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# Using a business game concept to enhance servitization: a longitudinal case study

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## Abstract

*Purpose:* The paper examines the potential benefits of a business game on customers' business in enhancing servitization. The concept is proposed to be helpful in the phases of defining the servitization initiative and gaining shared understanding about it at a manufacturer.

*Design/methodology/approach:* The paper is based on a longitudinal case study at a manufacturer (2003-2008), with a focus on the business game concept on customers' business. The researchers and approximately 140 company representatives contributed to both early and later phases of the development of the concept.

*Findings:* The business game concept appeared to serve the purpose of generating and sharing ideas about the customers' business and the desired role of the OEM in it, as a potential outcome of servitization. The concept synthesizes the previously fragmented customer awareness across the business units and provides useful information for various stakeholders. The presence of personnel across the different business units and from a key customer company in the game events enabled new types of discussion related to the servitization initiative.

*Research limitations/implications:* The concept presented in this paper represents a potential tool for enhancing a servitization initiative. Due to the limitations of the case, the findings are tentative and primarily transferrable to contexts where a manufacturer provides machinery for industrial production. Moreover, the ability of the concept to capture real-life customer values is critical for success and thus should be carefully examined.

*Originality/value:* The case study enables an in-depth view of the phenomena under examination. Moreover, due to the researchers' interventions in developing and using the concept, they observed actual processes of overcoming the challenges of servitization.

*Keywords:* Servitization, Business game concept, Change Management, Customer awareness.

*Case study*

## 1. Introduction

Servitization (Vandermerwe and Rada, 1988) represents a timely strategic choice for manufacturers. In servitization, manufacturers selectively pursue more from their customers' business (Anderson and Narus 2003), which typically results in the growing share of after-sales services and business advisory at the manufacturers' business. The proposed benefits for manufacturers have been the extra revenue outside machinery sales; steadier cash flows from the maintenance revenues; better profitability, primarily due to the highly profitable spare part sales; and a number of strategic and marketing-related issues (Mathieu 2001, Malleret 2006).

In contrast to the reported success stories of servitization (Wise and Baumgartner 1999, Mathieu 2001), companies still struggle in servitization initiatives and lag behind ambitious objectives (Gebauer et al. 2005). The viewpoint of service-dominant logic (Vargo and Lusch 2004) provides an overall scope for servitization, with a focus on intangibles, customer relationships and value co-creation. This logic has been supplemented by a customer-dominant logic (Heinonen et al. 2010) that emphasizes the customer viewpoint as the driver of business

development. However, more theoretical development is needed during the early phases of servitization (Neu and Brown 2005, Fischer et al. 2010), especially regarding questions why and when to develop services (Araujo and Spring, 2006) and what is the desired content of such service business in the businesses of the manufacturer and its customer(s) (Gremyr et al. 2010).

This paper focuses on a relatively early phase of servitization, namely, during the challenges of defining the initiative and building a shared understanding of it. The paper introduces a business game concept on customers' business as a tool to respond to those challenges. Thus, the aim of the paper is to examine the potential benefits of the concept in enhancing servitization, more particularly, in generating and sharing ideas about the customers' business and the desired role of the OEM in it, as a potential outcome of servitization. The paper is based on a longitudinal case study at a manufacturer (2003-2008), with a focus on the business game concept on the customers' business. Altogether, more than 140 people, representing the manufacturer and a key customer company, were involved both in early and later phases of the development of the concept.

Although the literature has brought up a number of benefits of using business games interactively in the context of organizational change (see, e.g., Liukkonen 2009), the literature on actual use of the business games in the service context remains limited (the main exceptions include Oliva and Bean (2008) on developing operational understanding with the help of a simulation). We argue that the business game at hand represents cumulative knowledge about customers' value creation and provides practically useful information about the current and potential roles of the manufacturer's products at the customer. Moreover, the presence of representatives of different business units in the business game event(s) enables discussions about the desired roles of the manufacturer at the customer. This is in response to a challenge of servitization, brought up by Gremyr et al. (2010) that the companies fail in spreading service orientation outside the service division and outside the traditional role of the company in its customers' business. Indeed, discussions across the boundaries of the business units enable building a common understanding of servitization. The business game is a platform for joint communication, which was called for by Gottfridsson (2012) in the context of inter-organizational service development. In sum, cumulative customer awareness, previously fragmented in the manufacturer, may be translated into a business game tool to enable interactive use of that information for different purposes.

The rest of the paper is organized as follows. First, the process and challenges related to servitization initiatives are discussed (2.1). Next, the rationale for the business game concept in servitization is presented (2.2) and supplemented by the characteristics of the case at hand. In Section 3, the research process and empirical data are discussed. The empirical findings are divided into those about defining the potential scope of servitization initiative (4.1) and those about gaining a shared understanding about it (4.2). The discussion section deals with implications for managing servitization initiatives (5.1) and the potential benefits of using the business game concept, in contrast to other possible techniques for attaining customer awareness (5.2), before the concluding remarks (5.3).

