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Designing a Repeatable Collaboration Method for Setting Up Emerging Value Systems for New Technology Fields

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Abstract:

These days even large multinational enterprises must collaborate with other companies when creating and mobilizing new technology applications. They might not possess all the capabilities needed, or they might even find it economically unfeasible to internally master all the relevant value activities in a traditional value chain. Thus, new technology business fields are increasingly being formed by networked value systems. However, there are no established management practices on how to instigate and nurture emerging value systems. In this design science research, we will develop and test a repeatable collaboration method for setting up an emerging value system in a new technology field. We will apply collaboration engineering as the design approach and group support systems as a technique when developing our process artifact. The agenda setting is performed collaboratively by finding out the major barriers facing the birth of a new field, and the actions needed to overcome those barriers. We will apply our method to mobile marketing. We found that the use of a carefully designed ICT-enabled collaboration method can facilitate the stakeholders in an emerging field to work together and provide initiatives toward the creation of a new value system. The developed collaboration method is also repeatable and easily transferable to emerging technology-based businesses other than mobile marketing.

Keywords: Emerging value system, agenda setting, collaboration engineering, group support systems, design science research methodology, mobile marketing, mobile advertising

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INTRODUCTION

Today even large multinational enterprises must collaborate with other companies when creating and mobilizing new technology applications. The reason for this is that they might not possess all the required capabilities, due to the dispersion of knowledge or technological resources, or they might find it economically unfeasible to internally master all the relevant value activities in a traditional value chain, from product innovation to customer care (Möller et al. 2005). Consequently, the creation and commercialization of new technology business fields are increasingly carried out through linked actors in complex inter-organizational networks (Lundgren 1995; Powell et al. 1996), also called *value systems* (Möller et al. 2005; Möller and Svahn 2003b). The actors in a value system network are able to specialize in the value-creation activity supported by their distinctive competence, which leads to increased efficiency as a whole (Jarillo 1988).

Value systems appear in different maturities in the market. According to the continuum presented by Möller and his colleagues (Möller et al. 2005; Möller and Svahn 2003b), there are essentially three basic types of value systems: (1) emerging value systems characterized by radical changes in existing value systems and in the creation of new value activities, (2) established value systems characterized by incremental improvements, and finally, (3) stable, well-defined value systems. In this study, we will focus on the *emerging value systems*, in which individual firms aim to mobilize cooperative networks of actors through which new technologies, products or business concepts can be developed and commercialized (Möller and Svahn 2003b).

There are, however, no established management practices on how to instigate and nurture emerging value systems. Möller and Svahn (2003a, 2009) have contemplated how to influence the birth of new business fields, and they have developed an intuitive conceptual framework describing the phases of their emergence. The three-phase framework proceeds from *exploring for future business* to *mobilization for applications*, and finally to *coordination for dissemination*. The researchers also identified the key activities that firms should master during these phases. The first phase includes sense making, focusing, and selecting as the key activities. The mid-phase, when the mobilization of applications has become real, includes agenda setting and net mobilization. Finally, the third phase includes demand-supply net mobilization and net management as the key activities. The first phase can be carried out internally, but the second phase already requires a collaboration effort with other organizations and stakeholders, some of which might even be close competitors. This is evidently the most critical phase in the whole endeavor. Thus, we believe that organizations would benefit from a well-designed and proven multi-stakeholder collaboration process on how to successfully carry out the activities required in this phase of emergence. Our paper attempts one approach to do this and to answer the call by Möller et al.

The reason why we see this as important is that collaboration in multi-organizational settings is found to be more complex than in intra-organizational settings (see, for example, Ackermann et al. 2005; Bragge et al. 2007), and it gets even more complicated in the case of emerging value systems, due to the wide-ranging uncertainties present at the early stages of the network formation. There are several reasons for the challenges in multi-organizational

CONTRIBUTION

In this paper we show how to apply design science research methodology to develop an IT-enabled collaboration process artifact. Our process artifact addresses two challenges: it is designed for an emerging business in a new technology field, which, in addition, necessitates the collaboration of multiple partnering organizations.

We draw on and contribute to three literatures: information systems science (design science research and collaboration engineering research streams), industrial marketing management (especially business networks and value systems), and strategic management (multi-organizational collaboration).

Our study is among the first to empirically validate the applicability of the research-based collaboration engineering approach for designing efficient and effective collaboration processes. Our collaboration process artifact has passed the weak market (proof-of-concept) test, as a manager with financial responsibility has been willing to apply the construct in his business.

We build our research on a previous study that presents a conceptual framework for influencing the birth of emerging value systems. In this study, we present transferable and practical step-by-step advice and demonstrate empirically how to set up an agenda collaboratively in an emerging value system in its mobilization for applications phase.



collaborative teams, ranging from the lack of common history (i.e. established norms and working rules) and conflicting goals to complex politics and power relationships (Ackermann et al. 2005). Based on an extensive multiple-case study research, Ackermann et al. (2005) underlined the role and deployment of an external facilitator in complex multi-organizational settings. They added that it is very important for the facilitators to ensure that the intervention provides the means for developing a common basis for shared understanding.

In this design science research, we developed a facilitator-led and repeatable collaboration method for the agenda setting for a new technology value system in the phase of its emergence. We tested our method artifact in the case of the emerging mobile marketing value system as of the mid-2000s. We define *mobile marketing* as “*the use of the mobile medium as a means of marketing communications*” (Leppäniemi et al. 2006). This definition also encompasses the area of mobile advertising (see, e.g., Leppäniemi et al. 2004; Vatanparast 2007), which is the most visible area in mobile marketing. We deployed collaboration engineering as the design approach and computer-mediated group support systems as a technique when developing our process artifact. The agenda setting was performed collaboratively by finding out the major barriers for the birth of the new field, and the actions needed to overcome those barriers. We found that the use of a carefully designed ICT-enabled collaboration method can facilitate the stakeholders in an emerging field to work together and provide initiatives toward the creation of a new value system. The developed collaboration method is also repeatable and easily transferable to other emerging business fields, besides mobile marketing.

The rest of this paper is structured as follows. In the next section, we will first review the relevant literature on business networks. Thereafter, we will describe the methodology of the study, and describe our study using the design science research methodology (Peffer et al. 2008). We will finish our paper by reflecting on the results and providing conclusions.

BUSINESS NETWORKS AND EMERGING VALUE SYSTEMS

Researchers in marketing, as well as in information systems (IS), have actively studied value creation for the past two decades. The value chain model (Porter and Millar 1985) was for a long time the dominant view to understand and analyze how the value for customers is created in organizations and industries. However, scholars later recognized that an industry's value creation system is not limited to a simple linear or serial view, but it is rather made up of a constellation, or a network, of companies (Möller et al. 2005; Normann and Ramirez 1993). Peppard and Rylander (2006) have even argued that the traditional value chain concept has become an inappropriate device for analyzing a large number of contemporary industries and uncover sources of value. This is due to the fact that products and services have become more and more dematerialized and that the value chain itself no longer has a physical dimension (Peppard and Rylander 2006). In order to achieve higher effectiveness, an increasing number of companies are being forced to focus on their core competencies, leading to the externalization of their other activities to outside suppliers and thus to dependence on each other's resources and capabilities (Barney 1991; Prahalad and Hamel 1990; Wernerfelt 1984).

