6	3.6
2nd	July 31, 2016	Healthcare (Medical care/Health)/Sports, Logistics/Distribution/Infrastructure	183	518	6.8	3.4
3rd	October 4, 2016	Smart home/Mobility	135	454	6.8	3.0
4th	March 13, 2017	Fintech, Education, Agriculture (Food)	131	461	7.5	2.8
5th	July 25, 2017	Work style reform/Sharing economy	139	534	7.5	2.9
6th	March 6, 2018	Entertainment, Risk management, AI	173	573	7.9	3.1
7th	September 18, 2018	Smart life	108	352	7.2	2.9
Total of 1st-6th	—	—	Approx. 1059 691, overlap excluded	3442	7.8	3.1

→ According to the information from 93 companies/organizations and 69 companies/organizations responding to the secretariat survey on November 2017, June 2018 respectively, about 39 cases of collaborative partnership were formed among them.

■ Mitsui Sumitomo Insurance Company, Limited & Arithmer Inc.

Mitsui Sumitomo Insurance Company, Limited and Arithmer Inc., a venture company launched from The University of Tokyo, concluded an advisory contract on AI. Examine the application of AI technology to claims processing work, etc. through joint efforts on AI development.
As the first stage of the joint development, they developed AI that can specify a damaged part and the degree of damage instantly by loading images of the accident. By utilizing AI in a vehicle repair cost estimation presented by the auto-repair shop, etc., confirm the damages of the vehicle at an early stage, thus realizing quick payment of insurance claim. Currently, the technology can identify 27 kinds of automobile parts to an accuracy of 95%. Through the implementation of further trial operations, examine the better application of the technology to the business.
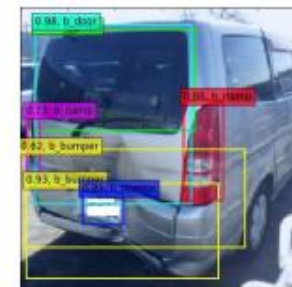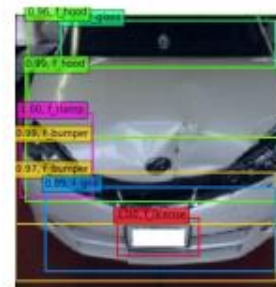

[Display screen image of the damaged part specification]

■ Sojitz Corporation & Kyocera Communication System

Sojitz Corporation and Kyocera Communication System started cooperation in August 2017 for the provision of distribution IoT service based on IoT network "Sigfox", one of the new wireless communication technologies "LPWA".
In the recent distribution industry, in addition to "striking a balance between safety and efficiency" and "establishing/operating environment-friendly distribution service," appropriate responses to "the increase in sophistication of global supply chain management" and "the real-time, seamless information coordination" is required. The project develops/provides sensor device, application service related to Sigfox, aiming for the solution of the problems of the industry as well as productivity improvement of distribution.
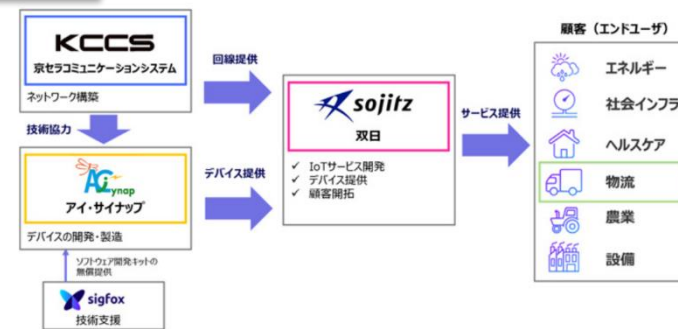

[Image of service provision]

■ Hamamatsu City & Sompo Japan Nipponkoa Insurance Inc.

Hamamatsu City and Sompo Japan Nipponkoa Insurance Inc. concluded a "partnership agreement on the demonstration experiment to deal with the lack of parking lots based on the sharing economy technique at the time of events related to Hamamatsu City" with a parking sharing service enterprise (Times 24 Co., Ltd).
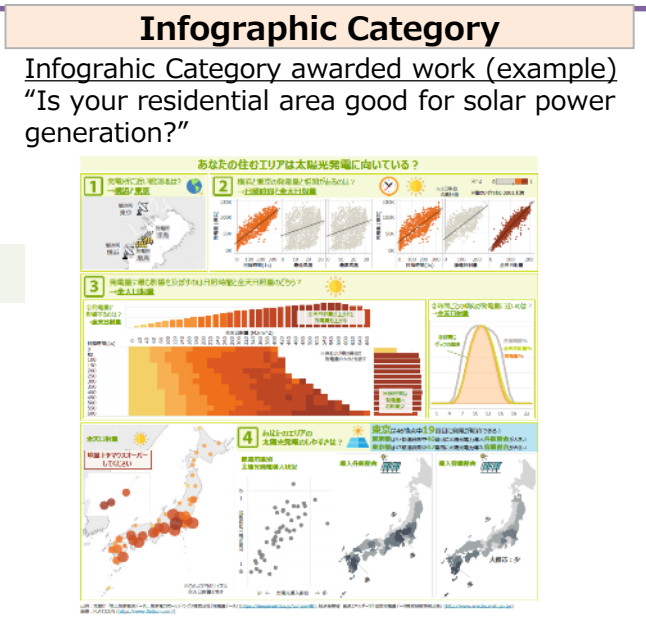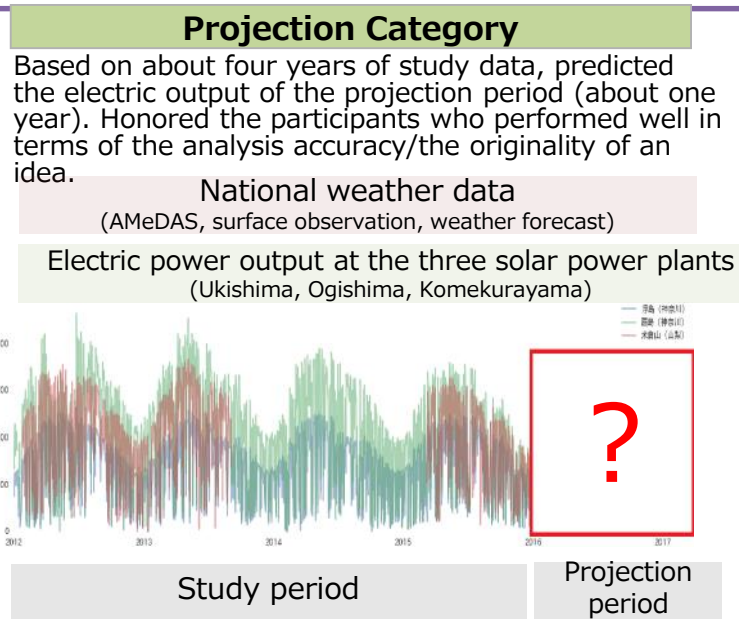Through interconnection and cooperation at the time of the events, conduct a demonstration experiment aiming for improving convenience of Hamamatsu citizens and smoothing the traffic flow, while coping with the temporarily increased demand for parking lots.
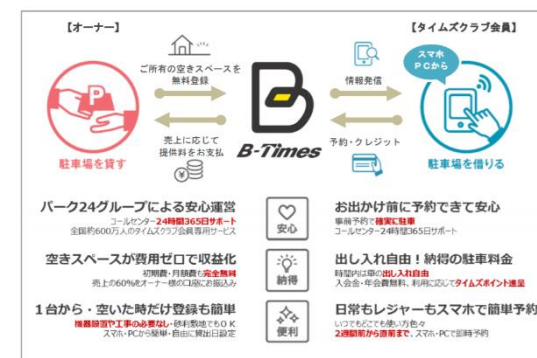
- **With the aim of competing on the accuracy of data analysis of the challenges/Big Data provided by the industrial world, etc., Algorithm development contest is** held in an easy-to-join online style. By inviting public participation including students, the contest aims to discover/train excellent data scientists, matching them with data providers, etc.
- For the 3rd contest themed on **electricity/weather conditions**, Tokyo Electric Power Company Holdings, Incorporated and Japan Meteorological Agency provided data. Based on weather/prediction data up to the previous night, calculated the following day's electric power output of the three solar power plants every 30 minutes.
- **Infographic Category** was newly established this time. Based on provided weather data and arbitrary external data, **evaluated a series of data analysis skills as a whole** to conduct "data perspective, hypothesis formulation, analysis/inspection, and explanation through infographics." Participants included students in the humanities, the arts, etc.
- In addition to the award ceremony at the IoT Acceleration Lab joint event, a friendly meeting was held on the same day as a place for information exchange and mingling with prize winners.

Hosted by: IoT Acceleration Lab, METI, New Energy and Industrial Technology Development Organization (NEDO)
Supported by: Ministry of Education, Culture, Sports, Science and Technology, Japan Meteorological Agency, Japan Photovoltaic Energy
 Association, Weather Business Consortium, Center for Artificial Intelligence Research, University of Tsukuba
Cooperated by: WingArc 1st Inc., Weathernews Inc., NTT DOCOMO INC., Opt, Inc. Kyocera Corp., SAKURA Internet Inc., Sharp Corporation
 Tableau Japan, Oracle Corporation Japan, Panasonic Corporation, Hitachi Ltd., and Mitsubishi Electric Corporation
Planning and operation: Opt-Works Co., Ltd (current SIGNATE Inc.), OPT Holding, Inc.   Implementation term: Oct. 2 – Dec. 21, 2017
No. of participants: **331** (Projection Category: 131, Infographic Category: 200) No. of applications: **2,153** (multiple application allowed)
The 3rd contest dedicated website https://signate.jp/competitions/48

Projection Category

Based on about four years of study data, predicted the electric output of the projection period (about one year). Honored the participants who performed well in terms of the analysis accuracy/the originality of an idea.

National weather data
(AMeDAS, surface observation, weather forecast)

Electric power output at the three solar power plants
(Ukishima, Ogishima, Komekurayama)

Study period

Projection period

Infographic Category

Infograhic Category awarded work (example)
"Is your residential area good for solar power generation?"

Award Ceremony/Reception

IoT Lab Demonstration（Test-bed Demonstrations）

- **Demonstration projects by multiple companies** aiming at **mid and long-term** social implementation
- Aim **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 FY 2018, 4 fields (Infrastructure [thermal power generation, hydroelectric power generation] and Distribution [electronic tag/trade procedure]) are added to 6 fields (Infrastructure [waterworks], Industrial safety, Aircraft, Tourism, Smart home, and Automated driving) which are ongoing since last fiscal year. (For details of the projects, see Reference Material #2.)

[Demonstration Image: Aircraft]

• A flight plan, etc. in bad weathers, which is currently implemented by pilots manually, conduct a demonstration of the pilot support system to show a safe and optimal route through AI technology and the real-time analysis of flight data.
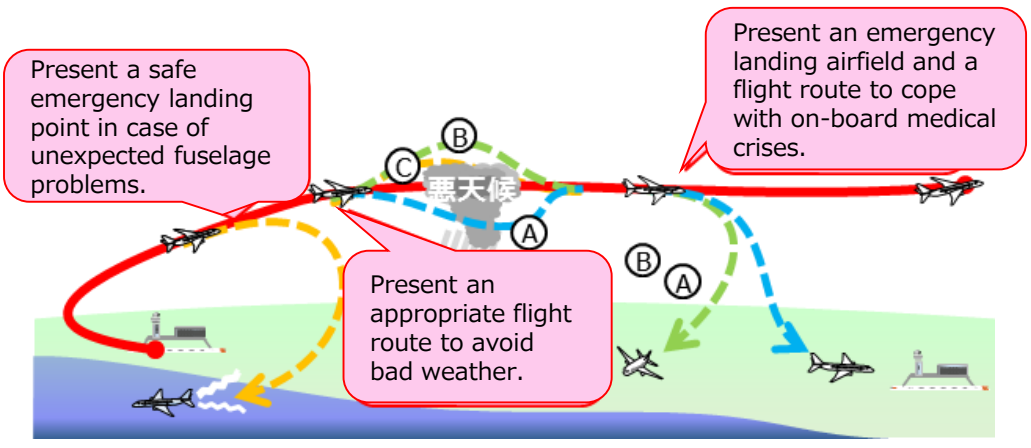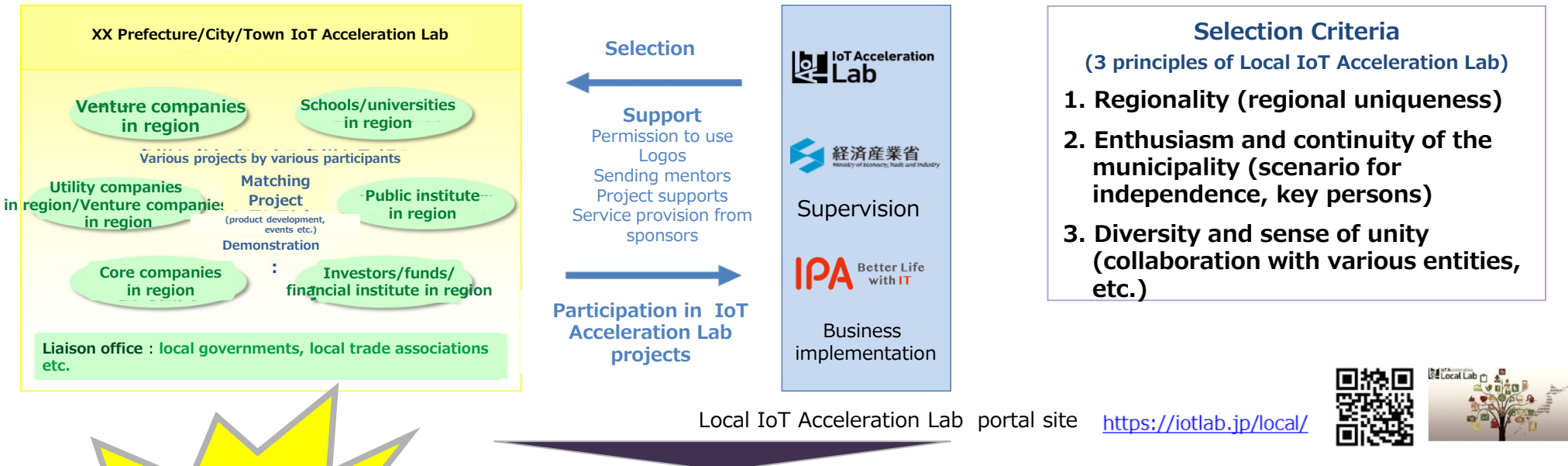
[Demonstration Image: Smart home]

・In the field of health promotion and monitory service for senior citizens, etc., specify the services based on the data collected from household electric appliances, etc., and also arrange the requirements needed for data coordination among multiple service providers, including (1) data catalogue, (2) security/product safety, and (3) privacy.
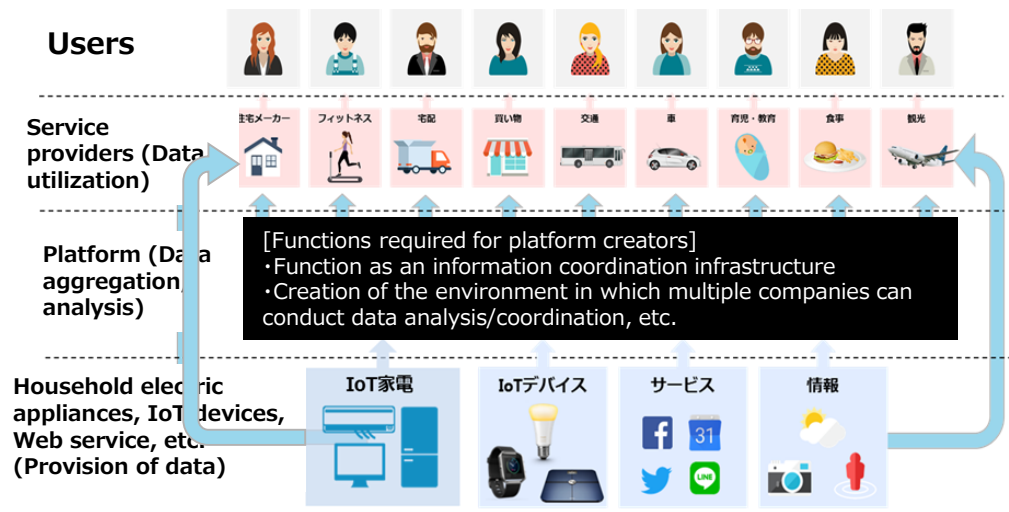
- In order to solve regional problems, select regional efforts to promote the creation of IoT businesses as **Local IoT Acceleration Lab**. **(93 regions as of September 2018)**
- Through Information-technology Promotion Agency, Japan (IPA), support the activities of the Lab by **mentor dispatch and 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 region/Venture companies in region

Matching Project
(product development, events etc.)
Demonstration

Public institute in region

Core companies in region

Investors/funds/ financial institute in region

Liaison office : local governments, local trade associations etc.

Selection

IoT Acceleration Lab

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

経済産業省
Ministry of Economy, Trade and Industry

Supervision

IPA Better Life with IT

Participation in IoT Acceleration Lab projects

Business implementation

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.)**

Local IoT Acceleration Lab portal site   https://iotlab.jp/local/

IoT Acceleration
Local Lab
certification mark

93 selected regions
(Among them, 19 were selected in the 4th selection.)

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.

1st Selection: July 2016　　29 regions selected
2nd Selection: March 2017　24 regions selected
3rd Selection: August 2017　21 regions selected
4th Selection: September 2018
　　　　　　　　　　　　19 regions selected
*①-④ in the map represent the number of the selections.

93 selected regions

Selected regions:
39 prefectures and 54 municipalities
(5 prefectures and 14 municipalities were selected in the 4th Selection)
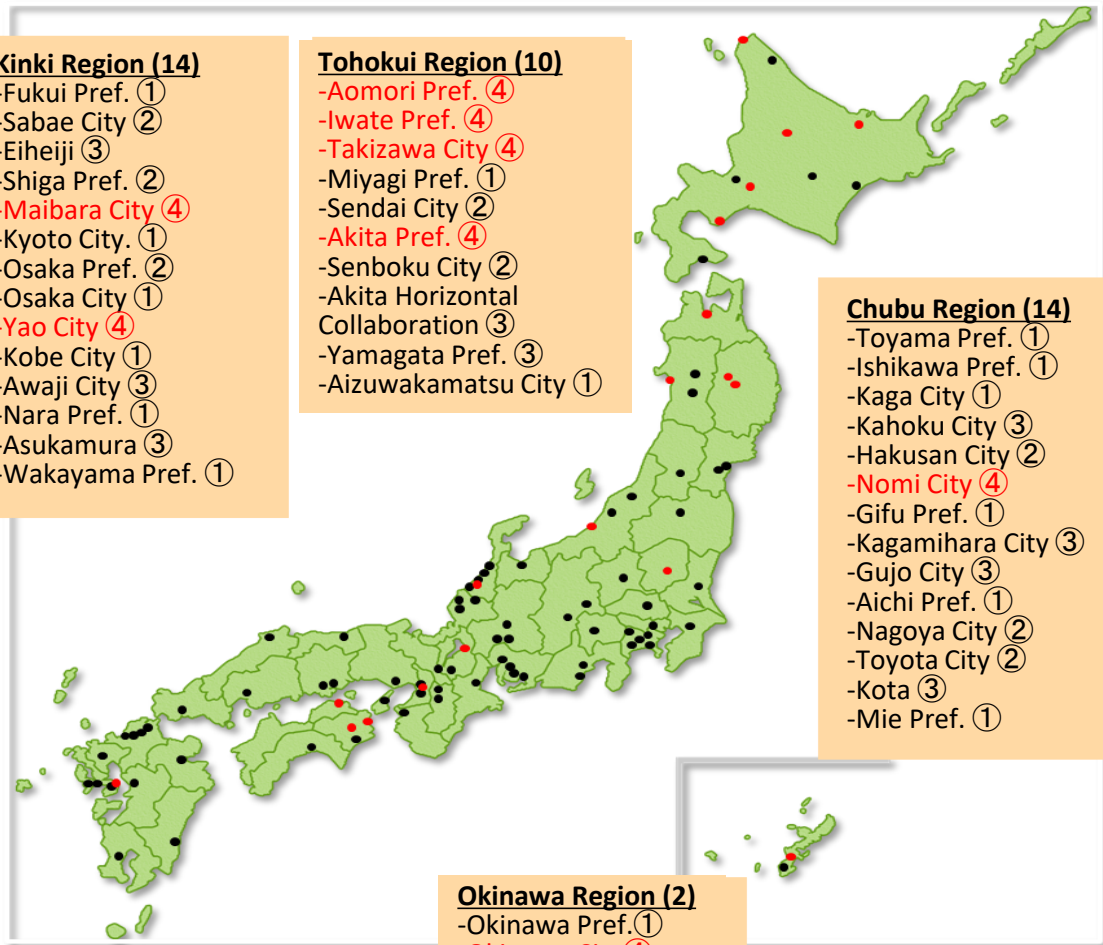
Chugoku Region (6)
-Tottori Pref.③
-Shimane Pref.①
-Okayama Pref.③
-Setouchi City③
-Hiroshima Pref.①
-Yamaguchi Pref.②

Shikoku Region (5)
-Tokushima Pref.④
-Kamiyama-cho④
-Minami③
-Takamatsu City④
-Kochi Pref.①

Kyushu Region (13)
-Fukuoka Pref. ①
-Kitakyushu City ①
-Fukuoka City ①
-Kahankei area ②
-Saga Pref. ②
-Nagasaki Pref. ②
-Nagasaki City ②
-Shimabara City ④
-Minamishimabara City ③
-Kumamoto Pref. ①
-Oita Pref. ②
-Miyazaki Pref. ②
-Kagoshima Pref. ①

Kinki Region (14)
-Fukui Pref. ①
-Sabae City ②
-Eiheiji ③
-Shiga Pref. ②
-Maibara City ④
-Kyoto City. ①
-Osaka Pref. ②
-Osaka City ①
-Yao City ④
-Kobe City ①
-Awaji City ③
-Nara Pref. ①
-Asukamura ③
-Wakayama Pref. ①

Tohokui Region (10)
-Aomori Pref. ④
-Iwate Pref. ④
-Takizawa City ④
-Miyagi Pref. ①
-Sendai City ②
-Akita Pref. ④
-Senboku City ②
-Akita Horizontal Collaboration ③
-Yamagata Pref. ③
-Aizuwakamatsu City ①

Chubu Region (14)
-Toyama Pref. ①
-Ishikawa Pref. ①
-Kaga City ①
-Kahoku City ③
-Hakusan City ②
-Nomi City ④
-Gifu Pref. ①
-Kagamihara City ③
-Gujo City ③
-Aichi Pref. ①
-Nagoya City ②
-Toyota City ②
-Kota ③
-Mie Pref. ①

Hokkaido Region (10)
-Sapporo City ①
-Hakodate City ②
-Muroran City ④
-Kushiro City ①
-Kitami City ④
-Wakkanai City ④
-Naganuma ④
-Higashikawa ④
-Sarufutsu ③
-Shihoro ①

Kanto Region (19)
-Ibaraki Pref. ①
-Tochigi Pref. ④
-Gunma Pref. ③
-Saitama Pref. ②
-Chiba Pref. ②
-Ota-ku ③
-Kanagawa Pref. ②
-Yokohama City ②
-Sagamihara City ②
-Yokosuka City ②
-Shonan area ②
-Niigata Pref. ②
-Nagaoka City ③
-Kashiwazaki City ④
-Yamanashi Pref. ③
-Ina City ①
-Kawakami ③
-Shizuoka Pref. ①
-Fujieda City ③

Okinawa Region (2)
-Okinawa Pref.①
-Okinawa City④

Achievements of Local Acceleration Lab Support

(1) Mentor Support

Mentor Dispatch Records

Total number as of the end of August 2018: 240 cases
・Mentors from outside (Provision of expert knowledge)
　e.g.: Primary Industry IoT Project (Sarufutsumura (Hokkaido), Kochi Pref.), Monozukuri IoT Seminar (Osaka Pref.), IoT Hackathon (Minamishimabara), etc.
・Other efforts include advice of IPA regional staff on action policy, introduction of nationwide examples, etc.

