Innovation Nippon 研究会報告書

English Abstracts for Study Reports

Finding Commercially Valuable Data through Freedom of Information Requests to Local Governments

This report is from a study on freedom of information requests at local government level to identify commercially valuable data sets. It examines if they are appropriate for open data and the practice of publicly releasing data sets for reuse in order to generate, among other things, economic benefits.

Many people, including local government officials, are interested in finding out how to generate economic benefits through open data. It is not very well known among them that freedom of information requests are used sometimes, some say often, for commercial purposes, and that this controversial. It is almost puzzling that, in the context of open data, we are looking for data that government can provide for the public, whereas in the context of open data, requests for commercially valuable data are frowned upon. Seeing these two situations, it flows almost naturally that some of the frequently requested data may just be opened up online, as opposed to spending time to respond to each request each time. The benefits that an open data policy seeks to generate may arise out of such a practice, while the cost may be reduced in some local governments.

The study employs three methods: One was a text mining analysis of reports on freedom of information requests, i.e. what is requested, how they have been responded to, etc.). Such reports are published by multiple local governments online, and we picked six of them which were all we found from cities with special administrative designation (*Seirei Shitei Toshi*). Second was a questionnaire survey of 73 local governments (all prefectural and designated cities' governments, and six more cities where open data is actively implemented) with a response rate of 66.7%. The third was interviews with local government officials in charge of freedom of information. Of the eight governments contacted, five granted interviews, four of which were from designated cities, and one from a city government.

The three lines of investigation corroborated in suggesting that there are two major types of data that are frequently requested. One is design and planning documents for civil engineering projects with cost /price information. Another is lists of business establishments, particularly related to restaurants and bars, beauty and health, and medical industries. The design and planning documents may be easily handled by open data, because the text mining analysis of the reports indicates that four of the six local governments were predominantly responding to these requests by disclosing the whole documents. For the city of Kawasaki, for example, nearly 60% of the freedom of information requests were for this type of document. Opening up these documents may bring a great reduction in personnel costs. One specialized business seems to use these for estimating appropriate cost for various civil engineering projects that are subject to public tender. While the exact effect of publishing this type of information may deserve further study, reducing the input cost for this business may make it more efficient.

The second type of data, lists of establishments, even more uniformly responded with complete disclosure, making them seem easier for opening up. From our interviews, it is suggested that the lists may be used for marketing and sales communication. The ratio of non-local persons or entities making these requests seems to be relatively high, hinting that a nationally uniform data format may provide greater convenience for regional or national users of these data. One caveat, however, is that there are some establishments that do not wish to be contacted, and therefore not have their information be disclosed.

A larger challenge for local government is tighter coordination between freedom of information and open data policies. People in charge of these different policies have somewhat different attitudes, and they are typically not well connected with each other. While the former is for transparency and access to information, the latter is more focused on reuse. In the past, there was a part of a bill to amend freedom of information rules to mandate government to proactively publish documents (or government-held records) if that is disclosed and is expected to be subject to further requests. This serves as a model for where reform should be headed. Another could be found in the City of Yokohama, where open data promotion and provision of information requested by freedom of information rules are physically adjacent to each other. Another challenge found was better internal management of government-owned data or information. A good deal of the cost of handling freedom of information requests is found to be associated with just looking for information, because it is not clear if and where such information exists within the government itself. Improving data management would be an opportunity to make open data part of routine administrative work, too, as opposed to some practice requiring special labor and costs.

Exploring Innovation Potential in Japanese Education from EU Open Education Policies: International competitiveness, employment and digital divide

This report examined policy implications for Japanese education through the EU's open education policies and practices. In September 2013, the EU Commission issued a communication *Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources*. The policy was found to be based on the understanding of major tools of open education such as open educational resources (OER), massive open online courses (MOOCs), and open badges. The policy has two major policy goals in mind: increasing the pool of employable people with ICT skills and easing the shortage of workers, and upgrading education through the use of ICTs (for learners of ICT skills or other subjects such as economics, bioengineering, business administration, etc.) At a higher level, major policy goals are supporting the international competitiveness of EU economies and contributing to the easing of unemployment problems.

OER is given an important place in achieving these and other policy goals, because teachers and learners can copy, modify, share, or otherwise use OERs in a flexible manner. Such flexibility is a key to teaching and learning about taking advantage of the possibilities that ICT provides. Collaboration, personalization, and blending of formal and non-formal learning are among several important potentials that can be exploited. OER can help by legally enabling the use of teaching and learning materials. The *Opening up Education* document shows the depth of understanding of the issues surrounding OER by suggesting that the promotion of OER involves not just support on the production of such materials, but also improvements in discoverability and the quality assessment of resources, among other things.

In the long run, as recognized in *Opening up Education*, business and teaching models of educational institutions may need fundamental rethinking, or competitive pressures will threaten them and the overall economy. Because the adoption of OER is a good gateway to explore these issues, early adoption is recommended. Japan does not have a policy on the promotion of OER to begin with, but it should pay attention to the fact that production may be costly, and the ecosystem supporting the distribution, discovery, selection, and other activities bridging generation and reuse may take time to develop and grow. If short-term rewards are desirable, there are two policy options: 1) creating a small-scale collaborative community involving producers and re-users, and 2) investing in the creation of OER for the type of subjects where accelerated development of trained professionals is imperative, but where teaching and learning materials are in shortage.

MOOC in Japan is left to the private and educational sectors' voluntary efforts. The government's involvement is not necessarily ideal in this type of experimentation. However, there are a number of things that for which governmental intervention may make sense. Namely,

- examining OER's potential broadly,
- promoting practices of inter-institutional collaboration in contexts such as faculty development, collaborative development of educational materials, and the holding of courses whose credits are recognized and transferrable by other participating institutions, and
- assisting research on technical know-hows and effects of OER use.