## **2. Literature review**

### *2.1 Process and challenges related to the servitization initiatives*

The servitization initiative requires managing a change process within a company. Such an organizational change is a complex entity (cf. Abernethy and Brownell 1999), which may be interpreted as consisting of four steps (see Sanchez and Heene 1996; Chenhall and Euske 2007): 1) identifying the need for a change, 2) formulating common understanding of the change, 3) allocating the resources needed for the change, and 4) keeping (or redirecting) the force of the change. As Fischer et al. (2010) recently observed, much literature describes potentially

successful servitization strategies. However, only a few exceptions discuss the activities needed for defining and executing servitization initiatives. As noted, the focus in this paper is on defining and gaining a common understanding of the servitization initiative, i.e., the first two steps of the process of change. In the literature, there is a lack of awareness of the challenges related to such an early phase (Fischer et al. 2010, Laine et al. 2012), except for a few examples on context-specifically identifying and overcoming those challenges (Oliva and Kallenberg 2003, Brax 2005, Neu and Brown 2005).

Despite the overall appeal of servitization among manufacturers, many alternatives in terms of the scope and content of such an initiative remain. Lazonick (1991) divided companies into innovative and adaptive ones. An innovative company aims at changing the underlying rules and assumptions of its business environment, whereas an adaptive company seeks to take full advantage of the possibilities provided by the environment (Lazonick 1991). Also in the servitization context, the scope of the servitization initiative, including the strategic fit between the company and the markets, is context specific (see, e.g., Neu and Brown 2005). The company should decide how far it goes in the goods-services continuum (Oliva and Kallenberg 2003) or in adopting service-dominant logic (Vargo and Lusch 2004). Following the idea of the core capability (Prahalad and Hamel 1990) and more particularly the dynamic capability perspective (e.g., Teece 2007), Fischer et al. (2010) divided servitization initiatives into exploration and exploitation. In exploration, the company seeks a radical change based on new value constellations, whereas exploitation refers to an incremental improvement in existing value constellations (Fischer et al. 2010). More practically, Gremyr et al. (2010) made the division between new services with a focus on the current products and new services with a focus on supporting the customers' business more widely than previously.

The organization structures of manufacturers under servitization may also vary. Greiner (1976, in Simons 1995) divided the organizational structures into entrepreneurial, functional, decentralized and segment structures according to the company's evolutionary phase. In servitization, companies typically choose between the decentralized structure (separate service division) and the segment structure (customer segment manages all product categories). There are controversial results regarding the optimal choice of an organizational structure during the servitization initiative (Oliva and Kallenberg 2003, Neu and Brown 2005). The organizational design should be adapted to the scope and content of the strategic initiative (cf. Simons 1995), and the organizational design may even evolve according to the progress of servitization.

The recent literature has identified some roadblocks in servitization partly due to the misfit of the servitization initiative in its context. Brax (2005), for instance, interviewed 35 managers to analyze a manufacturing company struggling in servitization. She noted that many new services, such as full-maintenance contracts, change companies' fundamental business logic. Radical change, with a strong emphasis on customer orientation, also requires radical changes inside the organization. However, many companies take action only systematically, without truly rethinking their servitization initiative. In this paper, in line with Neu and Brown (2005), we argue that there is a need for a high degree of information processing while formulating a servitization initiative. This formulation process would benefit from a critical evaluation of the existing strategy (Fischer et al. 2010) in light of the knowledge about service opportunities.

Essentially, there is a need for gaining a shared understanding about the change among internal stakeholders. In an early phase of servitization, there might be a need for a communicated Beliefs System (Simons 1994) that conveys the context-specific application of the service-dominant (or customer-dominant) logic underlying the initiative. Moreover, as multiple business units play different roles in the existing and forthcoming strategy, interactive levers of control are encouraged to stimulate creating and sharing new ideas as the company seeks to unify its strategy toward customers (Simons 1995, pp. 19–22). As Fischer et al. (2010) stated an exploration strategy might benefit from a high-level description that can be communicated to the

business units, whereas an exploitation strategy requires more clearly defined roles and benefits for the business units. Gaining a shared understanding requires aligning the context-specific servitization initiative and communicating it among the stakeholders. We argue that gaining a shared understanding about the change benefits from managers' and informants' involvement across the business units and functions to share ideas about and commit to the initiative (cf. Neu and Brown 2005), but this involvement requires facilitating tools and techniques.

## *2.2 Rationale for the business game on customers' business in servitization*

In the literature, there is a lack of analysis on the potential of different tools and techniques to facilitate service development (Gottfridsson, 2012) and wider service initiatives (Neu and Brown 2005). One advantage of business games to serve as such a facilitator lies in their ability to encourage interaction and learning (see e.g., Liukkonen 2009). Thus, in response to the challenges in defining and gaining a shared understanding of the servitization initiative, we introduce and analyze the use of a business game concept on the customers' business.

Altogether, the use of the business game concept could serve as an enabling control device for servitization (Laine et al. 2012), with an influence both on the beliefs system underlying the change (Simons 1994) and the interactive idea creation regarding the change (Simons 1995). In this vein, the concept should be assessed in contrast to the competitive approaches available. Recently, Witell et al. (2011) compared customer co-creation with more traditional, reactive market research techniques to generate ideas for service development. In this paper, the characteristics of the business game concept, as observed in this business context, are compared to these two types of devices for enabling enhanced customer awareness.

The idea of a business game concept, particularly on customers' business, is favorable in the servitization context that typically aims at long-term customer relationships and value co-creation with customers in different forms (cf. Vargo and Lusch 2004). At the core of the recent service literature are theoretical considerations that strongly emphasize the customer's viewpoint as a rationale of any business renewal. Heinonen et al. (2010), for instance, argue in their customer-dominant logic of service that a company's business logic should be derived from the mechanisms of the customer's value creation. In this viewpoint, customers allow suppliers to participate in their processes and not vice versa (cf. Grönroos, 2008). Especially in servitization, manufacturers should better understand the mechanisms of their customers' value creation to be able to develop a reasonable set of (service) products and a reasonable business logic underlying it. According to Grönroos and Helle (2010), there is a growing need to truly understand and even measure customers' processes to succeed in the servitization process. In practice, the customer-dominant logic in its full scale is an extremely challenging strategic choice, and requires a number of activities along with the strategy process. In the context of this paper, using the business game concept for a better understanding the customers' businesses would help the processes of generating and sharing ideas about the servitization initiative.