*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) /Information Dispatch Support

Horizontal Collaboration (inter-Labs) and Business Matching Support Achievements

・ **National meetings and Regional block meetings**
　Local IoT Acceleration Lab staff meetings: Held about twice a year (February 2018)
　In addition, staff meeting by regional block was held as needed in collaboration with the proper Bureau of Economy, Trade and Industries.
・ **Thematic staff meeting (Meeting to promote cooperation of Lab-related people by themes)**
　Agricultural field: December 11-12, 2017 (Yamanashi Pref.)
　Monozukuri (manufacturing) field: March 19, 2018 (Kota-cho, Aichi Pref.)
　Human resource development field: March 28-29, 2018 (Kaga City & Hakusan City, Ishikawa Pref.)
・ **Exhibition at events**
　"IoT Japan 2017, 2018" hosted by Nikkei Business Publications, Inc.
　 (Tokyo, Osaka, Nagoya, Sapporo, and Fukuoka)
　CEATEC JAPAN 2017 (Makuhari Messe, October 2017): Joint exhibition by 27 regions
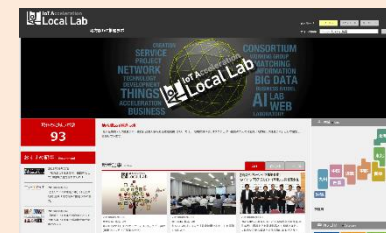　Smart Factory Japan 2018 (Tokyo Big Sight, May 2018): Joint exhibition by 19 regions

Agriculture IoT Staff Meeting in Yamanashi

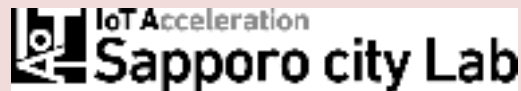**Exhibition at Smart Factory Japan 2018**

Portal site (May 2018 renewal)

URL : https://local-iot-lab.ipa.go.jp/

■ Sapporo City, Hokkaido

IoT Acceleration Sapporo city Lab

双方向型サイネージ　カメラ型センサー

Sapporo Underground Walkway (Chi-Ka-Ho)

ビーコン　人流センサー

- The city developed "**Sapporo Underground Walkway (Chi-Ka-Ho)**" as a showcase to collect/accumulate/utilize real-time Big Data.
- Various enterprises, etc. deepened exchanges at the Local IoT Acceleration Lab (Sapporo city Lab), which led to the holding of an international convention ("No-maps") combining Film, Music, and Interactive (IoT technologies, etc.) together that will heighten the momentum toward Olympics and Paralympics, aiming for support for the inauguration of business/creation of new industries, and promotion of investment in the region. The convention was first held at the center of Sapporo City in 2016. It has been broadening and developing gradually.

■Film: Sapporo International Short Film Festival (SAPPORO Short Fest):
Over the past 10 years, 27,961 pieces from 147 countries/regions entered the event.
The visitors exceeded 110,000. The venue is provided with Short Film Market. This is one of the largest-size short film festivals in Japan.

■Music: Music event merged with images and IT technology:
The event features a live concert covering various genres such as pops, rock and anime songs, as well as a business seminar.

■Interactive: Event on innovation-inducing IT technology, etc.:
Taking advantage of the superiority of "Sapporo Valley." a focal point for IT companies, Hokkaido-specific food-related industries, and also accumulation of the bio industry, the event holds seminars, workshops and exhibitions in a bid to create future-oriented business by gathering advanced technology, services and human resources together in one place.

NoMaps Sapporo Creative Convention
Film/Music/Interactive

courtesy of "No Maps Committee"

■ Maibara City, Shiga

IoT Acceleration Maibara city Lab

- The Lab **examines the investment/launch of "AI Agri-industry Accumulation Base"** equipped with 100 units of "IoT Smart Green House" as a test-bed of advanced agri-business.
- Centering on this base, proceed with **creation/invitation of "new entrants to advanced agri-business with free use of AI/IoT technology" and "Start-ups of technological development in the advanced agri-business field."**
- ·By regarding it as the basis of Maibara City's regional policy, the Lab aims to solve regional problems through inter-policy collaboration such as food education and No-Fuku Renkei (support for the disabled through partnership between agriculture-related and welfare-related enterprises).

IoT Smart Greenhouse

CLOUD クラウド
広域無線
換気扇　エッジコンピューター　空調　小型省電力環境センサー
栽培システム
土間コンクリート　CO2　CO2 施用
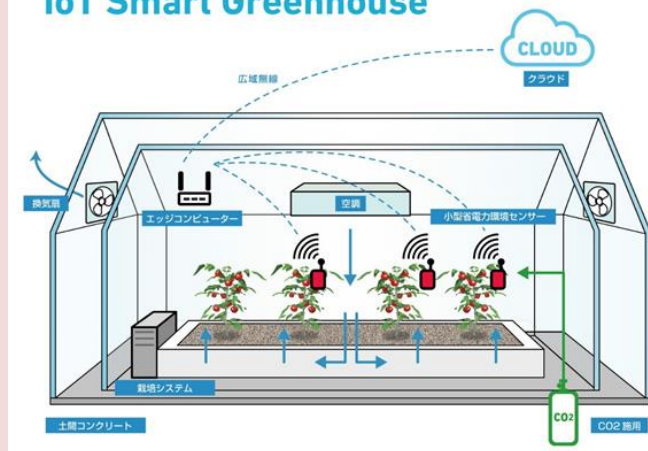
System image of Test-bed (source: YANMAR Co., Ltd. HP)

■ Aizuwakamatsu City, Fukushima

IoT Acceleration Aizuwakamatsu city Lab

- Taking advantage of the presence of the University of Aizu, a prestigious IT-dedicated university, **the Lab aims for regional revitalization based on high quality employment that is realized by the accumulation of IT industry whereby workers can earn income exceeding that of Tokyo.**
- In order to turn the city into a mecca for data analysis/utilization as "Smart City Aizuwakamatsu," the Lab is examining the following:
  ① **Turn the streets of the city into a test-bed site**, which enables enterprises to inspect the possibility of business use **of the released data** that is acquired from the sensors, etc. in the city (e.g.: public transportation vehicle traveling information).
  ② Establish **the ICT office in which IT companies/IoT-related companies in and out of the region take up residence.**

- Regarding the efforts of the city, **Accenture Japan Ltd. has been taking the initiative in cooperation working by setting up the local base (scheduled to be completed in March 2019)**, predominantly supporting it. Aim to attract about 500 people from Tokyo and adjacent prefectures.

ICT office (conceptual drawing) *source: Aizuwakamatsu City HP

■ Okinawa City, Okinawa

IoT Acceleration Okinawa city Lab

- **With START UP CAFE KOZA as a base, the Lab set up a one-stop inquiry counter for those who seek to start an enterprise.** Aim **to build an ecosystem by producing a number of personnel and companies as a driving force of regional economy** as well as **promoting inflow of human resources and companies into the city and stimulation of private investment**.
- Examples of the efforts by START UP CAFE KOZA:
  ① STARTUP CAFE KOZA : **Inquiry counter to support those who seek to start an enterprise.** Equipped with free coworking space
  ② KOZA shore Studio: Coworking space for paying members. **Programming school** available
  ③ OKINAWA MIRAI FACTORY: **FAB space** (3D printer, laser cutter, etc.)
- Over the two years, about 200 budding programmers visited the CAFE. It has achieved good results, including about 20,000 users per year and about 50 cases of successful establishment of a business. For the future, **taking advantage of geographical advantage as the center of Asia, the Lab aims to expand the efforts and cooperation in and out of Japan**.

START UP CAFE KOZA since 2016

KOZA shore Studio

OKINAWA MIRAI FACTORY

3Dプリンター

レーザーカッター

コンピュータミシン　3Dスキャナー　大型プリンター　超音波小型カッター　彫刻機　ミニレーザーカッター

- In September 2018, IoT Acceleration Consortium (ITAC) exchanged MoU with Skolkovo Foundation in Russia.
- At CEATEC JAPAN 2017 in October 2017, with the aim of promoting business cooperation between overseas and domestic companies, business matching, etc. was held between start-ups in ASEAN, EU, India and Israel and domestic companies. Also this year, overseas start-ups from 5 regions (the above plus Russia) are invited to CEATEC JAPAN 2018, where matching events, etc. are scheduled.

✓ **Outline of MoU signatory organization**

✓ **Global Connection**

Skolkovo Foundation

[Outline of the organization]

It is a management entity of the innovation center established under the federal law of Russia, "On Innovation Center Skolkovo," enacted in 2010. Forming the cluster in 5 fields (IT, biotechnology/medicine, energy, nuclear power, and the universe), it has companies/universities, etc. as members, who strategically implement development of new technologies or research & development toward commercialization. Major missions of the organization include: ①support for start-up companies, new businesses, etc. in the innovation center, ② construction of Skolkovo Research Town, and ③establishment of educational facilities.

[Aim of MoU (**September 2018**)]

For the purpose of creating cooperative Russo-Japanese arrangements in the IoT field, promote efforts such as sharing of good practices, etc. and provision of business opportunities in both countries.
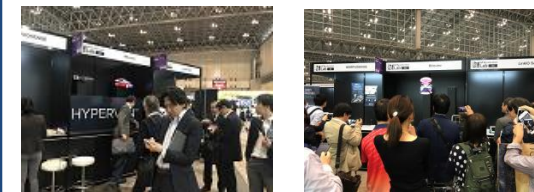
Details of Global Connection 2017

① Business Matching

A matching list of oversea/domestic companies based on their seeds/needs was prepared beforehand, **leading to 25-minute individual matching.**

58 domestic companies/ organizations participated.
257 matching organized.

② Exhibition Booth

40 overseas companies set up exhibition booths.

③Pitching session

Lectures by the French Embassy in Japan, venture capitals, etc.
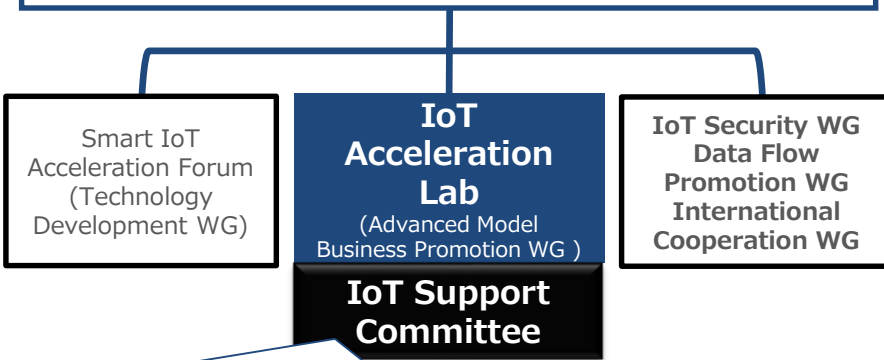**40 overseas companies presented their technologies through the pitch.**

Future Action Policy of IoT Acceleration Lab

- In October 2015, with the aim of **confronting the change of time under the cooperation of academy, industry and government through efforts such as the creation of new business models based on IoT, etc.**, "Advanced Model Business Promotion WG (IoT Acceleration Lab)" was established under the IoT Acceleration Consortium.

- The missions of IoT Acceleration Lab are:
  ①To create advanced projects and discover/develop IoT platform creators.
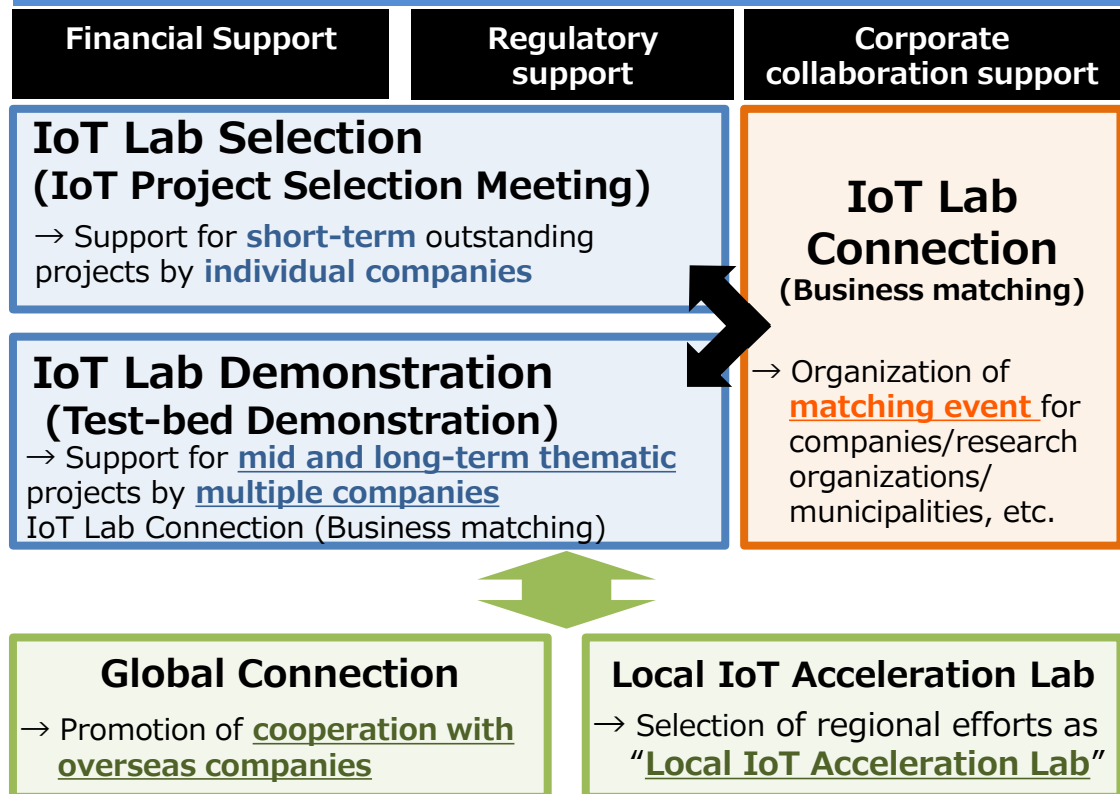 ②To prepare the ground for social implementation of advanced projects with a focus on the regulatory reform.

IoT Acceleration Consortium

- Smart IoT Acceleration Forum (Technology Development WG)
- **IoT Acceleration Lab** (Advanced Model Business Promotion WG)

  IoT Support Committee
- **IoT Security WG Data Flow Promotion WG International Cooperation WG**

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

Details of Support

Financial Support		Regulatory support	Corporate collaboration support

IoT Lab Selection (IoT Project Selection Meeting)
→ Support for **short-term** outstanding projects by **individual companies**

IoT Lab Demonstration (Test-bed Demonstration)
→ Support for **mid and long-term thematic** projects by **multiple companies**
IoT Lab Connection (Business matching)

IoT Lab Connection (Business matching)

→ Organization of **matching event** for companies/research organizations/ municipalities, etc.

Global Connection
→ Promotion of **cooperation with overseas companies**

Local IoT Acceleration Lab
→ Selection of regional efforts as "**Local IoT Acceleration Lab**"

- Implemented IoT Lab Selection five times in a bid to discover and help commercialize advanced projects based on IoT, etc. **Selected and supported 49 projects**, and also **shared information of the projects as advanced cases both at home and abroad**.

- From among the selected advanced projects, **selected 4 companies as J-Startups**, to which an intensive public-private support is provided with the aim of creating startups that can succeed in the global competition.

✓ The projects of prize winners of the past IoT Lab Selections are introduced at the specially-built stage in CEATEC due in October 2018 (example of introduction of advanced cases)

CEATEC JAPAN2018

[October 18]
➤ 4th Selection Grand Prize   O:Co., Ltd.
➤ 4th Selection Finalist   Arblet Inc.
➤ 5th Selection Grand Prize   BONX Inc.

[October 19]
➤ 5th Selection Finalist   KONICA MINOLTA, INC. Business Innovation Center Japan (BIC JAPAN)
➤ 5th Selection Special Jury Prize   Chiba University Graduate School of Engineering
➤ 5th Selection Finalist   Stream Technology Corporation

✓ J-Startup selected companies   **J-Startup**

Liquid Marketing, Inc.
(1st Selection Grand Prize)

Developed **a biometric authentication system that can identify an individual quickly only by their fingerprint.**

Routrek Networks, Inc.
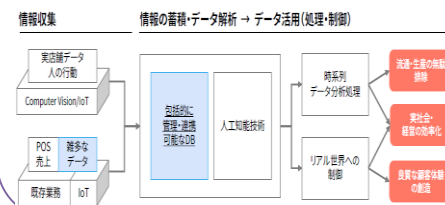(1st Selection Second Prize)

Developed **a system that automatically controls water sprinkling and fertilizing in the hydroponic soil culture method** under the cooperation between industry and academia.

ABEJA Inc.
(2nd Selection Finalist)

Developed an **AI data analysis platform** usable in various industries that promote the IoT.


O: Co., Ltd.
(4th Selection Grand Prize)

Developed a **watch-style device (non-invasive, the world's first) that can visualize a body clock.**

- In order to prepare the ground for the business environment to share/utilize data beyond the framework of companies, etc., implemented the demonstration of a data-based new industry models by an individual industrial field, and also supported the demonstration projects to work on rule establishment such as the review of the regulations dealing with new technologies such as IoT and formulation of rules including the unified data format.
- Thus far, **demonstration projects were implemented in 11 fields** such as manufacturing and industrial safety.
- For example, **the manufacturing field implemented the demonstration of data profile formulation toward international standardization** over the two years from FY 2016 to FY 2017.
- **Created 18 cases of advanced data sharing examples**, which will be **utilized in future discussion on international standardization, etc**.

[Active participation in international discussion]
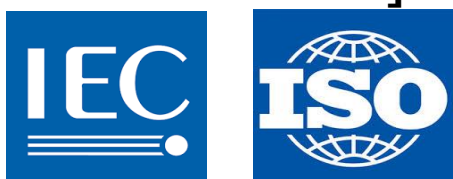
International proposals

Discussion/refinement of the shared results based on a domestic deliberation organization (RRI), while utilizing international standardization support measures.
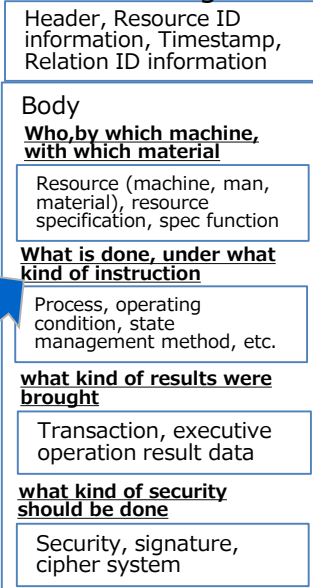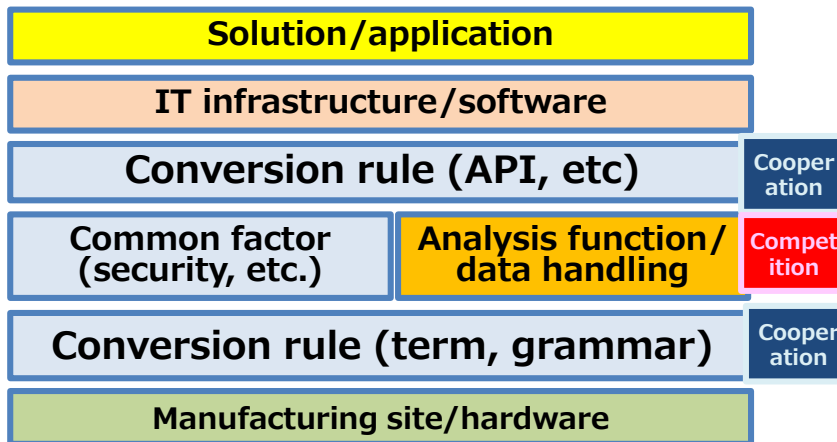
Sharing of the results

Smart factory demonstration project
(formulation of data profile, etc.)

[Efforts in the Test-bed Demonstration]

· To realize the efforts for data coordination beyond the supply chain companies, create advanced examples (18 cases), working on spreading the results to the whole nation by sharing them among industry groups, etc.
· Above all, promote examination of "Data profile" (Rulemaking for data description methods (definition of terms, descriptive grammar, etc.) differing depending on companies, factories, etc. in a bid to promote data circulation) which is thought to be essential to create mechanisms of data coordination.

[Data profile]
(definition of terms, descriptive grammar, security requirements, etc.)

| Solution/application |
| IT infrastructure/software |
Conversion rule (API, etc)	Cooperation
Common factor (security, etc.)	Analysis function/ data handling	Competition
Conversion rule (term, grammar)	Cooperation
Manufacturing site/hardware

Header, Resource ID information, Timestamp, Relation ID information

Body
Who,by which machine, with which material
Resource (machine, man, material), resource specification, spec function

What is done, under what kind of instruction
Process, operating condition, state management method, etc.

what kind of results were brought
Transaction, executive operation result data

what kind of security should be done
Security, signature, cipher system

- Held matching event seven times as a place where enterprises aiming to create new business models meet with other enterprises with related business models, technologies and services, leading to about 3,400 matching. The latest event was attended by major companies, small and mid-sized companies, and startups at a ratio of almost 1:1:1. Other participants included many municipalities, thus **promoting networking beyond the industry/types of business**. Many of the participants are still keeping in touch with each other through information exchange, etc., with or without collaborative partnership.

- Not limited to formation of collaborative partnership between enterprises, there existed examples in which multiple participants such as telecommunications enterprises, monozukuri companies and municipalities cooperated beyond the industry/types of business through the efforts launched by the event participant enterprises, etc. Some of them, as the efforts of IoT/AI diffusion or local industry technology succession in the region, **led to the creation of a Local IoT Acceleration Lab.**

✓ Business Matching Event

Through the seven-time events, all kinds of industrial fields ("manufacturing," "healthcare," "agriculture," "education", etc.) were taken up as a theme. Some events were held under more specific themes such as "work style reform" and "sharing economy." Based on the partnership with ministries/agencies and private organizations related the themes, promoted networking among various companies/organizations beyond the industry/types of business.

✓ Kashiwazaki City IoT Acceleration Lab

With Niigata Institute of Technology as the core, municipalities, manufacturing companies, telecommunications enterprises, financial institutions and commerce & industry organizations work together to realize technology succession and development/ securing of IT personnel in the *monozukuri* (manufacturing) industry through efforts such as support for IoT/AI technology introduction into the related companies. (1st IoT Lab Connection participants involved.)
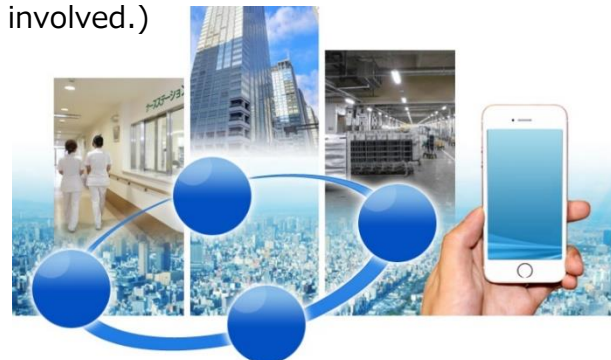
Smart Factory City in Kashiwazaki

- After the foundation of IoT Acceleration Lab, domestic companies have increased awareness of IoT/AI/Big Data, leading to the increased number of introduction cases. Meanwhile, **the framework of venture support based on IoT, etc.** in the private sector has **also improved**.

- The preparatory work for the IoT use and application has also advanced, including **the formulation/ announcement of the IoT Security Guidelines, the Contract Guidance on Utilization of AI and Data, etc.** by IoT Acceleration Consortium and the government.

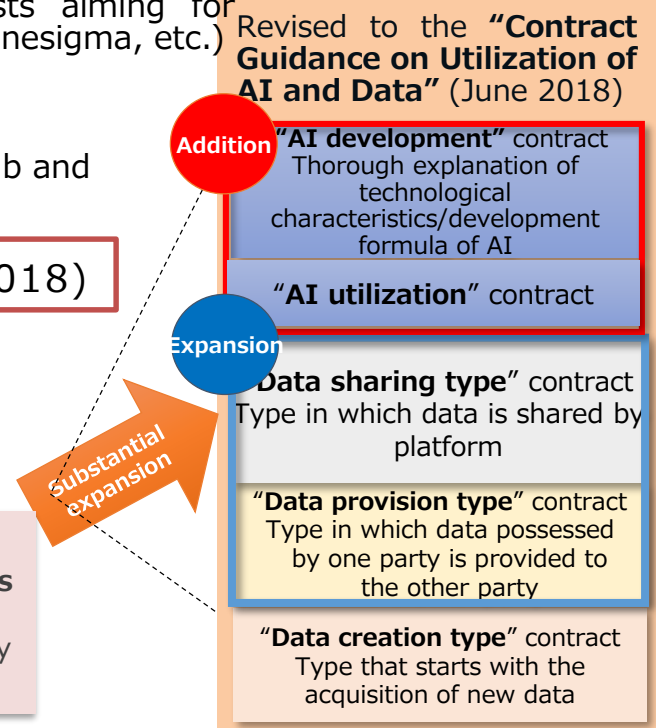✓ Framework of venture support based on IoT, etc in the private sector

- ☐ **Expansion of the efforts of startup support by the private sector (funds, awarding, matching)**
  - ➤ Not limited to VC, IT companies, companies as a whole have been enhancing the startup support system (entry from a wide range of fields such as Mitsui Fudosan Co., Ltd., .LIXIL Corporation and Yokohama DeNA BayStars).
  - ➤ Matching event like "Innovation Leaders Summit" or business contests aiming for matching with large companies are also on the increase.(Real Tech Fund, Ninesigma, etc.)
- ☐ **Improvement of the IoT-related project support system**
  - ➤ technology platform such as Microsoft Azure IoT
  - ➤ support environment by industry, government and academia such as Fab Lab and test facilities

✓ Contract Guidance on Utilization of AI and Data (June 2018)

Amid an explosive increase of data induced by technological innovation such as IoT and AI, it is expected to create new added values or solve social problems through data coordination beyond the barriers between enterprises. However, as for data/AI technology, there is a problem that conclusion of contract is not easy due to the poor accumulation of contract business, the gap of recognition/understanding between the parties, etc.