Organizational activities are thus currently organized more and more through market relationships together with external firms than in internal hierarchical structures (Williamson 1981). According to Möller et al. (2005), even major multinational companies, such as ABB, IBM, Microsoft, and Nokia, cannot anymore, nor is it economically sensible for them, to internally master all the relevant value activities of the traditional value chain from product innovation to customer care. As a consequence, collaboration between organizations has increased dramatically. The increased importance of knowledge, technological complexity, global competition, and the availability of digital information technology are the key drivers of forming business networks (Castells 1996).

It has been argued that networks are better adapted to the knowledge-economy than hierarchical organizations, due to their flexibility and better information-processing capabilities (Achrol and Kotler 1999; Jarillo 1993; Snow et al. 1992). Consequently, a number of authors claim that the network form of inter-organizational collaboration has become one of the major sources of competitive advantage (Hinterhuber 2002; Jarillo 1993; Parolini 1999; Sanchez et al. 1996). Through participating in networks, companies have achieved some gains both in efficiency and innovativeness. The possibilities to create a competitive advantage lie particularly in the emerging industries with new technologies.

The above-mentioned developments have stimulated a need for more complex models than the value chain for understanding how the value is created in such networks. The contemporary *value system* idea is derived from the logic of Porter's value chain, which was modified later on into the form of a value star (Normann and Ramirez 1993; Wikström and Normann 1994), and eventually to the concept of a value system (Jarillo 1993; Parolini 1999). We believe that the value system as a concept better describes the current situation in which value is created than the value chain, that is, not only by delivering the same offering back and forth between the network actors, but also by integrating a large amount of knowledge and services into it.

Among others, Möller and Svahn (2003b) have built on this research and developed a value system continuum framework for analyzing business networks in order to manage them. Their continuum includes three types of value systems: *stable*, *established* and *emerging* (Möller and Svahn 2003b). The value system construct is defined as being based on the notion that each product or service requires a set of value activities performed by a number of actors forming a value-creating system (Möller and Svahn 2003b). Furthermore, Möller and Svahn (2003b) state that an emerging new value system—such as mobile marketing—is characterized by old and new actors, radical changes in old value activities, the creation of new value activities, uncertainty about both value activities and actors, and a radical system-wide change. These types of systems thus involve dynamic and complex learning processes and an inter-organizational relationship formation that is difficult to be specified in advance (Möller et al. 2005).

This type of landscape poses significant challenges for managers that operate in the creation and commercialization of innovations, which often result in the emergence of new businesses. Although there is exceedingly rich literature on corporate collaboration and various forms of partnering and networks, there is much less research-based knowledge about management practices that intentionally influence emerging technological and business networks, or about efforts which intentionally use nets of organizations in the creation of new technologies/businesses (Möller and Svahn 2003a; Möller and Svahn 2009). In order to fill this gap, Möller and Svahn (2003a) have created a conceptual framework that links the characteristics of emerging business fields with underlying management activities and capabilities. Their research provides practical advice on how emerging new technology businesses should be nurtured to enable them to move toward a more established and stable system state. Based on Lundgren's (1995) analysis, they identify three phases in the emergence process, and the key activities that firms should master in each of these phases, as well as the managerial capabilities required by these activities.

The three-phase framework proceeds from exploring for future business to mobilization for applications, and finally to coordination for dissemination (see Figure 1). The first phase includes sense making and focusing, plus selecting as the key activities. The mid-phase, when the mobilization of applications has become actual, includes agenda setting and net mobilization. The third phase includes demand-supply net mobilization and net management as the key activities.

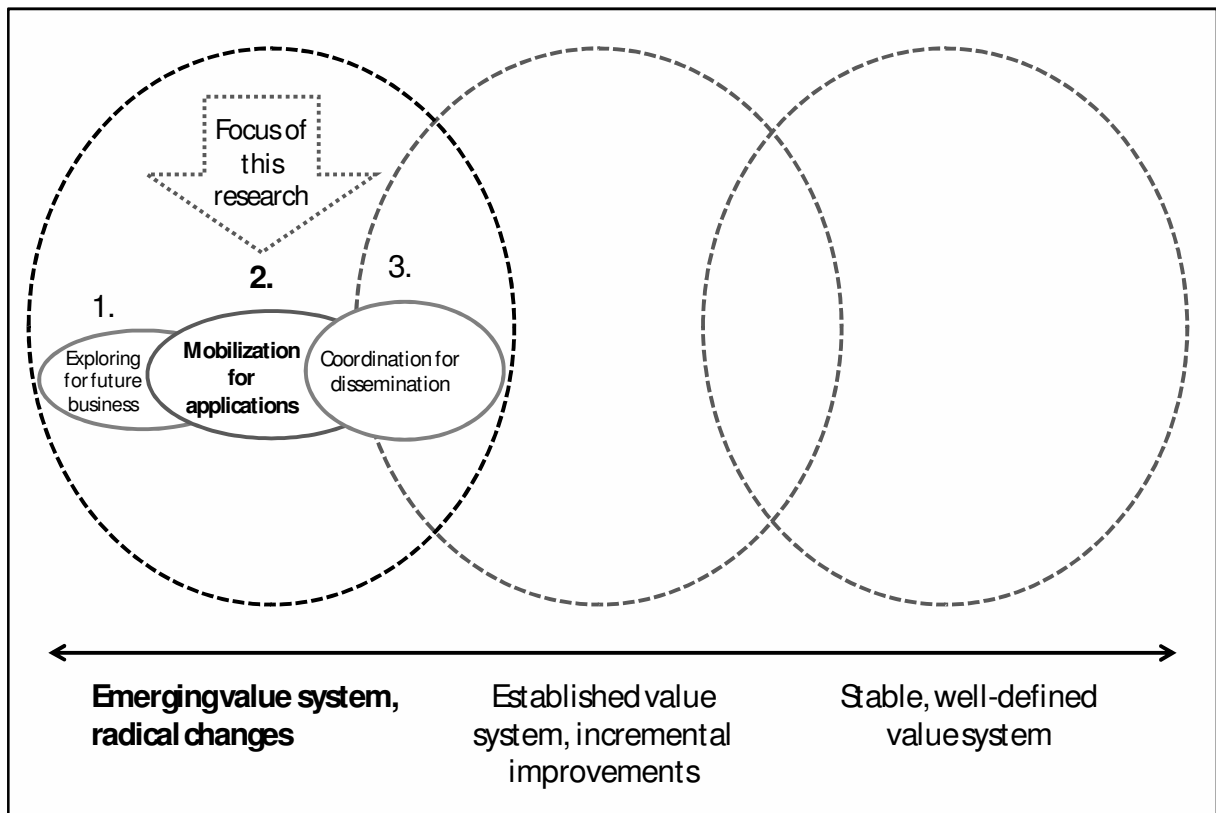


Figure 1: Value system continuum and the three phases in the emergence process. Based on Möller and Svahn 2003a; Möller and Svahn 2003b; Möller and Svahn 2009.

