

100 BILLION RFID PROJECT IN JAPANESE RETAILING INDUSTRY

Oct, 2017

**Ministry of Economy, Trade and Industry (METI)
Government of Japan**

PARADIGM SHIFT in Japanese retail industry

✓ **Demographic issue, Shortage of Labor**

125million people(2000) → 80million people(2065)

✓ **Changes in consumer-mind**

→ Buying services rather than various goods.

→ Peer to Peer Economy

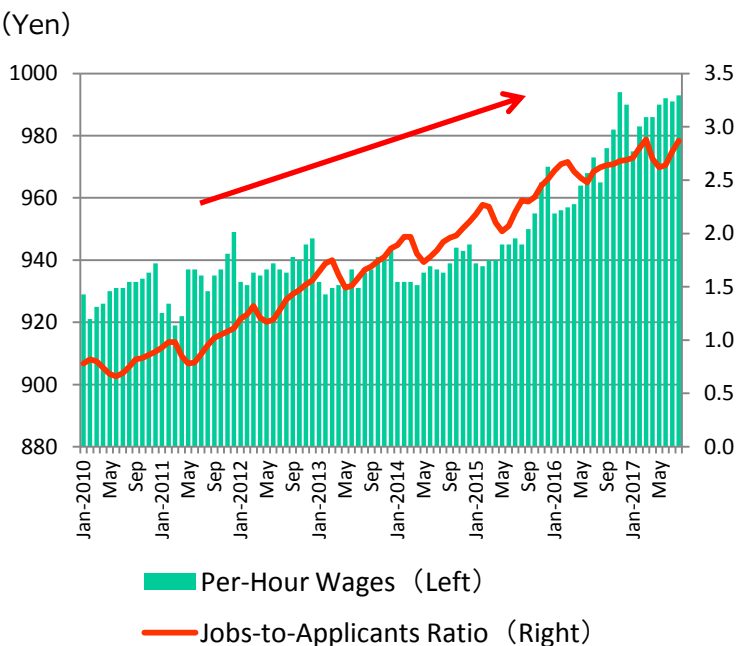
✓ **Electric Commerce**

Increase in the buying internet shop by the smartphone

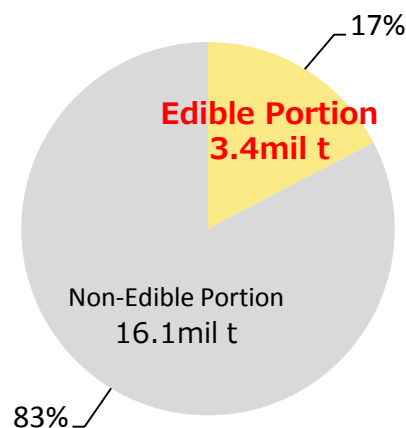
Background

- The retail industry in Japan has been facing a labor shortage and a variety of issues across its supply chains, including food loss and returned goods.

Jobs-to-Applicants Ratio and Wage Height in Retail

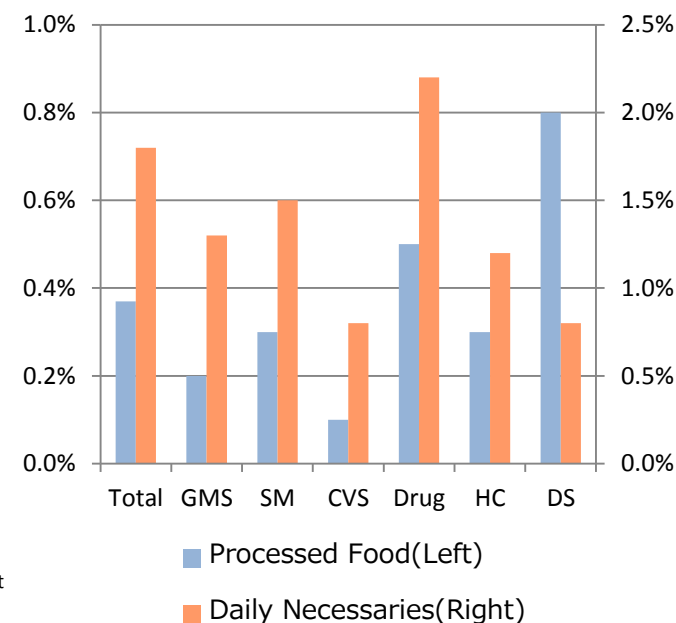


Food Loss (2014)



