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Editorial

Chris McPhee, Marko Seppä, and Stoyan Tanev

From the Editor-in-Chief

The editorial theme for this issue of the OSBR is Co-Creation. I am pleased to welcome our Guest Editors: Marko Seppä from the University of Jyväskylä and Stoyan Tanev from the University of Southern Denmark.

We encourage readers to share articles of interest with their colleagues, and to provide their comments either online or directly to the authors.

The editorial theme for the upcoming April issue is Communications Enabled Applications. For subsequent issues, we welcome general submissions on the topic of open source business or the growth of early-stage technology companies. Please contact me if you are interested in submitting an article (chris.mcphee@osbr.ca).

Chris McPhee

Editor-in-Chief

Chris McPhee is in the Technology Innovation Management program at Carleton University in Ottawa. Chris received his BScH and MSc degrees in Biology from Queen's University in Kingston, following which he worked in a variety of management, design, and content development roles on science education software projects in Canada and Scotland.

From the Guest Editors

The articles invited for publication in this special issue of the OSBR were originally presented last September at EBRF 2010 (http://ebrf.fi/2010), in Nokia, Finland. EBRF – the research forum to understand business in the knowledge society – is the oldest international peer-reviewed business research conference organized annually in Finland. The first EBRF conference was organized in Tampere, Finland in 2001. The grand theme of the 10th anniversary EBRF conference was "Co-Creation as a Way Forward".

For this issue of the OSBR, a preliminary subset of EBRF articles were selected by a specifically designed committee of scholars that was asked to nominate EBRF articles fitting the topic of the special issue and providing valuable insights to both scholars and practitioners. We invited the authors to create specialized versions of the papers that were previously published in the EBRF 2010 Conference Proceedings by focusing on the practical relevance of their research for an audience including not only scholars but also business and technology experts. After the submission of the OSBR versions, an additional peer review process was used to select seven articles offering diverse perspectives on co-creation.

In the first article, we offer our view of the emerging research on value co-creation by focusing on three key topics including a general management perspective, new product development and innovation, and business (enterprise) co-creation. The article concludes with a discussion of the ongoing transformation of businesses,

which is based on two major trends: i) customer value is emerging from unique, personalized experiences that force firms to focus on one consumer experience at a time, and ii) no firm is big enough in scope and size to satisfy the experiences of one consumer at a time, therefore, all firms are focusing on acquiring resources from a wide variety of other big and small firms.

Next, Huhtamäki and colleagues apply the concept of value co-creation to understand a national innovation ecosystem. The article analyzes linkages between organizations and their human and financial resources to observe the emergence of co-operative types of activities in Finland. This research provides early evidence on how co-creation emerges through financial linkages. The network-centric snapshot of value co-creation highlights collaboration of venture capital and government agencies in Finnish innovation financing.

Järvi and Pellinen find value co-creation as key to redefining a business model. The prevailing environment forces firms to reinvent value together, instead of just adding it. The imperative of co-creation is highlighted in the information and communication technology sector, where the markets are transforming from "one-sided to two-sided". The article integrates the business model concept with value co-creation in the context of two-sided markets, with emphasis on mobile service production and provision models.

Hyötyläinen and colleagues present four models of business renewal within business networks. The article distinguishes between the exploitation of present knowledge for efficiency and the exploration of new knowledge for new business development. They describe their recent research, which provides evidence from five cases on how co-creation between participants differs according to business focus and complexity of networks. Ideally, the approach will help managers use co-creation in business networks,

enabling renewal according to the strategic targets of their firm.

Ahen and Zettinig study the strategic impact of corporate responsibility on value co-creation in pharmaceutical business networks. The paper adds the responsibility component to the definition of value co-creation and builds a model of value-optimization through value co-protection and ethical responsibility. Metaphorically challenging criminal organizations and their efficient use of networks, the study argues that corporate responsibility can be used to achieve high strategic impact on value co-creation in business networks.

