



**Asia-Pacific  
Economic Cooperation**

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**2017/SOM1/CTI/SEM1/007**

## **Improvement of Business Environment in eCommerce and eTrade**

Submitted by: Kyoto University



**Capacity Building Needs Initiative Seminar on  
Electronic Commerce Chapter of the Regional  
Trade Agreements and Free Trade Agreement  
Nha Trang, Viet Nam  
22 February 2017**



## Improvement of Business Environment in eCommerce and eTrade

February 22, 2017

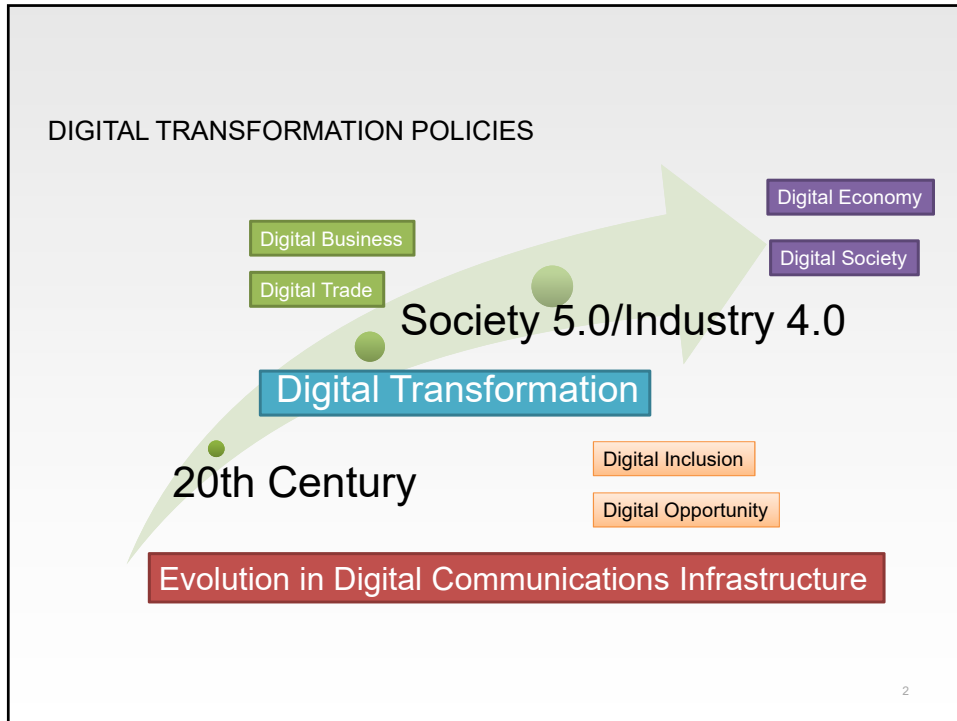
**Dr. Makoto Yokozawa,**  
Nomura Research Institute, Ltd./Kyoto University/NEDO

Internet Economy WG Vice Chair at Keidanren (Japan Business Federation)  
Digital Economy Policies Vice Chair at OECD/BIAC  
Professor at Market and Organization Informatics Research Unit in Kyoto University

Free Flow of Data is Essential to ....

Digital Business,  
Digital Economy,  
and Digital Society

This is REAL



**Servicification (Servicization)**  
**= eCommerce**  
**(based on Production)**

Product Manufacturing + Digitalization = Service  
Product/Asset + Digitalization = Sharing Economy  
Content/Intellectual Property + Digitalization = Immersive Technology

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**New Market Growth Expected based on Emerging Data Driven Products and Services**

Plants/Factories Remote Operation

Realtime Monitoring Transportation

Electric Vehicles Remote Management

Construction Machines Remote Maintenance

Intelligent Contents Delivery

Food/Sushi Freshness Control

Strawberry Farm Remote Controlled by Cloud Service

**Data Flows**  
**Data Sharing**  
**Data Analysis**

**Digital Life, Safety and Welfare**

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Disaster Management based on Emerging Data Driven Products and Services



Rescue Support



Sharing Status of Public Transportation

Supply Management by Data Sharing



Evacuation Guide by CCD Camera

Intelligent Road Traffic Monitoring by "Probe Vehicles"



Data Flows  
Data Sharing  
Data Analysis

Digital Medicare by Data Sharing and Analysis

### Medicare Services based on Emerging Data Driven Products and Services

Community support service centers Medical clinics Hospitals

Gathering, viewing and updating of data Mini-Kango Regional Medical Data Sharing

Remote Care fore Elderly People by Remote Sensing

おはやしPRO

Humidity Lights Temperature

Worker's Health and Wellness Improvement

Statistical Data Analysis and Personalized Medicare

Data Flows Data Sharing Data Analysis

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### Utilize "Health Examination Data" for Life Insurance

Outline: For life insurance, utilize accumulated physical checkup and healthcare data for reducing premium with supporting customer's health maintenance.

Physical checkup data, Healthcare data, etc.

Data Information Knowledge

Apply to the premium rate Advice for the health maintenance Provide the contractual service, etc.

Effects for the entire society: Reducing medical expenses by preventing disease, etc.

Effects for the individuals: Staying healthy, Reducing insurance premium, etc.