A simulation-based business game is a platform for gathering different parties together to facilitate a collective learning process. Anecdotal evidence shows people learn better from experience when feedback is rapid (Senge, 1990; Oliva and Bean, 2008). During business games, teams tend to think about which selections might yield the best results. This is a beneficial starting point for examining the need for a strategic change and for building a common perception of that change. Connecting the business game to servitization may also be a bit problematic. The authors are aware of the common perception that, in the games, teams tend to fit a strategy to their decisions and not vice versa (cf. Teach and Schwarz, 1999). However, any connection between the decisions made during the business game and the business logic of the parties involved could enhance the common understanding of the business environment at hand and might encourage finding new approaches to the business.

Building on the division between single-loop and double-loop learning (see Argyris, 1995), learning can be seen as a feedback process. Because there are typically multiple rounds in business games, adjustments between the single periods can be seen as single-loop learning, whereas long-term changes in the manner of thinking among the parties involved can be interpreted using the concept of double-loop learning. Interestingly, Oliva and Bean (2008) recently examined the use of a simulation environment for teaching service quality aspects and for enhancing operational understanding among supplier personnel. They argued that learning in the service context would require supportive tools, for instance, due to the ambiguous nature of service quality. A realistic simulation tool supported by a sound user environment could enhance learning among managers (Oliva and Bean, 2008).

### *2.3 Characteristics of the business game concept at hand*

The case company is an Original Equipment Manufacturer (OEM) that provides global customers with mobile production machinery and related after-sales products. Half of the revenue comes from machinery sales, and the other half is mainly from spare-part sales, wear part sales and maintenance services. Within the OEM's strategy, since 2000, the service business is interpreted as the will to gain long-term customer relationships and to become a productivity partner for customers.

In line with the aforementioned business objectives, the OEM was reorganized in 2004 and 2005. The former structure, based on a separate service units, was replaced with a model that gathers all units under each customer segment. The company was keen to develop the image among its customers of being a comprehensive system supplier. Still, various managers of the OEM interpreted the service strategy differently and had different expectations regarding the service business. In other words, the definition of the scope of the servitization initiative differed from one manager to another: 1) For some managers, after-sales, including spare parts and wear parts, were the primary source of service revenues (exploitation). 2) Some managers focused narrowly on business advisory services provided to customers, without significant revenues up to that point (exploration). 3) A few change agents were ready to promote wider change throughout the organization in order to capture a new role in their customers' businesses, in line with the idea of supporting customers' value-creation processes (exploitation/exploration).

The business game concept was developed by the researchers and company representatives to enhance the servitization by turning attention to the customers' business. In fact, before the concept was developed, one top management representative suggested the researchers should work on 'more innovative approaches to clarify the need for and content of the servitization', the idea of which remained fragmented among the OEM personnel. The concept was developed in cross-functional and cross-unit cooperation, with the researchers as an essential part of the development team. One role for the researchers was to overcome the organizational boundaries, thus facilitating the success of the concept development.

The business game concept constitutes a platform for learning from the customers' business, because it contains the cumulated customer awareness in the OEM, based on dozens of business cases conducted in two business units during the decade before the concept was developed. The business process analysts and marketing representatives were involved in the development and use of the simulation tools, which were previously used with the customers to choose the most suitable machinery and maintenance plans in a given company. As a result, the simulation tools were developed to reveal the value of the production system of the customer in long-term based on a number of technical and economic characteristics of that system.

The business game concept is a one- to two-day event comprising three elements: 1) playing the game as teams, 2) informative lectures focusing on business and production technology and 3) discussions and reflections among the participants (Figure 1). The aim of the game is to gain a better understanding of a customer's production process, with an emphasis on the challenges in

the OEM’s servitization initiative. The teams make decisions about the customer company’s production and economics. During the event, the teams play several rounds to learn the causes and effects within the process. The concept is a game because competition motivates participation during the event. The participants’ eagerness to win the game requires them to seek optimal solutions until the end of the event.

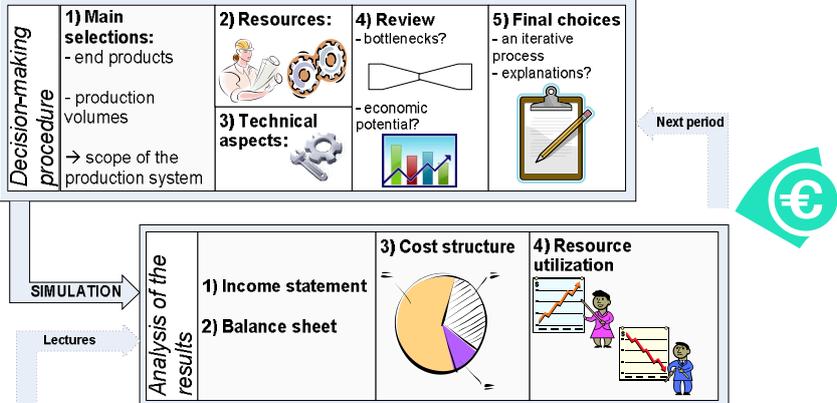


Figure 1: The business game concept.

