Fujisawa Sustainable Smart Town

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Introduction

In 2010, Fujisawa city and Panasonic, Japanese gigantic electric company reached an agreement to establish Fujisawa Sustainable Smart Town (FSST) at the vacant lot of Panasonic's previous industrial complex. FSST comprises of 1000 households in Fujisawa city in Kanagawa prefecture, located approximately 50 km west of Tokyo. With its' proximity to Tokyo metropolitan area and the surrounding natural resources such as Mt. Fuji and Shonan dunes, Fujisawa city is known as a popular community town[1]. The FSST concept book[2] states that the initiative is intended to "build a new smart town based on actual lifestyles" (p. 3), by providing five different services to its residents: Energy, Security, Mobility, Wellness and Community. The purpose of this essay is to assess if FSST initiative truly considers its' residents as the foremost priority by placing its focus on the different stakeholders in the initiative, especially technological cooperations. While the initiative's effort has already been recognised and received awards in multiple contexts[2], it is difficult to examine the level of the initiative's contributions to its residents as the initiative is relatively new and the construction is still underway at the time of writing: first residents moved into FSST in 2014 and the development is expected to complete by the end of 2018[3]. As such, the assessment is conducted based on the analysis of 5th edition of FSST concept book[2] published in 2017 by FSST council. In addition, this essay also reviews conference presentations and cooperate websites. The first section explains the structure of FSST initiative based on the information on the concept book[2]. Next section examines the advantages and the challenges of the initiative with the viewpoint of the extensive use of IT in its' town service, Japanese national resilience policy, and the citizen participation. Concluding comments are given in the final section.

1. Main Components of FSST

FSST initiative is organised by FSST council that is composed of 18 companies. To set a clear direction of its initiative, four numerical targets are created by the council: (1) 70 % reduction of carbon dioxide emission, (2) 30 % reduction of water consumption, (3) coverage of 30 % of total energy consumption with renewable energy, and (4) 3 days to recover to the normal condition in the event of disasters. To achieve these goals and realise smart community lifestyle, the initiative defines five divisions of services: Energy, Security, Mobility, Wellness, and Community. In addition to these predetermined targets, FSST committee is set to make sure that the city takes account of residents' needs and lifestyles. The services and facilities are developed with the help of FSST Management Company that is currently comprised of nine companies that include a bank, a real estate developer and a technological company. In particular, Panasonic takes a leading part in the

organisation, with its group companies holding half of the total capital[4]. Following part of this section will explain each division of five services.

Energy

Considering the risk of disasters, each house in FSST is equipped with solar panels and storage batteries, which enables residents to access to essential devices such as lighting and electric vehicles in the face of tragic events. In addition, the amount of energy generated, consumed, purchased and sold at each household is visualised through SMARTHEMS[5], home energy management system provided by Panasonic. The system also provides consulting services on energy usage based on the family structure of each household in order to prevent wasteful use of energy resources.

Security

To provide the peaceful and worriless life to its citizens, FSST emphasises the importance of the security of its residents. Considering that the physical walls or intensive surveillance can evoke the feeling of oppression, the initiative intends to achieve "unobtrusive" security system under the concept of "virtual gated town". While the detailed description of the concept was not found, the following statement appears on FSST concept book[2].

"Around 50 surveillance cameras and lights are effectively installed at the entrance to the town, public buildings, shady areas in the park, crossings on main streets, etc. Furthermore, combining these facilities with patrols by "security concierges", will give the town comprehensive security in an open atmosphere." (p. 12)

Furthermore, FSST Management Company provides 24/7 home security service to each household.

Mobility

With its proximity to Kamakura, one of the most popular touristic spots in Japan, Fujisawa experiences serious traffic jam on the weekends. To mitigate this problem, FSST Management Company provides a sharing service of electric vehicles and electric assisted bicycles for its residents. Based on the traffic amount of the day and the destination of the travel, the service recommends the optimum transportation method. Upon the reservation, the optional service delivers a rental car to the user's house.

Wellness

As the world fastest ageing society[6], wellness of elderly population is a particularly important challenge in Japan. By sharing data across different facilities such as hospitals, sports clubs, and pharmacies, FSST initiative intends to provide comprehensive care supports to its residents. In addition, the initiative offers community place "Wellness Square" that is expected to enhance the communication between residents. For example, FSST Management Company occasionally organises recreation events[7] for elderly people in Wellness Square. The access to Wellness square is not limited to aged population. It also plans to provide educational support for children and various lectures for adults such as baby food seminars.

