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Analyzing the sustainability of a newly developed service: An activity theory perspective

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ABSTRACT

New service development (NSD) is the process of creating new services to fulfill target customers' needs. It is essential that an NSD project team cooperate across organizational boundaries and various disciplines to achieve the sustainability goal of an NSD project. This study adopted Activity Theory to understand dynamics of complex service innovation system and model the actions taken by different entities in telehealth service projects, in which we identified important contradictions that affect the sustainability of newly developed services. Based on multiple case study findings, this research identified challenges for these new service development projects such as user needs identification, the involvement of emergent technology and collaboration between entities from different industries. This study contributes to the NSD research by proposing five propositions which could be used for guiding stakeholders to effectively manage NSD projects to offer sustainable newly developed services.

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1. Introduction

In today's economy, organizations must continuously reinvent themselves to adapt to increasingly complex and dynamic market realities (Coates, 2009). Organizations, including government, are under pressure to sustain services in dynamic environments. Innovation is important for organizations that want to remain competitive. Service innovation is increasingly advocated by organizations today. Despite the importance of service innovation, there are few guidelines that are based on actual cases of successful service innovation. Moreover, it is a challenge to transform an inter-organizational service innovation project into a sustainable service business. In this paper, we present three case studies that describe telehealth service projects that rely on the digital transmission of medical data collected from patients in community health centers, private homes and nursing homes. Given the trend toward open service innovation, in which many business entities are involved in the process of creating a new service, the collaboration among the stakeholders involved in the service delivery is important for the success of newly developed services.

New service development (NSD) projects increasingly focus on the inter-organizational context of the process rather than on a single service provider delivering value to customers (Greenley and Foxall, 1998). The value of services can be delivered through a service value network, where firms embrace

participants in the value co-creation service process. Thus, NSD issues should be addressed in the context of multiple stakeholders. Indeed, many firms adopted the principle of open innovation to acquire external resources to fill the gap on delivering value to customers. Moreover, the complexity and uncertainty of technological innovation increase while absorbing diverse knowledge across organizational boundaries (Lin et al., 2012). This study seeks to advance from the description to a theoretical conceptualization of the problems posed by an NSD project to understand how the project team coordinated team activities. We require a theoretical tool that enables us to understand how service development is mediated in this particular context and a theoretical perspective that can operate across different levels of analysis: individual, group and institutional. Activity Theory (AT) is a philosophical and cross-disciplinary framework for studying the simultaneously interlinked individual and social levels of human practice in the development process (Kuutti, 1996). Because AT has been used to analyze the contradictions in the activities of different subjects in the development process, it is appropriate for this study to identify the key factors that affect the sustainability of a newly developed service. Thus, this paper investigates how inter-organizational actors coordinate their activities, which may affect the sustainability of a service innovation project. Consequently, we identify the research questions as follows:

- (1) How do multiple stakeholders coordinate their activities in an NSD project in the inter-organizational context?
- (2) What factors affect new service sustainability in the inter-organizational context?

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Based on qualitative interview data, this paper describes a multiple case study that involves NSD projects for telehealth in Taiwan. These cases have the common features such as the involvement of technologies in the new service delivery and the heterogeneous project team composition in conducting new service development projects. These characteristics are common traits of a new service enabled by technologies in modern economic era. Thus, they represent a typical technology-enabled service development project, specifically in telehealth contexts. This research identified problems with coordinating, sharing and developing expertise in these NSD projects among the various institutional actors, *i.e.*, motivating different stakeholders to share and achieve common goals while retaining their individual motivations and objectives. However, the problems that we identified, such as motivations and contradictions, are essentially descriptive.

This paper begins with a brief overview of NSD and AT. Then, three telehealth service cases are described, including the backgrounds and the research contexts. The next section analyzes the case studies and provides an explanation of the method. The NSD framework is described based on AT. This section is followed by multiple case studies to explain why such service innovation projects cannot be sustained. The paper concludes by presenting the main findings and offering suggestions for further research.