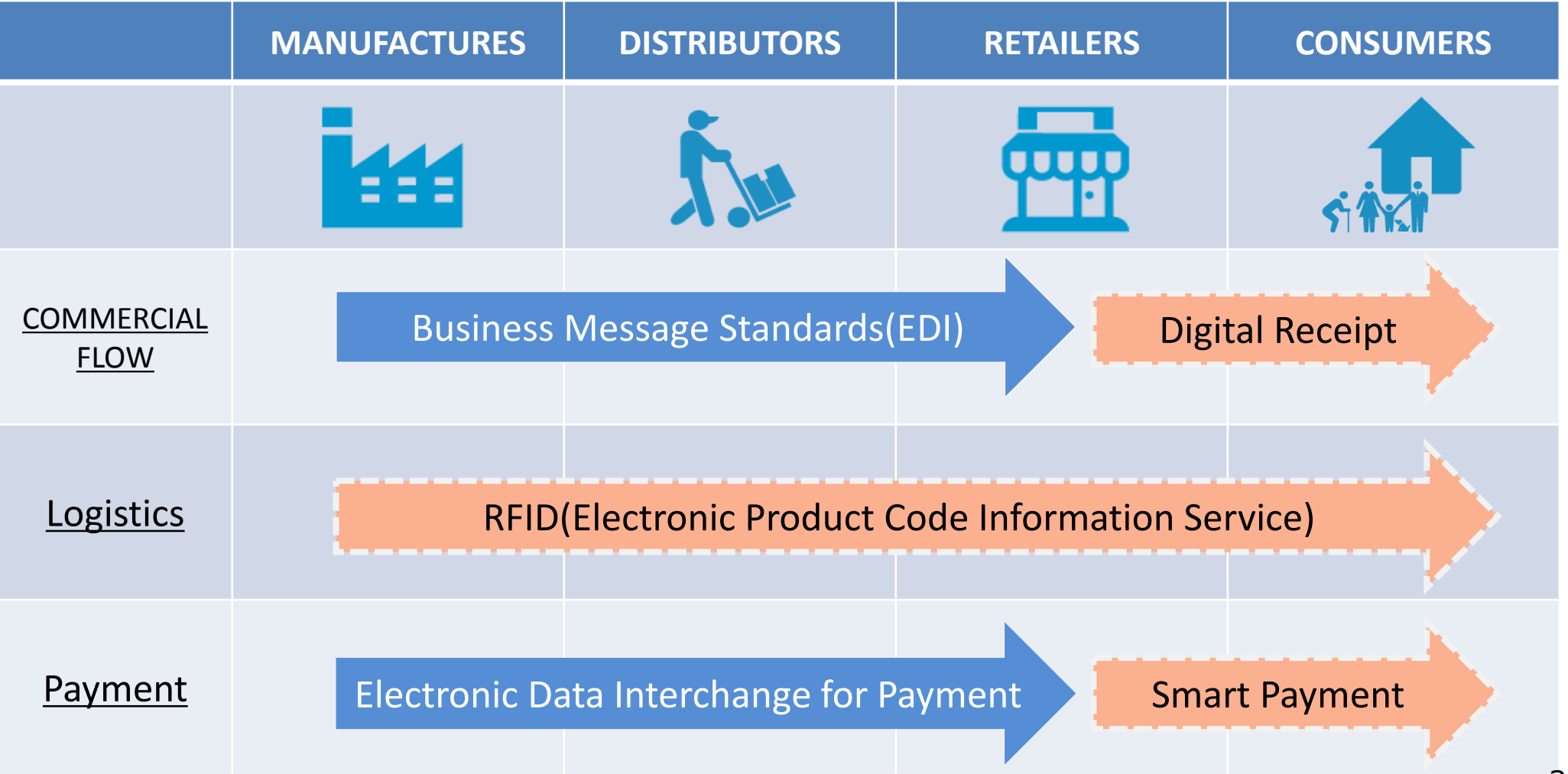
※The amount of food aid by WFP is 3.2 mil t in 2014.
 ※Food loss is 6.2mil t Including households. 6.2 mil t means that one Japanese is wasting a cup of rice everyday.