Community

To ensure the engagement of residents in the activities and maintain the lively community in the town, FSST takes various approaches. The most notable service is SOY LINK[8], provided by Panasonic. With the use of IT, it aims to regain the good old community in Japanese society, where neighbours help each other on a daily basis: the name SOY LINK is named after the Japanese old tradition of borrowing soy sauce to the neighbours. Users can post daily problems on the SOY LINK bulletin, and the other residents can respond and help to solve the problem. To further encourage the residents' engagement in the community, FSST adapts a point system. Upon the participation in the local events and the response to the questionnaires, residents are awarded points that can be exchanged with presents.

With the aim to expand these five services, FSST Square is prepared, where residents and FSST committee can showcase the current approaches and problems to visiting guest stakeholders. Video-calling facilities are also prepared so that the initiatives can always appeal to international cooperations for the possible collaborations.

2. Benefits and Challenges of FSST

With the help of multiple cooperations, FSST initiative is expected to bring positive impacts to its residents. However, the unapparent side-effects and the risks of the initiative should not be overlooked.

Information Technology

Information technology is widely adopted throughout the five divisions of the initiative. Especially, the initiative intends to offer suitable services to each resident by means of collecting data. Residents are provided with: the energy reports based on their energy consumption data, the recommendations on the transportation method based on the residents' travel destination, and the health-care services based on the residents' health and treatment data. Certainly, those customised services can reduce the energy consumption, mitigate the traffic jam and improve the residents' health treatment services. The problem is that the heavily IT-reliant community is liable to allow technologically advanced cooperates to control residents (Graham, 2002). The potential danger can be seen in the "Energy" division of the concept book[2]:

"Residents learn how to live in the town and adopt eco-friendly and smart lifestyles." (p. 8).

In the world where "essentially egalitarian nature of the early Internet is increasingly being replaced by 'smart' corporately controlled systems" (Graham, 2002, p.53), the dominant cooperations can easily exploit the gathered information to provide services in the way that maximises their profit, and the citizens are obliged to adjust their behaviour based on the provided services. To prevent this, policymakers, as well as residents, need to stop believing blindly that technology will automatically makes the community better. Instead, they need to admit the inherent biases that can secretly disadvantage their community. Furthermore, such technological services can overwhelm residents who are unfamiliar with IT, and make them hesitated to use the services. With the limited access to the town's essential information resources, such residents can be marginalised. In particular, considering the elderly population in the town, the producers' of the services are

responsible for providing residents with the supportive training session, as well as maintaining the user-friendly user-interfaces.

National Resilience

Months of extensive electric power outage following Great East Japan earthquake 2011 reminded Japanese policymakers of the necessity of the distributed and renewable energy system (Onoue, Murakami, and Sofronis, 2012). Thereafter local authorities begun to take initiatives to realise local generation and consumption of renewable energy[9]. This movement was further accelerated with the formation of National Resilience Council by the Japanese government in 2014[10]. This governmental program was established to enhance Japan's resilience to disasters by facilitating the collaboration of private and public sectors[11]. Under the program, local authorities are expected to establish resilient energy system in collaboration with business sectors. Thus, increasing amount of investments are expended by the related business sectors. According to National Resilience Council[12], the private sectors' spending on national resilience was JPY 8.0 trillion (USD 74 billion) in 2013 and is expected to grow to JPY 11.8 ~ 13.5 trillion (USD 110 ~ 130 billion) in 2020. In particular, the national report estimated that the market size of electric vehicles and renewable energy are the most significant. This major national trend of the development of the resilience and public-private partnership can easily be recognised in the FSST initiative. With the instalment of advanced energy infrastructure and rental electric vehicles, FSST is intended to reduce carbon emissions, and become self-sufficient in energy. Despite the obvious advantages of this approach, there is a hidden risk that with the excessive focus on technology-oriented national residence, the complex problems of planning are converted into numeric targets and the urban policy can become oversimplified (Vanolo, 2014). As such, the initiative is required to make sure that other divisions of its services such as "Community" and "Wellness" are treated with equal importance with the booming divisions such as "Energy" and "Mobility". Specifically, as the FSST council is comprised of technology-oriented cooperates that are not democratically elected by residents, other stakeholders such as Fujisawa municipal government and residents need to carefully examine if the initiative's services prioritise residents, not the national economic trend.

Citizen participation

In its concept book[2], it is repeatedly mentioned that FSST initiative builds smart town "based on actual lifestyle" (p. 3). It proudly claims that residents can share their opinions with business operators at FSST Committee.