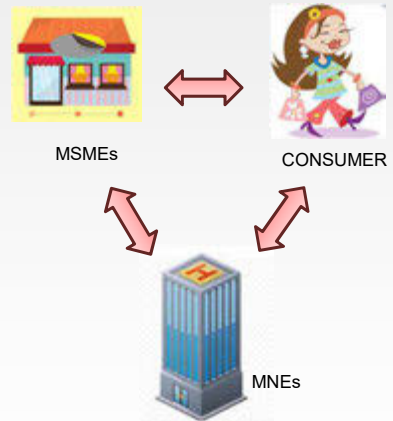
9

## Challenges in Policy Making of Digital Transformation

10

### Consumer's Confidence/Trust on Digital Service Affected by Uncertainty

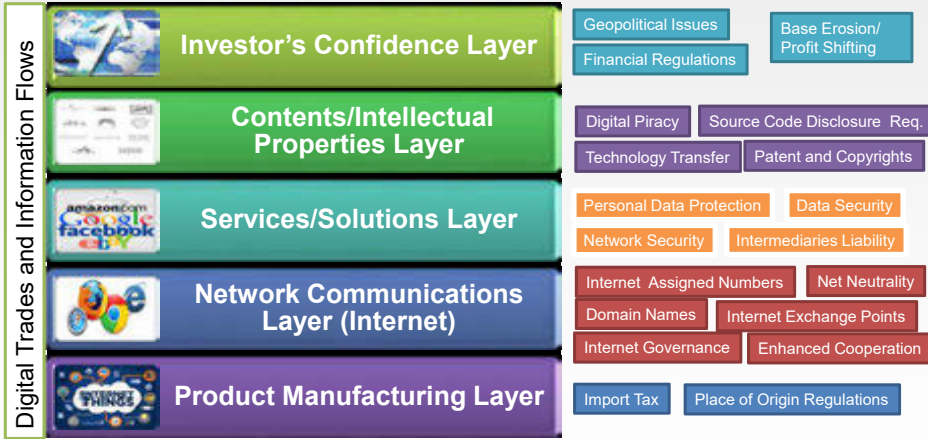
- Uncertainty in Service/Product Quality
- Uncertainty in Personal Data Protection
- Uncertainty in Asset Protection
- Uncertainty in Neutrality
- Uncertainty in Network Access
- Uncertainty in Sustainability of Business
- Others?



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### Multilayered Structure and Pre-conditions in Free Flow of Data ..... Policy Maker's Challenges



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## Free Flow of Data (information)



- ?
- National Security
- Forced Data Localization
- Geo-Locking of Facilities
- Source Code Access
- .....

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## Evidence-based Approach in Digital Trade Discussions

**OECD/STRI Database**

**APEC/ STAR Database by AMIT**

**ECIPE DTE Database**

**The APEC STAR Database**

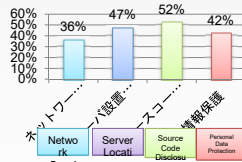
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## Assessment of Free Flow of Data ACOSIO Survey (intermediate analysis) on CBDF in Sep. 2016

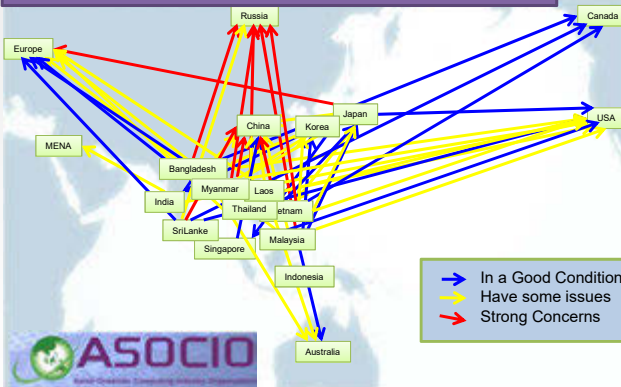
ASOCIO: ASIA and Oceanian Computing Industry Assoc.

(SME to Large Companies in IT service industry in this region)

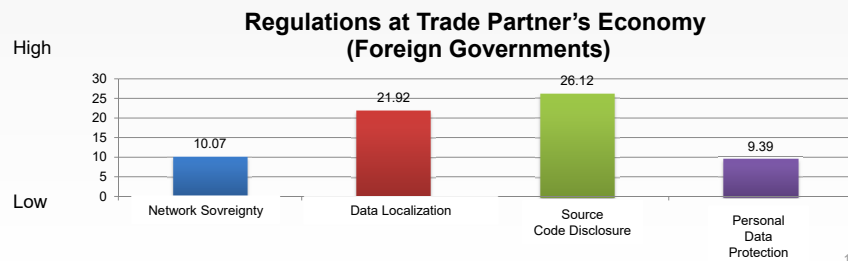
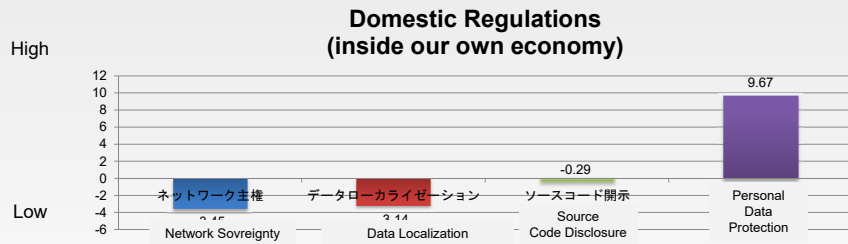
### Concerns in Data Flows in ASOCIO Companies