Thus, as a reference for private enterprises, etc. to conclude contract on data utilization, etc. or contract on AI technology-based software development/utilization, the government worked out a **guideline that includes major contractual challenges and arguing points, examples of contractual clauses, considerations in preparing clauses, etc.**

Revised to the **"Contract Guidance on Utilization of AI and Data"** (June 2018)

Addition

"AI development" contract
Thorough explanation of technological characteristics/development formula of AI

"AI utilization" contract

Expansion

"Data sharing type" contract
Type in which data is shared by platform

"Data provision type" contract
Type in which data possessed by one party is provided to the other party

"Data creation type" contract
Type that starts with the acquisition of new data

Substantial expansion

Enactment of the **"Contract Guidelines on Data Utilization Rights Ver.1.0"** (May 2017)

- The government has **proceeded with the efforts toward the realization of "Connected Industries"** in the light of the technological innovation brought about by the Fourth Industrial Revolution. Established the framework that supports challenges to new businesses such as **the creation of the "Regulatory Sandbox" System** to facilitate early-stage social implementation of new technologies/businesses, and **tax reduction for IoT investment toward data sharing/coordination**.

- **Launched** the public-private intensive support program **"J-Startup"** for the purpose of providing new values to the world with innovative technologies and business models by producing startups that can succeed in the global competition.

✓ Creation of the "Regulatory Sandbox" System

○ About the demonstration projects on innovative technology and business models, the competent minister gives approval after hearing the opinions of the Innovative Technology/ Business model Evaluation Committee for Regulatory Sandbox in Japan.

○ **Prepare the ground for the environment in which demonstration is conducted free from existing regulations** by restricting participants, the implementation period, etc.

  * Exceptional regulatory measures are taken as needed.
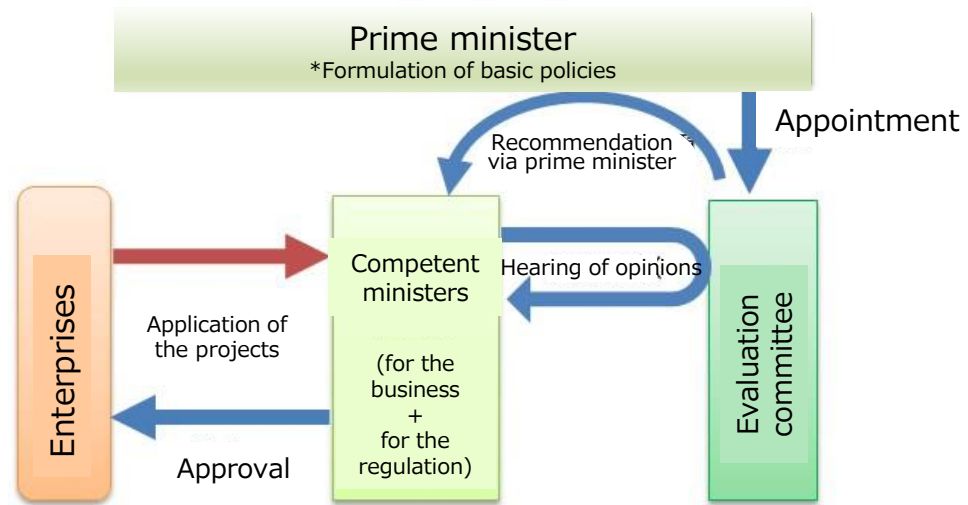
✓ Launch of the "J-Startup" program

○ Select as "J-Startups" the companies chosen by a strict examination from among tops startups recommended by top venture capitalists, accelerators, etc.

○ Provide intensive support to J-Startup companies' efforts including overseas development under the cooperation between the public and private sectors.
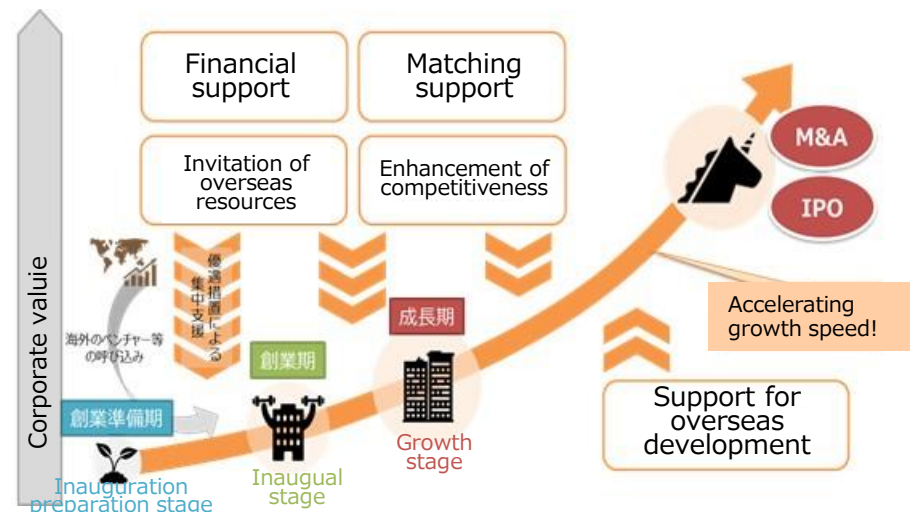
- IoT Acceleration **Lab implemented public-private support in a visible way during the starting-up period** of IoT/AI/Big Data-related projects. By backing up the companies' efforts, **it accomplished most of its initial missions** such as creation of IoT-based advanced projects and preliminary arrangements toward the social implementation of the projects.

- As the public-private efforts toward the social implementation of IoT/AI make progress, in order to realize further spread of IoT/AI use and application, how about developing/reorganizing IoT Acceleration Lab efforts from two perspectives (global/local) as follows?

  - Global: Creation of Unicorn companies, etc. that expand into/challenge the world by gaining a market (implemented by J-Startup)

  - Local: Creation of IoT-based projects in the familiar region (implemented by Local IoT Acceleration Lab)

- Based on the above, examine the review of the activities/system of IoT Acceleration Lab.

[Present]
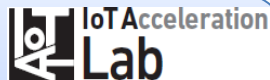
IoT Acceleration Lab
[Outline]
Confront the change of time under the cooperation between academy, industry and government through efforts such as **the promotion of the creation of new business models based on IoT, etc.**

Efforts in an individual field/ Public-private support

Global
Expansion/challenge to the world

Local
Expansion/spread to the region

[Future]

J-Startup
[Outline]
With the aim of **creating startups that can succeed in the global competition**, produce successful models through intensive public-private support for the companies selected as promising startups.

Efforts toward the realization of the "Connected Industries"
[Outline]
Public-private efforts to realize conditions for the victory of Japan in the global competition over real data toward the realization of "Society 5.0"
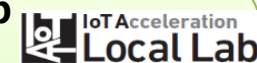
Local IoT Acceleration Lab
[Outline]
With the aim of backing up IoT-based **solution of regional problems/creation of new businesses, etc.**, select/support regional efforts to promote the creation of IoT businesses.

IoT Acceleration Lab
5th Selection Meeting for Innovative IoT Projects
IoT Lab Selection

List of Supported Projects

- Contents -

5th Meeting Finalists

BONX Inc.

- Accelerating Communication On-the-Spot BONX for Business -

Outline of Project

Develop cloud-based group communication solution "BONX for BUSINESS" by Voice over Internet Protocol (VoIP) using the Internet line of smartphones. Realize simultaneous conversation of up to 30 persons, limitless distance between conversation parties, and elimination of cross-talk not possible with general transceivers (with headsets). In this project, functions will further be expanded by the development of optimum dialogue interfaces for business scenes using voice aiming at the defacto standardization of voice communication system.

Outline of Required Support

- Financial support (Public support, funds, etc. for technological development, etc.)
- Accompanying-style support such as guidance and advice by mentors

Future Vision

Provide software and hardware for business scenes requiring group communication (e.g.: work site (constructions, logistics, etc.), offices (call centers, work from home, overseas collaborations, etc.), and establish leadership in the field of group communication.

Optical Comb, Inc.

- Mounting machine learning to automobile production lines for realizing Industrie 4.0 -

Outline of Project

The use of optical comb laser has realized the automation of the inspection process for determining casting defects of automobile cast parts, which used to be carried out by visual inspection until now. This project aims to develop software capable of recommending improvement of judgment criteria used in this inspection process, by cloud-storing large volumes of 3D data on measurement results gathered in the inspection process, and implementing machine learning. This will realize Japan's first specific cutting edge case of Industrie 4.0 tailored to the manufacturing scene.

Outline of Required Support

- Financial support (Support/funds for technological development/implementation)
- Accompanying-style support such as guidance and advice by mentors
- Support for standardization/rulemaking, etc. (Establishing rules, etc. on data ownership and usage)

Image of measurement results in automobile area

Future Vision

By introducing machine algorithms to automatic evaluation and acquiring various KPIs, realize automatic measurement and evaluation, and ROI evaluation of judgment criteria revisions. Through integration of other sensing data and building analysis platform, apply to areas other than automobiles such as metalworking and parts.

Team Tomo Cloud
(Takei Laboratory, Chiba University)

- LT Monitoring (Lymphedema Tomography) Relieving Pain in Patients by Early Discovery -

Outline of Project

Called an "aftereffect that has been deserted", lymphedema occurs in 30% of patients who have undergone surgery for gynecologic cancer. If discovered late, it cannot be completely cured, and the risks of onset continue throughout the patient's life, causing psychological stress to patients with gynecologic cancer. Team Tomo Cloud has developed a technique which can visually measure substances thought to cause lymphedema and their causal relationship. This project aims to evolve this technique, develop software capable of diagnosing the lymphedema stage and predicting progress by AI, and implementing clinical tests, to put to practical application early detection diagnosis based on AI with the use of IoT lymphedema tomographic monitors (LT monitor) which can be used at home.

Outline of Required Support

- Financial support (Public funds/funds for technological development/business startup)
- Accompanying-style support such as guidance and advice by mentors

Future Vision

Achieve 100% accuracy in stage diagnosis on this system for lymphedema which is called an "aftereffect that has been deserted". Until now, the stage could only be diagnosed by the conventional ICG fluorescence method and cellular biochemical tests. Dominate the lymphedema monitor market in Japan and expand overseas.

TagFIT Association

- Regional Revitalization by QR Code (Born in Oita Prefecture) -

Outline of Project

This project aims at regional revitalization by overcoming "language barriers" between tourists to Japan and local businesses. This is done by issuing QR codes to the various information on tourist sites in Japanese (free of charge), and having tourists scan the information on their smartphones, etc. for translation into their native language (free of charge). By leaving the task of multi-language translation to vendors, high quality translation can be realized at low costs, and rapid technological innovation such as AI and neural machine translation (NMT) can be supported. By building this infrastructure in places which used to be difficult to access by tourists from abroad, more tourist attractions can be developed.

Outline of Required Support

- Financial support (SIB for accelerating spread of QR codes)
- Accompanying-style support such as guidance and advice by mentors
- Support for standardization/rulemaking, etc. (dissemination and awareness rising, etc. of QR codes)

TagFIT

(2)Uploads the photo.

(1)The business seeking translation takes photos of the Japanese using a special apps.

kotoZna

(3) A QR code is issued immediately. (Free of charge)

Future Vision

A multi-language translation infrastructure will be widened to the whole of Japan starting from Oita Prefecture by the 2019 Rugby World Cup, and the 2020 Tokyo Olympic Games, realizing a new social infrastructure allowing use of the latest technology at low costs as a result of cooperation between non-profit and profit organizations
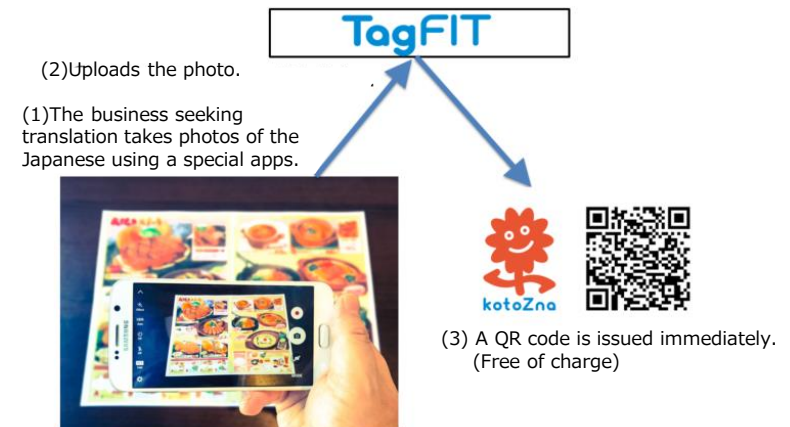
Stream Technology

- Development of High Performance Data Compression LSI for IoT Equipment -

Outline of Project

The increase in the volume of communications data handled by IoT devices is leading to the need to send volume data using small number of packets, receive volume data, and execute processing at high speed. This projects aims to use the new compression method, stream data compression technology, to mount modules capable of lossless compression of any data on LSIs and realize compact size and reduce power consumption. Through this, data voltage handled by edge devices can be reduced, and new solutions for reducing data communication volume until fogs and clouds can be provided.

Outline of Required Support

- Financial support (Public support, etc. for technological development/mass production)
- Accompanying-style support such as guidance and advice by mentors
- Support related to verification, standardization of regulations (Verification of Foreign Exchange Laws, simplification of technical license, etc.)

For IoT equipment (edge)

ST-EVAL01

Board for compression technology trial production

Mounts Xilinx Artix7 200T

For fog/cloud

ST-PCIE01

Compression acceleration board

Mounts Xilinx Kintex-7

Future Vision

Form "Data Compression Consortium "in the aim to standardize technologies towards an era where stream data compression modules will connect seamlessly.

Konica Minolta, Inc.
Business Innovation Center Japan

- Non-destructive inspection solutions for visualizing internal steel fractures in bridge beams by magnetic sensing and AI -

Outline of Project

The aging of social infrastructures such as roads and bridges is a problem. Of these, concrete structures have the risks of collapsing when a certain number of internal steel materials fracture. For this reason, internal steel fractures that cannot be detected easily by visual inspection are gradually being recognized as hidden social problems. By applying technology based on "special magnets", "3-axis magnetic sensors", and "data analysis", this project aims to develop a device which can visualize the state of internal steel materials in concrete structures up to depths that could not be detected until now, and detect internal steel fractures, to contribute to the maintenance and management of safe and reliable social infrastructures.

Outline of Required Support

- Financial support (Public support for technological development, etc.)
- Accompanying-style support such as guidance and advice by mentors
- Support for standardization/rulemaking, etc. (Reassessment of legal inspection of roads and railway bridges, etc.)

Future Vision

The aging of infrastructures is a globally common problem. There exist extensive needs for the detection of internal steel fractures. Focusing on diverse markets, steel fracture detection based on AI which does not require expertise will be developed, practical application will be enhanced by making the developed device compact, and steel fracture detection ability will be enhanced at deep areas, and these technologies will be disseminated widely to resolve social problems.

Liberaware Co., Ltd.

- Swarm of Drones Project : Development of Drones with Group Control Technology -

Outline of Project

Liberaware has been developing group control technology of robots moving on ground. In this project, this technology will be evolved in the aim to develop drones capable of forming groups and autonomous flight through the information processing of the respective drones. Since multiple drones will be able to fly autonomously, form groups, and carry out complicated tasks, it will help enhance the work efficiency and workload of the inspection of infrastructures, etc. using drones, and contribute to the maintenance of social infrastructures and insufficient labor force. Aiming to put this technology into practical application by the Tokyo Olympic Games in 2020, the development and verification experiments, etc. of the drone group control technology will be carried out.

Outline of Required Support

- Financial support
- Accompanying-style support such as guidance and advice by mentors
- Deregulation

Future Vision

Operation by multiple drones flying autonomously is expected in indoor infrastructure where the space is narrow but the inspection area is wide (e.g. work in service tunnels, warehouses, and disaster areas). Drone market scale: Approx. 100 billion yen in 2030.

IoT Lab Demonstration
(IoT-related Demonstration Budgets)

FY 2018 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: 0.3 Billion yen
                                 FY2018 Budget: 2.54 Billion yen

2. R&D/Demonstration Project for Social Implementation of Advanced Automated Driving System
  (Shift of budget amount)   **FY2016 Initial 1.88 Billion yen**
                                 FY2017 Initial 2.60 Billion yen
                                 FY2018 Budget 3.50 Billion yen

① [Infrastructure (Waterworks)] Social Infrastructure Advancement Promotion Project (Application of IoT for Water Utility)

- **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.**
- Aiming to applying IoT mechanisms to water utility, this project aims to **draw up standard specifications related to data distribution**, and **verify the effectiveness of introducing IoT** in actual waterworks based on these specifications.

[Standardization of data distribution]
Improve the environment of data usage by establishing the rules of data circulation between applications and field equipment, etc., (devices or systems). As a result, realize an environment which does not rely on specific vendors (=resolve vendor lock-in).

[Example of enhancing efficiency using IoT]
Operate facilities effectively by conducting update control, operation monitoring and remote control through the centralization of installation information and operation information, etc. of multiple facilities located in a wide area.

[Current situation]
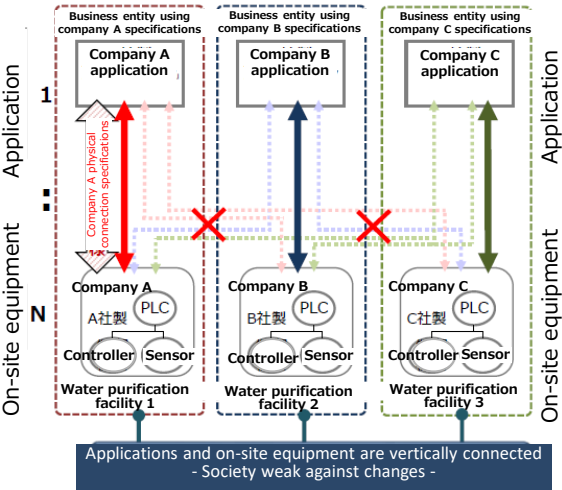
[Establishment of rules based on standard specifications]
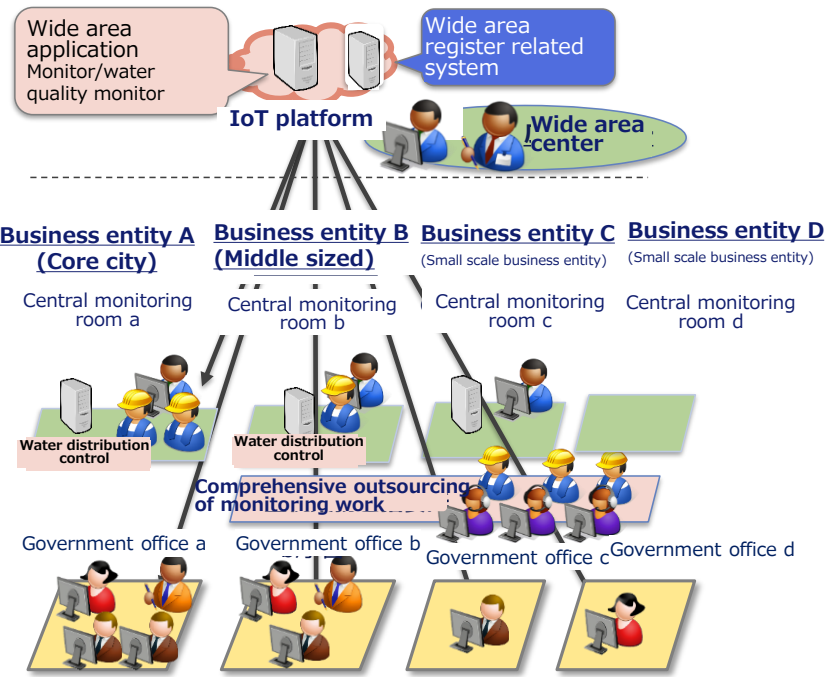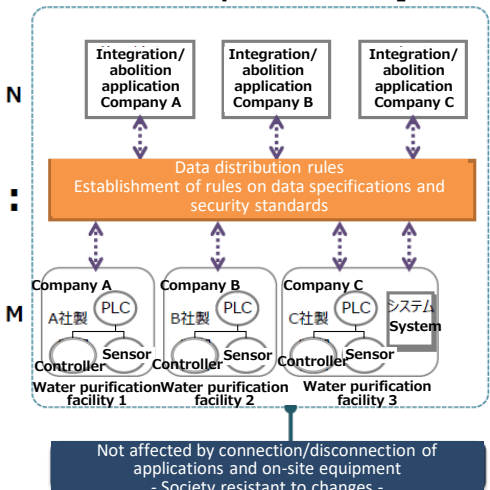
② [Industrial Safety] Independent Safety Measures Advancement Project (Oil refinery, chemical plant, etc.)

- 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.
- **Draw up guidelines and manuals** to promote data sharing and use between companies and implement cyber security measures.
- Promote the implementation of IoT, etc. linked to the **new regulatory system for the High Pressure Gas Safety Act (Super Certified Operator System)**

[Case examples of demonstration]

1. Constant monitor 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 early detection of abnormalities of facilities/equipment by collecting and analyzing data on internal piping corrosion at oil refineries, etc./external corrosion under heat insulators at chemical plants.

Promote data sharing and use amongst companies

Organically link demonstration and regulatory system

[Compilation of guidelines and manuals]

- To resolve data sharing issues, compile "guidelines on agreements on use of data industrial safety version" specially for plant data.

- As the use of IoT equipment progresses, compile "IoT response manuall industrial safety version" to deal with cyber attack.

[Regulatory system realizing advanced independent safety measures]

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

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.

3

③ [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.
- In 2018, will develop a prediction model related to 2018, and simulate/evaluate using airlines.

<To date> Each airline uses data individually.

Value chain of transportation

Meteorological data | Air traffic control data | Flight data

Aircraft manufacturing → **Flight**

Piloting based on pilots' experience

Transportation service
- Safety
- Low fuel consumption
- Comfort
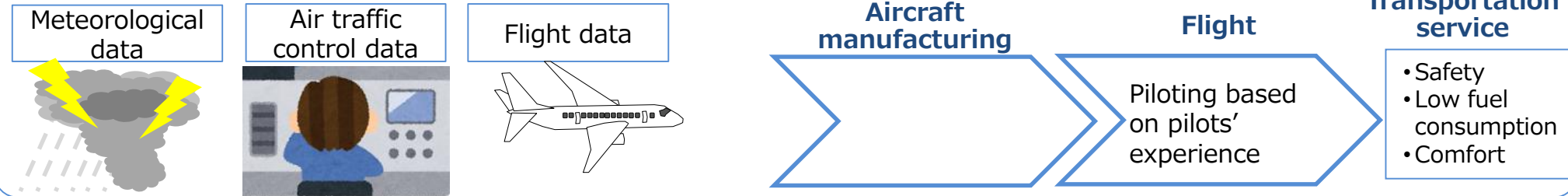
Air traffic congestion ⟸ Shortage of pilots

<Future>

Best route choice in bad weather/air turbulence/emergency situation (Safety・Comfort・Low fuel consumption)

Preceding aircraft/ surrounding situation

Weather condition

Air traffic control situation (including other aircrafts)

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

Own aircraft/ surrounding situation

Transmission to the following aircraft

Aircraft manufacturing → **Flight**

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

Transportation service
- Safety
- Low fuel consumption
- Comfort

→ Aircraft substitutes a part of added value of pilots.

4

④ [Smart home] Smart Life Demonstration Project

- Inside the home, everyday information can be accumulated using diverse equipment such as **home appliances, wearables, sensors, etc.** There is also countless everyday related information such as data owned by **service providers** such as servicing companies, retailers, etc., data owned by **administrative offices, websites, etc**.
- **By linking these information, advancement of services meeting consumer needs can be expected**, and social issues (reduction of housework load and measures for silver population with declining birthrate) can be resolved, and quality of living improved.
- In 2018, will summarize the requirements of data linkage between business entities through the health improvement and monitoring service of elderly persons (**① data profile, ② security/product safety, ③ privacy and data usage rules**).