The concept requires the participants to come together in the same place. During the event, team members may learn a great deal from each other because all the decisions are typically based on cross-functional discussion. With the assistance of reports on the game and an Excel tool created for a complicated production phase, the teams strive for optimal decisions. The decisions are written by hand on a specific sheet. Based on the decisions, the organizer runs a structured simulation and prints a new annual report for the teams. Another channel for learning during the event is the lectures provided by the organizer. During the event, the teams explore various issues, from the capacity calculations of the process to the fundamental elements of profitability in a particular industry. A lecture concerning, for example, the development of profitability in a specific customer industry may be a fruitful starting point for further discussion.

The game focuses on the production process in which the machinery provided by the company is used. One of the key purposes of the event is to encourage the participants to actively think about how they can help customers do business more profitably, over the lifetime of the machinery in use (5-10 years). In this context, the customer value is interpreted through the annual report (e.g., through profitability). After each period, the customer’s profitability and the customer company value are calculated. The winner is the team that owns the most valuable company at the end of the game. Of course, the customer value includes also such elements that are not (yet) readable in the annual reports (see e.g., Heinonen et al. 2010). Therefore, the ability of the business game concept to capture customer value is limited, similarly to any other tool and technique, and those limitations should be examined case-by-case.

The aim of the concept is to encourage managers to change from having a supplier-centered view to a customer-centered view (cf. Grönroos, 2008). As R&D director, who was actively involved in the research process, put it: ‘one should think, what we can learn from the game to develop better products and services to meet the true customer needs’. In the game, the notion of customer value focuses on monetary measurement as an important viewpoint in the business-to-business context. In the context of an OEM providing production machinery and related services to customers, the monetary analyses enable discussions about the influence of different elements on the customer’s profitability, and again on the business opportunities of the OEM itself. The concept is supposed to enhance understanding of the customers’ business and the (potential) roles of the OEM in it. The concept encourages thinking about customers as drivers of the business logic of the OEM (cf. Heinonen et al. 2010), in contrast to the prevailing supplier-

dominant and technology-dominant worldviews. Despite the existing service offering of the OEM, such a worldview was not yet systematically promoted in the organization.

### **3. Research process and data collection**

The paper is a result of a longitudinal case study (2003-2008) at the OEM under servitization. The development and use of the business game took place 2005-2008. Altogether, the longitudinal case study consists of the following parts: 1) an overview of the business environment and its key phenomena (2003); 2) a review of the current state and potential of the service business of the company (e.g., in terms of the revenue and cost structures of the company and pilot customers (2003-2004)); and 3) the development and use of the business game concept as part of the servitization initiative (2005-2008). The paper may also be labeled as an interventionist case study (Suomala and Lyly-Yrjänäinen, 2011), made possible by the researchers' opportunity to influence and analyze the change processes in a real-life setting. The research process follows the phases outlined by Jönsson and Lukka (2006) for interventionist research, beginning from the comprehensive analysis of the context, followed by the development of the intervention(s) and reflections regarding the gained outcomes.

The outcome of the first phase, based primarily on 10 interviews with managers, was the observation that, despite high expectations, the company did not receive revenues outside machinery sales and traditional after-sales services. At the same time, interpretations of servitization varied significantly among the interviewees. In the second phase, the researchers made a detailed analysis of the OEM's after-sales revenues in different machinery categories and in different market areas. The analysis was based on the company's financial reports and supported by the company's financial directors and controllers worldwide. The outcome of the second phase was that there is a significant potential to increase after-sales revenues and profits, although at that time they were almost half of the revenues. However, as a top manager suggested, 'out-of-the-box' thinking is needed to actually proceed further in the servitization. In light of Fischer et al. (2010), this would mean exploring new business opportunities. Here, it meant developing the business game concept to enable learning from the customers for this exploration/exploitation.

Moreover, in the second phase, the researchers analyzed a customer company's income statements and balance sheets to understand the actual role of the OEM in the customer's business. The customer was willing to cooperate with the OEM and the researchers, and as a result, a view on the cost structure, in terms of the revenues (the value of the output of the machinery), personnel costs, machinery depreciations, spare part and wear part costs, maintenance costs etc. was gained. Moreover, at this point, the researchers were invited to observe also the case of using a simulation tool to support the customer's operative planning.

The work conducted by the researchers on the customer's financial statements was connected to the process simulations made by the OEM representatives in dozens of customer cases since the early 2000s. In the simulations, the customer's production process was analyzed in terms of the value of the output and related production costs. The aims of the simulations were to support the customers' investment decisions and maintenance plans. The consultancy was given free-of-charge, as part of customer service. It is noteworthy that those customer cases were conducted and documented together with the customers and they represent the actual decision-making situations of those customers. Therefore, the customer cases represented a sound basis for further developing the simulation tools and for defining the story-line of the business game concept.

In January 2005, the researchers together with an R&D director and an OEM process specialist came up with the idea for a business game based on customers' businesses. The idea of the game is to support the servitization initiative by providing insights from the customers' business. However, at an initial stage of the process, the game was supposed to be played among

the customers, primarily to promote the image of the OEM as an advanced process specialist in its customer industry. Before that, the game should be developed and validated with the help of OEM experts. The business game concept relied on cumulated customer process knowledge of the OEM, due to the customer cases underlying the simulation tool. Moreover, the concept was based on the researchers' expertise in designing the financial reports of the game.