### Point to point Assessment of Cross Border Business Data Transfer

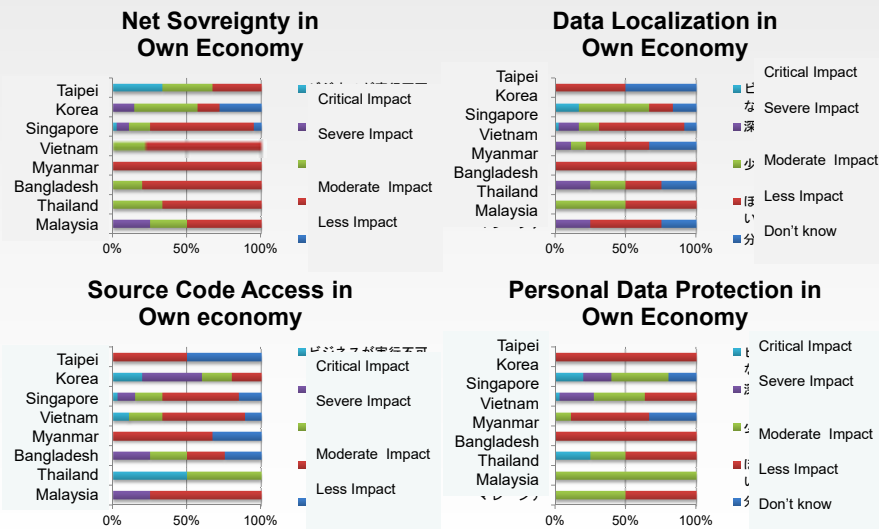


# Trade Regulations impact on business (subjective assessments)

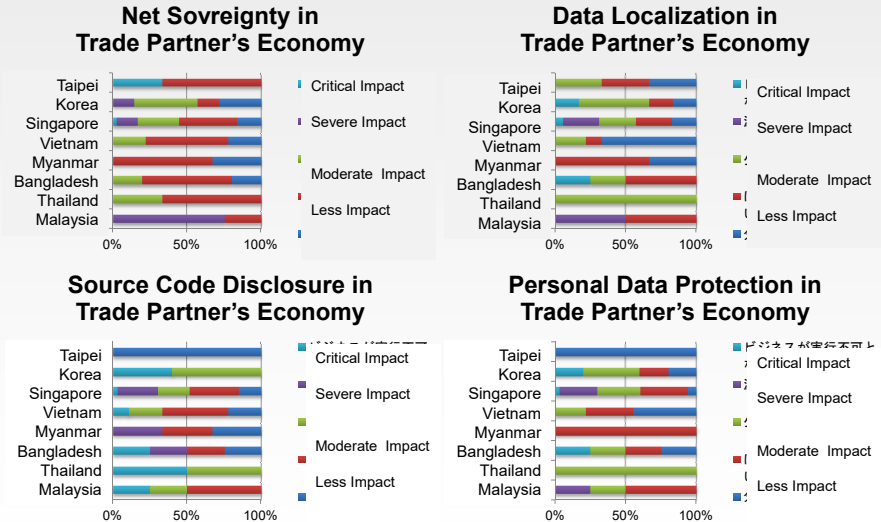


## Regulation Assesments by Business Secoter (Regulations in Our Own Economy)

- ASOCIO Servey in 2017 by JISA and Kyoto Univ.



## Regulation Assessments by Business Sector (Regulations in Trade Partner's Economy)



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## “The Constitution of Liberty” .... Friedrich August von Hayek What are the conditions in order to be “Free” in Data Flow?

### APEC/Cross Border Privacy Rules

<http://www.cbprs.org/>

The APEC Cross Border Privacy Rules (CBPR) system, endorsed by APEC Leaders in 2011, is a voluntary accountability-based system to facilitate privacy-respecting data flows among APEC economies. It has four main components:

1. recognition criteria for organisations wishing to become an APEC CBPR system certified Accountability Agent;
2. an intake questionnaire for organisations that wish to be certified as APEC CBPR system compliant by a third-party CBPR system certified Accountability Agent;
3. assessment criteria for use by APEC CBPR system certified Accountability Agents when reviewing an organisation's answers to the intake questionnaire; and
4. a regulatory cooperative arrangement (the CPEA) to ensure that each of the APEC CBPR system program requirements can be enforced by participating APEC economies.



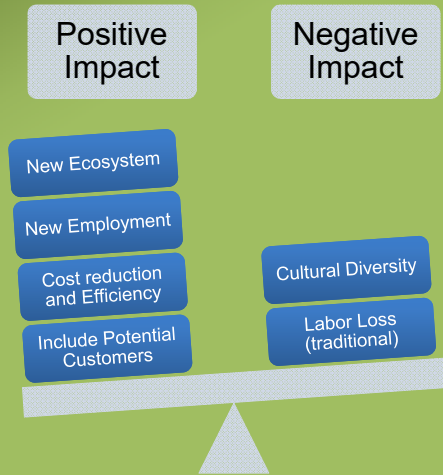
BCR,  
Binding Corporate Rules

## Need to Harmonize Data Protection Policies in EU and Japan

- Adequacy Recognition by EU to Japan
- APEC-EU harmonization
- BCR, SCC....
- Complementation by Trade Agreement

