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Effectiveness of Co-Design Intervention – Adopting Service Co-Development Thinking

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ABSTRACT

This paper presents first findings from a case study exploring the effectiveness of co-design interventions in the context of service co-development. The research approach was qualitative, comprising of three cases. Data was collected from follow-up interviews with organizations that have participated in researcher-led co-design interventions. As theoretical lens for analysing the case data we use theories of knowledge creation, service research, and process thinking, aiming to form a holistic understanding of the phenomenon studied. As a result we present a categorization of the service co-development interventions' effects. Our findings indicate that the effects occur on two levels: thinking and practice. Furthermore, we argue that especially the use of visual boundary objects is crucial for the effectiveness of the interventions.

KEYWORDS

Service co-design method, intervention, process thinking, knowledge co-creation, community of practice

INTRODUCTION

During the last decades the developed economies have become dominated by services. Recently, the challenges created by globalization and tightened competition has reached not only the corporations but also the public organizations. To succeed in the current environment, the organizations developing and providing services have become to an increasing extent aware of the significance of user-centeredness in service development. This has raised the core question: How to design and develop services collaboratively with various users and stakeholders? The question has

awakened the interest of both researchers and practitioners in various fields. In close collaboration, researchers and service organizations have conducted numerous action research projects with service co-development interventions including, e.g., facilitated process simulation days, co-development workshops, and co-design sessions, all aiming at idea generation and enhancement of the service co-development capabilities.

However, little attention has been paid on the effectiveness and long-term impacts of the co-development methods and interventions (e.g. Steen, Manschot & De Koning, 2011). It has remained unclear whether the organizations participating in the workshops and other service co-development events have adopted the methods and mindset of co-development, and what kind of organizational learning or change the interventions have elicited, if any. In this research we explore and evaluate the co-development methods' effectiveness and long-term impacts in the case organizations with a follow-up interview study.

In this paper we (1) describe three different cases where service co-development methods were applied as a part of researcher-led interventions, and (2) aim to identify and categorize the effects and long-term impacts of the co-development interventions in the case organizations from two perspectives: (i) the service production and (ii) the service co-development practices.

We answer the following **research questions** based on the analysis of our empirical data:

- RQ1: What kinds of long-term effects have the co-development methods and interventions produced in the case organizations?

- RQ2: How can the effects of the interventions utilizing co-development methods be categorized?

The rest of the paper is structured as follows: First, the theoretical background and central concepts are presented, followed by a description of the case study methodology and data. Next, the findings of the study are presented, followed by the conclusions.

THEORETICAL BACKGROUND

As services and their development are a multifaceted phenomenon, the knowledge of several disciplines is needed to understand and develop the theory dealing with services (Spohrer et al., 2007) and to capture the effects of the service co-development interventions. Thus, the theoretical background of the study is multidisciplinary, combining theories and

concepts from the service development literature, process thinking, and learning sciences to form a more holistic understanding of the researched phenomenon. In our view this combination of theories opens a novel perspective on studying the impacts of service co-development methods. First, we conceptualize the service co-development and interventions with the help of service marketing literature. Second, we present the networked process view on services, and third, we introduce the knowledge creation view on service co-development.

Defining 'Service Co-development Interventions'

The targets and the level of the service development vary in organizations. For example, the activities of an organization can aim at designing a new product, improving its existing service or re-engineer an internal or networked process. For clarity, in this paper we define all the collaborative development activities under an umbrella term of *service co-development* and study how *interventions* can affect it. Next, we will define these terms with the help of literature.

The term *service* emphasizes the dominance of services in the current economy. Today, more than two thirds of the gross domestic product of the developed countries is produced by the service sector. In addition, even the value of physical products is now seen through the services they render (Vargo & Lusch, 2004), implying that the elements and assemblies of the services should be taken into account in all development work. Also the three cases analysed in this paper are all conceptualized as services: school and education models as a service and innovation process as a service.