Learning opportunities are diversifying and increasing with the development of ICT, but the increases may not necessarily lead to substantial societal benefits if the results are not

formally recognized. Japanese policies supporting such certification and assessment are relatively sparse and of limited scale compared to the EU's policy framework. This is another important policy issue where Japan may need to develop a response.

The economic benefits of open data and big data in agriculture

This report explores the economic benefits of open data and big data in agriculture and related businesses. ICT usage in agriculture is expected to be applicable not just to production but also to distribution. Use of data generated throughout these different stages through the entire structure of business is of increasing importance.

We are still collectively learning about how data could be usable with specific use cases, and how broadly the potential for innovation exists, for both open data and big data. We see estimates (occasionally large figures) cited in the media, but more in-depth examination within a specific domain would help us better learn to figure out how these estimated benefits materialize.

"The Japan Revitalization Strategy – JAPAN is BACK," adapted on June 14, 2013 by the cabinet includes an idea to make food and agriculture-related businesses a major industry. In issues related to the improvement of species and genetic modification, use of ICT has a potential to make a major effect.

The market size of agricultural ICTs is expected to grow to 58-60 billion yen in 2020. Agricultural cloud businesses are expected to grow to occupy a significant portion of this. There is a wide array of key technologies involved, ranging from GPS, sensor networks and robotics, to cloud computing and point-of-sales technologies. It is important to think about how to make use of data generated as a result of using these technologies. There is also a question of how much of these data are going to be openly usable, and used.

This report introduces and analyzes a number of use cases of ICT in agriculture-related businesses, and to gain insights into the potential of open data in agriculture, and draws policy implications. It concludes by suggesting the following to be more promising areas to focus on:

- Opening up data from sensor networks
- Branding by making use of data
- Improving management
- Promoting exchange of knowledge among experts

WING: Design and Entrepreneurship

WING (Women and Innovation Networking) in the year 2014 carried out research with the question: "What are is the types of fields and professions in ICT-related spaces in Japan where the active role of women is strongly expected?" By "the fields and professions where the active role of women is expected" we mean either: 1) where there are conditions or an environment conducive to women's active participation, such as the existence of female role models, or; 2) where the contribution of women is expected to bring positive impact for Japan's ICT industries and Japanese society at large.

The later half of the 20th century saw rapid economic growth in Japan under the technology-based industrialization policies. The technological advancement drove innovation, which in turn spurred economic growth. However, the ongoing transformation from an industrial to a knowledge economy during the period from the late 20th century to the present means that the innovation principle has fundamentally changed. We drew a hypothesis that the types of ICT professions for which the active participation of women might be most expected could be related to the area of "design." Design in this context means designing solutions to meet implicit needs or social problems based on deep insights into people and society. We also thought that such a profession could make a bigger difference in the starting up of a company rather than just working for an existing major firm or public sector agency.

At the first public research gathering, Mr. Keiichiro Mitani, Partner at NTT DATA Institute for Management Consulting, shared his deep understandings of the design profession and how to grow a pool of ICT professionals. He pointed out that the establishment of a design profession is particularly needed to create new ICT-enabled services, and the important qualities for the profession includes an understanding of users' perspectives, collaborative competence, and agility. He further stated that women have keener sensibilities for user-innovation that are closely related to everyday life. Ms. Mirei Ishikawa, of the Human Resource Development Group, Human Resources Department, Corporate Planning Division, Recruit Technologies Co., Ltd., introduced two projects led by females that were closer to the needs of users.

The second public research gathering featured two female design professionals who have brought their ideas into reality through entrepreneurship, who can serve as role models for women that follow. One is Ms. Takako Kansai, the Chairman of the Board for Zaim, who developed a bookkeeping application for smart phones from users' perspectives. Another is Ms. Haruka Mera of READYFOR, who launched a crowdfunding website that helps turn people's dreams into reality.

In order to further examine the above-mentioned hypothesis, a series of interviews were conducted. Their findings suggested that women are already making notable achievements in the design profession, and that further participation would lead to greater socioeconomic impacts. It was also found that the risk of starting a company is decreasing in the ICT field because of reducing costs. Starting a company tends to be a faster way to actualize ideas, making the entrepreneurial route a rational choice for design professionals.

Interview informants for the research were:

- Ms. Ayaka Kubozumi, Co-Founder of GOB Incubation Partners, who has experience in business ethnographical research, and started a company with colleagues

- Mr. Akira Kataoka, General Manager, Center for Innovative Human Resources, IT Human Resources Development Headquarters at the Information-technology Promotion Agency (IPA). The agency issues an annual IT Profession White Paper
- Mr. Akira Kotsugai, Supervisor, IT Human Resources Development Planning Department, IT Human Resources Development Headquarters at the Information-technology Promotion Agency (IPA)
- Mr. Akinori Tanizawa, Supervisor, IT Human Resources Development Planning Department, IT Human Resources Development Headquarters at the Information-technology Promotion Agency (IPA)
- Ms. Ryoko Morishima, IT Human Resources Development Planning Department, IT Human Resources Development Headquarters at the Information-technology Promotion Agency (IPA)
- Ms. Toshie Takahashi, Professor in the School of Culture, Media and Society, Waseda University, whose research is focused on media and youth, using ethnographic methods
- Mr. Kou Yukawa, Research Fellow, Economic Research Center at Fujitsu Research Institute, who is knowledgeable about the startup scene in ICT-related spaces.