Establish a consortium made up of a wide range of players such as equipment manufacturing platform providers, service providers, etc., gather life data (room temperature, movements, vitals, etc.) of consumers from home appliances and sensors, etc., and create services using the concerned data.

[Overall image of services using life data]

Users

Service Providers (Data usage)

住宅メーカー フィットネス 宅配 買い物 交通 車 育児・教育 食事 観光

Platform (Data collection/ analysis)

[Functions sought from platformers]
*Information linkage infrastructure function
*Construction of environment where data analysis and coordination can be carried out by multiple companies, etc.

Home appliances, IoT devices, Web services, etc. (data provision)

IoT home appliances   IoT devices   Services   Information

[Requirements of data linkage amongst business entities]

① Securing data quality
- Review **verification of effectiveness of data catalogues**, etc. to promote use of life data of service providers.

② Security/Product safety
- Evaluate risks based on security/product safety measures and guidelines, clarify who protects what, and **clarify responsibility boundaries between business entities.**

③ Privacy data
- Establish the template of consent forms for privacy data based on the assumption **that the privacy data is used by multiple business entities.**
- Summarize conditions for appropriately managing privacy data.

④ Requirements of Smartlife market
- Summarize requirements of Smartlife field based on discussions on data agreement guidelines.

5

⑤ [Tourism] IoT-based *Omotenashi* (Hospitality) Demonstration Project

- Based on the consent of foreigners visiting Japan, **establish an infrastructure (Omotenashi Platform) which allows business entities to share data** on attributes (gender, age group, nationality, etc.) and history of actions (accommodations, shopping, transportation, etc.), gather data on foreign visitors to Japan through diverse services, and carry out service demonstrations using the data.
- In 2018, will carry out **demonstrations in four regions in Japan,** accumulate all the data acquired in these regions in the (*Omotenashi* Platform), and realize information linkage in multiple regions.

[Image of Demonstration Project]

Omotenashi Platform

User information (Data accumulation/management)

Data aggregation /analysis → Data infra-structure

...
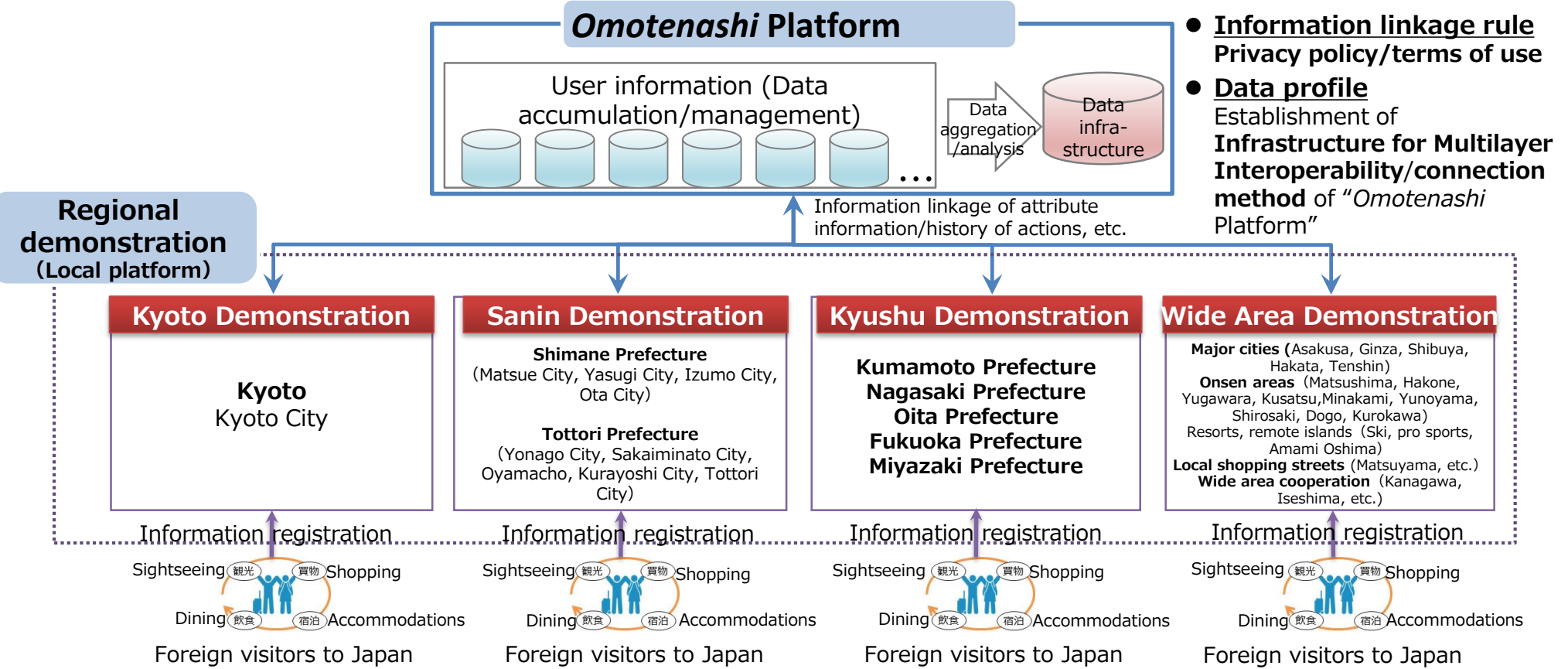
- **Information linkage rule**
  Privacy policy/terms of use
- **Data profile**
  Establishment of **Infrastructure for Multilayer Interoperability/connection method** of "*Omotenashi* Platform"

Regional demonstration (Local platform)

Information linkage of attribute information/history of actions, etc.

Kyoto Demonstration

Kyoto
Kyoto City

Sanin Demonstration

Shimane Prefecture
（Matsue City, Yasugi City, Izumo City, Ota City)

Tottori Prefecture
（Yonago City, Sakaiminato City, Oyamacho, Kurayoshi City, Tottori City)

Kyushu Demonstration

Kumamoto Prefecture
Nagasaki Prefecture
Oita Prefecture
Fukuoka Prefecture
Miyazaki Prefecture

Wide Area Demonstration

Major cities (Asakusa, Ginza, Shibuya, Hakata, Tenshin)
Onsen areas (Matsushima, Hakone, Yugawara, Kusatsu,Minakami, Yunoyama, Shirosaki, Dogo, Kurokawa)
Resorts, remote islands (Ski, pro sports, Amami Oshima)
Local shopping streets (Matsuyama, etc.)
Wide area cooperation (Kanagawa, Iseshima, etc.)

Information registration

Sightseeing 観光 / 買物 Shopping
Dining 飲食 / 宿泊 Accommodations

Foreign visitors to Japan

Information registration

Sightseeing 観光 / 買物 Shopping
Dining 飲食 / 宿泊 Accommodations

Foreign visitors to Japan

Information registration

Sightseeing 観光 / 買物 Shopping
Dining 飲食 / 宿泊 Accommodations

Foreign visitors to Japan

Information registration

Sightseeing 観光 / 買物 Shopping
Dining 飲食 / 宿泊 Accommodations

Foreign visitors to Japan

⑥ [Infrastructure (Thermal Power Generation)]
Development of Social Infrastructure Operation System Enabling Sophisticated Data Use
Power Industry (Thermal Power Generation)

- The further use of IoT and AI technologies offer great possibilities to **ultra-high efficiency operations of power plants. (maximization of thermal efficiency).**
- Based on the operation data and knowledge of power companies, tie up and collaborate with IT companies with analysis technologies and AI technologies, etc., to further develop algorithms realizing highly efficient operations. In addition, compile guidelines for supporting industrial cooperation.

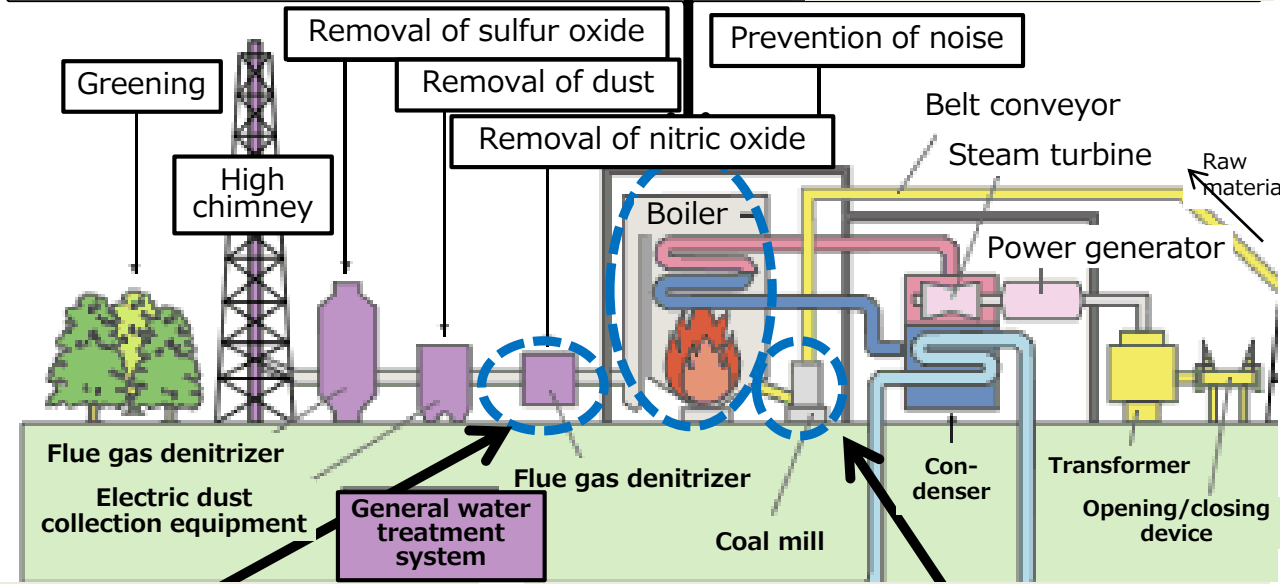### 1. Improvement of thermal efficiency①
➤Real-time optimum control of injected air/fuel ratio while restricting Nox and CO values, etc.

2. Improvement of thermal efficiency②
➤ Improve thermal efficiency by the optimum control of boiler combustion and stove low operations (removal of soot and dust)

3. Boiler combustion optimization control
➤Achieve optimum operations at all times by identifying the minimum operational parameters of Nox and Sox values at real time, taking into account external changes.

Removal of sulfur oxide
Removal of dust
Prevention of noise
Removal of nitric oxide
Greening
High chimney
Belt conveyor
Steam turbine
Raw materials
Boiler
Power generator
Flue gas denitrizer
Electric dust collection equipment
General water treatment system
Flue gas denitrizer
Coal mill
Con-denser
Transformer
Opening/closing device

4. Improvement of denitration efficiency
➤Optimize the injected NH3 amount based on fuel properties and real-time power generation state.

5. Reduction of power used by optimum control of auxiliary machinery
➤Realize reduction of power consumption of auxiliary machinery by the optimum control of mills according to the carbon properties and operation mode.

Implementation system

Power company
Operation data
Operation know-how

IT company
Algorithm
Application development
AI technology

Manufacturer
Equipment production
Malfunction analysis
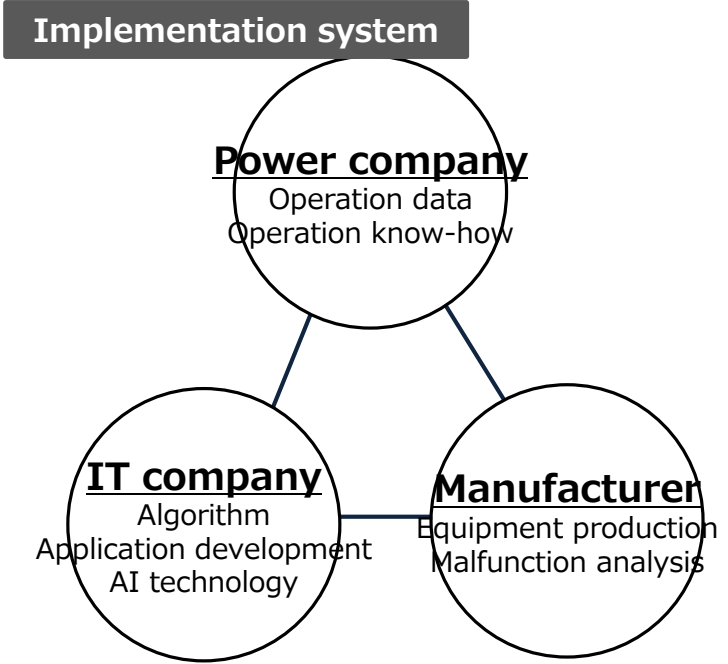
- Overcoming the barriers between operators and manufacturers, statistics models and IT that operators lack will be complemented through alliance with AI vendors.
- Based on the knowledge obtained in this project, guidelines on the modeling of skills by machine learning will be compiled.

7

⑦ [Infrastructure (Hydroelectric Power Generation)]
Development of Social Infrastructure Operation System Enabling Sophisticated Data Use
Power Industry (Water Power Generation)

- Using AI, big data and IoT, enhance **inflow amount prediction by the real-time measurement/prediction of rainwater and snow-melted water flowing into dams, and promote the increase in power generated by using some of the flood control capacity.**

- **Tie up with the Ministry of Land, Infrastructure, Transport and Tourism**, overseeing multi-purpose dams for flood control, and **review the identification of required data and standardization and system construction efforts to enable application to dams all over the country**, leading to the reassessment of operations.

- **Enhance inflow amount prediction even at dams for power generation** owned by power wholesalers, **and promote the increase in power generated by optimizing operations.**

[Demonstration project]

Maximization of power generated as a water system in general.
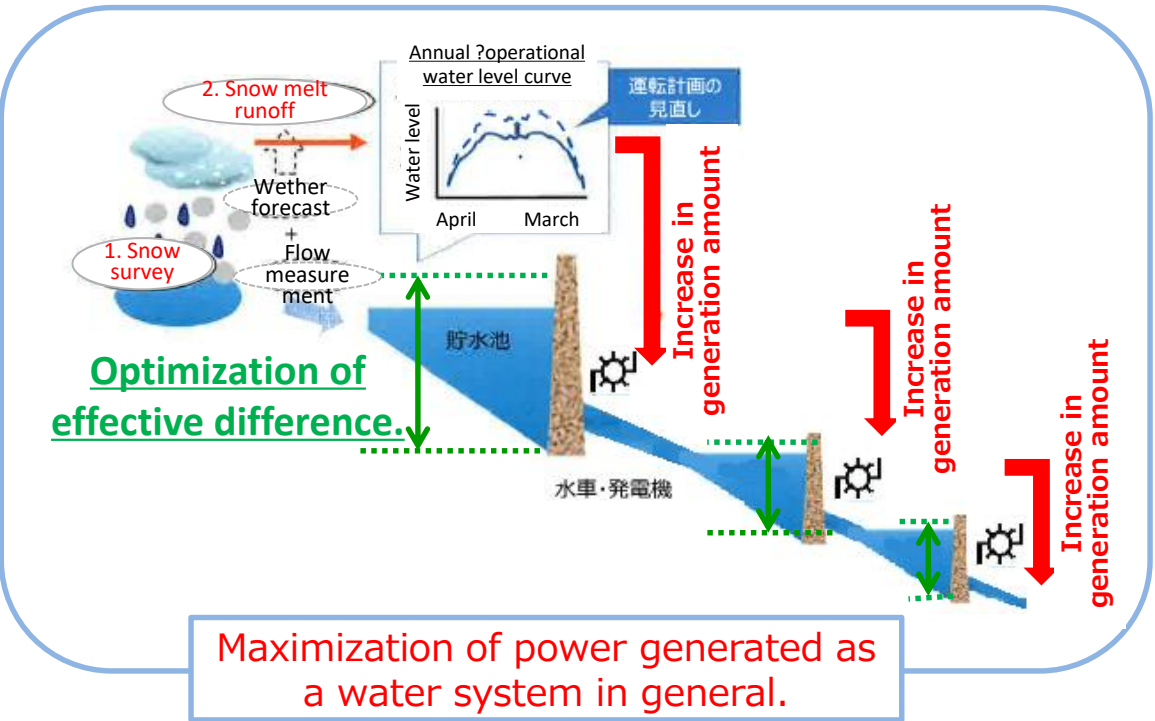
Efforts of power generation dam

- **Power generation** at dams managed by power wholesaler also **affects power generation at downstream dams of the same water system**.

- In order to maximize the power generated at several power plants, **the construction of a system which can realize optimum dam operations as a water system in general is being reviewed** after enhancing inflow prediction of snow-melted water flowing to the dams. **Horizontal development to other dams will also be carried out.**

⑧ [Distribution (IC tags)] Development of New Supply Chain Information Sharing System using IoT Technology (Project to improve domestic consumer supply chain)

- **<u>Waste in the domestic consumer supply chain</u>** is becoming an increasing social problem such as food loss, returned purchases, etc. There is a risk that it may become difficult to maintain distribution systems, which is a social infrastructure, due to the severe lack of manpower, etc.
- This project aims to visualize and advance supply chains by establishing data formats and operations rules for the same system by **<u>building a prototype of a supply chain information sharing system applying RFID and conducting experiments on the sharing of inventory information, etc.</u>**

[Image of use of supply chain information sharing system]

Accurate traceability of defective products

Improved efficiency of intermediate distribution by the visualization of delivery status and stock

Manpower saving at cash registers, improved efficiency of inventory control, prevention of theft

Self-management of home stocking of purchased products and state of use

[Manufacturer]   [Distribution/wholesale]   [Retail]   [Consumer]

Source-tagged products are distributed, and supply chain information is acquired.

Manufacturing information | Delivery information | Inventory information | Sales information | Loss information | Expiry date information | Consumption Information (*)

Supply chain information platform

* As data on consumers are private information, assuming a mechanism where the consumers themselves control the concerned information.

9

⑨ [Distribution (Trade Procedures)]
Project for Improving Efficiency of Trade Procedures in Global Supply Chain

- **It is not possible to link data accurately to the end with the current procedures**, because some private sector procedures related to port trade have not been digitalized, and there is a need to input data or check data during the procedures.
- Aiming to improve the productivity of business entities involved in trade procedure work and reduce export lead time, **construct a trade information linkage infrastructure system for sharing data on cargo and procedures, etc., accurately** between related parties including business entities who have not digitalized their procedures, and carry out demonstration and verification of effects at specific ports.
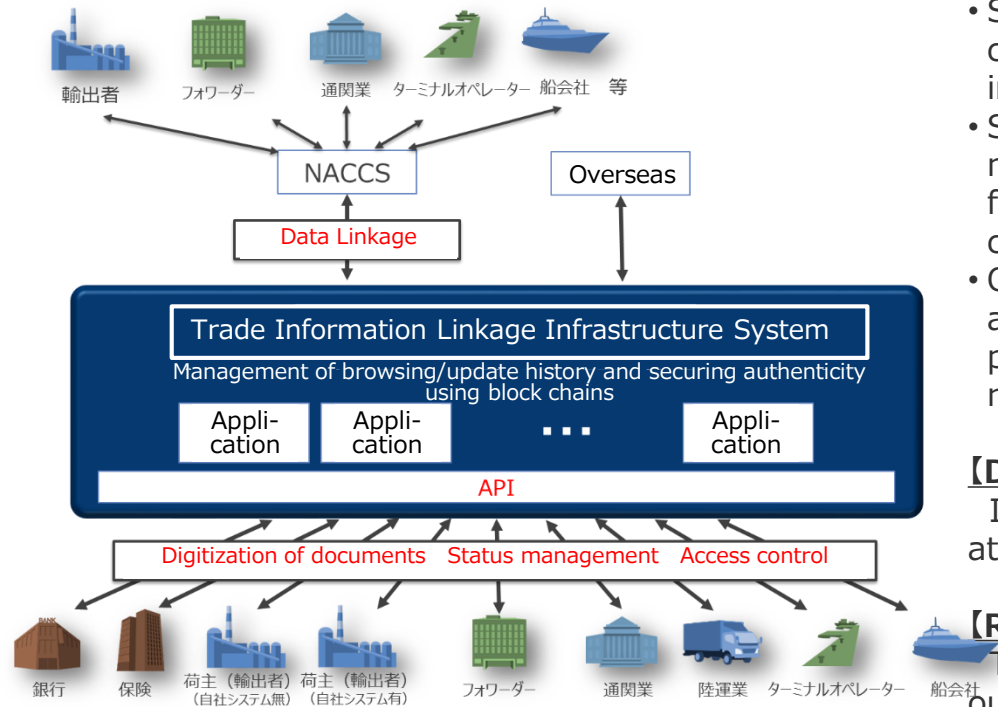
[Construction of trade information linkage infrastructure system]
- System which enables safe management and sharing of data on cargo and trade procedures between business entities involved in export procedures using block chain technology.
- Simple interface taking also into account backbone, small and medium companies facing problems with API and digitalization for facilitating linkage with existing in-house systems of related companies.
- Optimum linkage with work procedures for related administrative organizations such as customs, etc. and related private businesses processed using the export/import /port related information processing system (NACCS).

【Demonstration/verification of effects】
In 2018, will conduct demonstration and verification of effects at several ports, participated by multiple business entities.
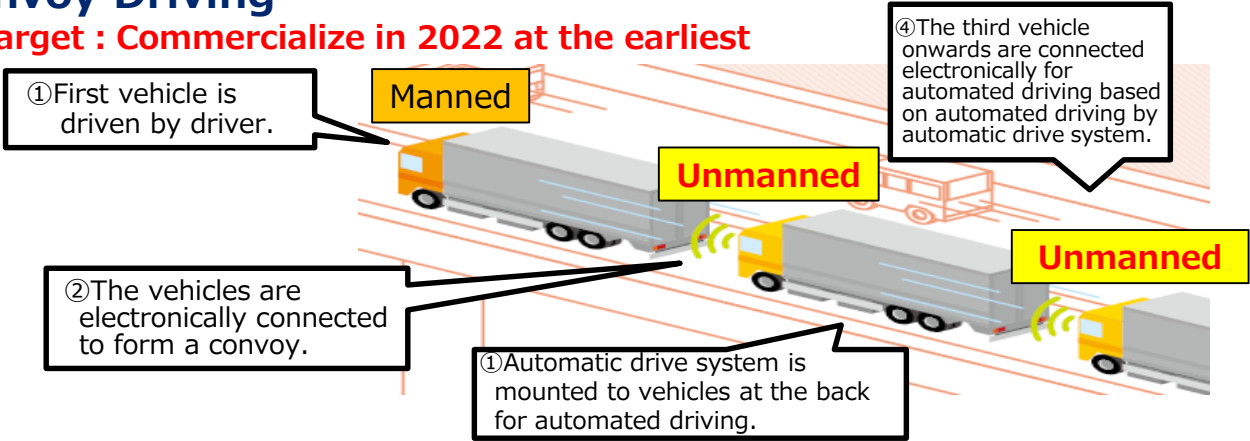
【Review of standardization】
To enable business entities involved in trade procedures to carry out data linkage smoothly, conduct surveys and reviews for standardizing data formats (items, units, etc.) required for marine export procedures drawing up guidelines on data sharing rules, etc.

⑩ [Mobility Area] R&D/Demonstration Project for Social Implementation of Advanced Automated Driving System

● 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.

Convoy Driving

Target : Commercialize in 2022 at the earliest

①First vehicle is driven by driver.

Manned

②The vehicles are electronically connected to form a convoy.

Unmanned

④The third vehicle onwards are connected electronically for automated driving based on automated driving by automatic drive system.

Unmanned

①Automatic drive system is mounted to vehicles at the back for automated driving.

Convoy driving on Tomei Expressway

Transportation service by unmanned transportation automated driving (Last One Mile Automated Driving)

Target : Realize transportation service by unmanned driving in 2020.

E.g.: Suburbs   ※**Other possible applications include city streets, housing complex, tourist sites, private land, etc.**

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

②**Unmanned automated driving**

③Get off at destination (home, etc.)

Nearest station etc.