An alternative for the word *development* would be e.g. the terms *design* or *engineering*. The *development* term has its roots, when discussing service development, in the Anglo-American literature of the 1970s and 1980s by the concept of *new service development*. Parallel to the development term, the *engineering* term was used in Germany and Israel with the *service engineering* concept in the mid-1990s (Bullinger, Fähnrich & Meiren, 2003). The main difference between the concepts is the approach they have towards development. The *new service development* is marketing-oriented whereas the approach of *service engineering* is technical-methodological. The marketing-oriented approach has created yet another term in the field of service development in early-1990s, the service *design*. The orientation of *service design* approach is in the experiences of the customers. The *service design* emerged from the tradition of product design and interface design uses creative design methods to visualize, formulate, and choreograph service solutions to problems that do not necessarily even exist

yet. (Erlhoff, Marshall & Bruce, 2008) On the other hand, the term *design* in service context can also be seen only as a part of a bigger service development process of several phases (e.g. Edvardsson et al., 2000).

The *co-* (short for *collaboration*) part of the umbrella term *service co-development* underlines the importance of collaboration and participation across the functions of an organization, between the organizations within a network, and especially with the users and front-line employees of the service. Co-design (nuances between the terms *design* and *development* explained above) is simply about empowering people, usually potential users, who have not traditionally been part of the design process (Mattelmäki & Sleeswijk Visser, 2011). Even if the terms like co-design, co-creation and co-development have only recently become frequently discussed themes in scientific literature and professional magazines, the practice of collaborative creativity and collaborative development have been around for nearly 40 years under the name of participatory design (Sanders & Stappers, 2008). In Scandinavia the roots of user participation in design date back to Norway of the 1970's where an R&D project related to the use of computer applications at the workplace applied so-called collective resource approach. The value of involving users has traditionally been most notably realized in the field of human–computer interaction and design research, but also the literature of organizational management has recognized the importance of empowering wider range of people in the development work. For instance the participation of employees has been seen as a critical requirement for successful change already since the 1960's (Smeds & Pöyry-Lassila, 2011).

In this paper the term *intervention* refers to a series of external researcher-led or practitioner-led facilitated face-to-face workshops organized for the stakeholders of a case organization or its network. In the intervention workshops the facilitators use creative methods to trigger and guide the development-related discussion and co-creation work. In all three cases' interventions various co-development methods (e.g. process simulation, future recall, design game, personas and scenarios) were applied in tailored configurations. However, all three intervention workshops were based on the SimLab™ business process simulation intervention method (e.g. Smeds & Pöyry-Lassila, 2011), and the other methods were added on the SimLab method. The co-development methods were used in different combinations depending on the case, and all methods relied on working with boundary objects or other artefacts, and on process facilitation.

According to the SimLab method, the intervention or simulation workshops are typically divided in two main phases: plenary group discussion and

parallel small-group ideation work. In the first phase, the whole group participates in the same discussion that aims at generating a shared understanding of the current situation, or the service to be developed. Visual boundary objects are used to support the forming of shared understanding. The second phase, which is carried out in smaller groups, typically aims at ideating new solutions and ways to implement the improvements. During the second phase the participants usually co-create their own boundary objects that support the discussion and represent the results of the ideation. (Smeds & Pöyry-Lassila, 2011)

Networked Processes: Effects on Case Organizations' Service Production

As mentioned earlier, the three researched cases were conceptualized as services. Looking into the characteristics of services and physical products, the service marketing tradition states that the only clear distinction between them is the **process** nature of services (Grönroos, 2006). Services are defined as processes where service providers and customers interactively co-produce the value during the consumption of the service. The collaborative nature of services causes that enterprises and other organizations cannot deliver value as such, but instead offer value propositions for value **co-creation** (Vargo & Lusch, 2008). For this reason service organizations should concentrate on developing the proper prerequisites for their services (Edvardsson & Olsson, 1996), and see themselves and act as integrators of resources that are spread over the service provision **network** (Vargo & Lusch, 2008).

Edvardsson and Olsson (1996) divide the prerequisites into three basic components: *service concept*, *service process* and *service system*. The *service concept* describes the primary and secondary needs of the customer and the core and support service offer of the company. The *service system* model includes the resources – the service company's staff, the customers, the physical/technical environment, organization and control – available to the process for realizing the *service concept*. The *service process* is the chain or parallel and sequential activities, which creates and delivers the actual service. (Edvardsson & Olsson, 1996) According to Edvardsson et al. (2000) the main task in a service development process is to create the prerequisites for services, and the components of service prerequisites are to be developed simultaneously due their interdependent nature.