Chen and Sorenson integrate service quality and value co-creation in Software-as-a-Service (SaaS) business relationships between service providers and customers. The paper argues that, in the SaaS delivery, it is necessary to pay more attention on the nature of service quality shared by both service providers and customers. The research derives from a survey demonstrating a strong correspondence between the service quality required or desired by a client and the business relationship needed between SaaS clients and providers.

Savolainen and Häkkinen examine trust in leadership as an antecedent of co-creation in "multi-voiced" organizations. The paper focuses on how leaders enable co-creative interactions: how leaders show trustworthiness by building and sustaining or violating trust. The findings, based on two case studies on small industrial companies, suggest that competence (ability) is a key factor in a leader's trustworthiness. Therefore, the value of developing leadership skills for showing trustworthiness cannot be overestimated in value co-creation.

Marko Seppä and Stoyan Tanev

Guest Editors

Marko Seppä is a "serial co-creator". In 1981, at age 16, he co-created an American football club in Finland, and in 1991, he co-created a pioneering VC firm focused on the emerging markets of Russia and the Baltic countries. In 2001, he co-created an ambitious e-business research centre for a pilot of the eEurope programme. He currently serves the University of Jyväskylä as Professor of Growth Venture Creation and works to co-create a global faculty partnership for problems worth solving. He is founding chair of Global Venture Lab Finland, a university consortium that is developing a "distributed business co-creation environment". He is also a co-founder of the Global Venture Lab Network, which is co-ordinated at UC Berkeley.

Stoyan Tanev is an Associate Professor in the Department of Technology and Innovation and member of the Integrative Innovation Management (I^2M) Research Unit at the University of Southern Denmark, Odense, Denmark. I^2M is a research group operating across the faculties of social sciences and engineering. Before joining the I^2M unit at SDU in August 2009, Dr. Tanev was a Faculty member in the Technology Innovation Management Program of the Department of Systems and Computer Engineering at Carleton University in Ottawa, Ontario, Canada. Stoyan Tanev has an MSc. and PhD. in Physics (1995, jointly by the University of Sofia, Bulgaria, and the Pierre and Marie Curie University, Paris, France), an MEng. in Technology Management (2005, Carleton University, Canada), and an MA. (2009, University of Sherbrooke, Canada). His main research interests are in the fields of technology innovation management and value co-creation in technology-driven businesses. Dr. Tanev teaches technology innovation, technology marketing, and technology management courses in the MSc. Engineering program "Product Development and Innovation" at the University of Southern Denmark.

The Future of Co-Creation

Marko Seppä and Stoyan Tanev

"Go for it now. The future is promised to no one."
Wayne Dyer

The objective of this article is to provide a brief summary of the key directions in value co-creation research that have emerged in the last 10 years. It points to several emerging streams in value co-creation research including: i) general management perspective; ii) new product development and innovation; iii) virtual customer environments; iv) service science and service-dominant logic (SDL) of marketing; and v) international markets and entrepreneurship, with a focus on the general management and innovation perspectives. In addition, the article points to another emerging new direction focusing on business co-creation. The development of business co-creation frameworks integrating the participatory role of both universities and vibrantly emerging business ecosystems represents a valuable alternative to traditional technology transfer and business administration approaches.

Introduction

Value co-creation has emerged as a business paradigm describing how customers and end users could be involved as active participants in the design and development of personalized products, services, and experiences (Prahalad & Ramaswamy, 2004; http://tinyurl.com/4fxnv5m). It is based on the design and development of customer participation platforms, providing firms with the technological and human resources, tools, and mechanisms to benefit from the engagement experiences of individuals and communities as a new basis of value creation. The active participation of customers and end users is enabled through multiple interaction channels, very often by means of specifically designed technological platforms through the Internet. Indeed, it is the advances in information and communications technologies that have enabled customers to be much more active, knowledgeable, globally aware, and willing to use interactive virtual environments to personalize the existing and shape new products and services. The ability of value co-creation platforms to enable the personalization of new products and services challenges the operational presuppositions of traditional marketing segmentation techniques by promoting a new service-dominant logic (Vargo & Lusch, 2004; http://tinyurl.com/4zt926w). The new dominant marketing logic enables firms to address broader heterogeneous markets aiming at a better fit between what a customer needs and what the firm does and offers. It entails a new vision of the topology and the dynamics of the entire value creation system including: i) a shift from thinking about consumers to thinking about co-creators of value; ii) a shift from thinking about value chains to thinking about value networks; iii) a shift from thinking about product value to thinking about network value; iv) a shift from thinking about simple co-operation or competition to thinking about complex co-opetition; and v) a shift from thinking about individual firm strategy to thinking about strategy in rela-