The development of the business game concept consisted of the following steps: 1) defining the scope and content of the business game concept (researchers and OEM representatives); 2) further developing the simulation tools for the game (OEM representatives); 3) designing and programming the game tool to be used in the game events (researchers); 4) setting the rules for the game and designing the instructional material package for the game (researchers and OEM representatives); 6) testing the game idea and its preliminary versions (researchers and OEM representatives); and 7) using the business game concept among the OEM representatives and a pilot customer (researchers and OEM representatives).

Initially, the project team consisted of three people from the company—a manager, a customer process specialist and an IT specialist—and two researchers. The team was supported by representatives from another business unit of the company and its university partner, who focused mainly on the technology at the end of the customer's process. In this business unit, there was also a simulation tool that was used in the customer cases, with a narrower focus on one phase of the production process. During the project, an exceptionally fruitful cooperation between the two different business units took place, with the aim of integrating the fragmented customer knowledge. Notably, decades ago, machinery development required knowledge in different areas, including mechanics and hydraulics. Now, the business units are self-sufficient in those areas. The development of the business game concept forced the development team to cross these borders again and seek the best professionals in each area. Cooperation between the different business units (even in different countries) was relatively easy because it was facilitated by an external party, namely, the researchers, and was considered to be supporting the strategic initiative launched by the top management.

Altogether, fourteen one- to-two-day game events were organized between 2005 and 2008, with approximately 140 participants representing different business units and functions of the OEM and one major customer company. More detailed description of the events is provided in Table 1. Due to the top manager's commitment to developing the business game concept, the development project and test games may be connected to defining and sharing insights about the servitization initiative. For instance, the focus of the game shifted to the internal benefits of the game in strategy work due to a joint discussion of the OEM representatives and researchers.

*Table 1: A summary of the business game events, participants and focus areas.*

| Event   | Total number of participants | Stakeholders present  | Defining the servitization initiative                  | Gaining a shared understanding of the servitization initiative                          |
|---|------------------------------|---|--|---|
| A) Test game for developing the concept (5 events in 2/2006-2/2007) | ~40                          | Top management, marketing, R&D, technical experts   | (X)<br>Defining the aim of the concept                 | (X)<br>Defining the aim of the concept  |
| B) Test game with a pilot customer (1 event, 12/2006)               | 16                           | Customer top management & technical experts, OEM's marketing, front-line sales and maintenance, technical experts | (X)<br>"Reality check" of the business game concept    |   |
| C) Top management team events (2 events, 5/2007)                    | 26                           | Two full top management teams, technical experts  | X<br>The applicability of the concept in strategy work | (X)<br>Sharing insights among different business units                                  |
| D) Events with different functions (6 events, 11/2007-10/2008)      | ~60                          | Front-line sales and maintenance, R&D personnel, IT department and technical experts                              |  | X<br>Learning from the customers' business, reflections on the servitization initiative |

In this phase (A), the data included memos from the project meetings, emails, the researchers' participatory observations, technical documents and a number of versions of the game tools and materials. In the customer game (B), the idea was to expose the concept to a reality check for further use of the concept: Is the game actually able to capture the essentials of the business environment, e.g., to define a servitization initiative? The customer company was chosen, because it represents a major actor in its market area, its operations comprise the entire production process simulated in the business game and it had become a key partner with the OEM. The feedback from the customer game is based on the researchers' participatory observations and the oral feedback collected by the OEM representative, analyzed by the researchers afterwards. In the top management games (C), which took place during the teams' global meetings, the aim was to gain top management acceptance for the game and to support the ongoing strategic work with insights into the concept. Moreover, the top management teams decided the future use of the game. The analysis of those games is based on the researchers' participatory observations and a review of the game documentation. Again, the OEM representative collected oral feedback, which was analyzed by the researchers. Finally, the games among different functions (D), including sales and maintenance organizations, were organized to communicate the essentials of the customers' business to a wider audience, along with the OEM's strategy. Besides supporting the sales arguments of the front-line personnel, there were games for the R&D personnel to familiarize the engineers with the customers' business aspects, to re-shape the OEM's product offering. In this phase, informal feedback was also collected about the participants' satisfaction and learning outcomes at the end of the event.

The researchers' in-depth access enabled them to identify and analyze the informal processes going on within the wide context of the servitization initiative. However, in the interventionist settings, the empirical data should be analyzed from an outsider's perspective (Suomala and Lyly-Yrjänäinen, 2011), thus drawing a picture of the servitization process, partly affected by the business game concept. Instead of (positively) interpreting the effects of the researchers' interventions on one servitization initiative, we seek to draw conclusions regarding the wider meaning of the empirical findings, in order to enhance the servitization initiatives, partly due to the transferability of the attained results.

## **4. Empirical findings**

### *4.1 Defining the potential scope of servitization initiative*

The development of the business game concept took place during the period when the OEM's top management was re-thinking the servitization initiative. The most recent ideas about servitization were constantly included in the discussions due to the commitment of the top manager to developing the concept, and due to the presence of the R&D director in several meetings during the development phase. In the beginning of the development, in spring 2005, many managers emphasized designing and providing knowledge-intensive services that thus far had played only a minor role in the OEM's business. Therefore, the initial objective of the concept was to supplement the OEM's process consultancy with the elements of the business game concept to promote the idea of the OEM as a provider of expert service to its customers. However, as the development team started to get feedback from the game, the idea of the concept supporting the OEM's servitization initiative was brought up. Already in 2005, a manager involved in the development team marketed the concept under development for the potential internal participants as 'a valuable tool for internal training and customer relations [management]'. The idea and the rationale of the internal use of the concept were brought up by the researchers, and it was gradually accepted by the OEM representatives.