The service co-development interventions' effects on service prerequisites are in this paper analysed through attributes of co-creation, processes and network. The **co-creation** attribute includes elements from developing

service concept prerequisite; **processes** attribute derives from *service process* and *service concept* prerequisites; and **network** attribute from *service system* prerequisite.

Knowledge Sharing and Creation: Effects on Service Co-development Capabilities

In this study we approach the phenomenon of service co-development also from the knowledge co-creation view that originates from the learning sciences. The strength of this view is its ability to explain how new knowledge is created in social interaction between participants. Here, we apply this view in the context of services to identify the central interactional elements in the co-development interventions.

There have been two main metaphors for conceptualizing learning: the knowledge *acquisition* by learners and *participation* to social interaction (Sfard, 1998). The acquisition metaphor of learning builds on the basic idea that knowledge is something to gain and to possess. Human mind is seen as a knowledge container and learning means filling the container with new knowledge. The participation metaphor emphasizes that knowledge and knowing are connected to the situations where they are used. Knowledge does not exist in the minds of individuals but in the participation in cultural practice (Lave & Wenger, 1991). The acquisition metaphor of learning can also be called as *monological*, and the participation metaphor as *dialogical* processes of learning. However, the division between acquisition and participation metaphors is seen as fundamental, and neither of them is sufficient for describing the creation or advancement of knowledge. The acquisition approach is argued to be grounded on pre-given structures of knowledge, and the participation approach focuses on mastering the cultural practices and knowledge of the community without an intentional effort for transformation. (Paavola & Hakkarainen, 2005)

More recent studies by Paavola and Hakkarainen (2004; 2005) introduce a third metaphor for conceptualizing learning: the process of *knowledge creation* referring to object-mediated collective processes where the shared objects of activity are collaboratively developed. The creation of novel knowledge is built in the interaction around and through shared objects (Paavola, Lipponen & Hakkarainen, 2004). The shared objects of knowledge-creation are collaboratively developed conceptual artefacts (e.g. ideas, plans, and designs), concrete material products (e.g. prototypes, design artefacts) or practices (e.g. standard procedures in certain work task) (Hakkarainen & Paavola, 2007). The knowledge creation metaphor is also labelled as *trialogical* learning (Paavola & Hakkarainen, 2005).

The attributes monological, dialogical and trialogical are used in this paper for analysing the service co-development interventions' effects on service development in the case organizations.

Synthesis: Service Co-Development Effects Framework

The elements of the service co-development intervention and the following current service co-development activities in pilot organizations are simplified into a model of **six analysis attributes** that were collected from the literature of service marketing and learning science. The first three, co-creation, processes and networks, are intended to capture the knowledge that was created during the interventions, or in other words the content of the development work. The following three, monological, dialogical, and trialogical, refer to the ways the pilot organization shares existing knowledge and creates new knowledge in its everyday practices, or in other words, do their development work. The attributes, their explanations and the main literature sources are presented in Table 1.

Table 1: The analysis attributes of service co-development interventions' effects

Attribute	Explanation and operationalization of the attribute	Main references
Co-creation	Understanding the co-creative nature of value. Empowering variety of stakeholders and customers in the development work.	Vargo & Lusch 2004, Grönroos 2006
Processes	Figuring out the core value of the processes. Collaboration between and cross the traditional functions within an organization.	Edvardsson & Olsson 1996
Networks	Seeking new networking opportunities in order to create more value. Collaborating across the organizational borders.	Edvardsson & Olsson 1996
Monological	Bringing the knowledge from the interventions to the organizations via reports and other knowledge acquisition focused tools.	Sfard 1998, Paavola & Hakkarainen 2005
Dialogical	Sharing knowledge of development related work within the organization by interaction and practice.	Sfard 1998, Paavola & Hakkarainen 2005
Trialogical	Co-creating new knowledge within the organization by activities around shared objects and artefacts.	Paavola & Hakkarainen 2005

METHODOLOGY AND DATA

This paper reports a qualitative multiple case study consisting of three cases in which researcher-facilitated service co-development interventions were carried out. The case data comprises semi-structured thematic interviews with eleven representatives of organizations that actively participated in the service co-development interventions. Data was collected from one group interview with three people and eight individual interviews. The interviews were supported by *boundary objects* linked with the intervention, i.e. printed photos and visualizations from the co-development gatherings collected during the intervention projects. The transcribed interviews were then analysed with qualitative content analysis method, and the categories used in the analysis (see Table 1) were formed on the basis of theory.