Market Impact of Digital Inclusion by Data Flows ... Balancing Impacts

Sharing Economy

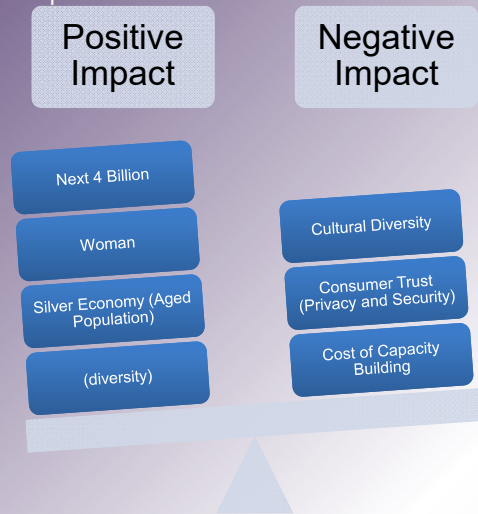


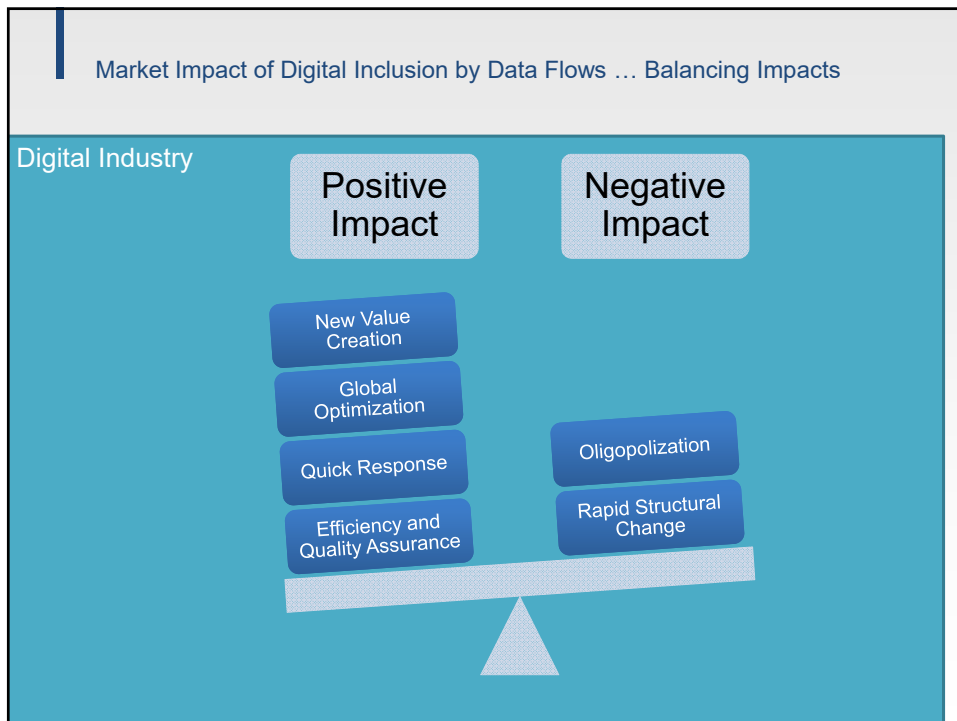
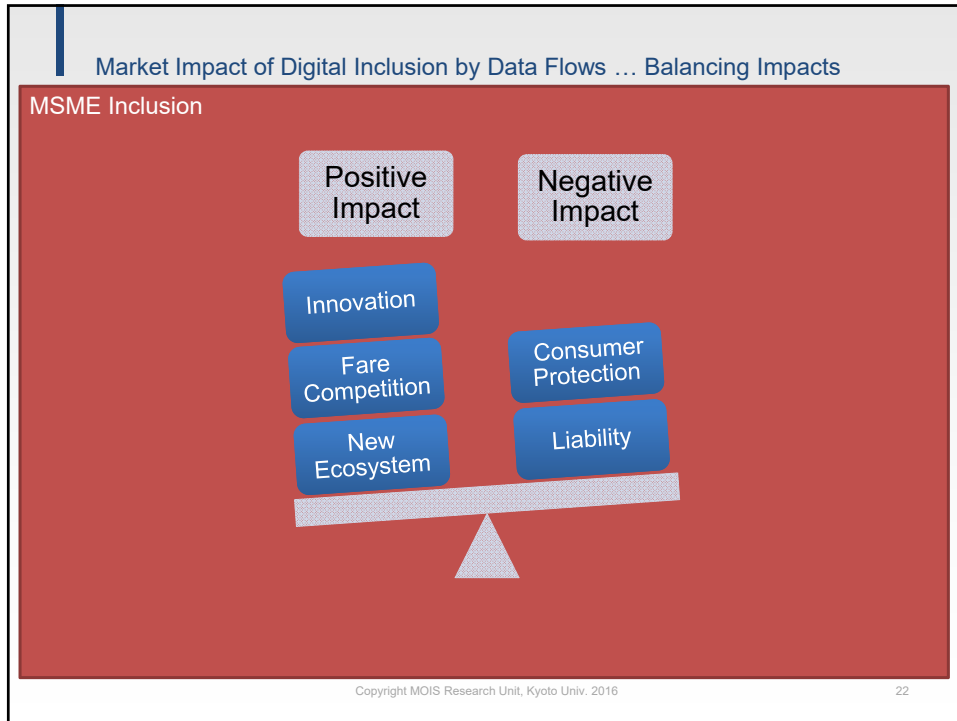
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Market Impact of Digital Inclusion by Data Flows ... Balancing Impacts

Potential Market Development





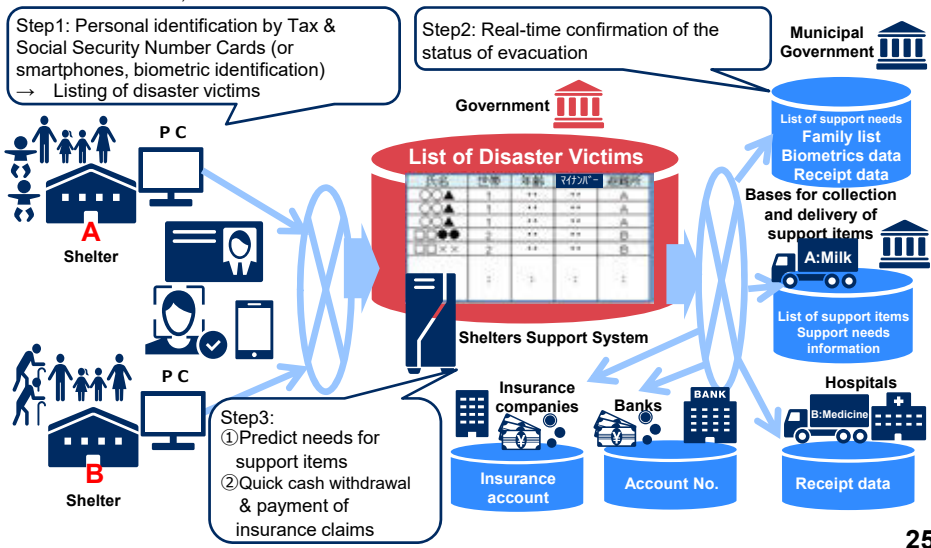
### Digital Industry in Japan 2016 - Case Studies

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### Sharing Data on Disaster Victims to Facilitate Support Activities

(NEC Corporation)

Outline: Prompt and accurate listing of the disaster victims by utilizing Tax & Social Security Number Cards and other infrastructure could be used for safety confirmation, delivery of support items and medicines, cash withdrawal, etc.



## Evacuation Guidance Utilizing Camera Images

(NEC Corporation)

Outline: Changes in the behavior of a crowd could be detected by analyzing the density and movement of people, which would contribute to quick discovery of disorders in a public space. In addition, movement of a crowd could be predicted by analyzing big data, and would be used for timely posting of guidance on digital signage to ease congestion.

Analyze density & movement of people

① Visualize congestion

② Detect crowd behavior

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## Sharing Probe Vehicle Data in Case of Disaster

Outline: By integrating and publishing probe vehicle data in case of disaster, rescue and support activities can be facilitated.

