DATA TRADING BUSINESS IN PIONEERING PHASE

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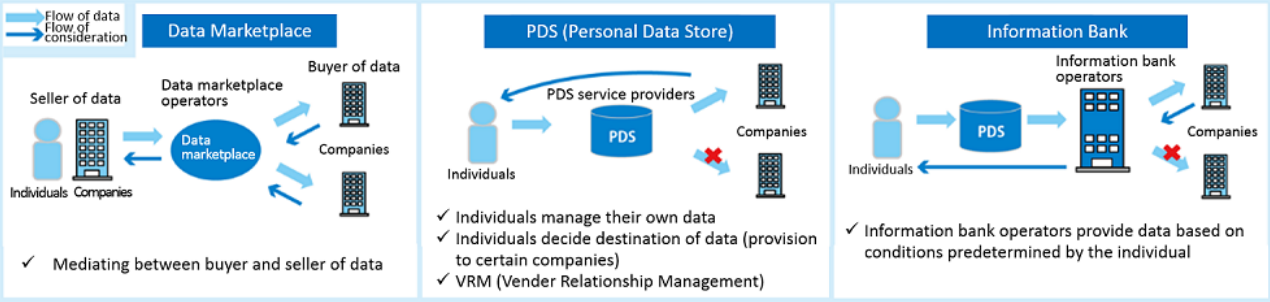
The Japanese government aims to achieve a super smart society called Society 5.0. To realize this, it is expected that companies create new services and products using the IoT (Internet of Things), big data, and AI (artificial intelligence). Although the use of data is key, it is still limited within companies. In a bid to maximize the value of data, both the public and private sectors are accelerating their efforts to promote data distribution. In this report, we will look at three data distribution systems that have drawn attention recently – (1) data marketplace, (2) personal data store (PDS), and (3) information banks (Chart 1) – and provide an overview.

Chart 1: Concepts of Data Marketplace, PDS, and Information Bank



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DATA DISTRIBUTION TO BRING ABOUT CHANGES

Data distribution will likely promote development of new services and products by companies, while offering opportunities for individuals to benefit from utilizing their own data. Data to be distributed includes (1) data including personal information (attributes, purchase history, biological data obtained from wearable devices, etc.), (2) anonymized personal data, and (3) data that does not include personal information (i.e., data from IoT equipment used at production sites, etc.).

Once a data distribution mechanism is established, data that is difficult to obtain by a single company will be available to companies. In addition, they will also have the opportunity to sell their own data for secondary use. If companies combine their own data, which has been increasingly utilized for development of new services/products, with various data held by other companies, etc., they will be able to create more competitive services and products. For example, if data including personal information is distributed, more personalized services can be provided, including better-than-expected services to travelers in the tourism industry and highly-personalized precision medicine in healthcare services. If anonymized personal data is distributed, more sophisticated analysis on markets and consumer trends (by segment) will be available. If data from IoT equipment is distributed, efficient maintenance services for plant facilities will be provided based on shared

aging degradation data, and significant progress will likely be made in autonomous driving as the map is updated to show the latest data.

Meanwhile, individual persons will be able to connect to a wide range of companies by providing their personal data on their own, and enjoy more diversified and attentive services. It is also expected that individuals will manage their personal data as part of their assets, as they recognize the need for and value of such data. PDS will be mainly used for the former, and information banks for the latter. Both systems will allow individuals to take the lead in their new relationship with companies.

DATA MARKETPLACE

A data marketplace is a mechanism in which data can be sold/bought via an intermediary. Buyers and sellers of data include companies and individuals. Data to be distributed in this system will be varied depending on agreements between the buyer and the seller, but will likely be centered on anonymized data and data that does not contain personal information.

There are some examples of business pioneers in a data marketplace. EverySense Japan (founded in 2014) started to operate data marketplace EverySense in 2016. IID, one of the twenty companies that participated in the marketplace from the beginning, has been selling data obtained through its information sharing website on auto fuel economy since May 2017. INTAGE, a market research company, has also joined the marketplace to purchase data related to diversified consumers' lives from individuals and companies. At EverySense, sellers are selected based on requirements set by buyers, and if the consideration of data is agreed to and data usage conditions are met, data will be provided. The consideration of data is decided based on data volume (categories, periods, etc.), additional information that the seller discloses (personal information, etc.) and supply/demand. As for the consideration of the data, points issued by EverySense Japan will be awarded, and such points can be exchanged with other companies' points at a partner website. The buyer of data purchases points from EverySense. EverySense considers distribution of raw data as one of the key strategies in market operations, as such data is easy to handle in data distribution. Sensing data, which is increasing with the progress of IoT, is one such example. Omron and Japan Data Exchange are also preparing for the opening of a data marketplace.

PDS (PERSONAL DATA STORE) AND INFORMATION BANK

Meanwhile, PDS (Personal Data Store) and information banks are expected to be used mainly for distribution of data including personal information. These two systems allow individuals to provide their data proactively. The concept of using PDS and information banks is called Vendor Relationship Management (VRM), as individuals take control of their relationships with companies.

PDS

PDS is a system in which individual persons can manage their personal data (such as attributes, hobbies, and personal history) and provide it to companies by themselves. By using PDS, individuals can utilize their data proactively. For example, they can ask a company to offer more personalized services by letting it know their preferences. Meanwhile, companies can understand what each person is interested in based on directly-obtained information (not based on data analysis). They can also make use of data for their business with individuals' consent.

Of note, the Ministry of Economy, Trade, and Industry (METI) and the Ministry of Internal Affairs and Communications (MIC) have already launched demonstration projects using a PDS in the tourism industry.