In this paper, we focus on the second phase, mobilization for applications. A central issue in the mid-phase is how to turn a nascent business vision envisaged in the previous phase into a realized product application or dominant design. According to Möller and Svahn (2003a, 2009), the key managerial activity in this is *agenda setting*, that is,

creating and communicating an attractive and credible development agenda for the emerging application network. The goal of agenda setting is to influence the beliefs and behaviors of the key actors believed to be relevant to the development of the field. Consequently, two of the first tasks include identifying the actors that are expected to have important roles in the emerging network and convincing them of the viability and earning potential offered by the mobilizer's view of the new value system. It helps if the hub-firm has the specific resources and knowledge to make it an attractive mobilizer for potential partners and the emerging field. It is believed that the hub is able to influence, through agenda construction, the sense-making processes of the other actors and the way they frame and interpret the business emergence (Möller and Svahn 2003a; Möller and Svahn 2009).

The other important and simultaneous element in the mid-phase, *net mobilization*, requires the creation of a net of actors that can develop a competitive application for commercial use and coordinating the development work and ensuring a strong value appropriation position (Möller and Svahn 2003a; Möller and Svahn 2009). The mobilizer should create some kind of forum to share the work and responsibilities among the actors, to establish coordination mechanisms for net cooperation, and to instill a net identity and a sense of trust among the partnering firms. In net mobilization, the core capability (besides agenda construction), is to bridge different communities of practice. Moreover, as most joint development work is carried out through multi-actor teams, team management is vital for the process (Möller and Svahn 2003a; Möller and Svahn 2009).

RESEARCH METHODOLOGY

We employ design science research (Hevner et al. 2004; March and Smith 1995; Walls et al. 1992; Walls et al. 2004) as our research methodology. Design science research complements both qualitative and quantitative research methodologies by using the development and design of artifacts to assist formulating theories. According to Hevner et al. (2004), the artifacts can be constructs, models, methods, and instantiations. Peffers et al. (2008) extend this notion and reflect on the thoughts of van Aken (2004) and add that artifacts could also include social innovations or, as Järvinen (2007) states, new properties of technical, social, and/or informational resources. Peffers et al. (2008) conclude by defining an artifact as “*any designed object with an embedded solution to an understood research problem.*” The overview of our design science research process is depicted in Figure 2.

Our study intends to design a *repeatable collaboration method* for multi-organizational agenda setting, using the design principles of the research-based collaboration engineering design approach (Briggs et al. 2003; de Vreede and Briggs 2005; de Vreede et al. 2006; Kolschoten et al. 2006b). Collaboration engineering (CE) provides guidance for even novice collaboration facilitators with scripted expert-level advice on how to construct and conduct successful group processes. It uses so-called thinkLets to identify, develop, document, and validate codified facilitation routines. A thinkLet is a named, packaged facilitation intervention that creates a predictable, repeatable pattern of collaboration among people working together toward a goal (de Vreede and Briggs 2005). ThinkLets are categorized under six patterns of collaboration: *generate, reduce, clarify, organize, evaluate, and build consensus* (Kolschoten et al. 2006a).

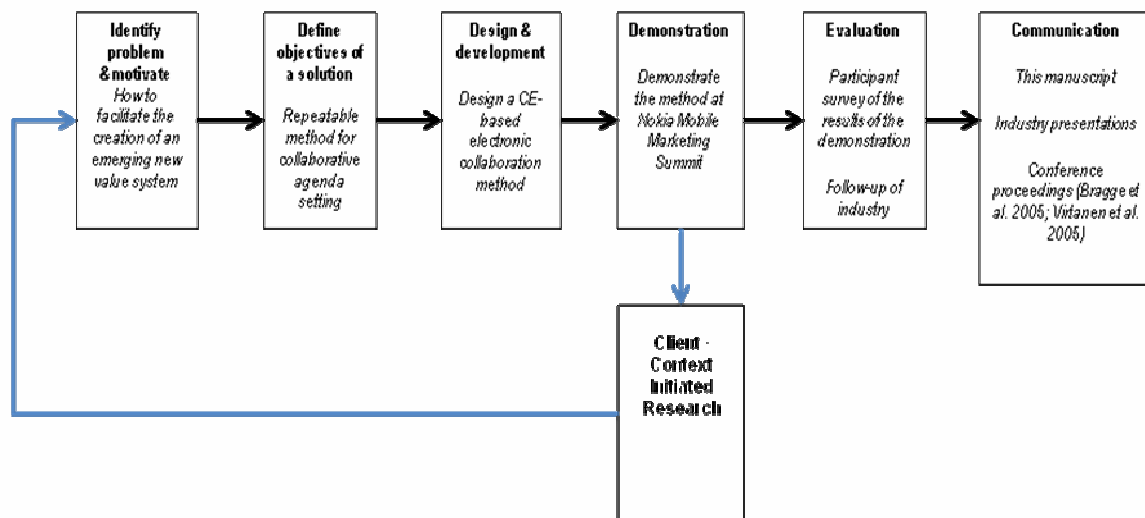


Figure 2: The research process for the design and development of a repeatable collaboration method for agenda setting.

In the following sections, we will describe our research process in detail, utilizing the design science research methodology of Peffers et al. (2008) to design a repeatable CE-based collaboration method for setting up an agenda for the mobile marketing value system. The earlier developments of the design science research methodology were also used to guide our research.

The Client/Context Initiated Research

Our study focuses on finding out whether it is possible, through a carefully designed ICT-enabled collaboration method, to set up an agenda for an emerging new technology value system, which involves networked stakeholders from several organizations. The initiative for collaboratively exploring the perceptions of the stakeholders in mobile marketing and hearing their suggestions came from one of the researchers after he had meticulously studied the drivers and barriers of the mobile marketing field through personal interviews (Virtanen and Raulas 2004). Many of his interviewees complained that the other stakeholders were barring the advancement of the field, due to, for example, the unbearable pricing of their services or an unwillingness to learn new practices. This evidenced the need to thoroughly discuss the issue together with the key stakeholders, such as Nokia, to pursue a collaborative advantage.

Problem Identification and Motivation

Mobile marketing was regarded to be a killer application in one-to-one consumer marketing, but only a few other actors apart from mobile operators had adopted it by the mid-2000s (Aun 2007; Luo 2003; Okazaki 2005; Stone and Siddall 2004). Why was the adoption then so sluggish, despite the huge potential it promised? The reason is that mobile marketing, like several other mobile services, is characterized by numerous stakeholders taking part in delivering the services: marketers, marketing service providers, content providers, media owners, network operators, mobile technology providers, marketing technology providers, etc. (Leppäniemi et al. 2004). Becker (2005) categorized the mobile marketing stakeholders in four interconnected spheres: (1) Product and Services (brands, content owners, and marketing agencies), (2) Applications (discrete application providers and mobile ASPs), (3) Connections (aggregators and wireless operators), and (4) Media and Retail (media properties, “brick ‘n’ mortar” and virtual retail stores). There are also various enablers in each sphere that provide the foundation for them (Becker 2005).