**Probe car data**

**Probe truck data**

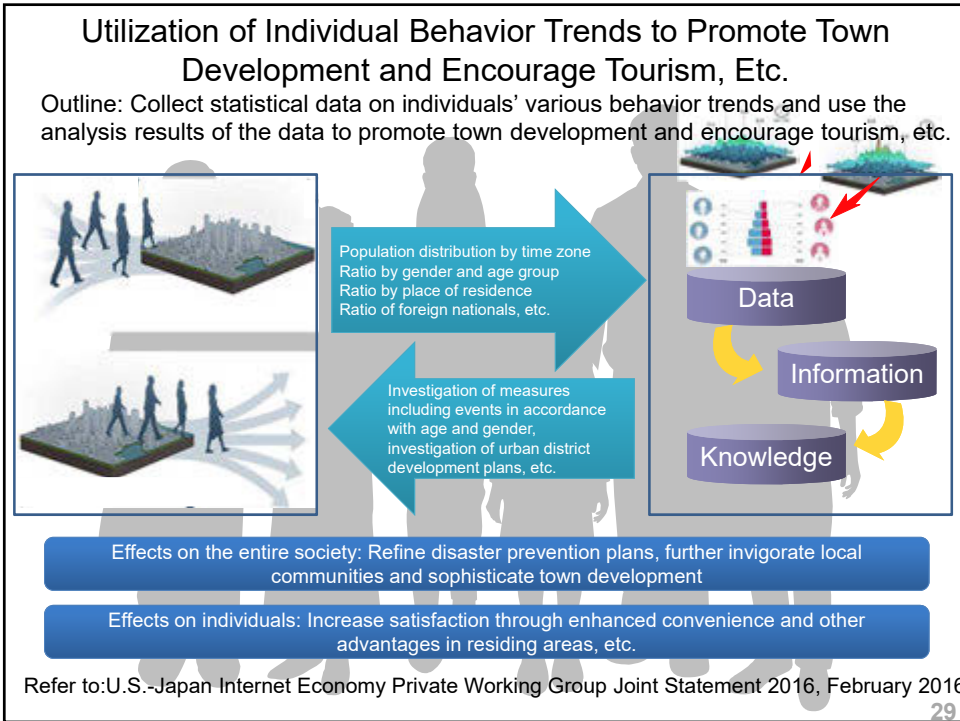
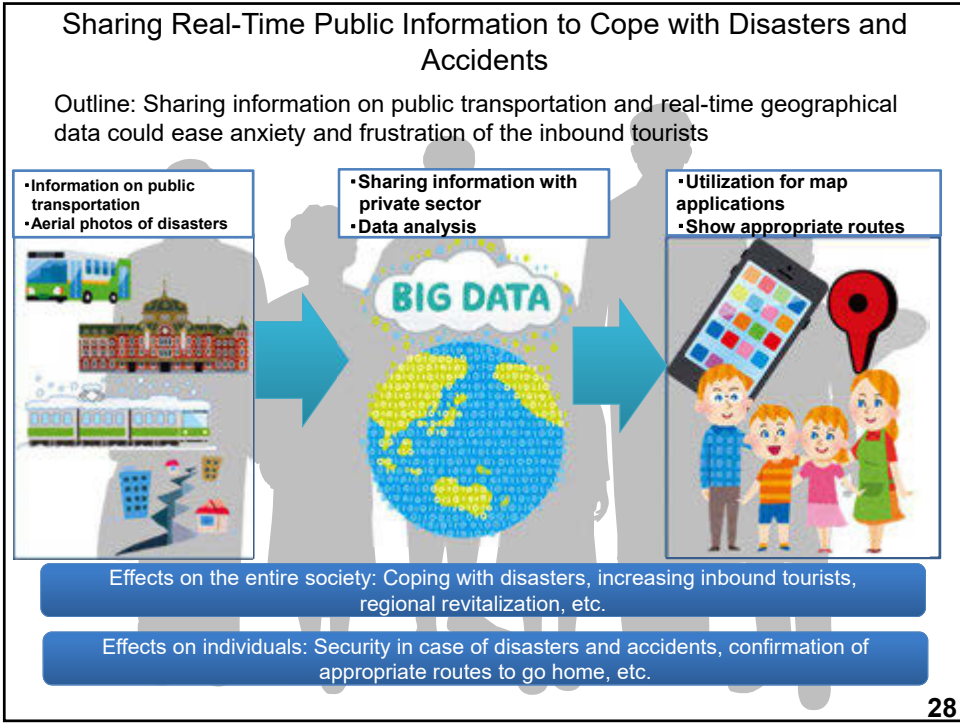
**Geographic information**

**ITS Japan "Probe Vehicle Data"**

Source: ITS Japan

Anonymous and statistically processed data are used.  
Probe vehicle data for latest 24 hours are renewed once an hour.

