ReDi2Service (Remote Diagnostics Tools and Services)

Service development

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1. Background and Motivation

The design of maintenance prediction and diagnostics services for a sustainable system is challenging and lead to manufacturing-service dilemma. The project, therefore, also include two PhD studies regarding related service design and value networks.

Alacritous innovations in digital technology are rapidly transforming the landscape for contemporary business and the ways to represent these through related value networks. The concept of digital products' use has aggrandized the scope of maintenance of the vehicles with the help of remote diagnostics. Given the new paradigm, the vehicle industry is stretching its scope from manufacturing to services industry. However, this shift augments number of challenges and opportunities. Moreover, it has been exacting to identify business models and form value networks that enable profitable business in terms of sustainability.

The traditional manufacturing industry is based on value chain which is underpinned by particular value creating logic. Adopting a value network perspective provides an additional insight that is more suitable to new economy, especially those involved in digital products. This brings attention to their contextual use while bringing the customers' perspective into focus. This customer perspective has not been addressed in traditional manufactured product business. As digital services have open innovation nature, it is essential to know the value of the offered services on the basis of customers' needs as well as the offerings of these services in a systematic way.

As an endeavor to move from traditional preventive maintenance towards predictive maintenance based on advanced digital technology, remote diagnostics services fall into the category of those digitally innovative services where services are acquired through digitalization of existing products or services. Remote diagnostics services will also digitalize the existing mode of maintenance services of vehicles. Digitalized services are combination of physical products (digital artifacts) and services rendered from the physical products. So, to design the remote diagnostics services we have to understand the logic of these services because the logic of digitalized services will be different from the conventional manufacturing products or conventional services such as hotel service. So, one of the objectives of this research is to understand the logic of digitalized services which are the results of digital innovation in the context of remote diagnostic services in the vehicle industry.

The logic of digitalized services is influenced by the concept of digital innovation characteristics such as re-programmability, homogeneity of data and self- referential nature of digital technology. Based on the discussion on service logic and goods logic from the service management field, it can be said that understanding the logic of digitalized services (in this case, remote diagnostics services) include various aspects such as determination and meaning of value, role of customers, role of physical products (digital artifact) etc. One of the aims is to involve customers as the co-creators of services and that will help us to understand the customer requirement and further developing a framework for co-creation of digital services. To understand the service quality aspect, we are to going to investigate the value determination aspect as that will ensure that the services create value for the customers. Vehicular remote diagnostics services are basically linked with two physical products: the device and the vehicle. To deliver the services, both the vehicle and embedded device will play significant role. Understanding that role is also crucial for designing essential services. Overall, designing services will encompass various aspects and all we focus is to create value for the customers as well as the service providers.

This digital service innovation in particular is of great importance since the vehicle industry has great potential to expand its business and found new and extended boundaries and relationships with other stakeholder in the networks they are attached to. Core challenges and opportunities for digital service innovation will lead us to the study of its influence on the business and innovation environment i.e. the value network.

2. Methodology

The project involves exploring the opportunities and challenges associated with these digital technologies as well as analyzing value networks. It is conducted in a collaborative manner between research community and practitioner from the industry as such that it can be characterized as action-oriented research methodology. Accordingly, many activities are performed in a cyclic way to ensure to validity and reliability of data. These activities include conducting semi-structured interviews, analyzing value networks, conducting workshops, and attending meeting. Different kinds of empirical material that was collected during these activities include audio interviews, value network maps, observations, project documents, e-mail correspondences, and field and meeting notes.

All the activities and collected empirical material are aimed at the following:

- Exploring the opportunities and challenges associated with the digital service innovation;
- Conducting 'Future Workshops' to build scenarios by keeping in mind next 5 years services (the purpose of scenarios is to visualize the possible service with these digital technologies)
- Participating in 'Service Design/Conceptualization Workshops' (to co-create service out of the future workshops)

On the basis of the data collected, we aim at providing illustrations on how existing value network in the vehicle industry is influenced by the service innovation based on remote diagnostics system.

3. Results

The ReDi2Service project is an on-going project and several opportunities and challenges are identified along the way. The empirical material collected during different activities mentioned above serve the basis of 'Future Workshop' to build scenarios. Some of these scenarios will be further co-designed with customers and technology provider to exemplify the possible services.

PUBLICATIONS

[1] A. Akram and M. Åkesson, " Value network transformation by digital service innovation in vehicle industry", 15th Pacific Asia Conference on Information Systems, Brisbane, Australia, July 7-11, (2011)

[2] S. Chowdhury and M. Åkesson "A proposed framework for identifying the logic of digital services", 15th Pacific Asia Conference on Information Systems, Brisbane, Australia, July 7-11, (2011)

[3] S. Chowdhury and A. Akram, "E-maintenance: Challenges and Opportunities", 34th Information Systems Research Seminar in Scandinavia, Turku, Finland, Aug. 16-19 (2011)

[4] A. Akram and M. Åkesson, "A research agenda to study how digital service innovation transform value network", 34th Information Systems Research Seminar in Scandinavia, Turku, Finland, Aug. 16-19 (2011)

[5] S. Chowdhury and A. Akram, "E-maintenance as a prospective customer value generating IT-enabled Resource: An exploration of challenges and opportunities" submitted for European Conference on Information Systems 2012