Due to this complex layer structure, there is an evident need to foster close partnerships with those in the other layers, and to coordinate efforts in order to make the applications work together and thus to create value for the customers when delivering mobile services (Becker 2005; Kannan et al. 2001). In addition, Becker (2005) argues that it is vital that companies focus on their core competencies and work collaboratively with the other network players to best serve the market. However, Komulainen et al. (2004) found in the mid-2000s that there was a disintegration among the actors in mobile marketing, and they did not necessarily know how to best create value together. As a solution, they proposed the use of an intermediary who could bring together the different actors in the field to work for a collaborative advantage (Komulainen et al. 2004).

As discussed in the business network section, Möller and Svahn (2003a, 2009) present a three-phase conceptual framework for influencing the birth of emerging value systems. However, their framework does not reveal how the agenda-setting phase should exactly be done in practice. We believe, based on our personal interviews with the industry members and earlier research on mobile marketing, that it is more feasible and sustainable in the long run to create the agenda collaboratively together with the potential partners, rather than to compile it internally in a hub-firm. This concurs with the findings of strategic management researchers. For example, Eden and Ackermann (2001) argue that the single, most important, consideration in managing strategic change is political feasibility, and, thus, more attention should be paid to “the social processes of delivering, discovering and negotiating the data, determining and manipulating its meaning, and agreeing upon the strategic direction.” They continue that when the process is considered to be procedurally just and fair, the support and emotional commitment toward the common decisions increases substantially (Eden and Ackermann 2001).

However, collaboration and decision-making in multi-organizational settings is found to be more complex than in intra-organizational settings (see, for example, Ackermann et al. 2005; Bragge et al. 2007), and it gets even more complicated in the case of emerging value systems due to the wide-ranging uncertainties present at the early stages of the network formation. Based on a comprehensive literature review, Ackermann et al. (2005) have found five general themes for the factors that impede cooperation in multi-organizational collaborative teams (MCTs). The first theme, *lack of history*, refers to the lack of established norms and working rules among the participants. Second, although the organizations may already have agreed on the purpose of the collaboration, they may still face *conflicting goals*. Third, trust is vital for the continuance of the collaboration in MCT settings, but *complex politics* and *power relationships* can cause difficulties among participants. Moreover, some organizations may be more powerful than others, due to unequal resources or dependency relations. Fourth, people representing their organization in the

MCT may have *multiple roles*, depending on the issue under consideration. Finally, for third parties (e.g., consultants, vendors, or facilitators), it may be *difficult to identify the client*. Based on a multiple-case study research, Ackermann et al. (2005) added a theme called the *facilitator role* to the MCT framework. In all their multi-organizational studies, facilitators were found to take on extended roles, e.g., arbitrator, referee, or moderator. Finally, they stressed that it is very important for the facilitators to ensure that the intervention provides the means for developing a common basis for a shared understanding.

To summarize our key problem, collaborative agenda creation and facilitation in multi-organizational settings is more complicated than in single organizational cases, due to the demanding task of aligning the unique objectives of the participating organizations. This drives us to present our research question:

How can we facilitate the setting up of a multi-organizational value system in a new technology field?

The Objectives of a Solution

It is argued that computer-mediated group support systems (GSS), led by facilitators, are able to provide unique assistance in such complex and dynamic group processes as strategy development (Adkins et al. 2003; de Vreede and de Bruijn 1999; Dennis et al. 1997; Eden and Ackermann 2001; Orwig et al. 1997; Tyran et al. 1992). Furthermore, GSS aim to alleviate the problems related to group work (e.g., the domination of one person or the need to wait for one's own turn to speak), and simultaneously, to foster the benefits of group work, e.g., the synergistic effects of building up ideas on the ideas of others (Nunamaker et al. 1991). These aims are pursued by parallel and anonymous contribution via computers, real-time voting options, and digital group memory (everything "discussed" is captured as written text). The GSS tools also foster relationship building and fair social processes (Eden and Ackermann 2001).

There are, however, hundreds of possible ways to apply GSS in strategy development, such as collaborative agenda creation. Research has found that interactive methods for creative brainstorming outperform individual (nominal) ideation methods if the satisfaction or task interest of the participants is more important than the number of the unique ideas generated. For example, Pinsonneault et al. (1999) learned that participants were more satisfied, interested, involved, and aroused when they generated ideas interactively in groups, compared with individual ideation. They also speculated that interactive (vs. individual) ideation would be more suitable for such purposes as obtaining consensus, creating a group dynamic, group understanding, or a buy-in. Potter and Balthazard (2004) add that the circumstances in some cases may require interactive brainstorming, with its socio-political ends justifying the lower productivity of the ideas found in some studies.

Furthermore, Dennis et al. (1997) extensively studied the role of GSS capabilities behind successful strategic planning processes in thirty organizations. They utilized the four capabilities suggested by Nunamaker et al. (1991): process support, process structure, task support, and task structure. Their results suggest that the ability of GSS to provide extensive *process support*—electronic processes featuring anonymity, parallelism, and group memory—is the single most important contributor to the successfulness of strategic planning. The effect of GSS on process structure and task structure were also found to be important. The use of *process structure* was measured by the time spent in strategic planning using a formal process methodology that specifies the order in which the activities are to be performed (e.g., through a predefined agenda), and by the time spent in verbal discussions formally chaired by the facilitator. *Task structure* was measured by the time spent using a formal methodology that specifies how the task should be analyzed (e.g., by using predefined categories on which to brainstorm actions). *Task support* (e.g., electronic access to information developed before the meeting) was seldom selected to be used, thus having only a minimal impact on the success of strategic planning processes. In post-session interviews, problem owners cited anonymity as a crucial success factor. It encouraged more open and honest discussions, compared with previous "manual" approaches to strategic planning. It also reduced politically based decision-making and encouraged more participation by managers with a lower status. Eden and Ackermann (2001) add that greater participation more than likely increases the quality of the decision-making.

Overall, the research findings advise that agenda creation should be performed in collaboration with the relevant stakeholders, following an interactive brainstorming style, and providing electronic and anonymous process support, formal process structure, and, also, some task-level structure in the collaboration process that is facilitator-led. In order to get more detailed, hands-on level advice for designing such processes, we leaned on a newly emerged approach in the literature: collaboration engineering (CE). It is a research-based design approach that enables even novice facilitators to successfully design repeatable and transferable processes for high value recurring tasks—also for practitioners to execute for themselves without the ongoing intervention of a professional facilitator (Briggs et al. 2003; de Vreede and Briggs 2005; Kolschoten et al. 2006b). CE relies on design guidelines, including reusable building blocks called thinkLets, which have been codified by highly professional facilitators to transfer their expertise and skills on facilitating group processes to practitioners.

Thus, guided by earlier literature, our research objective for the study is:

To design a repeatable and facilitator-led e-collaboration method that effectively and efficiently assists the setting up of a multi-organizational value system in a new technology field.