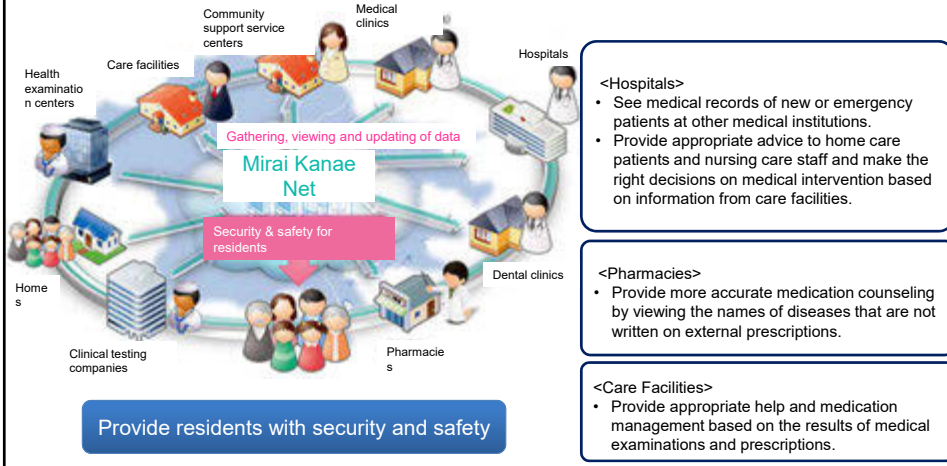
**27**





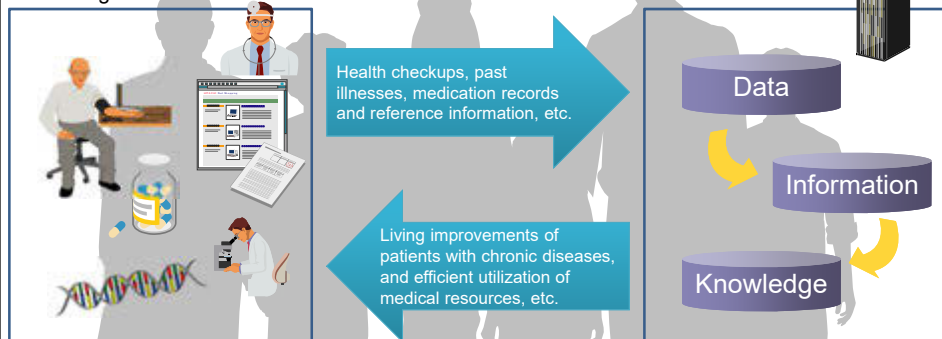
## Advanced Regional Medical Services by Interactive Sharing of Medical and Care Data (Nihon Unisys, Ltd.)

Outline: Medical and care data of individuals are shared among regional organizations (hospitals, clinics, pharmacies, care facilities, etc.) for providing a seamless Integrated Community Care System which includes more appropriate medical examination and medication counseling.



## Utilization of Statistical Data on Healthcare and Personalized Health Guidance and Advice

Outline: Share data on individuals' health management, medical treatment and nursing care among concerned parties for the purposes of statistical analysis as well as personalized health guidance and advice.



Effects on the entire society: Reduce social welfare spending and invigorate production, consumption, and other economic activities

Effects on individuals: Extend healthy life expectancy, help people to live more fulfilled lives and remain economically active for longer, etc.

Refer to: U.S.-Japan Internet Economy Private Working Group Joint Statement 2016, February 2016

### Utilization of Statistical Data on Wellness of Workers to Improve Their Work Situations

Outline: Share statistical data on activity conditions and health conditions of workers engaged in various occupations to improve work situations of relevant industries more objectively and provide personalized guidance and advice.

The diagram illustrates a cycle of data utilization. On the left, a box shows workers in various settings (office, factory, home). A blue arrow points from this box to a central area containing three stacked cylinders labeled 'Data', 'Information', and 'Knowledge'. A second blue arrow points from this central area back to the workers. The text between the arrows describes the flow: 'Operational activities, health conditions, vital data and other information of workers' and 'Improvement and guidance of work situations, advice on health maintenance and disease prevention, etc.'.

Effects on the entire society: Promote dynamic engagement of all citizens, and reduce medical care costs through disease prevention

Effects on individuals: Improve life satisfaction, help people to live more fulfilled lives and remain economically active for longer, etc.

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement 2016, February 2016

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### Utilizing Data on Indoor Environment for the Health and Safety of Elderly People (NIFTY Corporation)

Outline: Detect disorder in indoor environment, which is difficult for elderly people to realize, by collecting data (temperature, humidity and illuminance) by cloud computing.

The diagram illustrates a cycle of data utilization for elderly people. On the left, a box shows the 'おへや+PRO' logo and icons for a water drop, a thermometer, and a lightbulb. A blue arrow points from this box to a central area containing three stacked cylinders labeled 'Data', 'Information', and 'Knowledge'. A second blue arrow points from this central area back to the elderly people. The text between the arrows describes the flow: 'Data on indoor environment (temperature, humidity, illuminance, etc.)' and 'Alert on disorder in indoor environment, remote control of air conditioning, alert on disorder in daily rhythm'.

Effects on the entire society: Reduction of social security expenses & medical expenses, etc.

Effects on individuals: Health maintenance, care prevention

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### Utilize "Health Examination Data" for Life Insurance

Outline: For life insurance, utilize accumulated physical checkup and healthcare data for reducing premium with supporting customer's health maintenance.

Physical checkup data, Healthcare data, etc.

Apply to the premium rate, Advice for the health maintenance, Provide the contractual service, etc.

Data

Information

Knowledge

Effects for the entire society: Reducing medical expenses by preventing disease, etc.

Effects for the individuals: Staying healthy, Reducing insurance premium, etc.

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### Utilization of Statistical Data on Driving and Using it in Setting Automobile Insurance Rates

Outline: Collect data on individuals' driving situations (sudden acceleration, sudden braking and steering wheel manipulation) to help avoid accidents and ease traffic congestion.

Driving situations (sudden acceleration, sudden braking and steering wheel manipulation), location information and weather conditions, etc.

Utilization for setting automobile insurance rates, provision of advice on driving, etc.

Data

Information

Knowledge

Effects on the entire society: Ascertain traffic conditions that may cause accidents and ease congestion

Effects on individuals: Refund automobile insurance rates, reduce traffic accident rates, etc.

Refer to: U.S.-Japan Internet Economy Private Working Group Joint Statement 2016, February 2016

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### Analytics on Electronic Vehicle battery related information

**Outline :** Collect evaluation and functional data of EV batteries in Japan and US  
 Analyze the above data to develop high performance battery and improve services

The diagram features a world map background. On the left, a green car icon with a leaf above it represents the field side. A blue arrow points from this icon to a central box containing the text: "Battery related data : Vehicles data, capacity, temperature, electrical current value, etc.". From this central box, another blue arrow points to a right-side box containing a bar chart and mathematical symbols (α, μ, Σ), representing data analysis. A return blue arrow points from the analysis box back to the field side, labeled "Improvement of service, etc.". Below the map are two blue boxes with white text: "Effects on field side : Improvement of service quality and development of more effective battery in the future" and "Effects on service side : Obtaining accumulated info. To contribute future product and technology development". At the bottom, it refers to the "U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014" and includes the number "36" in the bottom right corner.

Battery related data :  
Vehicles data, capacity,  
temperature, electrical  
current value, etc.

Improvement of service,  
etc.