Returned Goods Rate (2016)



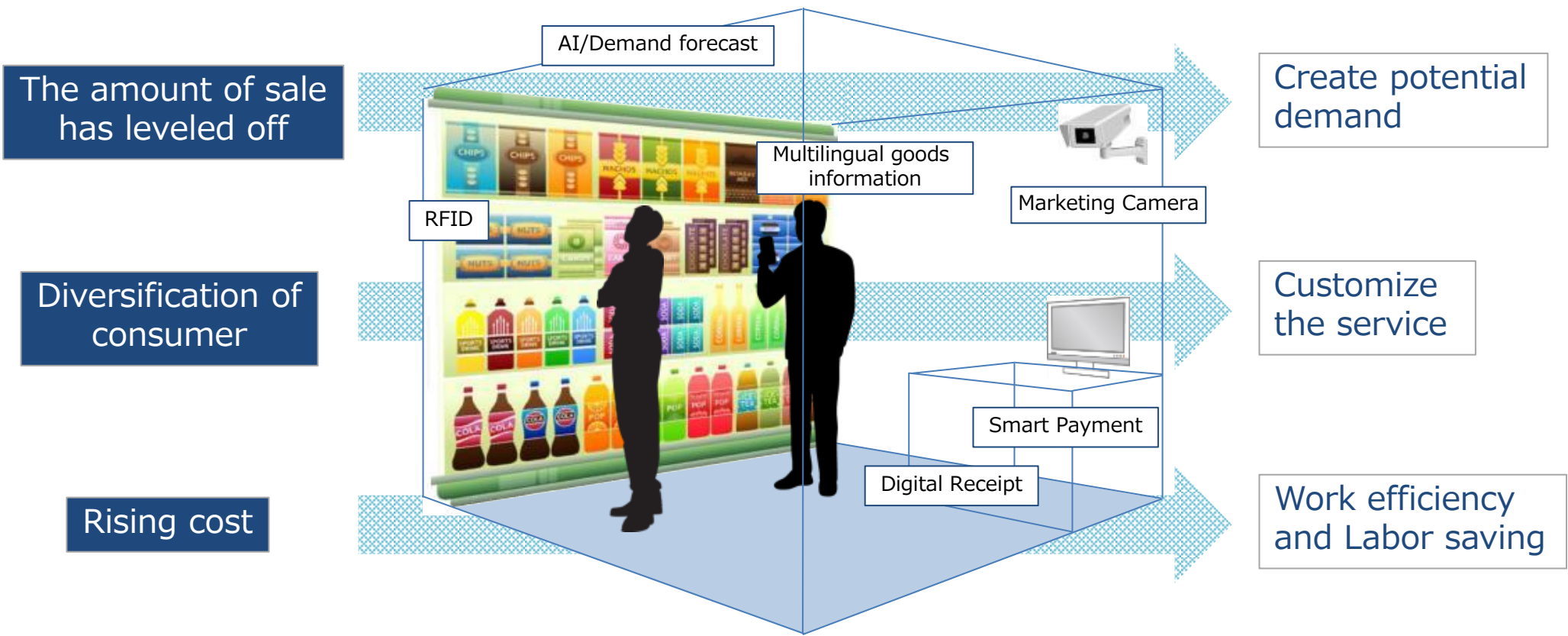
Innovation of Commercial Flow, Logistics, Payment

- Supply chain needs "Digitization", "Standardization", "Sharing" to be more efficient and valuable.
- METI is trying to make innovation by Digital Receipt, RFID, Smart Payment.