METI launched demonstration projects to establish an "Omotenashi (Hospitality) Platform" in October 2017, in which overseas tourists register their information (e.g., their preferences and dislikes) and provide it to businesses/communities that participate in the platform. Foreign visitors to Japan are able to enjoy services according to the information they have registered, and do not have to go through various procedures at each place they visit, as the registered information is shared among the participating businesses/communities. Meanwhile, tourism-related business operators can provide such tourists with more convenient and personalized services by utilizing data that was difficult to obtain by a single business/community. By sharing the information, they will also be able to offer high-quality services including seamless transportation services. The Japanese government is aiming for full-scale system implementation by 2020. PDS platform providers include Dai Nippon Printing, NEC, and Fujitsu. One of the advantages of such companies is that they can form a direct connection with individuals as they store personal information.

Overseas, venture companies have already started PDS services (Chart 2). digi.me (UK) offers services to allow individuals to aggregate/manage their data (including information on social media accounts, and financial/credit data) and provide it to companies via apps under the conditions they want. When companies are provided data, they will pay a commission to digi.me. Through France-based Onecub's services, individuals can manage specific data (purchases, etc.) included in their e-mails and provide it to companies. For example, e-mails from online shopping sites contain a large amount of data related to purchases (product name, payment amount and method, etc.). Onecub extracts such data from e-mails so that individuals can utilize their data. These services have been created on the back of the EU's measures to protect personal data. The EU will promulgate the General Data Protection Regulation (GDPR) in May 2018, which stipulates the data portability right (individuals can reclaim their data and transfer it to third-parties). As such, Europe will take the lead in PDS services.

Chart 2: Overseas PDS Service Providers

Company name	Location of HQ	Founded in	Overview
digi.me	UK	2009	- Offers services to allow individuals to aggregate/manage their information on social media accounts and financial/credit data, and provide it to companies under the conditions they want - Adding Fitbit (US) data from wearable devices is also possible from January 2018 - Merged with rival Personal (US) in 2017 (company name is unchanged)
Onecub	France	2012	- Offers services to allow individuals to manage specific data contained in their e-mails and provide it to companies - Extracts specific data from e-mails related to online services (purchase/travel history, etc.) - Discloses statistics based on anonymized extracted data on its website
Meeco	Australia	2012	- Offers services to allow individuals to manage their attributes and preferences, and share this with specific, reliable third-parties - Users can show their willingness to purchase products/services and visualize/analyze data - Opened offices in UK, Germany

Source: Compiled by MITUI & CO. GLOBAL STRATEGIC STUDIES INSTITUTE (MGSSI).

Information Bank

An information bank is a system that manages and utilizes an individual's personal data in PDS based on his/her consent. Information bank operators judge appropriateness of providing data on behalf of the individual,

anonymize data if necessary, and provide it to third parties under the terms and conditions agreed to by the individual. Then, they give back data usage fees to him/her according to the degree of data disclosure. It might be possible for information bank operators to add value by aggregating several individuals' data. For individuals, one benefit of using information banks is that they do not have to decide whether it is appropriate to provide data each time, and they can receive data usage fees by having professionals manage/utilize data efficiently. For companies, one benefit of using information banks is that they can obtain comprehensive data that helps them understand consumers (as they do from PDS).

As for information banks, the METI and the MIC established a study group to discuss (1) functions of information trust required for information banks and (2) approaches to establishing relevant rules for providing data containing personal information, as a public-private joint effort. In the private sector, demonstration tests were conducted. Fujitsu and AEON Financial Service (AFS) launched an experimental project in August 2017, in which Fujitsu employees provide such personal data as attributes and hobbies to AFS voluntarily through Fujitsu's experimental platform (Fujitsu assuming roles of PDS and an information bank). In exchange, the employees receive points that can be used at certain stores of cooperative companies. The functions of the PDS, effects of points awarded, and feasibility of proposing financial products tailored for data providers, etc. were examined through this project. Dai Nippon Printing also examined the feasibility and issues of functions of information trust in the MIC-led research project for social implementation of such functions.

OUTLOOK FOR DATA DISTRIBUTION

These new data distribution systems are expected to facilitate the flow of data. As for the data including personal information, the individual's consent is necessary for providing data to a third party under the Act on the Protection of Personal Information. As such, the distribution of such data has been limited. PDS and information banks will provide new ways for companies to obtain such data, but companies need to be trusted by individuals. Meanwhile, after the revision of the said law, it is now possible to provide the anonymized personal data to a third party without the individual's consent. However, companies are concerned about a reputational risk and only a little progress has been made on this front. Going forward, building track records in the data marketplace will accelerate the distribution of anonymized data. As for the data that does not include personal information, a large amount of data has been generated, but such data has been accumulated within companies. Data marketplace will give companies opportunities to monetize data after primary use, and facilitate the secondary use.

In expanding data distribution, there are two major challenges: (1) the absence of institutional mechanisms and (2) technical issues. For (1), securing neutrality, transparency, and fairness is important for data distribution companies. A company or an individual who sells data may be concerned about the possibility of a purchaser's utilization of data in a way that the seller has not intended. Meanwhile, a buyer of data may be unsure about the quality of data obtained. For (2), data distribution companies need to achieve efficient matching of various data. In response to these challenges, Data Trading Alliance, which was established in November 2017 with participation of business operators involved in data trading, is developing various rules for data trading, including those aimed at increasing recognition of data distribution companies. Data Trading Alliance plans to introduce certification/auditing schemes in July 2018 and check whether specific business operators involved in data trading are qualified. Following the discussions held by both the public and private sectors, the data distribution business in Japan has entered a pioneering phase, which is led by the private sector.