

A Project Aiming at the Further Expansion of Utilizing RFID



GS1 Japan, along with METI, major convenience store chain operators and some manufacturers, has been engaged in a project to expand the use of RFID tags.

On April 18th, 2017, METI and five major convenience store operators in Japan (Seven-Eleven Japan Co., Ltd., FamilyMart Co., Ltd., Lawson, Inc., Ministop Co., Ltd., and JR East Retail Net Co., Ltd.) agreed to introduce RFID tags for all of the items sold in their stores (estimated to be 100 billion items per year) by 2025, under the condition that all issues identified in the research project are resolved. Based on this agreement, METI and the companies jointly formulated a statement called “Declaration of Plan to Introduce 100 Billion RFID Tags for Products in Convenience Stores (*1).”

Research Project for Expanding the Utilization of RFID in FY2016

Background

Japan has been experiencing various social transformations, an aging population, a declining fertility rate, increases in online purchases by consumers, a growing number of high-mix low-volume products responding to more diversified

lifestyles, and increases in the frequency of deliveries. As a result of these changes, the transport and logistics industry in Japan has been facing serious problems such as labor shortages and greater personal costs these days.

RFID is expected to play a critical role in addressing these issues. If RFID tags are attached to every trade item, real-time item-level visibility can be provided. Moreover, sharing this visibility data in the entire supply chain can enhance location and quality management across the supply chain, and also pinpoint bottlenecks in logistical networks.

Discussion

In this research project, experts had working-level meetings to sort out the required processes and challenges to expand the use of RFID. The participants discussed the progress and results of a demonstration test of the autonomous cashier system with RFID, which Lawson was concurrently working on.

GS1 Japan participated in the meetings as an observer and shared information about Electronic Product Code (EPC), which is used to encode the data onto RFID tags.

*1 http://www.meti.go.jp/english/press/2017/0418_003.html

Challenges Uncovered in the Project

Based on the discussion at the meetings, the following challenges for the future were identified. A roadmap was created after main players and target dates to solve each of those challenges were established.

This roadmap includes the following items to be solved in the future:

- Reducing the price of RFID tags
 - Lowering the prices of prevailing RFID tag models to 1 yen or less per piece
 - Development of alternative novel technologies is also expected
- Expanding the introduction of the standard identification
 - Recommending the use of EPC
 - Designing additional specifications (if necessary)
- Improving the performance and function of RFID tags and their operating method
 - Developing tags for products that contain large amounts of metal or liquid
 - Developing tags for products that can be heated in a microwave oven
 - Tags that can avoid arcing (sparks) even if they are left attached to products and heated in a microwave oven

Activities in FY2017

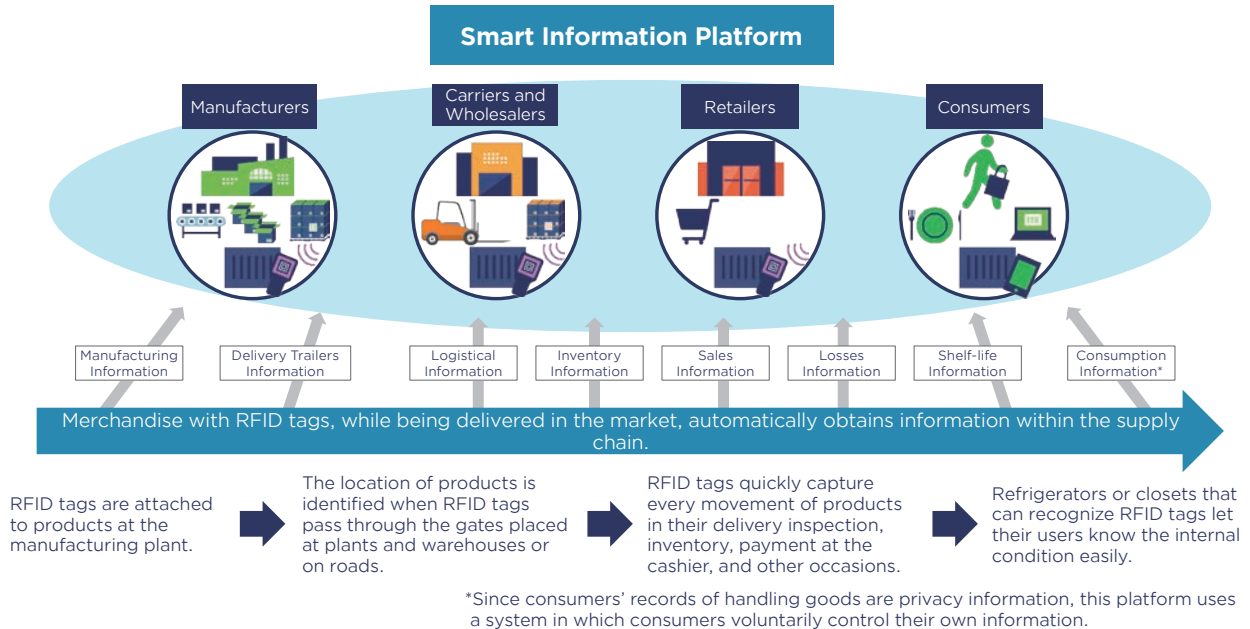
The theme discussed in FY2017 was how to share and use the bulk data obtained by reading RFID tags in the entire supply chain.

Based on this theme, a series of demonstration tests on data linkage were performed at three convenience stores in Tokyo in February 2018. In the tests, RFID tags attached at the manufacturers were read on incoming/outgoing deliveries and sales at manufacturers, wholesalers, and retailers. These read data were shared with each companies in the supply chain via the platform for data linkage, which was established for the test.

On this platform for data sharing, EPC Information Services (EPICS), a standard of GS1, was adopted. When stakeholders within the supply chain can share the data in a common and understandable form by using this EPICIS standard, not only individual companies, but all participants within the entire supply chain can enjoy its benefits including realization of traceability and data utilization for marketing.

GS1 Japan will keep contributing to this project to support establishing the standard across industries related to RFID tag utilization and data sharing.

Fig. 1 Future Image of RFID Utilization in Supply Chain



Reference: METI "Declaration of Introducing 100 Billion Electronic Tags for Products in Convenience Stores" Appendix

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