The Design of the Method

In order to make extensive *process support* (Dennis et al. 1997) possible, we chose *GroupSystems® Meetingroom* (a state-of-the-art GSS suite) as the supporting technique for our method. It enables fully electronic processes in a face-to-face setting, featuring anonymous and parallel contribution via computers and enduring group memory in the form of written communication. Particularly in strategic-level decision-making, it is advisable to conduct the discussions in a decision-room setting instead of completely virtually (Bragge et al. 2007; Dennis et al. 1997), which could also have been possible via the utilization of Internet-based GSS tools.

With respect to the *process structure* (Dennis et al. 1997), we crafted in advance an agenda to be followed during the session, using the guidelines provided by the CE design approach (Briggs and de Vreede 2001; Briggs et al. 2003). For example, as the research literature had advised us to use interactive instead of individual brainstorming techniques, we chose among those *generate* thinkLets that are planned to immediately show the ideas of the other group members to the others, instead of keeping them on a private electronic list first. And based on the choice of the initial generate thinkLet, the consecutive thinkLets from the other pattern classes (organize, reduce, clarify, evaluate or build consensus) are often directly determined as a logical chain of compatible thinkLets. Another aspect of the process structure was dictated by the tight schedule and the large amount of expected participants (around thirty): most communication by the participants was planned to be conducted electronically for efficiency reasons. That is, no verbal group discussions, formally chaired by the facilitator, were planned as part of the session. Naturally, the facilitator was still supposed to provide verbal instructions and sum up some phases verbally, which is an advantage of face-to-face electronic meetings compared to virtual ones (see a comparison in Kontio et al. 2007).

Regarding the *task structure* (Dennis et al. 1997), we ideated an initial set of categories in advance, on which the hindrances for mobile marketing were believed to belong to, based on our previous industry interviews and the available research on the topic. This broad category list was planned to be used only after the actual brainstorming phase, when the categorizing of the ideas became topical. That is, the categories were not planned to be used as seeds in the brainstorming. Moreover, for efficiency reasons, we planned the consecutive category clean-up to be conducted in small groups of two to three persons, instead of doing it with the whole group. We did not plan any special *task support* for the session, as it had not been found to be important in the sessions studied by Dennis et al. (1997). However, the overall settings of our demonstration—having the interactive session as part of a whole-day summit with several preceding case presentations—certainly helped the participants become up-to-date on the topic.

The overall session plan for the collaborative agenda setting method eventually consisted of the following phases: (0) a warm-up task, (1) brainstorming the barriers for the growth of mobile marketing, (2) voting on the importance of the identified barriers, (3) brainstorming actions to overcome the most important barriers, and (4) a wrap-up, where the participants are given a short review of the results of the workshop. Following the earlier described process and principles, we designed a sequence of appropriate CE thinkLets for each of the above steps. After a pilot study, some of these thinkLets were replaced by other thinkLets to streamline the method to meet the time limits. The final method with thinkLets is depicted using the facilitation process model notation in Figure 3. The individual thinkLets are briefly described below and in more detail in Briggs and de Vreede (2001), and some also in Briggs et al. (2003). An example of one full thinkLet (LeafHopper) is given in the Appendix.

The warm-up step is needed for people to become acquainted with the goal of the workshop and with the GSS tool. For that purpose, an easy warm-up question (the drivers of mobile marketing here) is usually employed to rehearse the electronic communication mode. The core session starts by asking the participants to list all the factors that they perceive as barriers for the growth of mobile marketing. It is common to begin the actual problem solving by letting the participants spell the problems out first, instead of suggestions for solutions, as criticizing always seems to be easy for people (Bragge et al. 2007). To come up with the key barriers, several thinkLets are used sequentially: *OnePage* (generate), *MyOwnPopcornSort* (organize), *BucketBriefing + Concentration* (reduce and clarify) and *StrawPoll* (evaluate).

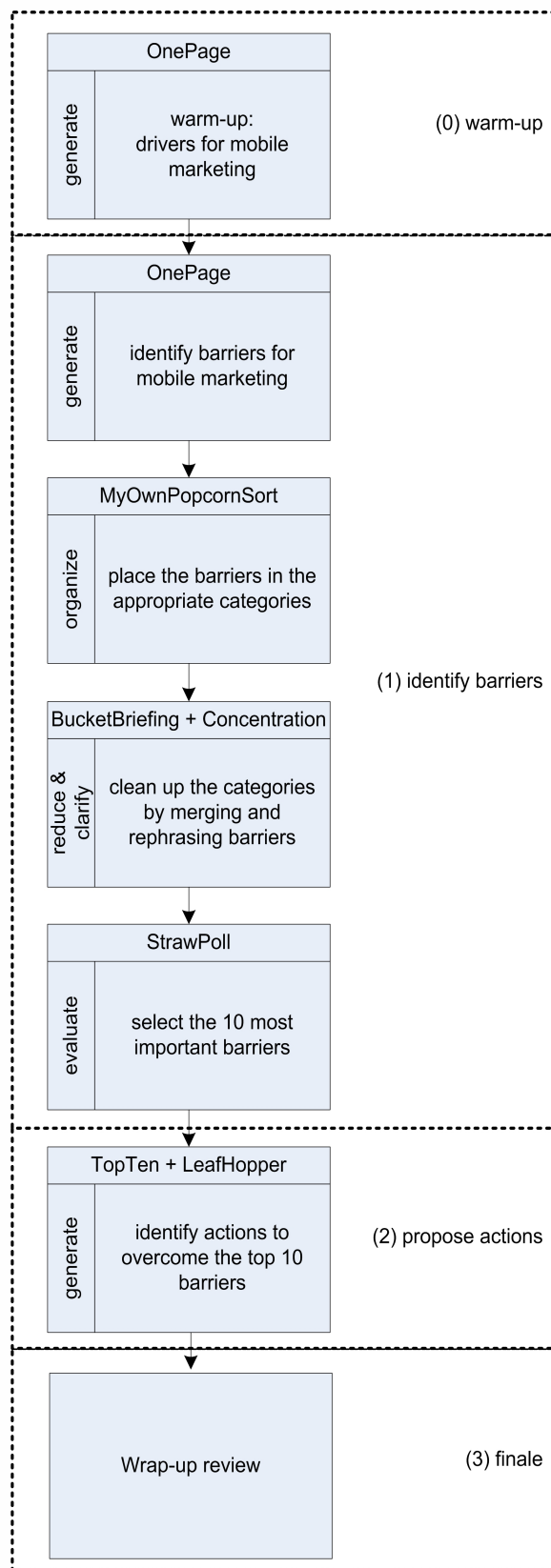


Figure 3: The facilitation process model of the repeatable collaboration method for agenda setting.

In *OnePage*, the participants interactively brainstorm ideas in response to a single question, on one page. They contribute new barriers or react to barriers already entered into the system by others. This often results in a long list of issues that also contain redundant and ambiguous items. Several thinkLets are used to clean up the list. In

MyOwnPopcornSort the participants first drag-and-drop the barriers which they themselves have entered into the most appropriate category. This is followed by *BucketBriefing + Concentration* thinkLets in which smaller groups of two to three participants check out the contents of the categories. The participants discuss the meaning and the wording of the brainstormed items and suggest possible merging and rephrasing of items. The *StrawPoll* is then used to zoom in on the key barriers, by letting the participants each select a limited number (ten) of barriers which they perceive to be most important. The group result is that some issues receive no votes and that a number of issues end up as the real key issues.