Final destination (one's home etc.)
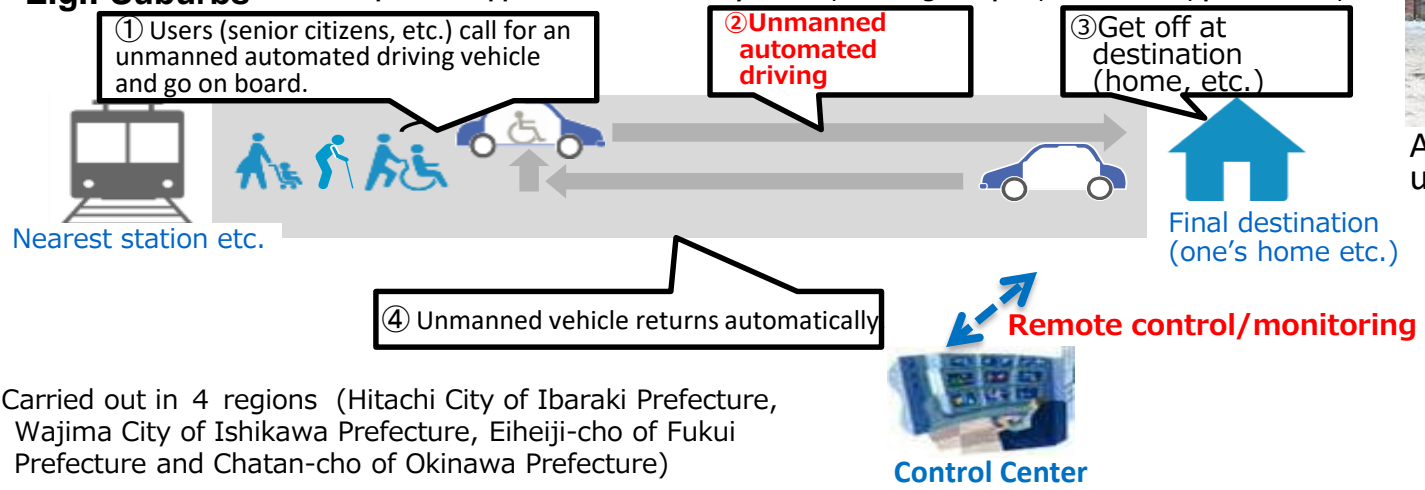
Automated driving fully unmanned inside the car

④ Unmanned vehicle returns automatically

Remote control/monitoring

Control Center

Remote monitoring/control

* Carried out in 4 regions (Hitachi City of Ibaraki Prefecture, Wajima City of Ishikawa Prefecture, Eiheiji-cho of Fukui Prefecture and Chatan-cho of Okinawa Prefecture)

11

J-Startup

Next Growth to Japan's Start-ups.

Next Innovations to the World.

Vision

Next growth to Japan's start-ups.
Next innovations to the world.

In Japan, about 10,000 start-ups are challenging something new each day. However, the companies that are active globally are just a few.

J-Startup aims to create the companies that can be competitive and win in the world, bring them together, and provide new innovations to the world. J-Startup intensively supports the selected companies in both the private and public sectors, and creates success models.
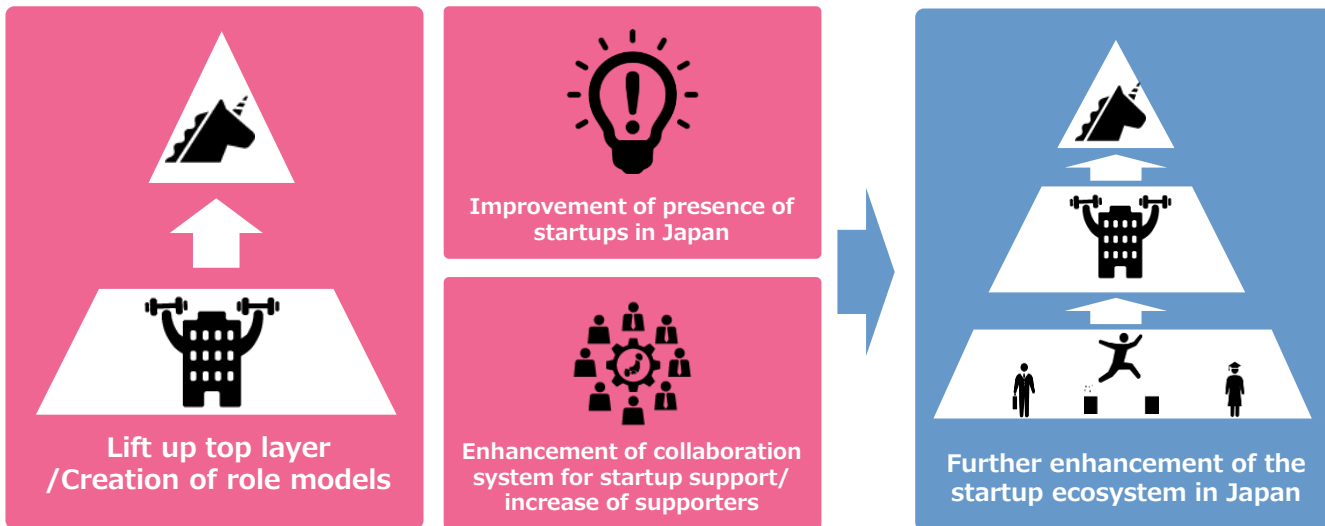
From "Boom" to "Culture".

Heroes born here raise the level of startups, and enhance further the venture ecosystem in Japan.

J-Startup

Goal

The government has proposed a new target "start up 20 unlisted venture companies (unicorn) or listed venture companies with corporate value or market capitalization of more than 1 billion yen by 2023".

By raising the top layer and creating startups that grow globally, our aim is to reach the government target, create role models, and have the whole society foster the entrepreneur mind of starting own ventures and undertaking challenges, in order to further strengthen Japan's startup ecosystem.

Lift up top layer /Creation of role models

Improvement of presence of startups in Japan

Enhancement of collaboration system for startup support/ increase of supporters

Further enhancement of the startup ecosystem in Japan

＊ Future Investment Strategy 2018（June 15, 2018 cabinet decision）

J-Startup

3

About

"J-Startup" creates startups that can compete and win in the global scene, and provides new values to the world through innovative technologies and business models.

By creating success models, further strengthen venture ecosystems in Japan.

About 10,000 startups

Select

J-Startup companies
About 100 companies

Go Global

Overseas expansion
（Participate in exhibition, etc.)

Connect

Large companies, VCs, accelerators, government organizations
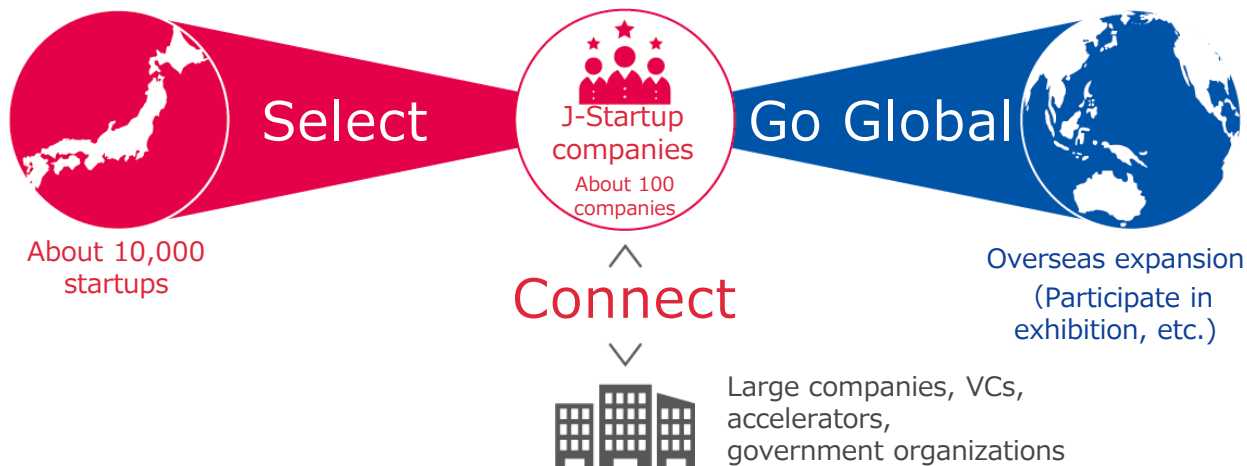
Select	Connect	Go Global
1 Select companies with potentials through recommendations from top supported in the private	**2** Foster support community, and link this to government support and private sector support.	**3** Support global expansion as Japan's representatives

J-Startup

4

Select
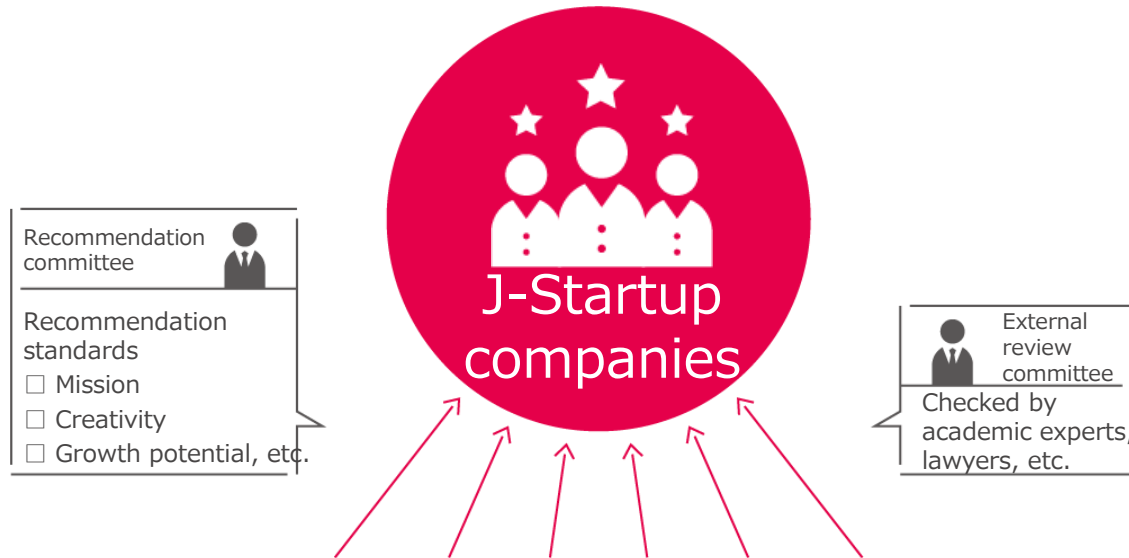
Highly recommendable companies are selected by top venture capitalists, accelerators, and innovation personnel at major companies, etc. External review committees check the recommended companies while respecting the recommendations made.

Startup companies narrowed down through strict screening are selected as J-Startup companies.

Recommendation committee

Recommendation standards
☐ Mission
☐ Creativity
☐ Growth potential, etc.

J-Startup companies

External review committee

Checked by academic experts, lawyers, etc.

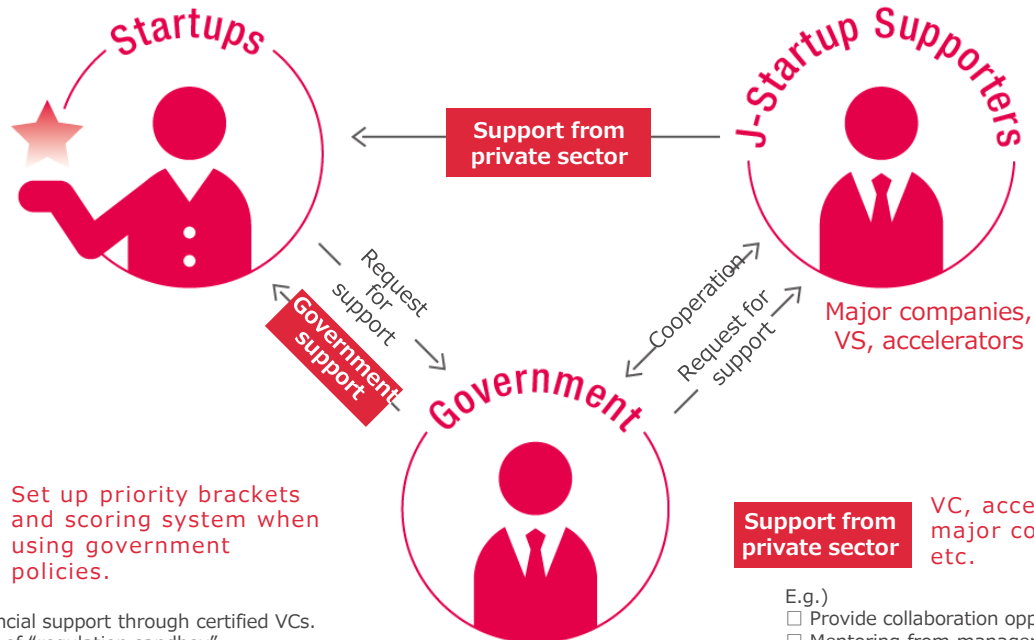## About 10,000 startups active in Japan

Recommended company types : Deep tech type, platform type, SDG s

※Recommendation committee/external review committee: The METI and Secretariat assign the people who have startup support experience as well as the sufficient experiences and track records.

J-Startup

Connect

Build communities for supporting J-Startup.
Centering around the Secretariat consisting of private sector support organizations, NEDO, JETRO, and METI, connect J-Startup companies, supporters, and government organizations, and realize timely and speedy support.

Startups

J-Startup Supporters

Support from private sector

Major companies, VS, accelerators

Request for support

Government support

Cooperation

Request for support

Government

Government support

Set up priority brackets and scoring system when using government policies.

E.g.)
☐ Provide financial support through certified VCs.
☐ Support use of "regulation sandbox".
☐ Support construction of intellectual strategies.
☐ Support overseas expansion (mentoring, event participation support, etc.)

Government related organizations
(Secretariat : METI, NEDO, and JETRO)

Support from private sector

VC, accelerators, major companies, etc.

E.g.)
☐ Provide collaboration opportunities.
☐ Mentoring from managerial level, internal specialists, etc.
☐ Provide office space, pilot experiments, etc.
☐Give priority to participation in acceleration programs, etc.

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Example of intensive support by government

The government provides intensive support to J-Startup companies through incentives for supporting policies, etc.

- Use of J-Startup logo (branding as selected company)
- PR by special website, Japanese and overseas media, etc.
- Participation in overseas missions by government such as ministers, etc.
- Support of participation in large-scale events outside/inside Japan.
- Preferential treatment in support policies such as various grants, etc., simplification of procedures.
- Business matching (individual connections to executives of major companies, ministries and agencies, etc.)
- Active use of regulation sandboxes.
- Support for other demands related to regulations, etc.

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Example of intensive support by J-Startup Supporters

- Provide office space and preferential prices (offices, free space in factories, training facilities, showrooms, etc.)
- Cooperate in demonstration experiments using robots, products/parts, infrastructure networks, etc.
- Provide verification environments and analysis equipment.
- Provide benefits such as acceleration programs and *monozukuri* (manufacturing) support programs.
- Advice provided by specialists and those with know-how.
- Introduce their own customers, related companies, etc.

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Go Global | Support the overseas expansion of J-Startup companies

J-Startup Tour

Support participation in global trade shows/exhibitions.

Secure exhibition space as J-Startup Pavilion.

Exhibition candidates :

SLUSH, SXSW, CES, TECH IN ASIA, GITEX FUTURE STARS, Web Summit

JETRO Global Acceleration Hub

Hubs set up in advanced regions provide local information, mentoring, and support for building local communities to startup companies advancing abroad.

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J-Startup Tours

GITEX FUTURE STARS
10/14-17
@Dubai

web summit
11/5-8
@Lisbon

SLUSH
12/4-5
@Helsinki

Consumer Technology Association CES
1/8-11
@Las Vegas

SXSW 2019
3/8-17
@Austin

VIVA TECHNOLOGY
5/16-18
@Paris

Japan

Deloitte. Innovation Summit
9/11
@Tokyo

CEATEC JAPAN
10/16-19
@Tokyo

ILS INNOVATION LEADERS SUMMIT
10/22-24
@Tokyo

EY Entrepreneur Of The Year
12/3-4
@Tokyo

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Inbound

Invite overseas entrepreneurs to Japan to strengthen Japan's startup ecosystem.

JETRO global acceleration hub

Hubs set up in main regions in the world provide support for advanced into Japan.

Collaborate in market surveys and business planning support in Japan.

Startup visa

Relax residence status requirements for overseas entrepreneurs in municipals authorized by the country. Residential status for startup can be acquired 6 months earlier than present.

Present
現行

New System
新制度

New
新設

Special zone system
特区制度

Management and control
(Creative activities)
6 months

Nationwide
全国展開

Residential status provided for startup
6 months   **6 months**

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11

Reference

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Selecting J-Startup Companies

Selection of recommendation committee members

① Entrepreneurs/startup support track record
② Cooperation in this project

Recommendation points

[Recommended business types]
・IoT age real tech
・Platformer
・SDGs

[Evaluated points]
・Mission
・Creativity
・Growth potential, etc.

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Evaluation of Recommended Companies

[Aggregating evaluation points]

① Evaluation points by recommendation committee

② Added points by management phase

③ Added points by diversity

④ Added points by government support measures

+

[Screening by external experts]

- Is evaluation method suitable?
- Are there problems with the selection process

and others

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Outline of J-Startup Companies

% by business type

- Robot : 8%
- AI/Control : 13%
- Service/platform : 22%
- Environment/energy/society 4%
- Manufacturing/material : 8%
- IoT device/ICT /Application : 20%
- Medical engineering/ bio 14%
- Aviation/space : 6%
- Mobility : 5%

Distribution of capital

（億円）

	Mean	Median
	21.1	8.8

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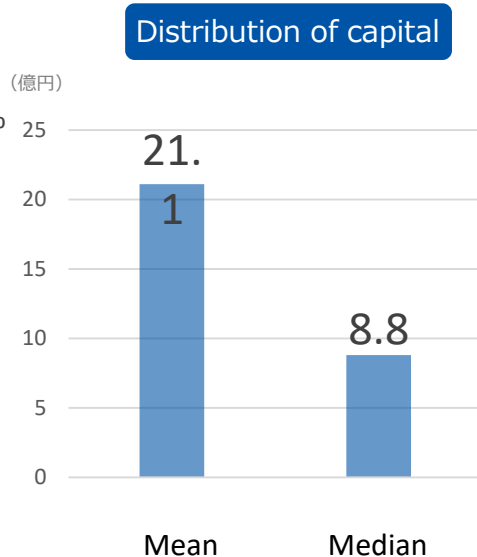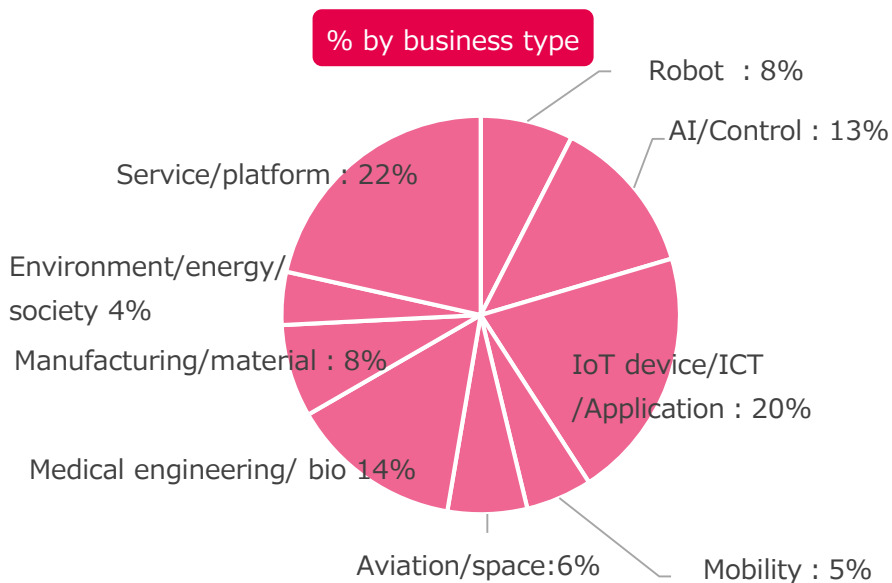
J-Startup Companies (92) 1/2

ArchiTek
ispace, inc.
AWAKENS, Inc.
Axelspace Corporation
Astroscale Japan Inc.
ABEJA, Inc.
ARAYA
AlpacaJapan Co., Ltd.
Idein Inc.
Inagora Inc.
InstaVR
Infostellar Inc.
WHILL Inc.
AISing. LTD
AI Silk Corporation
ExaWizards Inc.
EdiGENE Corporation
LPixel Inc.
Elephantech Inc.
O:inc
Money Design Co., Ltd.
Origami Inc.
al+ Inc.

Caulis Inc.
CureApp, Inc.
iQPS Inc.
Kyulux, Inc.
Kyoto Robotics Corporation
Quantum Biosystems Inc.
CrowdWorks Inc.
GROOVE X, Inc.
Global Mobility Service, Inc.
Cogent Labs Inc.
cocoa motors. Inc.
CONNECTEC JAPAN Corporation
CYBERDYNE, INC.
GRA Inc.
JTOWER Inc.
Studio Ousia Inc.
Spiber Inc.
Spacelink Co., Ltd.
SmartHR, Inc.
SmartDrive
SuRaLa Net Co.,Ltd.
seven dreamers laboratories inc.
ZMP Inc.

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J-Startup Companies (92) 2/2

SORABITO Inc.
Challenergy Inc.
tsumug Inc.
Terra Motors Corporation
Telexistence Inc.
Trigence Semiconductor, Inc.
Triple W Japan K.K.
NANOEGG® Research Laboratories,Inc.
JEPLAN, INC.
PKSHA Technology Inc.
Biome Inc.
Panair, Inc.
P-Mind Co., Ltd.
Pixie Dust Technologies, Inc.
visasQ inc.
VISITS Technologies Inc.
BizteX, Inc.
BizReach, Inc.
FiNC inc.
Photo electron Soul Inc.
Preferred Networks, Inc.
Fringe81 Co.,Ltd.
FLOSFIA INC.

PeptiDream Inc.
Holoeyes Inc.
Microwave Chemical Co.,Ltd.
Money Forward, Inc.
MAMORIO, Inc.
MUJIN Inc.
Megakaryon Corporation
mediVR, Inc
Mercari, Inc.
MELTIN MMI
euglena Co.,Ltd.
UZABASE, Inc.
Life is Tech, Inc.
RAKSUL INC.
ReasonWhy Inc.
LeapMind Inc.
Liquid, Inc.
RIVERFIELD Inc.
ReproCELL Inc.
Routrek Networks, Inc.
Lequio Power Technology Corp.
Regcell Co., Ltd.
WAmazing, Inc.

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J-Startup recommendation committee members（66 members）

Tohru Akaura (IncubateFund)
Hironobu Azuma (The Japan Research Institute, Limited: SMBC MIRAI)
Tomohiro Anzai (Fast Track Initiative, Inc.)
Gen Isayama (WiL, LLC.)
Sorato Ijichi (Creww Inc.)
Tsuyoshi Ito (Beyond Next Ventures Inc.)
Junichi Imoto (Nissay Capital Co., Ltd.)
Takahiro Uchida (Japanese Organization for Medical Device Development, Inc.)
Takaaki Umezawa (A.T. Kearney)
Kazuya Umeda (Kyoto Research Park Corp.)
Takuto Egusa (Nomura Holdings: VOYAGER)
Tomohiro Ebata (KDDI Corporation: KDDI ∞ labo)
Hajime Oshita (MedVenture Partners Inc.)
Osamu Ogasawara (ABBALab inc.)
Hiroaki Okahashi (Miyako Capital)
Hiromi Okuda (Wizgroup inc.)
Yoshimasa Kato (Tokyu Corporation: Tokyu Accelerate Program)
Hiroaki Kato (Digital Hollywood University Graduate School)
Yoshihisa Kaneko (Daiwa Securities: :Daiwa Innovation network)
Soichi Kariyazono (Globis Capital Partners/Japan Venture Capital Association)
Junichiro Kono (ITOCHU Technology Ventures, Inc)
Kota Kimura (IBM Japan, Ltd: IBM BlueHub)
Ryosuke Kimura (IF Lifetime Ventures)
Takeshi Natsuno (Keio University Graduate School)
Yukihiko Kunimoto (The Independents Club)
Masashi Kubota (Microsoft Japan Co., Ltd.: Microsoft Innovation Award)
Hideomi Kurita (KSP, Inc)
Tomotaka Goji (The University of Tokyo Edge Capital Co., Ltd.)
Shingo Kunido (TX Entrepreneur Partners)
Yuma Saito (Deloitte Tohmatsu Venture Support Co., Ltd.)
Kentaro Sakakibara (Samurai Incubate Inc.)
Tsuyoshi Sakamoto (QB Capital, LLC.)
Masahiro Samejima (Lawyer)

James Riney (500 Startups Japan)
Hitoshi Shin (Mizuho Securities Co., Ltd.:MIZUHO Innovation Award)
Norifumi Suzuki (01Booster Inc.)
Hiromu Soga (KAPION Inc.)
Taizo Son (Mistletoe, Inc.)
Makoto Takano (Forbes Japan/MT Partners K.K.)
Tadashi Takiguchi (WERU INVESTMENT CO., LTD.)
Masahiro Takizawa (Nippon Telegraph and Telephone East Corporation: NTT East Accelerator Program)
Kotaro Chiba (Drone Fund/Individual Investor)
Naomi Tokunaga (Fujitsu Limited)
Kazuhiko Toyama (Industrial Growth Platform, Inc.)
Tetsujiro Nakagaki (Draper Nexus Venture Partners, LLC)
Jun Nakajima (Archetype Corporation)
Akihiko Nagata (Euglena SMBC Nikko Rivance Capital)
Naohiro Nishiguchi (Japan Innovation Network)
Ryuichi Nishida (B Dash Ventures Inc.)
Takashi Hakii (Konica Minolta, Inc: Business Innovation Center Japan)
Yuka Hattori (Inclusion Japan,Inc.)
Chiaki Hayashi (Loftwork Inc.)
Ryohei Hayashi (DOGAN, Inc.)
Katsuya Hirokawa (General foundation SFC Forum)
Phillip Seiji Vincent (Plug and Play Japan KK)
Takahiro Fukui (Japan Post Co., Ltd.:Post Logitech Innovation Award)
? Fujiki（藤記 敬久）(Future Venture Capital Co.,Ltd.)
Hideto Fujino (Rheos Capital Works Inc.)
Daisuke Hoshino (Culture Convenience Club Co.,Ltd.: CCC T-Venture Program)
Yoshito Hori (Graduate School of Management, GLOBIS University)
Shuji Honjo (Honjo International)
Takuya Matsutani (PROJECT NIPPON Co.,LTD.)
Yukihiro Maru (Leave a Nest Co., Ltd.)
Keisuke Miyoshi (JAFCO Co., Ltd.)
Masao Yuki (Mitsubishi UFJ Capital Co., Ltd.: MUFG Rize up Festa)
Yasuhiko Yurimoto (Global Brain Corporation)

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J-Startup Supporters (122 companies)

Archetype Corporation
ABBALab inc.
一般社団法人iEducation
IF Lifetime Ventures
AXA Life Insurance Co., Ltd.
Accenture Japan Ltd.
KPMG AZSA LLC
Amazon Web Services, Inc.
ITOCHU Technology Ventures, Inc.
incubate Fund
Inclusion Japan,Inc.
The Independents Club
Wizgroup inc.
WiL, LLC.
WERU INVESTMENT CO., LTD.
Uchida & Samejima Law Firm
A.T. Kearney
SMBC Nikko Securities Inc.
SMBC Venture Capital.
SBI Investment Co., Ltd.
EDGEof, Inc
NTT DATA Corporation
NTT DOCOMO, INC.
MT Partners K.K.
Oki Electric Industry Co., Ltd.
OMRON Corporation
Olympus Corporation
Kadokawa Ascii Research Laboratories, Inc.
KAPION Inc.
Culture Convenience Club Co.,Ltd.
The Kansai Electric Power Company, Incorporated
QB Capital, LLC
Kyoto Research Park Corp.
Kirin Holdings Company, Limited.
Google Japan LLC
Creww Inc.
Global Brain Corporation
GLOBIS CAPITAL PARTNERS & Co.
Graduate School of Management, GLOBIS University
Industrial Growth Platform, Inc.
KSP, Inc.