Effects on field side : Improvement of service quality and development of more effective battery in the future

Effects on service side : Obtaining accumulated info. To contribute future product and technology development

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014

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### Remote Supervision of Construction Machinery (Hitachi Construction Machinery Co., Ltd.)

**Outline:** Operation related information on the construction machinery which works all over the world are collected. The analysis results are efficiently reflected in the productivity improvement in the field, and operation and product modification.

The diagram features a world map background. On the left, an illustration shows construction machinery (excavators) and a person at a computer monitor, representing data collection. A blue arrow points from this illustration to a central box containing the text: "Position/Operation/ Oscillating/Shock related Information etc.". From this central box, another blue arrow points to a right-side box containing three stacked cylinders labeled "Data", "Information", and "Knowledge", with yellow arrows indicating a flow between them. A return blue arrow points from the right-side box back to the field side, labeled "Operational advice, Preventive maintenance, Crime warning etc.". Below the map are two blue boxes with white text: "Effect on the field side : Productivity improvement, Reduction of cost for maintenance and Accident related response" and "Effect on the service side : Improvement of technology and product, Acquisition of know-how, Marketing". At the bottom, it refers to the "U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014" and includes the number "37" in the bottom right corner.

Position/Operation/  
Oscillating/Shock  
related Information etc.

Operational advice,  
Preventive maintenance,  
Crime warning etc.

Data

Information

Knowledge

Effect on the field side : Productivity improvement,  
Reduction of cost for maintenance and Accident related response

Effect on the service side : Improvement of technology and product,  
Acquisition of know-how, Marketing

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014

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### Efficient maintenance of large ship

Outline : Collect the sensor data from the apparatus in the ship of a large ship navigating the world to realize preventive and efficient maintenance

The diagram features a world map background. On the left, a red and blue cargo ship is shown. A blue arrow points from the ship to a cloud icon on the right, labeled "Sensor data from the apparatus, such as engine, in the ship". A return blue arrow points from the cloud back to the ship, labeled "Maintenance based on the real situation of apparatus,". Below the map are two blue boxes with white text. The first box says "Effects on field side : Secure safe service of the ship and lower costs of maintenance". The second box says "Effects on service side : Offer of the ship's class service of the highest quality". At the bottom, it refers to the "U.S.-Japan Internet Economy Private Working Group Joint Statement, September 2014" and has the number "38" in the bottom right corner.

Effects on field side : Secure safe service of the ship and lower costs of maintenance

Effects on service side : Offer of the ship's class service of the highest quality

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014

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### Operation & Maintenance of Overseas Plants and Sites

Outline: Centrally collect operation data (operation states, costs, and alarms, etc.) of overseas plants and sites located in various countries.  
Utilize the know-how obtained through data analysis for more efficient operation at each site (optimization of production, maintenance, and investment, etc.) and for proactive risk management.

The diagram features a world map background. On the left, three industrial sites (a refinery, a power plant, and a factory) are shown with orange arrows pointing towards a central data processing hub on the right. The hub contains three stacked purple cylinders labeled "Data", "Information", and "Knowledge", with yellow curved arrows indicating a flow between them. A blue arrow points from the hub back to the industrial sites, labeled "Instructions for more efficient infrastructure operation (Production, maintenance, etc.) Risk management". Below the map are two blue boxes with white text. The first box says "Effects on field side: Improvement of productivity, contingency planning for disaster". The second box says "Effects on service side: Accumulation of operation know-how through centralized data analysis and management, optimization of operation at each site". At the bottom, it refers to the "U.S.-Japan Internet Economy Private Working Group Joint Statement, September 2014" and has the number "39" in the bottom right corner.

Effects on field side: Improvement of productivity, contingency planning for disaster

Effects on service side: Accumulation of operation know-how through centralized data analysis and management, optimization of operation at each site

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014

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### Remote Monitoring of Freezers

Outline:Operational data of freezer equipment is monitored for preventive maintenance and black box access detection. This enables improved customer service and protection of advanced technical information.

The diagram illustrates a remote monitoring system for freezers. On the left, a box contains images of a freezer room and individual freezer units. A blue arrow points from this box to a central area containing two more blue arrows. The top arrow points right towards a box labeled 'Data management (Cloud)' and 'Monitoring and analysis', which includes icons for a server rack, a database, and a computer monitor. The bottom arrow points left towards a box labeled 'Maintenance' and 'User support', which includes icons for a person with a tool and two people talking. Below these elements are two blue bars: 'User Benefit: reduce freezer downtime and maintenance cost' and 'Provider Benefit: establish new income source, protect advanced technology'. At the bottom, it refers to a U.S.-Japan Internet Economy Private Working Group Joint Statement from September 2014 and is numbered 40.

Uptime, internal temperature, error data, black box access

Operation / maintenance advice, preventive repair, faster failure identification

Data management (Cloud)      Monitoring and analysis

Maintenance      User support

User Benefit: reduce freezer downtime and maintenance cost

Provider Benefit: establish new income source, protect advanced technology

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014

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### Export Value-Added Japanese Food

Outline:Export high quality Japanese food frozen by special freezers that maintain freshness. Establish food safety and security using ICT.

The diagram illustrates the export of value-added Japanese food using ICT. On the left, a box contains icons for a shop, a smartphone, a truck, a thermometer, and a bowl, labeled 'Sales and inventory management', 'Distribution and temperature control', and 'Recipe sharing'. A blue arrow points from this box to a central area containing two more blue arrows. The top arrow points right towards a box containing images of food and labels 'Supply unprocessed food', 'Produce and supply processed food', and 'Distribute marketing information using social media'. The bottom arrow points left towards a box labeled 'Traceability and branding information, etc.'. Below these elements are two blue bars: 'User Benefit: stable supply of high quality, high value-added food' and 'Provider Benefit: increased exports of high margin products'. At the bottom, it refers to a U.S.-Japan Internet Economy Private Working Group Joint Statement from September 2014 and is numbered 41.

Sales, inventory, logistics quality, recipe and ingredients data

Traceability and branding information, etc.