Another business unit got involved in the concept in the joint meeting already in 2005 and as part of the development team in the last test games. A manager of the other business unit was in

the beginning worried about the game concept that contained a great deal of sensitive information from the simulation tools in use in the dozens of customer cases of the two business units. However, as the top management committed to the further development of the concept and as the manager was appointed as the head of the international customer expertise team, he took responsibility of organizing the major internal events with the top management teams.

Two top management teams were the first users of the concept after the test games. The idea of the top management events was to promote the potential benefits of the concept and support the teams' ongoing strategy work. The events were held as part of the groups' global meetings. The top management games were made possible because of the presence of two major business units in already involved in developing the concept. The top management teams accepted their role as the pilot users of the game, but the connection to the servitization strategy work, i.e., the review of the existing and potential roles of the OEM in the customer's business was brought up by the development team before the game events. Actually, a presentation given by the researcher and a process specialist to one of the top management teams (2/2007) contained an explicit link to the servitization strategy, including the ideas of "understanding the customer's value creation processes" and "getting closer to customers." At this point, as documented by the process specialist, the main concern of the top management team was: 'How to transform the fascinating game concept into business opportunities for the OEM'

Our evidence supports the interpretation that the top management events yielded new insights into the servitization strategy. As noted, the OEM was organized in relation to customer segments served by the product lines in 2005. In the new organization structure, the different types of machinery and related after-sales were provided to the customers through key account managers. Consequently, the customer's production process was no longer supported by separate sales representatives of the different types of machinery, but the key account manager should be able to sell the most suitable production system as a whole to the customer. This reorganization meant an increasing need for training regarding customers' value-creation processes. A marketing representative shared his concern regarding the lack of knowledge on their customers' businesses, during the feedback session of the event: 'Sad to say how little we know about [the elements of profitability in] our customers' business.'

Actually, in addition to showing the knowledge gap about the customers' business, the top management events paved the way for sharing insights across the business units. The events involved representatives from different production units that had earlier been focused on effective production and sales of machinery as well as representatives from human resources, marketing, after-sales and finance. During the events, the cross-functional teams were designed to have a tight competition, and especially to enable discussions across the business units. In the feedback, documented by the OEM representative, the emphasis was on the technical details to streamline and further develop the game. For instance, more intuitive supportive tools for capacity planning were requested. The game concept showed its ability to encourage communication about such aspects of the customers' production process that were not previously confronted by some of the participants. However, only limited discussions took place regarding the desired role of the OEM in the customers' business.

As noted, the game events contained lectures about customers' economic aspects and technical presentations about different production phases at the customers' businesses. In the top management events, one researcher provided analyses regarding the economic results of major customer companies with forecasts for the future of the customer industry. These kinds of analyses had not previously been conducted by OEM representatives, partly perhaps due to the short history of the customer segment organization. In fact, one member of the top management team ordered similar analyses regarding a set of selected customers from the researcher. Moreover, these analyses encouraged discussions regarding the OEM's desired role in their customers' business. The profitability of the customer companies varied significantly from one

customer to another, depending on the characteristics of the end product. Moreover, the role of machinery maintenance varied from one customer to another. Some customers that need the machinery maintenance operate 24/7, whereas some customers make trade-offs between proactive and reactive maintenance plans, thus representing varying potential for the OEM in terms of after-sales revenues and profits.

Representatives of a key customer were present in one game event to provide a reality check of the concept and to shed light on the limits of the use of the concept. Thus, the ability of the business game concept to reflect a realistic decision-making situation was confirmed. Moreover, some hints concerning the potential ability of the concept to teach (even) the customers about the business aspects of their production processes were noted. One sales manager from a customer company gave the concept very positive feedback and described it as an ‘eye-opening’ tool for learning the economics of the production process that the company is involved in.

In the oral feedback, given at the end of the event, a top manager of the customer mentioned that the business game concept represented ‘everyday life’ for the customer. Moreover, in the feedback documented by the OEM representative, ‘the possibility for different product strategies’ as well as ‘more flexible pricing strategies’, were requested. Therefore, we interpret that despite the positive feedback of the concept; the OEM is not (yet) regarded as being able to take over the customers’ business, as an extremely wide scope of servitization. In sum, the focus of the concept has been, similarly to the servitization initiative of the OEM, in understanding the mechanisms of value creation within the machinery usage and maintenance at the customers.

#### *4.2 Gaining a shared understanding of the servitization initiative*

Gaining an overall idea of the value creation at the customer, with certain business unit specific details, clearly is well in line with the servitization strategy. More specifically, the discussions on the current and potential role of the OEM in its customers’ business was enabled by the knowledge stored in the business game concept, but required the presence of experts in different types of machinery to enable the interaction during the events (cf. interactive controls in Simons 1995). The business game concept served as a facilitator of new types of discussions across the borders of single business units of the OEM.

Using the business game concept for internal training was discussed already in 2005, and the use of the concept in the purposes of servitization was increasingly emphasized in the game events. One of the participants, who was responsible for one product category of the OEM, put it as follows in the oral feedback session of the top management team event: ‘This game can easily be used to teach the new strategy to our personnel.’ In this vein, the R&D director, who was involved in the development team, saw the concept as a new way to teach the newcomers and more experienced personnel of the OEM the essential of the business the OEM is involved in.