KDDI Corporation
Konica Minolta, Inc.
SAMURAI INCUBATE.INC
Sharp Corporation
Japan Innovation Network
JAFCO Co., Ltd.
Johnson & Johnson Innovation
ERNST & YOUNG SHINNIHON LLC
SPARX Overseas, Ltd.
Spiral Ventures Pte Ltd / Spiral Ventures Japan LLP
Sumitomo Life Insurance Company
Seiko Epson Corporation
01Booster Inc.
Sony Bank Incorporated
SoftBank Corp.
SB Innoventure Corp.
Sompo Japan Nipponkoa Insurance Inc.
The Dai-ichi Life Insurance Company, Limited
Dai Nippon Printing Co., Ltd.
Daiwa Securities Co. Ltd.
Takeda Pharmaceutical Company Limited
Mitsubishi Tanabe Pharma Corporation
TX Entrepreneur Partners
DMM.com Group
TDK Corporation
Deloitte Tohmatsu Venture Support Co., Ltd
Tokio Marine Holdings, Inc.
TOKYO GAS Co., Ltd.
Tokyu Corporation
The University of Tokyo Edge Capital Co., Ltd.
DOGAN beta, Inc.
Toppan Printing Co., Ltd.
Draper Nexus Venture Partners, LLC
DRONE Fund
Nissay Capital Co.,ltd
IBM Japan, Ltd
Japanese Organization for Medical Device
Development, Inc.
Nippon Life Insurance Company
The Japan Research Institute, Limited
Microsoft Japan Co., Ltd.
Japan Post Co., Ltd.

Japan Society of Clinical Research
Nomura Holdings, Inc.
HEART CATCH Inc.
Panasonic Corporation
B Dash Ventures Inc.
PwC Consulting LLC
Nippon Telegraph and Telephone East Corporation
East Japan Railway Company
Beyond Next Ventures Inc.
500 Startups Japan
Fast Track Initiative, Inc.
Philips Japan, Ltd.
Fujitsu Limited
Future Venture Capital Co.,Ltd.
Plug and Play Tech Center, Japan
PROJECT NIPPON Co.,LTD.
Venture Café Tokyo
Maeda Corporation
Mistletoe, Inc.
Mizuho Bank, Ltd.
Mizuho Securities Co., Ltd.
Mitsui Sumitomo Insurance Company, Limited
Sumitomo Mitsui Banking Corporation
Mitsubishi Estate Company,Limited
Mitsubishi UFJ Capital Co., Ltd.
MUFG Bank, Ltd.
Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
MIYAKO Capital Co., Ltd.
Meiji Yasuda Life Insurance Company
MedVenture Partners, Inc.
MORI Building co.,Ltd
Euglena SMBC Nikko Rivance Capital
Life Science Innovation Network Japan, Inc.
(Mitsui Fudosan Co., Ltd.)
Regus Japan
Recruit Management Solutions Co., Ltd.
Ricoh Company, Ltd.
Leave a Nest Co., Ltd.
Rheos Capital Works Inc.
ROHTO Pharmaceutical Co.,Ltd.
Loftwork Inc.

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経済産業省

Ministry of Economy, Trade and Industry; METI
Secretariat：New Business Creation Promotion Office, Economic and
Industrial Policy Bureau, METI
1-3-1 Kasumigaseki, Chiyoda-ku, Tokyo 100-8901
TEL : 03-3501-1569

JETRO

Secretariat : Innovation Promotion Section, Intellectual Property &
Innovation Promotion Division. JETRO

Ark Mori Building 6F, 1-12-32 Akasaka, Minato-ku, Tokyo 107-6006

TEL : 03-3582-5770

NEDO

Secretariat : Start-up Group, Innovation Promotion Department, NEDO

Muza Kawasaki Central Tower 20F, 1310 Omiya-cho, Sawai-ku, Kawasaki City,
Kanagawa 212-8554

TEL : 044-520-5173

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Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

経済産業省

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■ Kitami City, Hokkaido Prefecture

- Through **collaboration projects between companies participating in the "Furusato Network" and local industries, government, and academia, aim to revitalize local economies by creating ICT industries Originating in Kitami** using IoT.
- In the 2015 "Furusato Telework Promotion Project," a total of 180 persons from nine companies in Tokyo metropolitan area participated in telework.
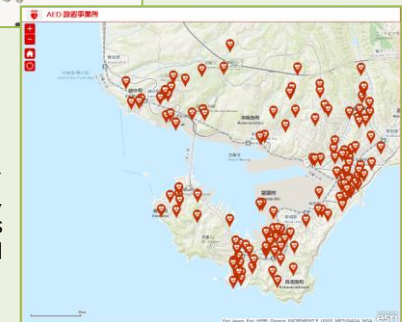 **Three companies opened satellite offices and entered partnership agreements for regional revitalization.**
- Examples of collaboration projects :
  ① Use of major industry **fishing industry × IoT (salmon/trout auctioning system, marine sensor, etc.)**
  ② **Winter sports × IoT (curling, Alpen ski, etc.)** with Kitami Institute of Technology
  Launched a research center specializing in winter sports. (World's first)
  ③ ICT personnel development
  ④ Business matching using tourism resources and ICT

- ・サケやマスのセリシステム
- ・マリンセンサーの開発
- アルペンスキー ・日本人に特化したスキー用具の開発など
- カーリング ・戦術支援システムの開発

■ Muroran City, Hokkaido Prefecture

- Aim to further develop regional solutions for problems using "open data" which the city is focusing efforts on.
  ① **"Improvement of public services" through linkage between Administrative data and GIS (geographical information system), etc.**
  ② **"Promote tourism" taking launch of ferry service with Miyako Iwate Prefecture, arrival of large cruise ships, etc. into port as good opportunities.**
  ③ Provide venues for learning and exchanging information to education organizations and private companies (Personnel development)
- Disclose "open data" which can be used for resolving regional issues, and review/expand cases of usage of **open data which can be expanded to other regions.**

←Check nearby evacuation areas
- Indoor/outdoor evacuation area
- Depth of flood
- Landslide disaster warning areas, etc.
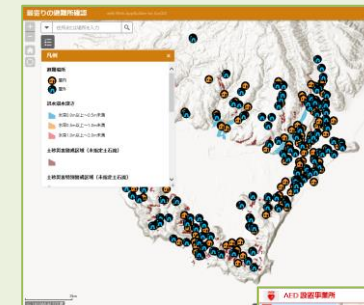
←Launch of passenger ferry connecting Miyako and Muroran once a day. Accommodates up to 600 persons. Cruise time is about 10 hours.

Offices installed with AED→
For referencing position, distance, route, and information of offices installed with AED near designated places.

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

経済産業省

■ Wakkanai City, Hokkaido Prefecture

- New efforts in **"Land cultivation" :**

  Japan's northernmost town Wakkanai City is facing a **decrease in catch in its "fishery industry", which is its core industry.**

  Wakkanai City is once again focusing on **"land cultivation"**, making use of its geographical advantages as its strengths such as continuous seawater irrigation of abundant seawater **by being surrounded by sea in three directions**, cost reductions during the summer due to the cool climate in the northernmost part of Japan.

- **Improvement of productivity of "Yuchi Imo" :**

  "Yuchi Imo" (potato) increases its sweetness when stored in "snow storage facilities" during the winter. The production volume is limited due to limited cultivation fields.

  Wakkanai City is thus aiming to **improve productivity** by using IoT **to collect and analyze information on "air and soil temperature control", "weather forecast", "disease", etc.**

↑Scenery of storage of "Yuchi Imo" during winter

■ Naganuma Town, Hokkaido Prefecture

Naganuma town is aiming to increase the number of guests through its "ideal location", "tourism resources", "renovated lodging facilities".

- Located within one hour by car from airport Shinchitose Airport and major city Sapporo, it serves as **an "ideal location" for touring guests such as cyclists and riders looking for accommodations** at the strategic traffic point where national highways 274 and 337 intersect.

- Main **"tourism resources"** include its **"red crowned cranes"** returning to the Maizuru pond, **"a town that is home to red crowned cranes"**, **"green tourism"** based on agriculture where farms make up about 70% of the town.

- The town also aims to convert used employee housing and teacher housing, etc. to **"renovated lodging facilities" and increase lodgings that are both convenient and inexpensive.**

- Through this, Naganuma Town aims to improve the present lodging rate of inbound, cyclists, riders, etc. by **5% to increase the number of lodging guests.**

↑"Green Tourism (Exchange of information on farm guest house experience)

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

経済産業省

■ Higashikawa Town, Hokkaido Prefecture

Revitalization of local industry and community centering around point cards.

- The IC point card system "Higashikawa Universal Card (HUC)" is installed by about 120 businesses in the town.
  Within one year from its launch, the card has grown into a regional card used by more than 10 000 people, most of whom are town residents.
- By collecting and analyzing data of consumption trends/facility usage trends, etc. which can be obtained from the use of the point card, the town aims to ① **revitalize business, ② improve living satisfaction, ③ optimize and improve business efficiency.**
- Furthermore, **by combining the products and services of member businesses, the creation of one-and-only original high added value businesses is aimed.** (Tourism combining dining and nature education).
- **Higashikawa Town also increased its population by about 16% in about 20 years** through various endeavors to revitalize the region such as its Shashin Koshien photography event, Japanese language school which is attended by about 200 students from overseas all year round, matching event participated by about 100 entrepreneurs, Higashikawa shareholder system (Furusato Nozei), etc.

↑Higashikawa Universal Card

↑"shareholders certificate"   ↑"HUC shareholders certificate"

■ Iwate Prefecture

- Iwate Prefecture supports the launch of projects **aiming to improve the productivity of** *monozukuri* **(manufacturing) companies collaborating with IT companies and using IoT, etc., and projects creating new products/services** through partnerships between different business sectors such as manufacturing, IT, agriculture, fishery, etc.

- It will accelerate project activities by holding **seminars and workshops, and dispatching specialists.**

Image of project

Enhancement of productivity by IoT and New Product Development Promotion Lab

Iwate Embedded Technologies Workshop/ Iwate Prefecture Information Service Industrial Association — Manufacturing companies — Iwate Smart Agriculture Promotion Workshop

Participation   Participation   Participation

University/Public research organization, etc.

Support

✔ Project launch
✔ Review of policies to use IoT, etc.

Precedent model (Review and implementation)
Manufacturing x IT···Enhancement of productivity
Manufacturing x IT x agriculture, etc. ···New product development

✔ Creation of precedent cases Horizontal expansion to SMEs in Iwate

Manufacturing companies   Farms, etc.

Secretariat (Iwate Prefecture)

✔ Project planning, excavation of possible partnerships , dissemination of information, and awareness raising

経済産業省

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■ Aomori Prefecture

- Although inbound tourists are increasing, Aomori Prefecture need to create mechanisms using IoT to increase repeaters and consumers. In the *monozukuri* (manufacturing) area, many companies have yet to develop products and services and expand new businesses using IoT.

- For this reason, in the tourism and *monozukuri* industry, the prefecture aims to support the creation of IoT businesses such as prototype development subsidies, demonstration projects, etc. and personnel development projects such as seminars and security training, etc.

① **Development of demonstration projects in tourism area**
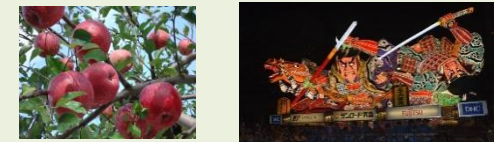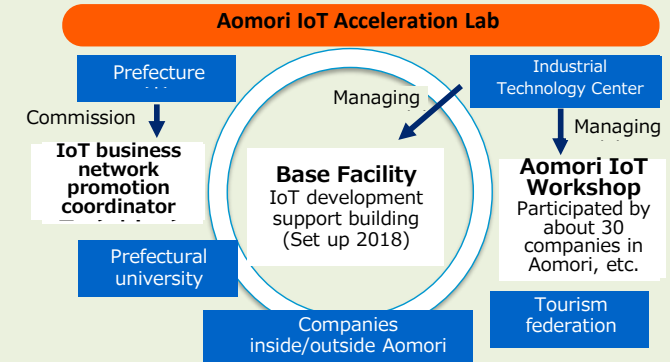(Multi-lingual, cashless demonstration projects with Aomori Prefecture as field)

② **Development of new products and services and new business expansion in *monozukuri* area**
(Support of companies in the prefecture involved in new businesses aiming to resolve regional issues, through industry-government-academia endeavors)

Aomori IoT Acceleration Lab

Prefecture

Commission

IoT business network promotion coordinator

Prefectural university

Managing

Base Facility
IoT development support building
(Set up 2018)

Companies inside/outside Aomori

Industrial Technology Center

Managing

Aomori IoT Workshop
Participated by about 30 companies in Aomori, etc.

Tourism federation

Source: Aomori Tourism Federation

■ Takizawa City, Iwate Prefecture

- Takizawa City is promoting development of **the Takizawa City IPU Innovation Park as the hub of IT related companies.**

- It plans to **provide company matching opportunities, industry-academia-government demonstration experiment fields, promote the accumulation of companies by improving IoT technical skills including children**, aiming at independence through industry-academia-government collaborations and resolving regional issues.

① Interchanges between industry, academia, and government and different industries as matching opportunities.

② Establish industry-academia-government R&D projects.

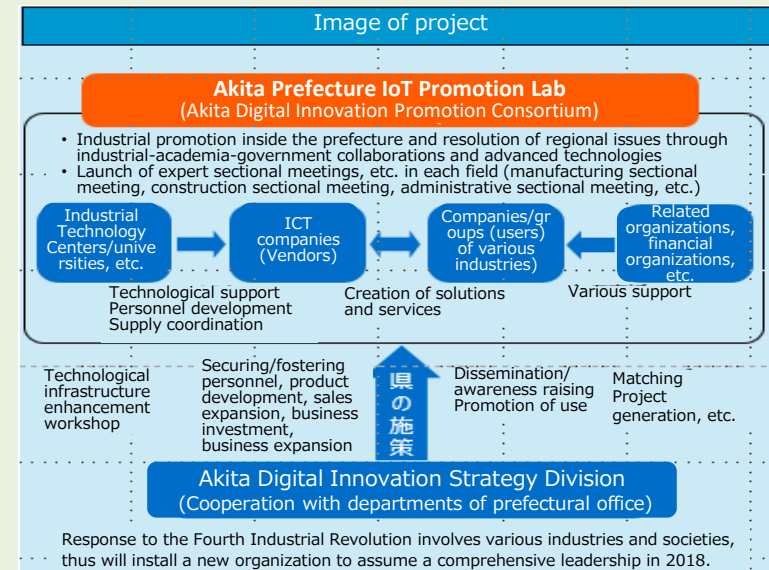③ Advanced engineer training, ET robot contest, children's programming classroom.

Takizawa City IPU Innovation Park

経済産業省

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■Akita Prefecture

- Akita Prefecture faces the problem of decreased production population in the areas of **manufacturing, construction industry, agriculture, forestry and fishery industry, medical care and welfare, etc. , and needs to drastically improve energy saving and productivity.**

- The Akita digital innovation promotion consortium based on industrial-government- academia collaboration, ① **Promote IoT awareness/implementation, ② Secure and foster ICT personnel, ③ Strengthen ICT companies, ④ Support IT industrial clusters and start up, ⑤ Support the use of ICT.**

Image of project

Akita Prefecture IoT Promotion Lab
(Akita Digital Innovation Promotion Consortium)

- Industrial promotion inside the prefecture and resolution of regional issues through industrial-academia-government collaborations and advanced technologies
- Launch of expert sectional meetings, etc. in each field (manufacturing sectional meeting, construction sectional meeting, administrative sectional meeting, etc.)

Industrial Technology Centers/universities, etc. → ICT companies (Vendors) ↔ Companies/groups (users) of various industries ← Related organizations, financial organizations, etc.

Technological support
Personnel development
Supply coordination

Creation of solutions and services

Various support

Technological infrastructure enhancement workshop

Securing/fostering personnel, product development, sales expansion, business investment, business expansion

県の施策

Dissemination/ awareness raising Promotion of use

Matching Project generation, etc.

Akita Digital Innovation Strategy Division
(Cooperation with departments of prefectural office)

Response to the Fourth Industrial Revolution involves various industries and societies, thus will install a new organization to assume a comprehensive leadership in 2018.

Akita SMEs Support Character "Gambakke-san"

■ Kashiwazaki City, Niigata Prefecture

- Making use of industrial infrastructure which has focused on the promotion of *monozukuri* (manufacturing) industry and information industry, **realize smart factories through cross-industry synergistic effects, and create new businesses.**

- By undertaking the next projects together with the government, *monozukuri* companies, information industry businesses, financial institutions, commerce organizations led by the Niigata Institute of Technology, inherit technology in the *monozukuri* industry and foster and secure IT personnel.

① Support *monozukuri* companies in the adoption of IoT and AI technologies.

② Demonstration experiments aiming at the overall optimization of the supply chain.

③ Fostering of personnel using IoT/AI and highly skilled IT personnel.

Smart Factory City in Kashiwazaki

経済産業省

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■ Nomi City, Ishikawa Prefecture

- Aim to construct a system where Nomi City companies can improve productivity by using IoT and diverse companies can work together and develop new business models.

- Aims to form industrial clusters such as IoT companies, etc. T the "Ishikawa Science Park" comprised by research organizations and support organizations led by Japan Advanced Institute of Science and Technology (JAIST).

① Hold innovation salons

② Ideathon using IoT/AL for resolving regional uses.

③ Hold programming classes for small, junior high, and senior high school students, and foster teachers of programming education for small, junior high, and senior high school teachers.

Ishikawa Science Park

■ Tochigi Prefecture

- Through the **"All Tochigi" system where diverse industrial, academia, and government organizations collaborate**, promote Industry 4.0 such as **IoT, etc., aiming to realize good circulation for the use and provision of IoT, etc. in the prefecture, and create innovative products and services.**

① Integrate, share, and provide information on endeavors related to IoT, etc.

② Promote adoption and utilization of IoT, etc.

③ Promote growth of industries supporting IoT, etc.

④ Establish projects on the use of IoT, etc. (Review and selection of regional issues by the prefectural cross-ministerial organization installed this year in the Tochigi Prefecture Information Promotion Headquarters "ICT Industrial Promotion Committee ")

VERY GOOD LOCAL とちぎ

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■ Yao City, Osaka Prefecture

- Although Yao City **is a hub of diverse production processes and technologies** in addition to toothbrush (top share), metal products, electronic equipment, etc., companies are positioned as subcontractors and **their recognition** is poor.

- Through the private sector collaboration local innovation promotion base "**Miseruba Yao**" (launched August 2018) Yao City aims to promote: ① space share, ② customer information (purchase record, etc.), share, ③ knowledge share of personnel at participating companies.

- Carry out fostering of creative personnel through IoT trials, and open up ideas and administrative information, **in the aim to become the reference model for a collaborative environment for regional companies.**

■ Maibara City, Shiga Prefecture

- Review the invitation and launch of **"AI agri-industry cluster base"** installing 100 "IoT Smart GreenHouse" as agri-business test beds.

- Promote the creation and invitation of "**businesses participating in advanced agri-business using AI/IoT technology**" and "**technical development startup ventures in related areas**" as the core of the base.

- By positioning as the base of regional policies of Maihara City, aim to resolve regional issues by policy related collaborations such as food and education and agriculture and welfare.
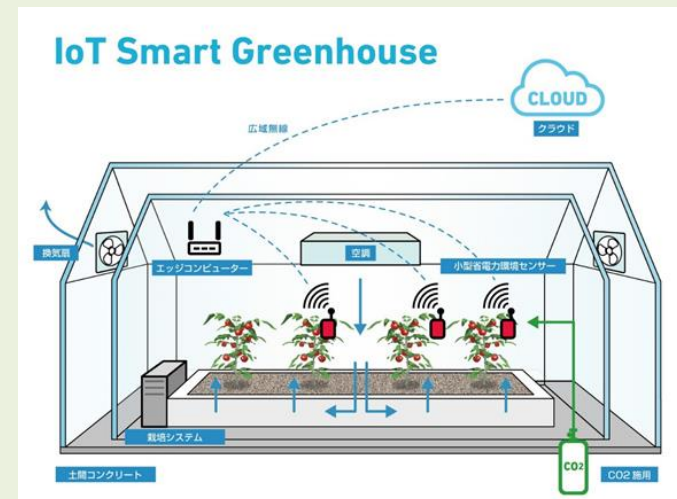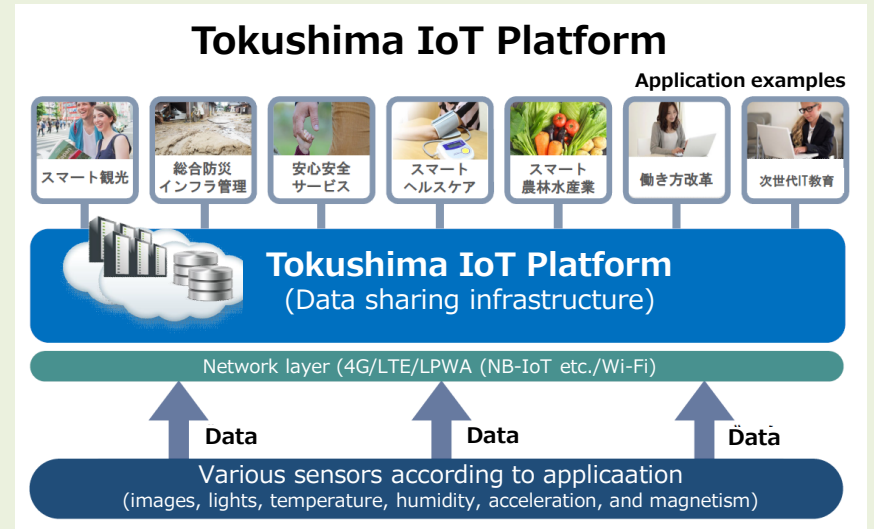
Illustration of testbed system　(Source : Yanmar website)

経済産業省

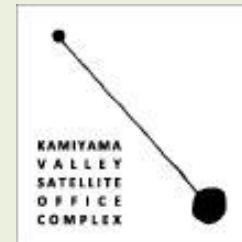# Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■ Tokushima Prefecture

- **Promote the "Tokushima Industrie 4.0" effort contributing to resolving regional tasks, activating regional economy, and improving services for prefectural residents by actively using new technologies such as IoT through the joint collaboration between industry, academia, and government.**

- Set up the data sharing infrastructure "**Tokushima IoT Platform", open use companies and universities in the prefecture to promote the creation of new "**IoT services".