Supply unprocessed food

Produce and supply processed food

Distribute marketing information using social media

Sales and inventory management

Distribution and temperature control

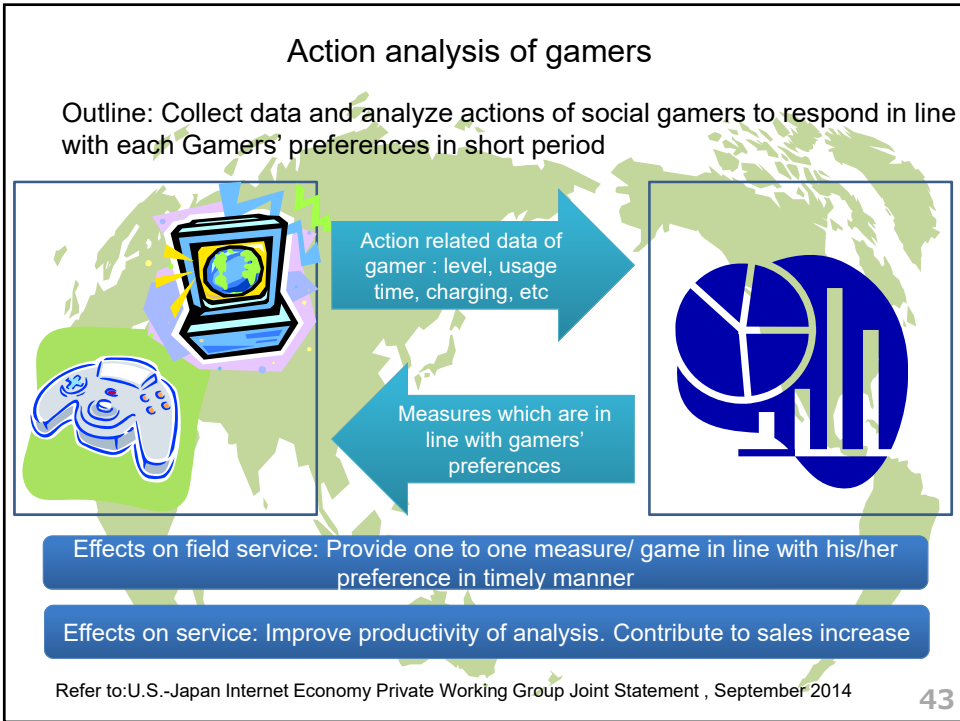
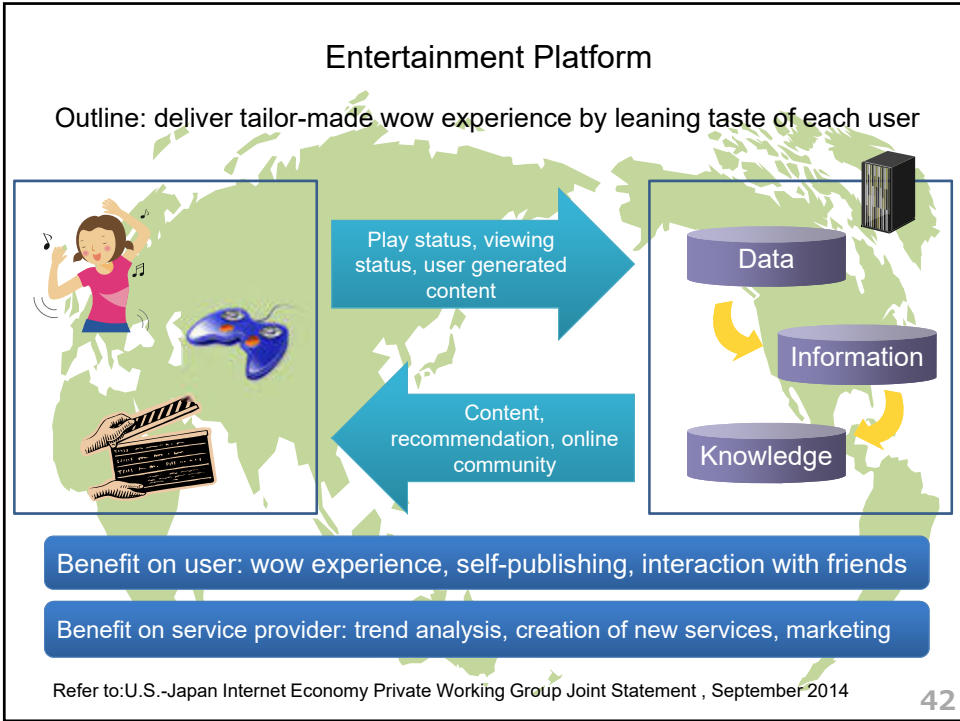
Recipe sharing

User Benefit: stable supply of high quality, high value-added food

Provider Benefit: increased exports of high margin products

Refer to:U.S.-Japan Internet Economy Private Working Group Joint Statement , September 2014

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## APEC Capacity Building Needs Initiative (CBNI) Seminar on Electronic Commerce Chapter of the RTAs/FTAs

Business Discussion

**Mr. Tim Conway, Founder and Chief Executive, C-Metrics Pty Ltd., Australia**

**Mr. Nguyen Hoa Binh, Founder & Chairman, NextTech Group of Technopreneurs, Vietnam**

**Mr Benjamin Mah, Co-Founder and CEO, V-Key Corporation, Singapore**

**Dr. Makoto Yokozawa, Nomura Research Institute (Moderator)**

## APEC Capacity Building Needs Initiative (CBNI) Seminar on Electronic Commerce Chapter of the RTAs/FTAs

Business session

**1st question:**

**What is the status of eCommerce/Digital Business in your economy?  
(players, markets and consumer behavior)**

**Then how do you expect economic growth out of eCommerce/Digital Business?**

**2nd question:**

**How much business is from/to foreign economies in your company/industry?**

**Then what do you expect in foreign digital trade?**

**3rd question:**

**What is your expectation to policy makers in eCommerce/digital trade?**

**How important is the free business environment?**

**How far do you need "rules" in eCommerce?**

**Further Questions, Answers and Summary**

**13:00**

**Closing**