Case A: Developing further an existing public school network's educational services collaboratively with several stakeholders. The aim of co-development was to create and launch regionally coherent comprehensive education for the five schools' network/district in Helsinki, Finland, to promote project-based learning, and to develop spaces, places and operational models that would best support teaching, studying, and learning in the schools. In addition, the goal was to emphasize the role of environment and neighbourhood in teaching and learning, and to co-create a model of public-private collaboration for producing educational services. The case includes three process simulations utilizing, e.g., SimLab method, future recall, personas, and scenarios. These co-development workshops were participated by the case organization's and its networks representatives and researchers. Follow-up interviews were carried out with 5 representatives 4-6 years after the interventions.

Case B: Co-designing and co-developing a whole future school including its operational model, learning environment, and collaboration network. The future school was planned as a part of a new residential area in the city of Espoo, Finland. The co-development intervention had two goals: 1) to bring together the different branches of municipal administration, the various future users, and stakeholders in the school's network, from public, private and 3rd sector, and 2) to enable these actors to collaboratively create/develop the school's operational and pedagogical models, learning environment's architecture, and collaboration and management model for the broad network around the school. The case includes three process simulations, or co-development workshops, where e.g. the SimLab method, personas, and scenarios were utilized. Follow-up interviews took place 4-6 after the interventions.

Case C: Supporting the co-creation of a future innovation process, and related tools and practices within a globally operating firm. The context of co-development was a multinational manufacturing and service company's innovation process and a related information system. The goal was to collaboratively develop the process, and management principles and practices targeted to support the early ideation phases of the innovation process. The case consists of three consecutive process simulation/co-development projects participated by the case company's employees and management, and researchers. We follow-up interviewed three representatives from the case company 1,5 years after the last workshop.

FINDINGS

Based on the data analysis we argue that the co-development methods and interventions have produced long-term impacts for both (i) service production and (ii) service co-development practices of the case organizations. In addition to the more tangible effects, the findings indicate that the interventions have also affected the thinking of the organizations. Thus, the effects of interventions have been identified on two levels: the concrete level related to practice, and the abstract level related to thinking.

The effects of the service co-development interventions varied notably between the cases. In case A, in which the goal was to enhance the cross-school collaboration concentrating on the core value of learning, the effects are noticeable most broadly. The interventions affected both the ways the schools produce the service, and the ways they co-develop their services further. In case B, designing of a new school's operating model for a new residential area, the delays of the construction work has hampered the implementation of the service production ideas, and also the adoption of new ways to co-create knowledge and co-develop the service further. In case C, supporting the co-creation of an innovation process, the effects of the service co-development interventions can be seen as numerous implemented service ideas and raw material for the company's continuing process and service development.

Going deeper into the six attributes for analysing the effects (Table 1), we notice that the service co-development interventions have also affected – in addition to the concrete practices – the conceptions and thinking of the participating actors. All the interviewees seem to have understood of the **co-creative** nature of value and the importance of empowering variety of stakeholders and customers in the development work. Even in case B, where the practice related effects were limited due the construction

schedules, an interviewee refers to the idea of co-creation as the main finding of the series of interventions:

"There was this one PowerPoint slide with crossing arrows that represent the dimensions [of learning], formal and informal. I've been using this slide and added there, which was in the [final report] book, which I said in the final seminar, which was the best finding that 'future school is co-created'."

As the core of the **process** thinking literature suggest, the members of the pilot organizations in case A have started to think about the core value of their operations. The work and development concentrates on important valuable issues. In case C, even though process thinking had already been strongly embedded in the organization's everyday practices, the idea of organizing and developing activities cross the functions, from the process point of view was advanced due to the intervention sessions. Understanding the whole current big picture with players and functions in the beginning of the series of intervention sessions was crucial. The process related effects of the process visualizations and discussions in the co-development sessions of case B were perceived rather limited or controversial, though the need of visualization in such multi-stakeholder project was clearly identified. Furthermore, the interventions initiated new **network** building. In cases A and B the schools had opened collaboration with new companies that had taken part in the co-development interventions. In case B the findings and content of the intervention backed up new kind of public–private collaboration. In case A the negotiations were initiated but did not concretize into contracts.