  ① Match seeds and needs of efforts related to IoT, etc.
  ② Hold seminars and training on IoT, etc.
  ③ Gather and send out information on IoT, etc.
  ④ Establishment of network of members,   etc.

Tokushima IoT Platform

Application examples

スマート観光 | 総合防災インフラ管理 | 安心安全サービス | スマートヘルスケア | スマート農林水産業 | 働き方改革 | 次世代IT教育

Tokushima IoT Platform
(Data sharing infrastructure)

Network layer (4G/LTE/LPWA (NB-IoT etc./Wi-Fi)

Data   Data   Data

Various sensors according to applicaation
(images, lights, temperature, humidity, acceleration, and magnetism)

■ Kamiyama Town, Tokushima Prefecture

- By forming a joint government, private sector, regional collaboration consortium, and launching smart agriculture and forestry, **promote IoT business demonstration experiments for resolving regional issues such as animal damage countermeasures, problems related to elderly persons living alone, etc.**

- Use existing facilities (Kamiyama Valley Satellite Office Complex) and new facilities (JA Myozai District Kamibun Office site) as a base of operation.

- Aim to open regional bases to residents, create "Lab KAMIYAMA" projects, and **foster IoT personnel to lead business.**

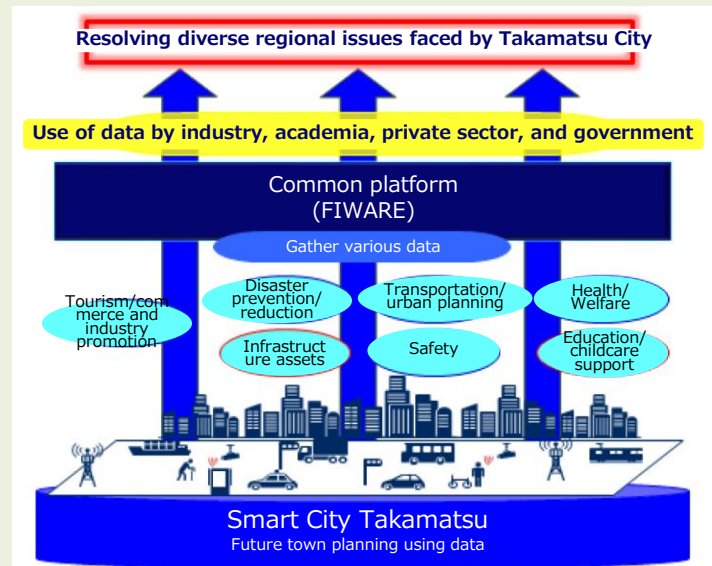KAMIYAMA VALLEY SATELLITE OFFICE COMPLEX

経済産業省

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

■ Takamatsu City. Kagawa Prefecture

- Resolve regional issues and reinvigorate the regional economy by **transforming Takamatsu City into a smart city by the use of public and private sector data on a common platform through collaboration between industry academia, private sector, and government.**

- Setup a working group for each theme inside the Smart City Takamatsu Council, and aim to launch the projects at the end of the installation.

  ◇ Example of Working Group (WG)

  - Promote traffic safety using big data (From February 2018)

  - Use of IoT in disaster response (From May 2018)

Resolving diverse regional issues faced by Takamatsu City

Use of data by industry, academia, private sector, and government

Common platform (FIWARE)

Gather various data

Tourism/commerce and industry promotion

Disaster prevention/reduction

Transportation/urban planning

Health/Welfare

Infrastructure assets

Safety

Education/childcare support

Smart City Takamatsu
Future town planning using data

■ Shimabara City, Nagasaki Prefecture

- Position the strength of the region which is **the primary industry – food manufacturing industry –** as the *"tabe" monozukuri* **(food manufacturing) industry", and create new industries by partnering with IoT related companies, adopting technologies, and business matching to improve income and increase employment.**

  ① Personnel education and exchange area

  In addition to current endeavors such as **"dispatch city government employees to IT companies", "Shimabara Joka Programming School",** "Regional ICT Club", support the **"IoT learning activities"** of high schools in the city.

  ② Business area

  Create new business with **the land cultivation demonstration project of "Geo Abalone" as a precedent case study and create new business.**

  ③ Others

  Window operations AI demonstration, provision of tourism contents using AI, drone school, etc.

Coordinate

Shimabara Chamber of Commerce
Ariyake Town Chamber of Commerce

Core industries

Business collaboration/matching
Creation of new business/high efficiency by IoT

基幹産業

"Tabe" monozukuri industry
(Business operators/companies, fishery association, agricultural association)

問題解決の場

IoT related companies inside and outside town

✓ Provide site data

Place for resolving issues

島原城下プログラミングスクール
Powered by Tech Kids School

Local IoT Acceleration Labs Outline of Fourth IoT Lab Selection

経済産業省

■ Okinawa City, Okinawa Prefecture

- Okinawa City aims to **set up a one-stop liaison for supporting those wishing to start business with Startup Café Koza as the base**. **It plans to produce personnel and companies which can drive the regional economy, link this to the inflow of human resources from outside, corporate relocations, and stimulation of private investments, in the aim to construct ecosystems.**
- Case Study of START UP CAFE KOZA:
  ① START UP CAFE KOZA: **Inquiry counter to support those who seek to start an enterprise**. Equipped with free coworking space.
  ② KOZA Shore Studio: Coworking space for paying members. **Programming school** available
  ③ OKINAWA MIRAI FACTORY: **FAB space** (3D printer, laser, cutter, etc.)
- Over the two years, about 200 budding programmers visited the CAFE. It has achieved good results, including about 20,000 users per year and about 50 cases of successful establishment of a business. For the future, **taking advantage of geographical advantage as the center of Asia, the Lab aims to expand the efforts and cooperation in and out of Japan**.

Local IoT Acceleration Labs Portal Site
https://local-iot-lab.ipa.go.jp/

Connected Industries and IoT Related Budget, etc.
(Main part of 2019 Budget Request Draft)

- Contents -

1. Promotion of Connected Industries

2. Enhancement of Startup Ecosystem Led by J-Startup

3. Others

Global SaaS Development Project for Promoting Connected Industries

2019 Budget Requested 4.03 billion yen (New)

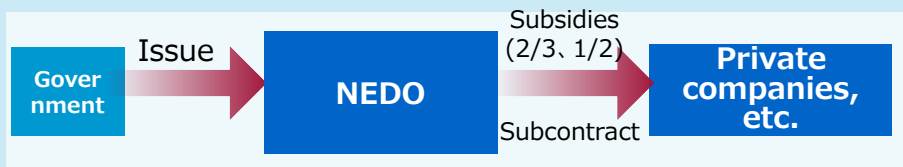| Details of Project	Image of Project

Details of Project

Aim/Outline of Project

- The main battlefield of the global competition surrounding data is changing from business using virtual data to that using real data. Here, it is important to use the quality data of the site which is a strength of Japan. By linking machine, technology, and people through data, it is important to realize "Connected Industries" aiming to create new added values and resolve social problems.

- This project aims to expand collaboration areas by enabling many business operators to share data, and apply the data by using cutting edge technologies such as AI, etc. to develop new services, and construct an environment where the development is carried out continuously.

- Specifically, promote the increase in collaboration areas by supporting the full-scale development of a data sharing platform between business operators, and at the same time, support the development of AI system (global SaaS) whose data, etc. allows it to be used universally, and which has international competitive strength.

Achievement goal

- Aim at efforts for more than two global SaaS developed in five priority areas of Connected Industries by 2021.

Conditions (Subject, target action, subsidy rate, etc.)

Government — Issue → NEDO — Subsidies (2/3、1/2) / Subcontract → Private companies, etc.

Image of Project

Data sharing platform construction project

- Construction of data sharing platform for important area of Connected Industries
- Collaborations related to data platforms aimed at global collaborations

Global SaaS development project

- Creation of trans-industry AI system (Participation of diverse users including AI ventures)

Realization of "positive growth cycle of AI/data) where increase in shared data enables advanced service development, resulting in further increase in collaboration areas.

Increase in used data volume
Increase in collaboration areas

AI/data positive growth cycle

Development of trans-industry AI system (Global AI SaaS) using cutting edge AI technology

Development of trans-industry AI system

Global AI SaaS

Overseas expansion

AI

Data

Full-scale establishment of industry shared data infrastructure Linkage with AI SaaS

Industry shared data infrastructure

Real data (Company A) Real data (Company B) ...

Overseas data PF

Other industry PF

2

R&D and Demonstration Project Costs for Implementation of Advanced Automated Driving System in Society

2019 Budget Request Draft 5.50 billion yen (3.50 billion yen)

Details of Project

Aim/Outline of Project

- From the standpoint of responding to environment and energy restrictions, expectations towards energy saving by the spread of automated driving, a new endeavor, are growing in the transportation sector which makes about 20% of the CO_2 emissions in Japan.

- On the other hand, there exist problems in the evaluation of safety and business environment, etc. requiring the collaboration of industry, academia, and government for the implementation of the advanced automated driving system in society.

- In this project, related ministries will work together to conduct the research and development of safety evaluation techniques from the viewpoint of safety, social acceptance, and economic viability, as well as based on international trends, and be the first in the world to develop the technologies (technology for following cars to follow preceding cars, remote control and monitoring technologies, etc.) required for social implementation through the demonstration of advanced automated driving system.

Achievement goal

- In the 5-year project from 2016 to 2020, safety evaluation technologies required for the implementation of advanced self-driving systems in society will be developed and the business environment, etc. established through demonstration projects, etc. including the use of public roads.

- The truck convoy driving technology will be developed by 2020, aiming to save energy by more than 10% per vehicle.

Conditions (Subject, target action, subsidy rate, etc.)

Government → Subcontract → Private companies, etc.

Image of Project

Image of demonstration of advanced automated driving system (Example)

[Truck convoy driving]
Using the electronic linkage system (system which enables cars to follow cars in front of them using communication sensors and without the need for physical traction) unmanned convoy driving of the second following vehicle onwards will be demonstrated.

Highway, etc.

Manned

Unmanned

Unmanned
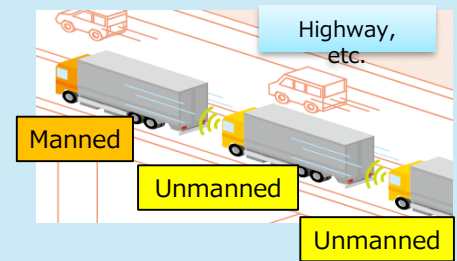
[Controlled automated driving]
Under specific conditions (road, carpark, speed, environment, etc.), the automated driving of cars is verified by the monitoring of the peripheral situation of cars and behavior of cars by operators at remote control centers.

①The user (elderly person, etc.) calls an unmanned self-driving car and gets on the car.

Remote control/monitoring

②Unmanned self-driving

Control center

④The unmanned self-driving car goes back automatically.

③The user gets off the car at the final destination (home, etc.).

Final destination (Home, etc.)
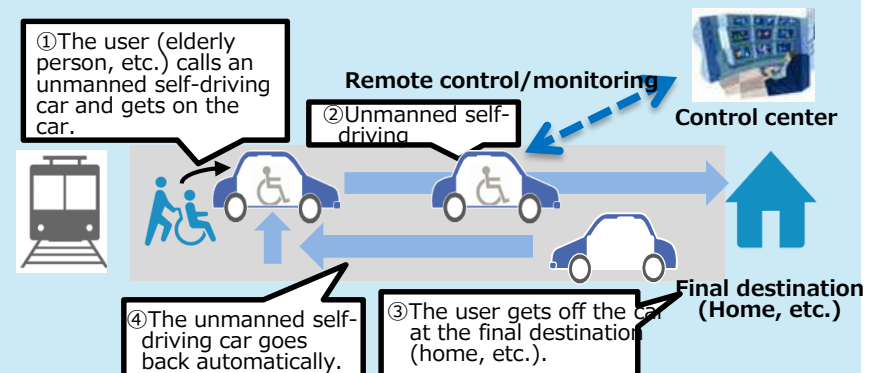
Next Generation AI /Robot Core Technology Development

2019 Budget Requested **6.20 billion yen (5.69 billion yen)**

Details of Project

Aim/Outline of Project

- Aiming to use artificial intelligence technology to resolve social issues, conduct R&D combining technologies required for applying AI in real spaces, such as AI technologies, and technologies of sensors and actuation for robots to work flexibly.

- In addition, also carry out the development of AI infrastructure technologies for implementing AI in manufacturing technologies, etc., Japan's strength, such as research and development to enable AI which has an unclear thinking process to be able to "explain", and research and development to ensure safety when mounting AI to various equipment such as robots.

- Furthermore, in the priority fields described in Artificial Intelligence Technology Strategies, carry out large-scale research and development through industry-academia-government collaborations aiming to implement the achievements of R&D in society through the fusion of AI technology and robot technology.

Achievement goal

- Using more than six out of all patents applied for this research and development, aim at the research and development of six robots mounting next generation artificial intelligence (2020 target), as well as aim to acquire patents on more than three AI infrastructure technologies with which Japan can demonstrate its strengths using these achievements (2023 target).

- Aim to implement more than three AI technologies in society including the practical application of more than two types of robots mounting next general AI in the three priority fields "productivity", "health, medical care, nursing", and "spatial transfer" given in Artificial Intelligence Technology Strategies (2023 target).
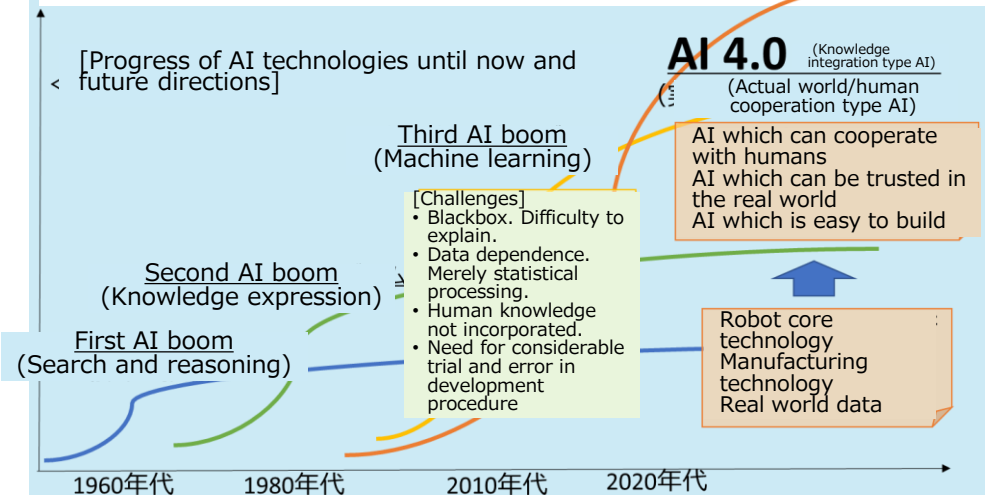
Conditions (Subject, target action, subsidy rate, etc.)

Government → Grant → NEDO → Subcontract → Private companies/universities, etc.

Image of Project

(1) Artificial Intelligence/Robot Technology Development

- Fusion of AI and robot
  - AI that can respond flexibly according to the situation
  - Super-sensing exceeding human senses (vision, smell, etc.)
  - Self planning technology of robot operations realizing labor saving for teaching.
- AI infrastructure technology, an area in which Japan can demonstrate its strength.
  - Sophisticated data available at the manufacturing scene, AI using knowledge only available at the manufacturing scene data/knowledge fusion type AI)
  - Safety evaluation technology of equipment mounting AI

[Progress of AI technologies until now and future directions]

AI 4.0 (Knowledge integration type AI)
(Actual world/human cooperation type AI)

Third AI boom (Machine learning)

AI which can cooperate with humans
AI which can be trusted in the real world
AI which is easy to build

[Challenges]
- Blackbox. Difficulty to explain.
- Data dependence. Merely statistical processing.
- Human knowledge not incorporated.
- Need for considerable trial and error in development procedure

Second AI boom (Knowledge expression)

First AI boom (Search and reasoning)

Robot core technology
Manufacturing technology
Real world data

1960年代   1980年代   2010年代   2020年代

(2) Large-scale R&D through collaboration between industry, academia, and government aiming to implement IoT in society.

- R&D aiming to implement IoT in society in the three priority fields "productivity", "health, medical care, nursing", and "spatial transfer" given in Artificial Intelligence Technology Strategies.
- Carry out cutting edge research aiming to socially implement the achievements of R&D by fusing intelligence technology and robot technology.

4

High Functional Product Production Technology Using Living Things such as Plants, etc.

-Innovation of production technologies in decarbonized age resulting from fusion between bio and digital -

2019 Budget Requested 3.00 billion yen (2.40 billion yen)

Details of Project

Aim/Outline of Project

- In recent years, production technologies of highly functional products (functional materials, etc.) using living things such as plants and microorganisms, etc. are capable of producing substances using less energy and at low costs compared to chemical synthesis, and are thus drawing attention for being able to produce raw materials which can replace fossil resources. The global market scale is expected to expand to 200 trillion yen in 2030. (OECD, 2009)

- In the development of high efficiency production technologies of these highly functional products, it is indispensable to construct infrastructure technologies unique to Japan by integrating biology information, rational bio functional design based on biological information (genome/metabolism functional design on computer), high efficiency genome editing technologies tor changing cell functions (technology to correct genome information), and large-scale DNA synthesis technology adding new functions to cells (technology for adding genome information).

- This project aims to secure the competitive strength of Japanese companies by developing technologies required and establishing the platform accumulating bio manufacturing production technologies.

Achievement goal

- This is a 5-year project from 2016 to 2020. It aims to contribute to realizing an energy-saving society by establishing the infrastructure for overwhelmingly low costs bio-manufacturing compared to chemical synthesis.(Aim at energy saving of 858000 kl/year according to the prospects for 2030.)
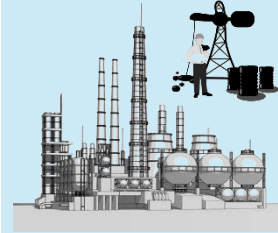
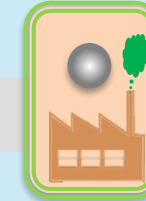#### Conditions (Subject, target action, subsidy rate, etc.)

Subcontract/subsidy (Large company ½ subsidy, small and medium company 2/3 subsidy)

Grant

Government → NEDO → Universities/ private companies, etc.
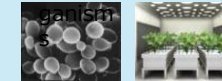
Image of Project

Conventional production process
・Use of fossil resources
・High energy consumption
・Not sustainable
→Mass production/mass consumption society

Creation of smartcell production plant

Microorganisms   Plant

Creation of new values

Bieconomy creation and realization of carbon cycle society

General chemicals (raw material)   **Bioplastic**

Production of substances from recyclable materials

Low cost/energy saving substances   **Useful protein**

Production of high functional products from living things   **Function substances for food**

Pharmaceutical intermediates

Acquisition of information for enhancing production efficiency and development of infrastructure technologies

Accumulation of biological information
Acquire/accumulate large-scale data such as genome information from diverse industrial producing strain of companies, etc.

Product information

ATGCCTGAGCATGCCTGAG CTAGCATAGATGCCTGAGC TAGCACAATGCTTGAGCTA GCA······

Producing strain   Database

Rational biofunction design technology based on biological information
High production smart cell design based on genome /metabolism function design on computer.

Domestic genome editing technology
Development of technologies that selectively modify (edit) specific genome information

PPR motif

Long chain DNA synthesis technology
Development of long chain DNA synthesis technology for adding new functions to cells

Establishment of smartcell integration platform for realizing production

Plant production
Establishment of production technologies using development infrastructure technology and plant factory

Organism production
Construction of total system fusing development infrastructure technology

Verification and sophistication of development tools and systems through practical target production.

Using information technologies and highly efficient genome editing technologies, etc. create energy-saving bio industries producing highly functional products using living things.

Technological Development Project of Advanced Functional Materials by Computational Science

2019 Budget Requested 2.75 billion yen (2.65 billion yen)

Details of Project

Aim/Outline of Project

- In the past, the development of functional materials ※、was carried out over a long period of time by building up hypothesis based on "experience and instinct" taking into account accumulated experience and evaluation data of the structure and properties of many materials and reaction paths, etc. of catalysts. and repeating this to validate data based on experiments.
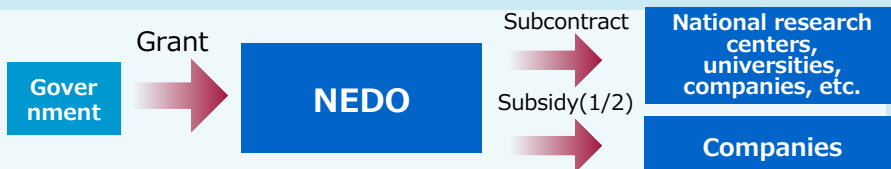
  ※Materials with outstanding chemical functions and electrical functions such as insulation materials and catalysts, etc.

- This project aims to construct innovative material development systems applying computational science of advanced AI, etc., high speed trial production and innovative process technology, and advanced measurement evaluation technology, as well as to innovate material development processes until now by developing technologies for enabling AI to lean material data such as well known papers and patents, etc.

- Aim to realize energy-saving by dramatically reducing the development time of functional materials with high energy-saving performance (reduce number of trial productions /development time to less than 1/20) to realize energy saving.

Achievement goal

- This is a 6-year project from 2016 to 2021, aiming to save energy (crude oil approx. 1270000 kL/year) by drastically reducing development time (reduce number of trial productions /development time to less than 1/20) and save energy (crude oil approx. 1260000 kL/year) by introducing innovative functional materials in 2030.

Conditions (Subject, target action, subsidy rate, etc.)

Government → Grant → NEDO → Subcontract → National research centers, universities, companies, etc.

NEDO → Subsidy(1/2) → Companies

Image of Project

- By carrying out the project through intensive research based on industry-academia-government collaboration, aim to sharply reduce the R&D period of this project.

Computational science (AI, etc.)
Simulation design

Process technology
High speed prototyping

Cutting edge measurement
Cutting edge nano measurement

Material data structured technology
Text mining, etc. Image recognition software, etc.

Establishment of system
Linkage of design/process technologies, evaluation technologies, etc.

Development of technologies enabling AI to lean material data

Large material data

Development of materials using AI
Composition/structure ⇔ Function

Dramatically reduces development time

(E.g.)
Anti-vibration/soundproof materials for realizing dramatic lightweightness

Flexible transparent insulation sheet for sharply enhancing insulation

Creation of innovative functional materials

6

J-Startup Global Startup Ecosystem Enhancement Project
2019 Budget Requested 3.00 billion yen (2.40 billion yen)

Details of Project

Aim/Outline of Project

- To realize Society5.0, startup companies contributing to innovation are an importance presence. However, there are still very few unicorn companies that are born in Japan (companies exceeding 1 billion dollars in market capitalization less than 10 years old since their founding). Around the world, startup ecosystem competition is intensifying between countries and regions such as not only the mecca of innovation Silicon Valley, but only France which is advancing into various countries under the slogan "French Tech", Israel which is called the "Silicon Valley of the Middle East" and China's Shenzhen which is comparable to Silicon Valley.

- Moving forward, the urgent task would be to strengthen the startup ecosystem (mechanism which spontaneously and continuously produces entrepreneurs, startup ventures, and innovation ventures capable of producing impact globally to enhance the international competitive strength of Japan in the fourth industrial revolution, and create startup ventures that can win in the world one after the other.

- In this project, the need of companies participating in J-Startup will be accurately identified, and support suitable for each phase provided to promote their growth into unicorn companies. In addition, in the aim to create unicorn companies, support will also be provided to foster innovators capable of global activities, and quantify manufacturing related startup companies, in order to strengthen the layer of players serving as the infrastructure of the startup ecosystem.

  *J-Startup is an endeavor where the government and private sector jointly provide intensive support to startup companies capable of global activities.

Achievement goal

（1）By 2023, create 20 non-listed companies (unicorn companies) with market capitalization of more than 1 billion dollars or listed companies that are less than 10 years old since their founding as of the beginning of 2018 (including those that have not been established).

（2）Aim to support 300 overseas expansion endeavors.