The following step in the method is the generation of proposals for actions to overcome the barriers. The *TopTen + LeafHopper* (generate) thinkLets are used for this. In *TopTen + LeafHopper*, the participants brainstorm the (around) top ten barriers for possible actions that should be taken to overcome each of these barriers. *LeafHopper* means that the participants can hop among the barriers to contribute actions, as dictated by their interest and expertise (see the Appendix for more details). After this step, the workshop is wrapped up by providing a short review of the results of the workshop. The time schedule for the above repeatable method, when conducted electronically, is 1.5 hours in total. The warm-up takes about five minutes; the identification of barriers is scheduled for forty minutes. The generation of actions takes no more than thirty minutes, and the wrap-up is scheduled for ten minutes. The GSS tool automatically produces session transcripts containing all of the written communication and voting results from the session.

Demonstration

Regarding mobile marketing, Nokia—as the long time market leader in global mobile phone sales—was viewed as a possible intermediary and network initiator that would be powerful and compelling enough to induce the other parties to collaborate. The provision of mobile marketing services encompasses different actors—such as leading brands, marketing service providers, media owners, mobile and marketing technology providers, operators and mobile handset manufacturers—forming a value system, which can be utilized as a marketing channel by delivering messages and content to the customer through a mobile handset.

After a few rounds of negotiations with Nokia as the hub-firm, we were able to set up an international forum for making our research possible. The representatives of Nokia saw that the key parties that would need to participate in this initial undertaking were the global brand owners (marketers), as well as the marketing service providers (agencies of various types). As the convener, Nokia was responsible for selecting the stakeholders and the invitees, although we were also able to provide our own recommendations.

A week before the actual demonstration, the CE-based agenda setting method was pilot-tested in Helsinki with Finnish mobile industry representatives. The method proved to work well, and the participants were very satisfied with the session. The most important lesson of the pilot was that the method had to be streamlined to meet the strict time limit given to us for its conduct (1.5 hours). The actual demonstration was conducted as an interactive workshop, in connection with the Nokia Mobile Marketing Summit 2004 organized by Nokia in London, UK. The summit was particularly designed to be a forum for the purpose of this design science research endeavor.

The meeting venue for the summit was located in a central place in downtown London. The physical layout of the workshop installation was U-shaped, with twenty-five laptop computers. The laptops, as well as the *GroupSystems* software, were rented from a local GSS-provider, whose experts also eventually acted as the main and technical facilitators of the session.

The program of the one-day summit consisted of an introduction to the latest advances in mobile technology, several mobile marketing case presentations, the interactive workshop, and a closing dinner. The participants, who were invited to take part in the summit, were senior executives in charge of the global or regional strategy of the leading global consumer brand corporations and advertising agency networks. Alongside these invitees, there were participants from various Nokia units and representatives of the press. Two of the researchers were also present in the summit, acting as associate facilitators and observers. From the thirty-three invited participants, twenty-five took part in our interactive session, which lasted approximately ninety minutes, as planned.

For the warm-up task, the participants ideated seventy-two perceived *drivers* of mobile marketing. The themes that recurred in the drivers were the changing environment of marketing and the unique characteristics of mobile communications, such as context awareness, interactivity, and ubiquity. For the *barriers* for growth of mobile marketing, the participants identified 123, resulting in sixty-eight after removing the duplicates through a group work effort. The process continued with the participants being asked to vote on the importance of these sixty-eight barriers by individually selecting the ten most important ones for them. The following thirteen barriers ideated by the participants each received at least six votes in the interactive workshop. The range of votes was 0–12. The barriers are presented in the order of importance:



1. Lack of handset compatibility—unlike in TV advertising, the mobile multimedia content must be customized, based on the handset model and type
2. Consumer fears over mobile response costs in direct response advertising
3. A lack of knowledge among the marketers and agencies
4. Vested interest from existing partners, opposing change (agencies, media agencies, media companies, information/research providers)
5. Lack of research to back up effectiveness
6. Mobile companies are not working together on cross-platform solutions
7. Technical issues (e.g. lacking standardization)
8. Lack of real return on investment case studies in regard to implementing a mobile as a part of integrated activity
9. The fear of marketers of being too invasive (making mistakes towards loyal customers can be costly)
10. Cost models—users do not always understand them
11. The complexity of planning
12. Few experts in agencies
13. Agency and client vested interest in maintaining a status quo.

The main themes of these barriers that emerged from the post-session data analysis are (in the order of the number of mentions in each category) titled as (1) *a lack of research*, (2) *resistance to change among marketing service providers and marketers*, (3) *lack of cooperation and knowledge sharing*, (4) *fear of technology*, (5) *complexity of implementation*, and (6) *fear of spam stigma*. A more detailed account on these barriers can be found in Virtanen et al. (2005).

After voting, the participants were asked to propose *actions to overcome the barriers* that received the most votes. The participants came up with 103 action proposals for the thirteen barriers above. The themes in the action proposals that emerged from the data analysis conducted afterwards are titled as (1) *research*, (2) *standardization*, and (3) *knowledge generation network*. There was no notable difference in the number of proposals in each of the three themes. These themes are further elaborated upon below.

Research. The participants perceived that the consumer usage of different media, its importance to them, and the value that they get from the media usage for different purposes (such as information, entertainment, etc.) is not yet fully understood. Hence, research should be conducted to study where the mobile technology fits, and what the opportunities and threats in utilizing it are. The research must be based on different consumer groups (taking into account socio-demographics, need states, etc.), thus enabling the understanding of *how* (the medium can be used for brand growth), *when* (people consider it appropriate to use it), and *why* (the mobile as a marketing medium should be applied). Further, the participants proposed the development of a measurement tool to evaluate the mobile media exposure and the return on investments in multichannel contexts. Finally, the participants felt that research should be easily available and communicated through education, marketing and marketing research meetings, and publications. Several proposals also recommended collaboration with academic institutions.

Standardization. The need for standardization across mobile and marketing technology platforms and solutions was clearly brought up by the data. Guidelines for implementation, pricing, and cost-sharing models should be commonly agreed upon. Finally, regulatory guidelines should be transparent across the countries.

Knowledge generation network. The participants recommended that the marketers, agencies, media companies, mobile technology providers, operators, and researchers should work together to set guidelines and standards, as well as to generate and share knowledge in regard to mobile as a marketing medium. Finally, the participants felt that the mobile handset companies should have a central role in simplifying the complex value systems of the mobile marketing and in instigating the mobile as a marketing medium.

Evaluation

During the wrap-up of the workshop, the participants were asked to fill out an electronic feedback questionnaire for a first indication of their perception of the method regarding its outcome, effectiveness and the capability of strengthening their inter-organizational relationships. We had deliberately minimized the amount of questions due to the late timing and tight schedule of the workshop. The descriptive statistics of the questionnaire, indicating very encouraging feedback, are presented in Table 1. None of the participants had previously used *GroupSystems*[®] or any other GSS tool.