Future of Smart Store

<Smart Store>



Get and analyze the data of consumer and goods

Declaration of Plan to Introduce 100 Billion Electronic Tags for Products in Convenience Stores (April 18, 2017)

<Text of the declaration>

- By 2025, Seven-Eleven Japan Co., Ltd., FamilyMart Co., Ltd., Lawson, Inc., Ministop Co., Ltd., and JR East Retail Net Co., Ltd. (operator of NewDays convenience store chains) should attach electronic tags to all products sold in their convenience stores (estimated to be 100 billion products per year) and achieve individual-item monitoring for every product.
- In this process, the companies must consider providing a portion of the information that they acquire through using such electronic tags to supply chains.
- The companies should start electronic tag demonstrations around 2018 by attaching such tags to products in their convenience stores in certain areas, aiming to achieve individual-item monitoring for every product.

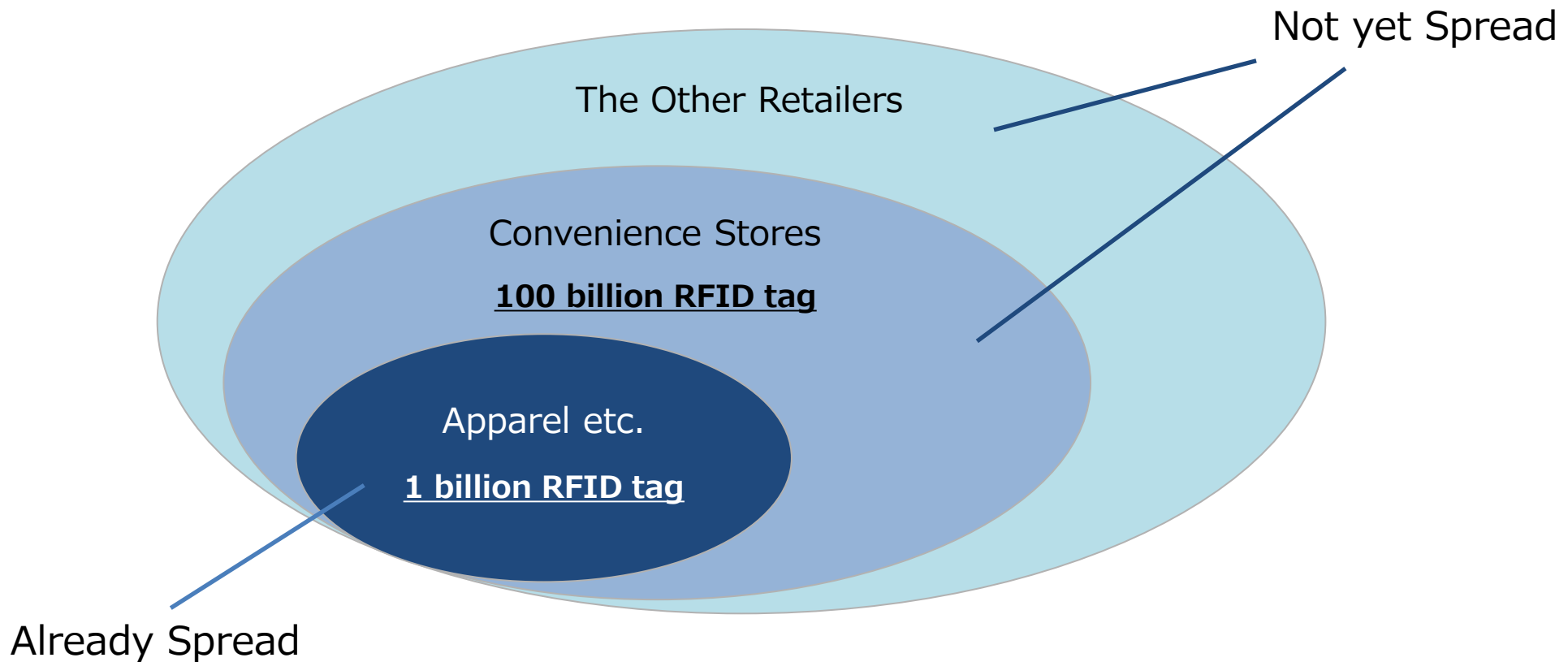


<Qualification conditions involving the declaration>