tion to the entire value ecosystem (Hearn & Pace, 2006; http://tinyurl.com/4u9ldxn). Such vision promotes a new understanding of the customer centricity of the traditional value network concept, which is now considered dynamically as a people-driven web of potential value configurations that could be actualized on the basis of specific customer demands (Prahalad & Ramaswamy, 2004).

The adoption of value-creation practices leads to the need for "changing the very nature of engagement and relationship between the institution of management and its employees, and between them and co-creators of value – customers, stakeholders, partners or other employees" (Ramaswamy, 2009; http://tinyurl.com/45spva). This ongoing change challenges the management of innovations by promoting a new vision of the nature of innovation itself. The new co-creative vision of innovation builds on two key distinctive features. The first one is the truly user-driven aspect of the value co-creation activities between firms and customers. In this sense, value co-creation platforms represent a natural extension of some of the key aspects of the user-driven innovation paradigm (von Hippel, 2005; http://tinyurl.com/57xp5x) by focusing on the development of participation platforms to, literally, multiply the effect of user-driven innovation methods such as the design of innovation toolkits and searching for lead users (von Hippel, 2005). Another distinctive feature is the focus on the co-opetitive (from co-opetition) nature of the interactions between the different stakeholders, including the customers and end users, participating in the value co-creation process. Before competing and negotiating to capture value, the different players in a value co-creation network need to compete and negotiate in order to be able to participate and to contribute value (Tanev et al., 2009; http://tinyurl.com/4k9b9on). The co-opetitive

dimension of value co-creation platforms leads to a more dynamic type of economic mechanisms as the underlying driver of the innovation processes. These mechanisms operate on the basis of multiple transactions between customers, partners, and suppliers at multiple access points across the value network. They enable customers and end users to control the relationship between price and user experience (Prahalad & Ramaswamy, 2004) by providing them with the opportunity to actualize (i.e., create) specific value-chain configurations that would fit their proper need, context, and preferences. It is in this context that we could talk about customer value co-creation. Although focusing on the proactive role of the customer, such understanding is generically holistic in nature; it embraces all the actors involved in the value-creation process, providing an opportunity for firms to broaden the boundaries of their open innovation processes.

Key Directions in Value Co-Creation Research

A systematic search of existing research literature presented by Thomsen, Tanev, and Pedrosa at the EBRF 2010 Conference, Nokia, Finland (http://ebrf.fi/2010) identified several emerging streams in value co-creation research: i) general management perspective; ii) new product development and innovation; iii) virtual customer environments; iv) service science and service-dominant logic (SDL) of marketing; and v) international markets and entrepreneurship. A detailed analysis of these research streams is out of the scope of this article, however the number of publications per year shows a growing body of the literature on value co-creation (Table 1). For the purpose of this article, we will briefly discuss some of the key insights of the first two research streams: "general management perspective" and "new product development and innovation".

Table 1. Number of Publications Per Year Dealing with Aspects of the Value Co-Creation Paradigm

Publication Year	Number of Publications as of November 22, 2010	Percentage of Total Number of Publications Found in the Web of Knowledge
2010	22	29.7%
2009	20	27.0%
2008	12	16.2%
2007	4	5.4%
2006	2	2.7%
2005	4	5.4%
2004	2	2.7%
2003	4	5.4%
2000	2	2.7%
1998	2	2.7%