Conditions (Subject, target action, subsidy rate, etc.)

```
Government  --Grant-->        Independent          --Subcontract, etc.-->  Private companies, etc.
                             Administrative
                             Institutions, etc

Government  --Subcontract-->  Private companies, etc.

Government  --Subsidy(10/10)-->  Private          --Subsidy 2/3-->  Private companies, etc.
                                 organizations
```

Image of Project

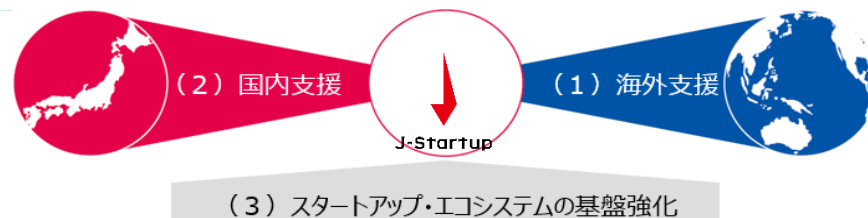### (1) Support to J-Startup companies overseas

- Support J-Startup companies, etc. in their participation in overseas startup events, as well as continuously provide support according to needs in hubs installed in Japan and 10 countries, (matching and mentoring, etc. of local networks). At that time, work with overseas companies and startups, to further enhance global startup ecosystems.

(2) Support to J-Startup companies in Japan

- To construct the system for providing thorough support to J-Startup companies, etc. form a "J-Startup" consortium where VCs and support organizations in Japan, local municipals, and universities/research organizations work together and construct a system which allows hands-on support of strategic PR and marketing, etc.

- In particular, carry out projects together with business operators to support the quantification, design, and trial production related to manufacturing, Japan's strength, and support manufacturing related J-Startup companies, etc.

- For startup companies aiming to resolve social issues around the world, identify the areas where Japan can demonstrate its superiority, as well as consistently support the formation of local rules and creation of business, to accelerate innovation in SDGs areas.

(3) Strengthening the infrastructure of startup ecosystems

- Foster innovators who can build globally active business models from the start of the startup, and reinforce the startup ecosystem infrastructure.

- Carry out surveys for promoting the use of various policies and measuring effects, to establish the environment for promoting the growth of startup companies.

（2）国内支援　　J-Startup　　（1）海外支援

（3）スタートアップ・エコシステムの基盤強化

Academia-Industry Cooperation Promotion Division,
Economic and Industrial Policy Bureau
03-3501-1778
Industry-University Collaboration Office
Economic and Industrial Policy Bureau
03-3501-0075

J-Startup R&D Type Startup Support Project

2019 Budget Requested 2.90 billion yen (1.70 billion yen)

Details of Project

Aim/Outline of Project

- To realize Society5.0, startup companies contributing to innovation are an importance presence. In particular, since R&D type startups are able to build a technically predominant position through speedy and bold research and development, they are expected to serve as the leaders of technological innovation. For this reason, it is important to prepare the environment for their establishment and growth.

- However, the environment surrounding R&D type startups continues to be tough in terms of the length of time required for R&D, difficulty in procuring funds, little accumulation of knowhow for success, etc., and the ecosystem where spontaneous /continuous creation and growth can be repeated has not yet neem created.

- For this reason, this project aims to construct an ecosystem for supporting R&D type startups capable of rapid growth which may be selected as J-Startups (*) companies in the future, from the startup stage by acquiring the commitment of related parties.

- Specifically, provide support in terms of costs related to development for practical applied to R&D startups with the potential for growth through NEDO on condition that cooperation will be provided by support personnel, venture capital, research organizations, and business companies, etc.

Achievement goal

(1) 50% of the startups succeed in procuring funds for the next stage within one year from the end of support each business year.

(2) Compared to before NEDO started this project, doubling of investments by certified VCs in R&D type startups.

Conditions (Subject, target action, subsidy rate, etc.)

Government — Grant → NEDO — Subsidy → Private companies, etc.
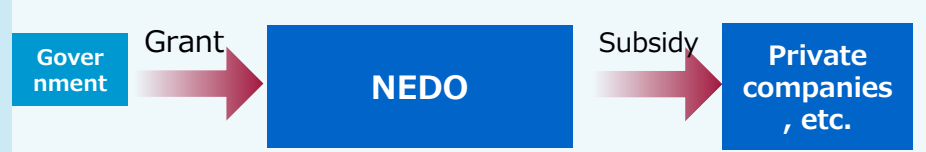
Image of Project
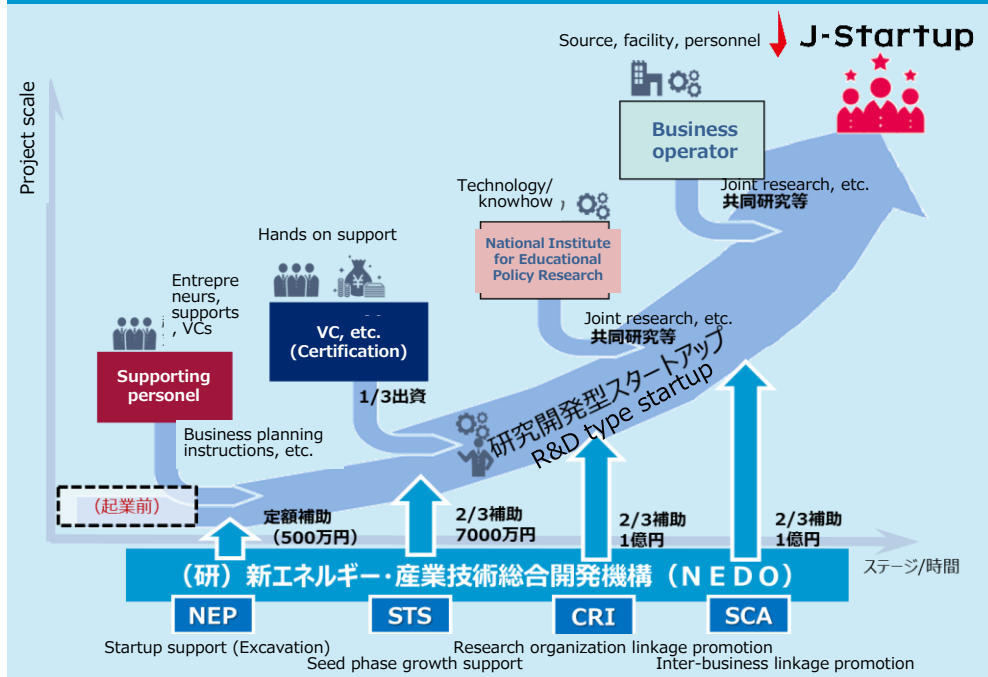
- NEDO publicly recruits venture capital for supporting R&D type startups in the seed phase and certifies them (certified VCs).

- Of the R&D type startups receiving funds from certified VCs, select those that are progressive in terms of technology and business, and provide the following support to them.
  - Advice on business startup from specialists an certified VCs
  - Subsidies such as development expenses for practical application, joint research expenses, etc.
  - Provide the venue for effectively spreading and using the above support, etc.

※J-Startup is an endeavor where the government and private sector jointly provide intensive support to startup companies capable of global activities.

8

J-Startup

Medical-Engineering Collaboration Business Promotion Project

2019 Budget Requested 3.75 billion yen (3.04 billion yen)

Details of Project

Aim/Outline of Project

- Aim at the development and commercialization of medical devices making use of Japan's worldclass "manufacturing devices", as well as promote the new market entry of backbone companies with technical skills, small and medium companies and ventures, etc., collaborations with medical organizations (medical-engineering collaborations), and revitalize the medical device industry in Japan and enhance the quality of medical care.

- Regarding medical devices for responding to the needs of the medical scene, support the development and commercialization of these medical devices through collaborations with medical organizations, etc. making use of the advanced manufacturing technologies of Japan, and promote the optimization of medical costs by expanding and acquiring domestic and overseas markets, and using the developed medical devices.

- Through the "Medical Device Development Support Network" run jointly by the Ministry of Education, Ministry of Health, and related organizations, etc., provide continuous support from the start of development to commercialization by face-to-face consultations by expert consultants, and promote new entry by other businesses into the market and promote early commercialization.

Achievement goal

- Started in 2014, this project aims to market 100 medical devices developed by project members, and to expand the medical device market to 3.2 trillion yen.

Conditions (Subject, target action, subsidy rate, etc.)

Subsidy (Fixed amount) → Subsidy (2/3)

Government → **Medical research development organizations** → **Private companies, etc.**

Subcontract

Image of Project

《Medical device development and commercialization support》

■Support the development and commercialization of medical devices according to the needs *omonozukuri*f the medical scene through a consortium of small and medium sized (manufacturing) companies, medical organizations, etc.
- Upper limit of subsidized costs: 80 million yen/year
- Subsidy rate : 2/3, project duration: Maximum 3 years
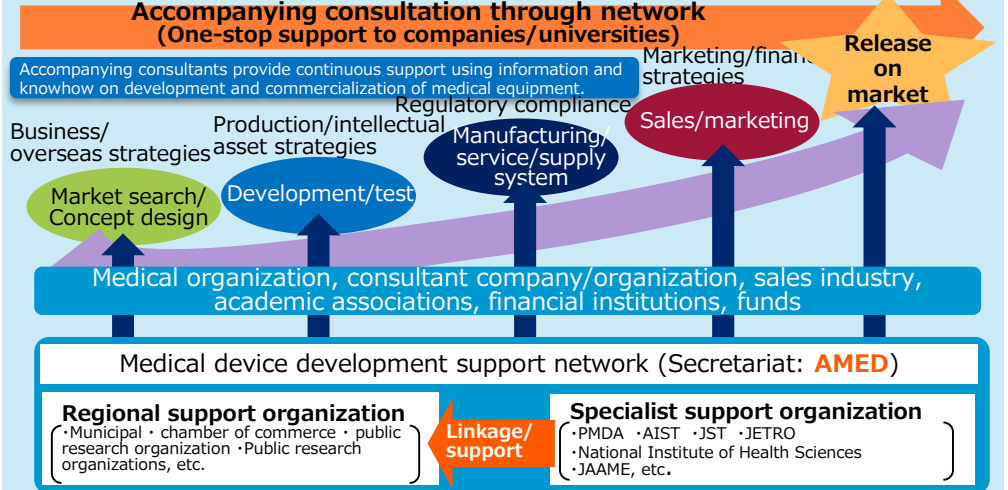
Example of commercialization
(Thoracicoabdominal fluid filtration concentrator)

- Business operators are manufacturers of industrial machines entering medical device field.
- Collaborate with medical organizations from the beginning of development to develop machine capable of processing thoracicoadominal fluid generated due to cancer and liver cirrhosis, and acquire approval for manufacturing and sales, and release to market.

※Planning to increase upper limit of expenses to be subsidized in the year the trial study is carried out.
■To promote the participation of ventures support early stage efforts (conceptualization, etc.) for which support by VCs is difficult.
・Business scale: 15 million yen/venture（Subcontract）Project duration: 1 year

《Construction of medical device development support network system》

Accompanying consultation through network
(One-stop support to companies/universities)

Accompanying consultants provide continuous support using information and knowhow on development and commercialization of medical equipment.

Release on market

Business/overseas strategies — Market search/Concept design — Development/test — Production/intellectual asset strategies — Manufacturing/service/supply system — Regulatory compliance — Sales/marketing — Marketing/finan. strategies

Medical organization, consultant company/organization, sales industry, academic associations, financial institutions, funds

Medical device development support network (Secretariat: **AMED**)

Regional support organization
・Municipal ・chamber of commerce ・public research organization ・Public research organizations, etc.

Linkage/support

Specialist support organization
・PMDA ・AIST ・JST ・JETRO
・National Institute of Health Sciences
・JAAME, etc.

* Some J−Startup Recommendation Committee members will provide advise as accompanying consultants.

9

Realization Project of Energy Saving Society Using Robots/Drones

2019 Budget Requested 3.80 billion yen (3.22 billion yen)
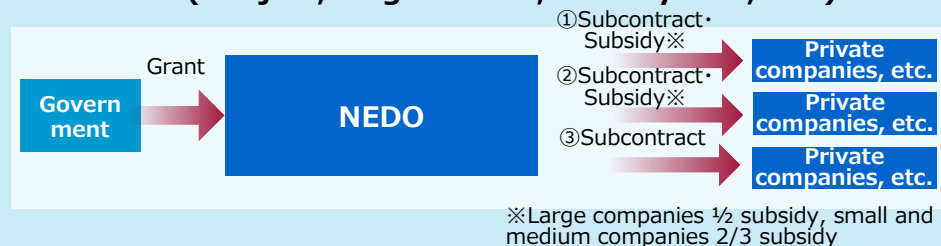
Details of Project

Aim/Outline of Project

- ➢ In small transportations, drones which carry out immediate deliveries in place of trucks with low load rate, and reduce energy waste by reducing redelivery rate.
- ➢ Robots/drones that extend the long-life of existing infrastructures, and support inspection work to reduce rebuilding which consumes large amounts of resources and energy.
- For this reason, this project will draw up standards and develop systems for quantitatively evaluating the functions of robots and drones which can be used in distribution and infrastructure inspection, etc. in order to be the first in the world to implement them in society.
- The following are examples of robot/drone activities anticipated for realizing energy saving in the areas of distribution and infrastructure inspection.
- In addition, by aiming at international standardization of robot and drone technology and systems developed in Japan, contribute to energy saving in the world, and realize market creation and expansion of energy saving products and systems from Japan.

Achievement goal

- This is a 5-year project from 2017 to 2021, aiming to establish the business environment for socially implementing robots and drones through verifications, etc. using the Fukushima Robot Test Field, etc., and acquire international standards.

Conditions (Subject, target action, subsidy rate, etc.)

Government —Grant→ NEDO

①Subcontract・Subsidy※ → Private companies, etc.
②Subcontract・Subsidy※ → Private companies, etc.
③Subcontract → Private companies, etc.

※Large companies ½ subsidy, small and medium companies 2/3 subsidy

Image of Project

① Development of performance evaluation standards, etc.

Develop the standards for evaluating the performance of drones that autonomously fly outside the visual field or third party air spaces, and energy saving technologies of drones satisfying these standards.
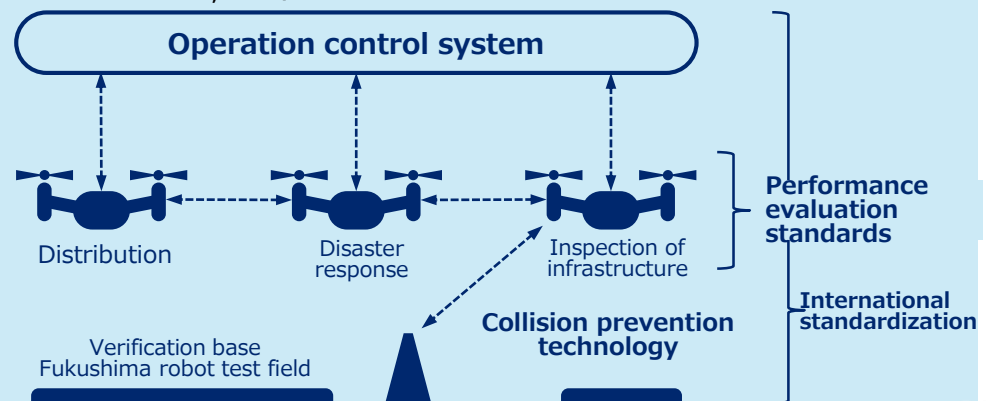
② Development of operating control and collision prevention technologies

To implement drones that autonomously fly outside the visual field or third party air spaces in society, develop systems for controlling the operations of countless drones flying in the same air space, develop technologies for preventing collisions with other objects and buildings on land, and demonstrate distribution using quasi-zenith satellite system.

③ Promotion of international standardization

For drones for which standards have yet to be established, identify standardization trends in Europe and the U.S., promote participation in similar activities, and link the above development results to international standards.

For robots whose technological development speed is fast and hold the key to the acquisition of defacto standards, gather the latest technologies of the world in Japan, and build mechanisms for accelerating development riles according to Japanese rules. (World Robot Summit, etc.)

Operation control system

Distribution   Disaster response   Inspection of infrastructure

Performance evaluation standards

International standardization

Verification base Fukushima robot test field

Collision prevention technology

10

Open and Free Government Satellite Data Establishment, Data Usage Environment Development, and Data Usage Promotion Project Costs

2019 Budget Requested **1.35 billion yen (1.20 billion yen)**

Details of Project

Aim/Outline of Project

- Currently, the space industry is at a turning point, and while space data quality and volume are dramatically improving, it is hoped that various data will be combined as part of big data to provide solutions for issues related to farming, infrastructure, finance, etc.

- On the other hand, the data of earth observation satellites operated by the government is not made open on platforms that can be used by industrial users. In addition, given the demands for highly specialized costly facilities and software for processing satellite data, use of data in the industry is limited.

- For this reason, this project aims to make government satellite data open and free, and develop a data platform capable of using AI and image analysis software, etc. In addition, in order to promote the use of space data and promote the creation of business by new application development, verifications will be carried out for the development of new applications integrating satellite data and other data by increasing the opportunities to learn skills for using satellite data and by using this platform. As a result, this will help realize the environment where private companies and universities, etc. can use satellite data and positioning satellite services easily.
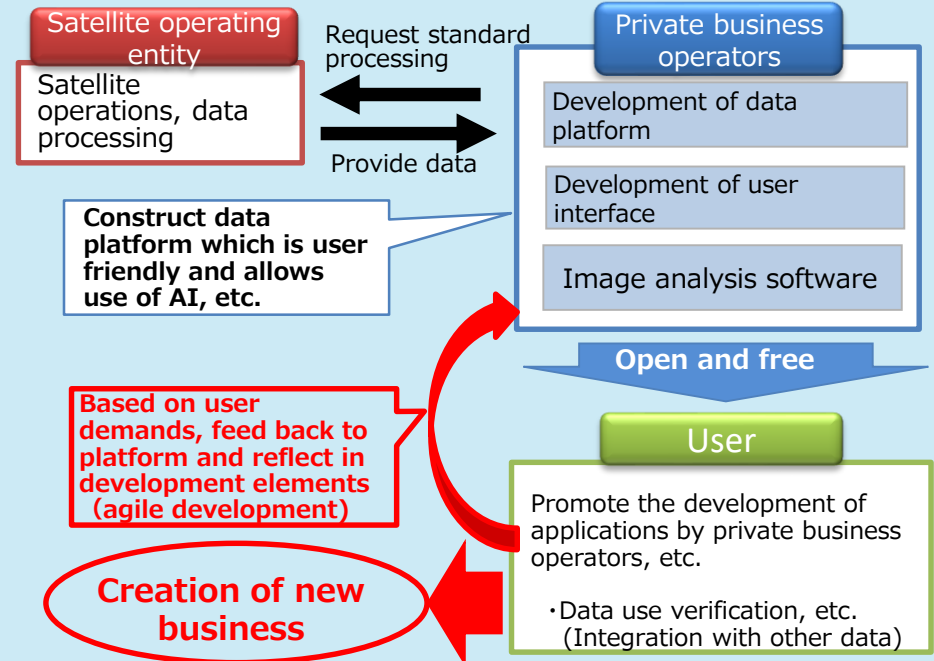
Achievement goal

- This 3-year project from 2018 to 2020 aims at the registration of 500 users in the data platform eventually.

Conditions (Subject, target action, subsidy rate, etc.)

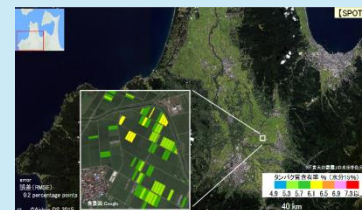Government — Subcontract → Private business operators, etc.

Image of Project

Flow of development/use of data platform

Satellite operating entity
Satellite operations, data processing

Request standard processing
Provide data

Private business operators
- Development of data platform
- Development of user interface
- Image analysis software

Construct data platform which is user friendly and allows use of AI, etc.

Open and free

Based on user demands, feed back to platform and reflect in development elements (agile development)

User
Promote the development of applications by private business operators, etc.
・Data use verification, etc. (Integration with other data)

Creation of new business

Example of use of satellite data

[Agriculture, forestry, and fishery]
In Aomori Prefecture, satellite data is used to enhance rice cultivation efficiency

[Futures transaction investment information service >
U.S. companies estimate the petroleum storage amount of oil tanks in the world using satellite data.

（出典：地方独立行政法人青森県産業技術センター資料より引用
（2017年9月宇宙産業シンポジウム））

(Resource: Orbital Insight website)

Innovation Promotion Project for Accelerating AI Chip Development

2019 Budget Requested 1.78 billion yen (0.80 billion yen)

Details of Project

Aim/Outline of Project

● To efficiently process the rapidly increasing information with the arrival of the IoT society, the importance of edge computing for processing main information at the edge of the network is talked about. In edge computing, high performance AI chips is indispensable for realizing compact and energy-saving AI processing.

● Amongst Japanese venture companies, there exist innovation seeds for creating new businesses such as the accumulation of chip technology, etc. However, in order to develop AI chips that are competitive, there is a need for information on both the software and hardware, as well as costly design tools and verification machines, etc.These pose as high hurdles in the development of AI chips and their commercialization.

● This project aims to put to practical application ideas on AI chips of private companies, etc. by providing the development environment for design tools required for development, common infrastructure technologies developed by universities and research organizations, information and knowhow, etc. required ofr development, to accelerate the development of AI chips by private companies, etc. and realize innovation.
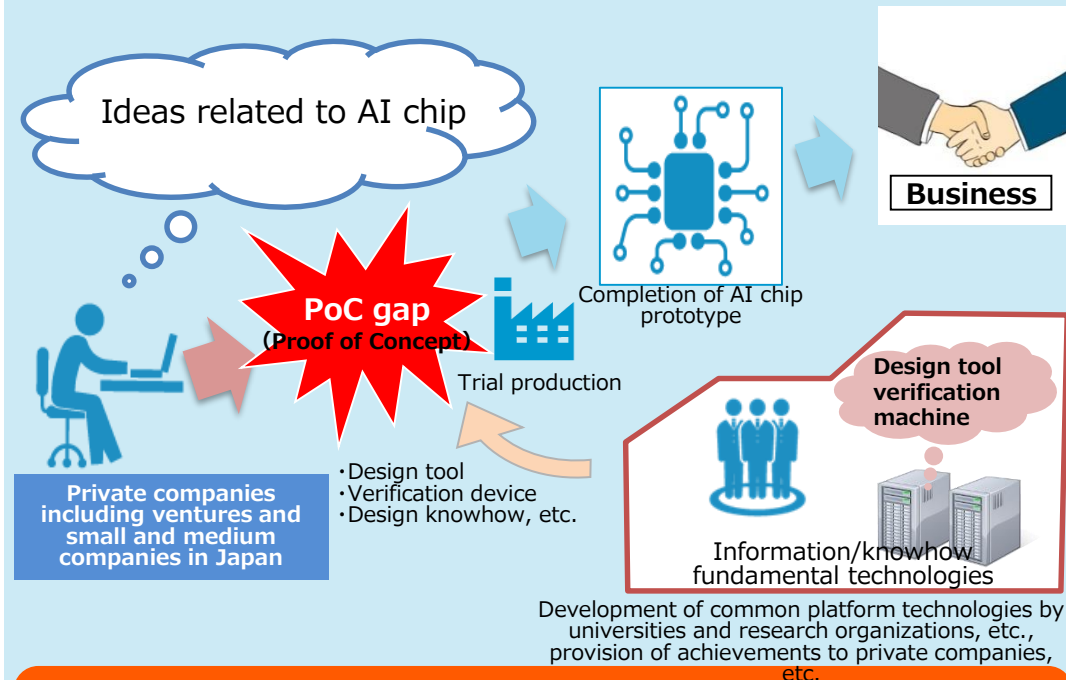
Achievement goal

● This 5-year project from 2018 to 2022 aims at more than 50% practical application rate for technologies developed by private companies, etc.

Conditions (Subject, target action, subsidy rate, etc.)

Government —Grant→ NEDO

①Subsidy（2/3・1/2）→ Private companies, etc.

②Subcontract→ Universities/ research organizations, etc.

Image of Project

Ideas related to AI chip

PoC gap (Proof of Concept)

Completion of AI chip prototype

Business

Trial production

Design tool verification machine

Private companies including ventures and small and medium companies in Japan

・Design tool
・Verification device
・Design knowhow, etc.

Information/knowhow fundamental technologies

Development of common platform technologies by universities and research organizations, etc., provision of achievements to private companies, etc.

① Development towards the practical application of ideas for AI chips

• To embody the ideas of private companies, etc., develop AI chips for practical application using the design tools and verification devices, etc. developed in this project.

②Development of environment required for the development of AI chip and development of common infrastructure technology

• Establish the development environment required for the development of AI chip, and provide to private companies, etc.
• Develop infrastructure technologies contributing to the development of highly functional AI chips and provide to private companies, etc.
• Provide the information and knowhow required for the development of AI chip to private companies, etc., and foster personnel with these skills.