After the top management events, six different events were organized. The participants represented front-line sales and maintenance people from three different countries. Moreover, there were several participants from the R&D department and some participants representing other functions. Along with the idea of teaching the servitization strategy to the OEM personnel, the objective of the events was to encourage information sharing across business units and between different countries, provide the R&D engineers with a view of the customers’ business to re-shape the product offering of the future and to familiarize the organization’s newcomers with major business aspects of the customer industry. In sum, the concept was to encourage learning and discussion at multiple levels to build and gain a shared understanding of the renewed servitization strategy, with the customer segment structure.

Regarding the desired outcomes of the concept, the experiences of the game events are encouraging. Two of the game events among the R&D personnel, for instance, revealed that the R&D engineers, among others, were not aware of customers’ businesses, but were merely knowledgeable about the technical aspects of the machinery or of the internal production costs of

that machinery. An R&D engineer, for instance, was very interested in the relatively low use-cost level of his own machinery model compared with other process phases. 'The role of machine X [in terms of the costs] is surprisingly small in the customers' process.' Understanding the economics of the machine in use at the customer could support the managerial work conducted in forthcoming R&D projects. For instance, the prioritization between the expected quality of the machine's output and the cost-effectiveness of the machine in use could be based on awareness of the economics of the customers' production.

In one game event, there was a 'competition' between the front-line units representing different countries. In this event, the participants shared ideas about the existing product offering and the potential consequences of servitization. Moreover, the event was about 'winning the local championship in customer awareness'. According to the observations, this kind of competitive situation did not seem to hinder information sharing between the periods of the game, but more readily encouraged the teams to describe their strategies as well as they could to show their awareness of the OEM's recently introduced strategy. Within the teams, the individuals were willing to share ideas regarding their 'own' products, although within the teams there are always more and less active team members.

In sum, the concept showed its ability to serve the purpose of generating and sharing ideas about the customers' business and the desired role of the OEM in it. The concept, when adapted based on the user group, turned out to be i) a fruitful facilitator of the top management team discussions as well as ii) an effective tool for turning attention to the customers' business among the cross-functional user groups. It is noteworthy that through the local explanation of the phenomena at hand, we seek to increase general understanding about the potential tools for facilitating the idea generation and sharing related to the servitization initiatives. Therefore, the aim has not been to prove the actual outcomes of the concept or the research interventions. During the research process (2005-2008), the servitization initiative proceeded as a number of new service products were introduced and the after sales revenues exceeded the machinery sales. The profitability figures were also exceptionally good at that time. However, the OEM similarly to other manufacturers confronted the economic crisis at the end of the decade, and this had a major negative effect on the revenues and profits of the company. As a result, it is impossible to measure the profitability impact of the servitization initiative, not to even mention measuring the impact of developing and using a single concept within it.

## **5. Discussion**

### *5.1 Implications for managing servitization initiatives*

A need for tools and techniques to define the servitization initiative has been recently emphasized (Araujo and Spring 2006, Laine et al. 2012). Needs for information sharing among the different business units and critical examination of the existing strategy have also been brought up in the literature (Neu and Brown 2005). Platforms for joint communication have also been called for the inter-organizational service development (Gottfridsson, 2012). In response to those challenges, the paper examined the development and use of a business game concept, from the following perspectives:

- the need for an early phase recognition building of the initiative,
- the need for constructing consensus on the servitization objectives and interpretation,
- the opportunity to simulate the alternative organizational structures/controls/incentives,
- the opportunity to win the courage for a possible 'giant step' toward a new paradigm.

First, the early phase the recognition building and definition of the servitization initiative could benefit from the use of a business game concept, with the following remarks. The concept includes cumulative, previously fragmented customer awareness in the OEM, thus serving as a basis for a beliefs system (cf. Simons 1994) of servitization. As the servitization initiative

requires a great deal of customer information (Neu and Brown 2005), developing the business game concept required the involvement of different business units, and therefore served as a channel for information gathering. In the case study, the scope of the business game concept is the customers' current business, with an emphasis on the production process. Within this scope, the use of the business game concept could yield exploration and exploitation types of servitization initiatives (Fischer et al. 2010). The reality checks offered by the customers and internal experts may direct this choice.

Second, the use of the business game concept interactively among the stakeholders of the servitization initiative may enhance the process of building a consensus about the initiative. In fact, in an early phase of a change, interactive control devices are needed to create and share new ideas (Simons 1995), which could be also useful in the servitization context (Laine et al. 2012). The use of the concept encouraged new types of discussion among the representatives of different business units, which serves this purpose. As suggested by the case findings, the use of the concept among selected stakeholders enables effective use of customer information for various servitization purposes, including R&D activities. The use of the business game concept in contrast to other techniques might be decided with the help of a value/cost analysis.

Third, the role of the organizational structure in servitization, namely, the choice between a separate service unit and a segment organization, has yielded controversial results (Oliva and Kallenberg 2003, Neu and Brown 2005). The use of the business game concept encouraged the parties involved to think about the consequences of the servitization strategy from the viewpoints of the customer and the manufacturer's different business units and functions. Moreover, the focus on the customers' business would enable further elaboration of the desired controls and incentives of the manufacturer's different business units, as the structures of revenues, costs and power would change after the servitization process (cf. Laine et al. 2012). For instance, the earlier most profitable spare part unit would become (merely) a part of a customer segment organization aiming at providing more comprehensive products to customers.