- The companies should set the unit production price of a “dissemination-type” electronic tags to one yen or less (cost taken for processing such tags, including a combination of an IC chip, antenna and creating seals), to be attached to all applicable products (some products have special disqualifying conditions for the time being, e.g., those warmed by microwave, stored in metal containers, frozen/chilled and ultra-thin).
- They should develop a system for fully accomplishing source tagging, where manufacturers themselves attach the electronic tags to their products, and in which nearly all their products can be incorporated into their system using radio-frequency identification (RFID) technology.

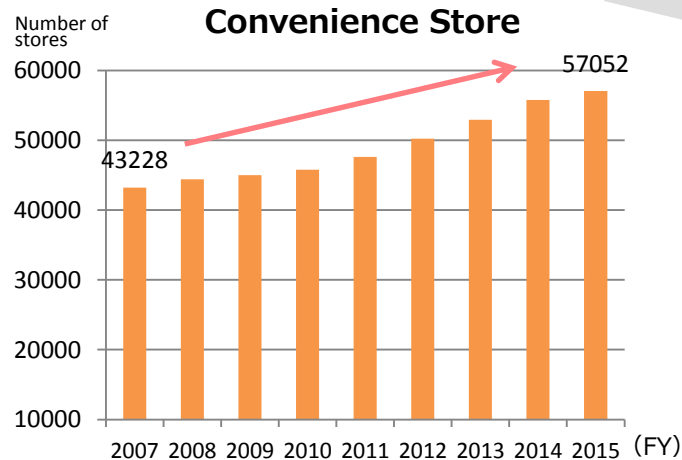
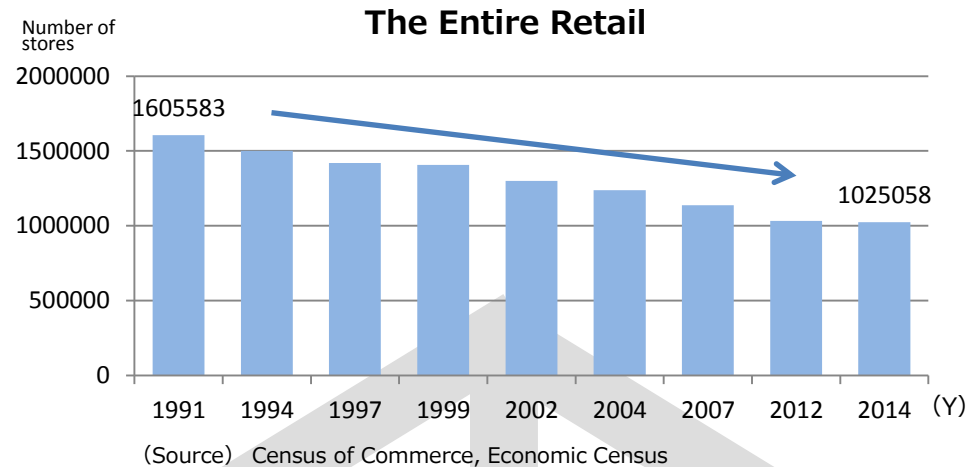
Influence

- Annual sales of convenience stores in Japan is 100 billion dollars. And **100 billion unit goods are sold annually** since the average unit price per item is 1 dollar.
- Including other retailers, **the number of goods sold annually exceeds 100 billion.**