Continuing the analysis with attributes 'monological', 'dialogical' and 'trialogical' produces more insights. The visual boundary objects (e.g. process models, scenario visualizations, intervention session recaps) that had been produced and used in the service co-development intervention sessions have played an important knowledge transfer role. The visualizations have acted as **monological** boundary objects, enabling the knowledge transfer from the intervention sessions to various back in the pilot organizations. The usage of some visual boundary objects had been taken further. They had been acting as platforms for further **trialogical** knowledge co-creation and service development back in the pilot organization. For example, in case A, a school merger process map from an intervention session had been the basis collaboratively building a new plan for a new school merger. In case C, most of the intervention session findings were transformed trialogically into the 'own language of the organization'. Case A was the only case with **dialogical** effects that are related to participation in social practices. The interviewees were saying

that thanks to the intervention project the organization has started to use their own personnel as trainers especially in the ICT related matters. In addition, the teachers have started to share their good teaching practices by inviting other teachers on their classes.

The effects are visualized in Figure 1. The attributes (see Table 1) are brought in a single visualization and operationalized on a **qualitative based** three-tier scale. The black bars present the priorities of the service co-development intervention sessions on all the attributes, orange bars the effects on the practice level and red bars the effects on the thinking level.
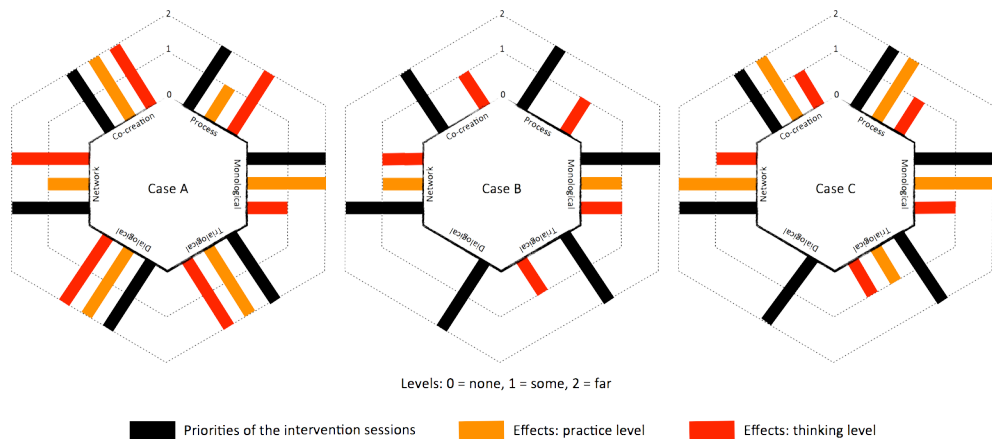

Levels: 0 = none, 1 = some, 2 = far

Priorities of the intervention sessions   Effects: practice level   Effects: thinking level

Figure 1: The effects of the service co-development interventions in three cases

CONCLUSIONS

This study contributes to the body of knowledge of service development. Combining the theories of networked service development and knowledge-creation into one model opens a new perspective for analysing the service co-development capabilities of organizations. The finding that the effects can be seen on two levels: thinking and practice, increases the value of service co-development interventions that have not reached the practice level yet.

Furthermore, our study has practical implications to both researchers and practitioners working on co-development interventions. The categorization model helps to design interventions that take more desired effects into account. One important aspect in designing the service co-development interventions is to concentrate effort in planning the form and usage of the visual boundary objects (e.g. process models, scenario visualizations, intervention session recaps). The designer of the intervention should think whether the objects should transfer the knowledge monologically to wider audience or should they act as a platform for further trialogical knowledge co-creation and service development back in the pilot organization. However, further research is required to elaborate the suggested analysis

attributes (Table 1) with different kinds of service co-development intervention cases. Additional research between the presented cases would also be valuable for finding the factors that affect the intervention effects.

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