Table 1. Descriptive statistics of the participant feedback survey			
Means and (Standard deviations) (Rated using a Likert scale of 1–7, with 7 being the highest value)	Agencies (n=10)	Marketers (n=8)	ALL (N=18)
Do you think the results of the workshop are useful?	5.50 (0.71)	5.00 (0.93)	5.28 (0.83)
Are the workshop results worth the time and effort that you have invested?	5.50 (1.18)	5.38 (0.74)	5.44 (0.98)
How well did this workshop help in understanding better the objectives and opinions of the other stakeholders?	5.33 (1.22) (n=9)	4.63 (1.41)	5.00 (1.32) (N=17)
How well did the workshop help in forming a shared understanding of the topic between different stakeholders?	5.30 (0.82)	4.38 (1.19)	4.89 (1.08)

We also asked two open-ended questions. When asked which features the participants thought were especially successful in the workshop, they mentioned the following: the dynamic content, debate and dialogue, the efficiency of data collection with laptops, the tool's suitability for quick 360° insights, and the identification of the drivers, which was considered to be as important as the identification of the barriers. When we asked what we could have done better to improve the brainstorming session or to make it more efficient, they mentioned the following: have operators as part of the session, more time—too much of a rush, smaller groups to agree on the final three to five big issues, more discussions that would be open and moderated to improve the depth of understanding, it was done a little too late, the use of break-out groups rather than technology, and a longer time—but for now it was OK.

Out of those eighteen respondents, who responded to Nokia's own feedback survey (on paperback), twelve wanted to keep the length of the interactive workshop the same, three wanted to have a longer time, and three wanted to have less time. Several delegates suggested that the summit should become a regular event (Nokia 2004). Other statements which confirmed the successfulness of the whole summit were: *"As the scope of mobile marketing grows, so does the need for establishing a common understanding of its potential. The summit is a welcomed initiative to drive that understanding—I hope that Nokia will repeat it next year,"* and *"This is honestly one of the most fruitful events that I have ever attended"* (Nokia 2004).

The positive feedback and our own observations confirm that we succeeded in the quest to nurture the embryonic mobile marketing value system toward a more stable state. Despite the suboptimal timing of the interactive workshop in the late afternoon, the high-level managers considered that the workshop helped them better understand the objectives and opinions of the other stakeholders, as well as in forming a shared understanding (cf. Ackermann et al. 2005). Moreover, they felt that the results were very useful and definitely worth the time and effort that they invested (see Table 1).

In our design science research, we found the theoretical and practical advice offered in the extant literature extremely useful and tenable, concerning how to influence the birth of new business fields (Möller and Svahn 2003a; Möller and Svahn 2009), how to support multi-organizational collaboration in strategic decision-making (Ackermann et al. 2005; Bragge et al. 2007; de Vreede and de Bruijn 1999), and how to design effective and efficient e-collaboration processes (Dennis et al. 1997). Vis-à-vis the collaboration engineering design approach that we employed (Briggs et al. 2003; Kolfschoten et al. 2006b), we were content that the facilitation process model was able to produce the patterns of collaboration as expected. In terms of knowledge management (see, e.g., Hansen et al. 1999), we are convinced that CE has really succeeded in codifying the tacit knowledge of experienced facilitators into highly usable and repeatable units of explicit knowledge—thinkLets. Our process design is also easily transferable. We gained evidence of this during our intervention, as the night before the GSS-providers were instructed by us to run the interactive workshop as the main facilitators. Although the method has not literally been rolled out to an organizational practitioner according to the strictest principles of CE, our method has at least passed the weak market test—using the expression from the constructive approach in management accounting research (Kasanen et al. 1993). The weak market test means that "a manager with financial responsibility has been willing to apply the construction in his business." Passing the semi-strong market test would imply that the construction has become widely adopted by organizations and a strong market test that the units applying the construction systematically would have produced better results than those which are not using it (ibid.).



DISCUSSION

The findings of our study provide two interesting insights that revolve around business networks and the ICT's enabling role in creating new value to firms. First of all, we see that it is important to recognize the new developments within the marketing science about the new bases for value creation in networks. Our design science research reflects positively to the claims made in the literature (Jarillo 1993; Peppard and Rylander 2006; Snow et al. 1992) about the *value system* thinking being more suitable for a contemporary knowledge economy than the previously dominant value chain thinking (Porter and Millar 1985). When contemplating the very complex ecosystem of the mobile marketing business, it can become difficult to visualize it with the value chain model (see Becker 2005 for an attempt to illustrate the ecosystem). Additional challenges for the deployment of the value chain model are evidenced by the difficulties players have experienced in their value creation efforts in the field (Komulainen et al. 2004). Moreover, we found that even though the value system thinking is considered to be feasible (Möller et al. 2005) for assisting the emerging business networks, the practical means and advice for facilitating their instigation were scarce (Möller and Svahn 2003a; Möller and Svahn 2009).

These challenges faced by the mobile marketing industry led us to consider the possibilities of information and communication technologies as suggested by the literature. Could anonymous computer-mediated group methods be employed to facilitate the birth of emerging business networks? If successful, we considered that this could lead to another way of creating value from ICT. Rivard et al. (2006) have deliberated on these issues from the perspective of the value chain model. Their view of ICT as being either in a supporting or in a driving role of the firm's value could be set in a new light if considered through the value system model, especially in the case of emerging business networks. Furthermore, the collaborative ICT-enabled environments could be considered as disruptive innovations if soundly used, and thus supporting the complementary usage (Rivard et al. 2006; Spanos and Lioukas 2001) of both the resource-based view of the firm and the competitive strategy perspectives.

The results of our design science research study strengthened our view on the issue. The immediate results of our demonstration were the overtures made of a business network around one dominant actor in the field, Nokia. This was something that the participants saw as an essential step toward creating a value system. This is strikingly similar to what Möller et al. (2003b) have stated about the drivers behind creating a successful value system; each actor requires a set of value activities performed by a number of actors forming a value-creating system. We consider that the designed collaboration method assisted and enabled the actors to visualize value activities that they could perform in the value system. This, in turn, may lead to a more collaborative strategic thinking, and thus be more powerful, which takes the form of stable or established business networks as suggested by Möller and Svahn (2003b). In addition, this collaborative way of identifying future value systems may help participating companies to vision their roles and thus help them to efficiently build new value creating offerings through networks. This may even facilitate the role of utilizing networks more systematically in developing strategic technology based collaboration.

Finally, the collaboration method designed with the CE approach could also be adopted in other industry sectors, due to its nature of being repeatable and transferable (Briggs et al. 2003; Kofschoten et al. 2006b). This aspect of our study can potentially create contributions within the marketing science and strategic management, as scholars and practitioners seek ways to assist and nurture emerging business networks in the spirit of Rivard et al. (2006), by using ICT in a complementary way to create strategic value for firms.