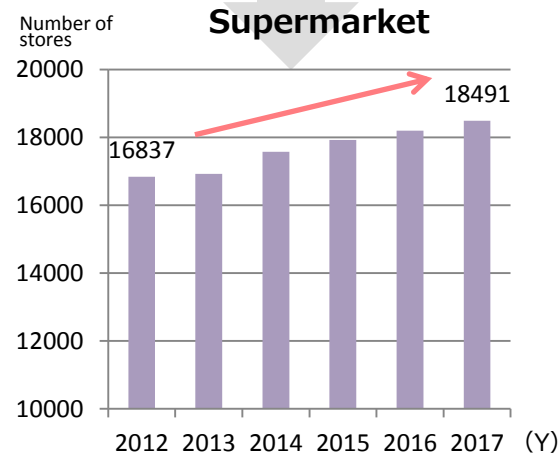


Trend of the Number of Stores

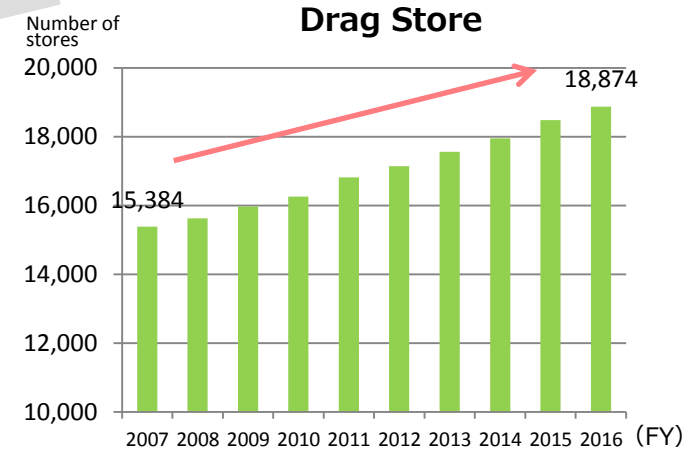
- The number of stores in Japan is decreasing. However, **they are converging to robust entities through changes in their business categories.**



(Source) Japan Franchise Association



(Source) New Supermarket Association of Japan



(Source) Japan Association of Chain Drug Stores

The Concept of this Project

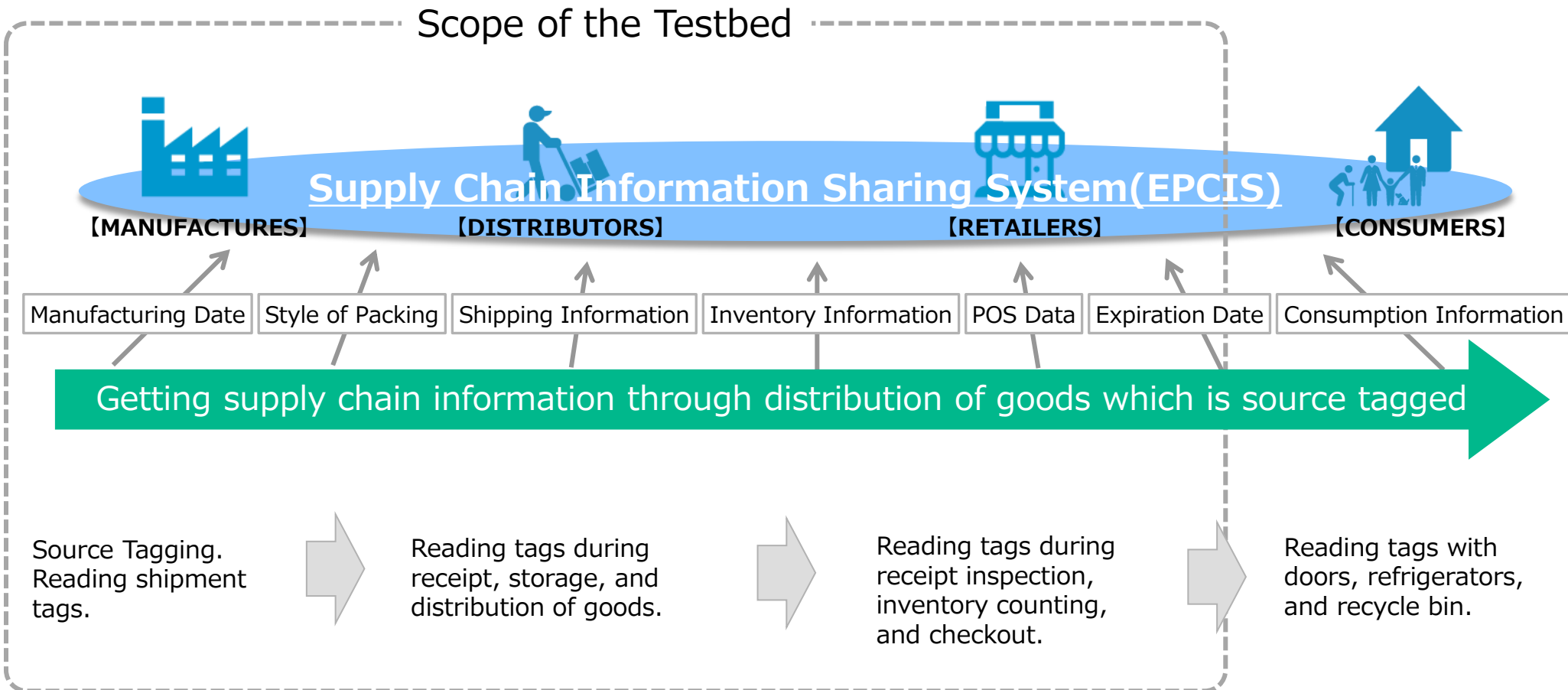
- The Concept of this project is **to return the information read from RFID tags back to the person who attached the tags.**
- Agreeing to this concept is a condition to participate in this project (However, exceptions may be accepted through consultation.).