2. Theoretical background

The complexity of tasks in a project demands the involvement of different stakeholders which, in general, could have different objectives. Recently, specifically in healthcare contexts, Greig et al. (2012) investigated the team dynamics and the contradiction occurred in objects of activities using Activity Theory in complex

healthcare problem in different settings. This study could contribute theoretical knowledge on sustainable new service development in telehealth services by examining the contradictions occurred in NSD projects conducted by project teams composed of stakeholders with various domain specialties. In addition, AT focuses on the object of activity (Blackler, 2009), which is the aim towards people work collectively to meet an identified need (Chaiklin, 2011; Engeström, 1999). AT incorporates the notions of intentionality, mediation, history, collaboration and development (Nardi, 1996) to understand human activities and work practices. The unit of analysis is the entire activity as NSD process in the case study. Consequently, we adopted AT to analyze the contradictions in the activities of different subjects in NSD process.

2.1. New Service Development (NSD)

To be able to develop new services has become an important competitive practice for many companies (Johnson et al., 2000; Fitzsimmons and Fitzsimmons, 2000; Mansury and Love, 2008). Furthermore, it can be assumed that NSD is different from new product development (NPD) (Alam, 2002; Dolfisma, 2004; Stevens and Dimitriadis, 2004) because of the unique service characteristics of intangibility, heterogeneity, perishability, and inseparability (Lovelock, 1983; Shostack, 1977; Zeithaml et al., 1985). NSD refers to an overall process of developing new services, from idea generation to market launch. The NSD process is delivered through a service value network and can often be performed by multiple companies. The NSD research has been growing rapidly over latest decades (Shoatack and Kingman-Brundage, 1991; Booz and Hamilton, 1982), and generated many NSD models (Shostack, 1984; Bowers, 1989; Scheuing, 1989; Cooper and Edgett, 2000;

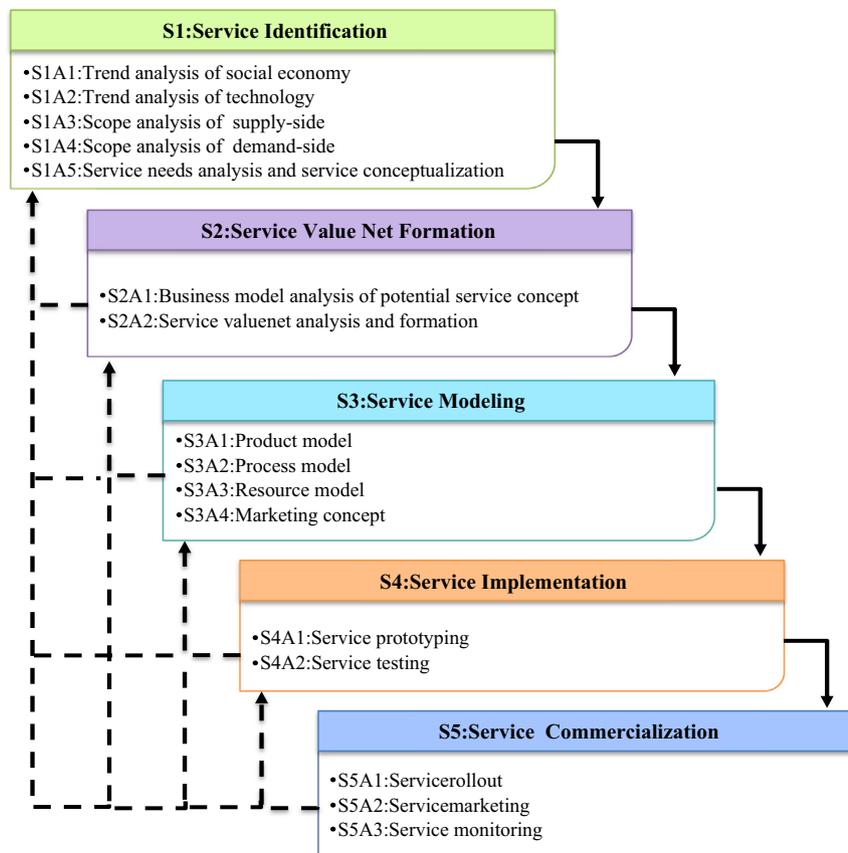


Fig. 1. S-A Framework of an NSD Life Cycle (Lin and Hsieh, 2011).

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