"To continue developing and nurturing eco-friendly and smart lifestyles even a century from now, people and companies need to share their visions, establish systems and services needed on a moment-to-moment basis, and take actions that affect the entire town. To this end, … Fujisawa SST Committee will act as the foundation for resident-led town development. It generates specific ideas and takes actions to achieve the goals of the entire town." (p. 25)

While the aim of the committee is clearly mentioned, there is no concrete instruction on how to realise such resident-led town. With this oversimplified documents, dominant business sectors can easily ignore residents'

unfavourable opinions and take advantage of the lucrative business opportunities in the town, which leads the initiative to the danger of what Arnstein has called "tokenism" (Arnstein, 1969). In such a case, residents are just used to justify the fairness of the initiatives under the ostensible concept of participation. In order to insure that the residents' opinions have direct impacts on the town's decision-making process, more specific stipulations are needed to be documented. For example, among the various methods to gather residents' opinions such as surveys, meetings and public hearings, which approaches will be conducted? How frequently will that be organised? One thing that is clear from the "Community" section of the concept book[2] is that residents are compensated with points upon the participation in the questionaries. Even though this can potentially motivate citizens to participate in the surveys, the outputs can be meaningless if the respondents do not fully understand their options: "Had the mothers known that a free prepaid health insurance plan was a possible option, they might not have put tot-lots so high on their wish lists." (Arnstein, 1969, p.219). Especially with the case of FSST initiative, as the cooperate sectors hold strong influences on the decision process of the town planning, FSST Committee is required to carefully examine if the balance of political powers between residents and cooperations are maintained in the way that ensures the citizen participation. On the other note, some of the phrases included in the "Security" section of the concept book[2] are not very comprehensible such as "virtual gated town" (p. 11). The initiative needs to employ plainer text with which all the residents can understand what the policy implies.

3. Conclusion

The analysis conducted in this essay indicates that Fujisawa city and residents need to carefully examine the implication of the policies and services suggested by the technological cooperate sectors to make sure that it prioritises residents, not their profits. In addition, it also demonstrated the potential risk of the excessive focus of national policy of national resilience. While the realisation of locally-generated renewable energy system is certainly an important step toward the resilient nation, this booming trend can potentially oversimplify the discussion in the town planning. Finally, in order to insure the citizen participation in the town the necessity of the detailed explanation of its' policy is emphasised. However, despite a number of challenges presented, it is noteworthy that FSST initiative is attempting to solve important challenges that other Japanese communities also need to address, namely local generation of energy, wellness of elderly population, and the community establishment. To achieve the town that is truly "smart", extensive discussion between business sectors, Fujisawa city, and residents are essential. (2340 words)

Notes

1. see Summary of Fujisawa city (in Japanese): https://www.city.fujisawa.kanagawa.jp/kikaku/shise/kekaku/kakushu/plan/documents/000275960_3.pdf (accessed April 2018)

2. see FSST Concept Book: http://fujisawasst.com/EN/pdf/FSST-ConceptBook.pdf (accessed April 2018)

3. see Panasonic Newsroom Japan website(in Japanese): https://news.panasonic.com/jp/topics/2014/38467.html (accessed April 2018)

4. see Fujisawa Sustainable Smart Town Official Site: http://fujisawasst.com/EN/info/company.html (accessed April 2018)

5. see Panasonic Energy Solutions for Homes website: https://panasonic.net/es/solution-works/HouseEnergy/ (accessed April 2018)

6. see Statistics Bureau of Japan: https://www.e-stat.go.jp/en/stat-search/files?page=1&layout=datalist&toukei=00200524&tstat=000000090001&cycle=7&year=20090&month=0&tclass1=000001011679 (accessed April 2018)

7. see Koyama medical & welfare group website (in Japanese) : http://koyama-gr.com/?p=33165&cat=3 (accessed April 2018)

8. see SOY LINK website (in Japanese): http://www.soylink.jp/ (accessed April 2018)

9. see Japan for Sustainability website: https://www.japanfs.org/en/news/archives/news_id035553.html (accessed April 2018)

10. see National Resilience Council website (in Japanese): http://www.cas.go.jp/jp/seisaku/resilience/ (accessed April 2018)

11. see Summary of National Resilience plan (in Japanese): https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/pdf/kk-gaiyou-h240603.pdf (accessed April 2018)

12. see The estimation of private sector market-size in national resilience (in Japanese): http://www.cas.go.jp/jp/seisaku/resilience/dai24/siryo2-3.pdf (accessed April 2018)

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Arnstein, S.R., 1969. A ladder of citizen participation. Journal of the American Institute of planners, 35(4), pp.216-224.

Vanolo, A., 2014. Smartmentality: The smart city as disciplinary strategy. Urban Studies, 51(5), pp.883-898.