Examples of information provided by participants

- ✓ Acceptance or Delivery Information
- ✓ Shipping Information
- ✓ Inventory Information
- ✓ Sales Information
- ✓ Smart Shelf Information

Testbed to Innovate Supply Chain with RFID

- The testbed will be started in Tokyo in 2018.
- We will build a prototype of supply chain information sharing system, and verify the usefulness and format of the information obtained from each RFID tag through distribution of goods which is source tagged.



Fast Lane

- We aim to eliminate congestion at check out through the spread of RFID.
- In the testbed, test stores will be installed “special shelves” on which goods with RFID tags are displayed. When people purchase only the goods on “special shelves”, they can use **Self-Checkout RFID Register (“Fast Lane”)**,.

<Image of the test stores>



Utilization (retail stores)

- It is possible to automate and optimize of retail operations by attaching the RFID on each goods.
- Restrain shoplifting by providing a security gate.
- Reduce food loss by automatically changing prices according to expiration date.



※image: "REGI-ROBO(R)" referred from Lawson's website.

self-checkout register

Quick payment
Shorten waiting time



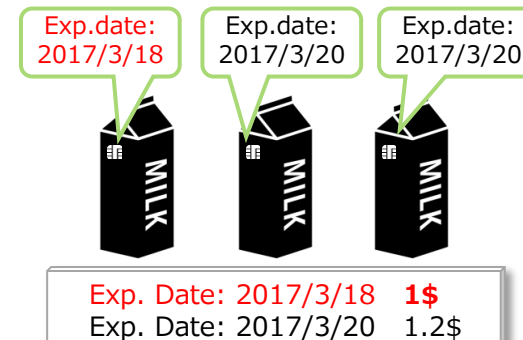
Restrain shoplifting

by the security gate



Smart shelf

RFID reader of the shelf itself
Automatically stocktaking



Reduce food loss

by automatically changing prices according to expiration date

Issues

- **Reducing the cost of RFID tags, developing technologies, and improving operational methods** is necessary to expand RFID to supermarkets and convenience stores.
- METI is promoting industry-academia-government collaboration to tackle these problems.

Problems		Current status
①Price		Unit price 5 ¢ ~ 10 ¢
②Accuracy		Blocking radio waves by water and metal
③Attachment Technology		No technology for efficiently attaching tags to products
④Code Standardization	001001 010010 100100 001001	Non-standard code is also used