CONCLUSIONS

In this research, we have portrayed how the landscape of conducting business, especially in the fields of new technology, has changed dramatically over the last decade. Among others, the developments of ICT have enabled firms to concentrate on their core competencies and to deliver their service or product offerings in cooperation with other business actors in the markets. The traditional value chain concept, based on internal hierarchies (Porter and Millar 1985), is no longer universally valid for analyzing how organizations create value for their customers. Instead, new types of models, taking into consideration the networked business characteristics, have entered the arena. These can potentially lead to new ways of utilizing information technology and creating value for an organization (Rivard et al. 2006; Spanos and Lioukas 2001).

We exploited the value system continuum framework developed by Möller and Svahn (2003b) as a point of origin in this research for analyzing the value system of mobile marketing. The value system continuum divides business networks into three basic forms: stable, established, and emerging. The value system of mobile marketing can be described as an emerging one, which is characterized by old and new actors, radical changes in old value activities, the creation of new value activities, uncertainty about both value activities and actors, and radical system-wide change (Möller and Svahn 2003b). Measures are thus required for strengthening its formation toward a more established system. In a related study, Möller and Svahn (2003a) developed a conceptual framework that links the

characteristics of emerging business fields with underlying management activities and capabilities. Their research provides practical advice on how emerging new technology businesses should be nurtured to enable them to move toward a more established and stable system state. Their three-phase framework proceeds from exploring for future business to mobilization for applications and finally to coordination for dissemination. In this research, we focused on the mid-phase that includes agenda setting and net mobilization.

For the above purpose, we designed and demonstrated an ICT-enabled agenda setting method for collaboratively identifying the barriers for the adoption of mobile as a marketing medium, and more importantly, the action proposals to overcome the major barriers. The method was designed using the Collaboration Engineering approach (Briggs et al. 2003; Kolfshoten et al. 2006a), which proved to fulfill its promises in providing expert-level advice on designing efficient and effective group processes. The method created a rich set of data for the industry. The participants characterized almost seventy individual barriers in the areas of lack of research, resistance for change among marketing service providers and marketers, a lack of cooperation and knowledge sharing, fear of technology, complexity of implementation, and fear of spam stigma. To overcome these barriers, the participants brainstormed more than 100 action proposals. The results confirm that the representatives of key marketers and marketing decision influencers, the marketing service providers, perceive a network of key stakeholders of mobile marketing as a way to overcome the barriers in the adoption of mobile technology in marketing.

Our Design Science Research study thus showed that the use of a carefully designed ICT-enabled collaboration method is able to facilitate the industry members in an emerging market to collaborate and provide initiatives on how the adoption of innovative new technologies could be enhanced. We see that our study provides one way to enable using ICT in a complementary manner, i.e., combining the resource-based and competitive strategy views (Rivard et al. 2006; Spanos and Lioukas 2001). This opens up interesting prospects for disseminating the research findings of Collaboration Engineering (Briggs et al. 2003; Kolfshoten et al. 2006b) to various disciplines such as marketing and strategic management. The designed method is repeatable and also easily transferable to other continents or to other emerging new technology business fields. In addition, we see that IS researchers could reconsider the use of the value chain model (Porter and Millar 1985) in the current knowledge-based economy. The presented value system (Jarillo 1993; Parolini 1999) and the value system continuum framework (Möller and Svahn 2003a; Möller and Svahn 2003b) provide the means to explore this onward.

The strong practical results of our study provided a starting point for further actions for the mobile marketing stakeholders of the emerging business network. Our research offered insights into the mobile industry by providing an initial understanding of the reasons why these industry players might seek to form a network in order to pursue collaborative advantage. One of the main motives behind this research was the industry-driven need (manifested in the study by Virtanen and Raulas 2004) to form a thinktank that would set guidelines and standards, as well as generate and share knowledge about the mobile as a marketing medium around a central hub company in the emerging network. It encouraged the marketers and agencies and other stakeholders to participate and provide means to cooperate in building up the market for mobile marketing services. We believe that the findings led to more attainable solutions toward the practical needs in mobile marketing.

A number of positive developments have occurred in the field since our study. For example, the Mobile Marketing Summit was arranged again the following year by Nokia, and the *International Journal of Mobile Marketing* was established by the Mobile Marketing Association (MMA) to promote studies in mobile marketing. This was followed by a decision of the MMA and the GSM Association to agree to cooperate to accelerate the development of mobile advertising worldwide. The GSM Association is a global trade association representing over 700 GSM mobile phone operators across 218 countries of the world, and having more than 200 manufacturers and suppliers as associate members. And finally, Nokia acquired a mobile marketing service provider Enpocket, and founded mobile advertising service provider operations under the name *Nokia Interactive Advertising*.¹ These actions by Nokia are in line with the recommendations of this study.

Conclusively, we see an array of interesting future research topics emerging from the limitations of the study. Much of the previous literature is concentrated on limited topics in the field, but it is evident that every aspect of the emerging value system of mobile marketing necessitates further research. Our study provides one snapshot of the dynamic nature of the creation of business networks, and we focused more on understanding the potential of collaboration technology (Nunamaker et al. 1991; Nunamaker et al. 1997) and carefully engineered methods (Briggs et al. 2003; Kolfshoten et al. 2006b) in assisting the creation than fully understanding the phenomenon. Therefore, we consider that further studies should be conducted in related fields where new technologies constantly change the landscape of doing business. These studies would probably provide more insights into the internal drivers of the

¹ See http://wikimobidex.org/index.php?title=Nokia_Interactive_Advertising.



firms participating in such business networks. As a further issue, our study opens up a discussion for ways to utilize information and communication technologies. The question remains whether the Collaboration Engineering approach powered with efficient groupware could be the key in enabling organizations to manage the creation of emerging networks through the value system perspective. We would like to urge other researchers to join us in this task.

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LeafHopper

Choose this thinkLet...

- ... when you know in advance that the team must brainstorm on several topics at once, and
- ... when different participants will have different levels of interest or expertise in the different topics, and
- ... when it is not important to assure that every participant contributes to every topic.

Do not choose this thinkLet...

- ... if you want the participants to address topics in a specific order. Use DealersChoice instead.
- ... if you want all participant to address all issues. Use DealersChoice instead.

Overview

Participants start with an electronic list of several discussion topics. Each hops among the topics to contribute as dictated by interest and expertise.

Inputs

A list of topics that must be addressed by the team

Outputs

A set of comments organized by discussion topic

How to use LeafHopper

Setup

Create a list of topics for discussion in Topic Commenter or one of the other list building tools (or create an outline of topics in Group Outliner).

Steps

1. Explain the topics to the group and verify their understanding.
2. Explain the kinds of ideas that the group must contribute.
3. Say this:
 - a. Start working on the topics in which you have the most interest or the most expertise. Then, if you have time, move to each of the other topics to read and comment on the contributions of others.
 - b. You may not have time to work on every topic, so work first on the topics that are most important to you.

What's in a name?

A leafhopper is a small insect that is something like a grasshopper or a cricket. It hops from leaf to leaf eating what it wants, then moving on. We named this thinkLet LeafHopper because the team members can jump from topic-to-topic, contributing as they are inspired, then moving on.



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