Fourth, a radical change due to servitization, with an emphasis on customer orientation also requires radical changes inside the organization, thus increasing the challenge of successfully managing such an initiative (cf. Brax 2005). The potential financial consequences of the servitization, to the customer and to the manufacturer, may be examined with the business game concept. We feel these kinds of analyses, supplemented with other tools for strategic planning, could encourage managers to take a 'giant step' for servitization with higher potential rewards.

### *5.2 Potential benefits of the business games in contrast to other approaches*

Customer awareness is clearly a critical factor in service business development and servitization. The methods for attaining customer awareness, either reactive or proactive, have also been assessed in the literature. Witell et al. (2011), for instance, compared the reactive and proactive market research techniques for generating ideas in service development. As a result, the proactive techniques were stated to bring the real-life value for customers into discussions, which may not be captured by examining customers' spoken needs. Moreover, proactive techniques might more often result in radical innovations due to the initiatives taken by customers (Witell et al. 2011).

In this paper, the context is an early phase of the servitization initiative in the business-to-business setting. In the case, customer involvement had already taken place before the business game concept was developed. The business game concept is based on real-life customer needs and values due to the fact that the simulations were based on dozens of customer cases documented together with the customers. Moreover, the representatives of a key customer were involved in a game event. The documentation and use of the existing customer cases is here due to the convenience of the parties involved. Instead of time-consuming on-site visits among the customers, the simulation aims to capture the essentials of the customers' profitability for further

use inside the company. Such a comprehensive view on the customers' profitability was not available widely in the OEM prior to the research process at hand.

In the following paragraphs, the characteristics of the business game concept and two competitive approaches are put together. *First*, regarding the scope of the desired change, the business game concept may be useful both to radical and incremental changes, whereas proactive research is used primarily to radical and traditional market research techniques to more incremental changes (Witell et al. 2011). In other words, the concept might be useful for exploration and exploitation strategies (cf. Fischer et al. 2010), or the choice between the option could be made partly based on the use of the concept. However, the actual mechanisms for such a desired change, identified with the help of the concept, remains outside the scope of this study.

*Second*, the communication for the change by using the business game concept is interactive in nature (cf. Simons 1995), whereas the results of the competitive approaches are not necessarily communicated through interactive channels. In the business game concept, customers were directly involved in developing the simulation and the game concept as well as in giving feedback in the customer event. It is noteworthy that the internal participants of the business game events are directly involved in the knowledge creation and sharing during the events. Moreover, there are number of possible ways of using the attained information (indirectly) inside the company. Personnel who take part in proactive market research are, of course, involved in an interactive process with the customers, as a prerequisite for the success of such an approach. Again, the attained information may be used in many ways internally. In traditional market research, the customer is only indirectly involved in the processes of knowledge creation and use of the attained knowledge, because the customers take merely the role of the survey respondent.

*Third*, despite the indirect involvement of the customers, the traditional market research techniques are able to capture the greatest number of customer cases, with the aim to even draw statistically significant conclusions as a basis for innovation processes. In the proactive research, instead, a lower number of customer cases are used to gain triggers for more radical innovations. In the business game concept, the number of customers that can be examined is lower than in reactive market research techniques, but there were still dozens of customer cases were stored and synthesized for building a realistic game environment. Therefore, the business game concept might be able to capture the essential of (monetary) value creation of the given customer group. This is true especially in the business-to-business context at hand where the number of customers is relatively low compared to the consumer markets. However, the proactive market research techniques might catch a more versatile view on the customer value, unless the business game concept is not systematically played with the customer representatives.

*Fourth*, and finally, the development costs of the different techniques are difficult to estimate and compare. We propose that reactive market research is the cheapest to develop, whereas the business game concept required much development work from the customer case examinations to the test use of the concept among the parties involved. Moreover, as the case study shows, the business game concept is a significant investment, with uncertain and yet ambiguous benefits.

Altogether, the business game concept seems to be a suitable approach for attaining and sharing customer awareness (cf. Witell et al. 2011). The concept may be especially beneficial for interactive use of customer information. However, the use of such concepts is primarily limited to business-to-business contexts, where the products are related to the industrial production and the annual report (e.g., profitability) captures essential parts of the customer value. During the development phase, the ability of the concept to capture real-life customer values should be critically examined. Proactive market research techniques enable customer involvement in a more flexible manner, thus representing a constant reality check for the technique in use.

### 5.3 Concluding remarks

The business game concept seems to respond to the need for generating and sharing ideas about the customers' business and the desired role of the OEM in it, as a potential outcome of servitization. This would help a company to define the scope of servitization in a given context and to enhance a shared understanding about the servitization among the critical stakeholders. It is noteworthy that the content of the initiative may vary from minor steps in product offering towards service business to a wide adoption of a customer-dominant logic (see e.g., Heinonen et al. 2010, Gremyr et al. 2010). The case presented in this study represents a case somewhere between those alternatives. The main focus of the case company has been in developing new after sales product offering, but there have been significant attempts towards understanding the customers' business more thoroughly. Although the concept presented in this paper represents one potential tool for enhancing a servitization initiative, the actual consequences of such a concept remain highly subjective in nature, even despite the visibility to the activities of the key stakeholders of the servitization initiative at hand. Finally, due to the limitations of the case, the findings are primarily transferrable to business-to-business contexts. Moreover, the ability of the concept to capture real-life customer values is critical for success and should therefore be critically examined.

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