General Management Perspective

The general management perspective provides several frameworks describing the principles, the organizational, management, and marketing aspects of value co-creation practices. From a managerial perspective, the work of Prahalad and colleagues (2004) is of particular interest because their research suggests a more holistic generative framework describing the fundamental building blocks of value co-creation practices, including Dialog, Access, Risk management, and Transparency (thus, DART framework). The open Dialog between the multiple actors within the value network encourages knowledge sharing and mutual understanding. It provides an opportunity for customers to interject their view of value into the value creation process and helps companies understand the emotional, social, and cultural contexts of end-user experi-

ences. The initiation of dialogue during co-creation requires a forum with clear rules of engagement leading to an orderly, productive interaction within emerging thematic communities. The focus on Access challenges the notions of openness and ownership. Providing customer access to resources, information, tools, assets, and processes at multiple points across the value network provides companies with innovative ideas about new products and services, new business opportunities, and new potential markets. As customers become co-creators of value, they become more vulnerable to Risk and demand more information about the potential risks associated with the design, manufacturing, delivery, and consumption of particular products and services. Proactive risk communication and management offers companies with new opportunities for competitive differentiation. Transparency builds trust between both institutions and individuals. It enables a creative dialogue in which trust emerges. When companies make vital business process information available to consumers, they hand over part of the control of the value creation process. Empowering customers with such control becomes a key component of companies' customer relationship management and differentiation strategies.

In addition to the DART framework, Prahalad and Ramaswamy (2004) identified four dimensions of choice that could enable personalized co-creation experiences: i) co-creation across multiple channels that enabling new co-creation horizons; ii) co-creation through multiple options where customers could go beyond the options designed by a company in order to fit its value chain in terms of profitability alone (enabling the possibility for customers to create their own options opens the door for user-driven innovation); iii) co-creation through multiple transactions at multiple points of access across the value network enables customers and end users to affect the way a product or service is de-

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signed, to reject unnecessary features, to negotiate a particular price component, or decide to become engaged in the value-creation process; and iv) co-creation through the ability to influence the relationship between price and experience where customers could associate their specific choice with the type of experiences they are willing to pay for. While the literature within this stream provides multiple examples of firms that have adopted co-creation principles and useful insights about the specific business and marketing issues that need to be addressed, there is relatively little research on the specific groups of activities that should be undertaken in order to enable the value co-creation processes. There is a need of more research studies that would contribute to the development of value co-creation platform design rules, transition pathways, and maturity implementation models.

New Product Development and Innovation

The new product development and innovation research stream emerges by means of a terminology that oscillates between the semantics of two other paradigms: user-driven innovation (von Hippel, 2005) and open innovation (Chesbrough, 2003; http://tinyurl.com/47uzztq). On one hand, user-driven innovation distinguishes itself by promoting a single, firm-driven, product-centric, non-transactional, and participatory approach to user involvement in the design of new products and services. However, its focus on innovation toolkits and innovation communities brings it close to the value co-creation paradigm with its focus on customer participation platforms, personalization of market offers, multiple stakeholder interactions and access to global resources, customer-driven business models, and virtual customer experience environments. On the other hand, the open-innovation paradigm promotes a more generic and broader vision of the innovation landscape. It articulates the key mechanisms for inbound and outbound business and innovation pro-

cesses, intellectual property, knowledge, and resource flows used by firms to engage into a more proactive pursuit of new markets and innovations (Chesbrough, 2003).

The participatory platform nature of value co-creation practices enables a broader and more systematic positioning of customers and end users across the entire innovation lifecycle, leading to a significant enhancement of the user-driven innovation potential. As a result, the development of value co-creation platforms is increasingly recognized as a promising innovation strategy associated with an ongoing change of the nature of innovation itself (Tanev et al. 2009). The co-creation paradigm positions the source of value within the co-creation experience, which is actualized through the company-customer interaction events. By co-creating with the network, the customer becomes an active stakeholder in defining both the interaction and the context of the event, including their specific personal meaning. The personal nature of the interactive experiences enables new dimensions of value which are based on the quality and the personal relevance of the interaction events, as well as on the opportunity for customers to co-create their own unique end products, services, and experiences. These dimensions are critical for the emergence of experience-innovation networks putting the individual at the heart of co-creation experience through the development, access, and dynamic reconfiguration of appropriately designed technological, business process, and human resource infrastructures. In this sense, the value co-creation paradigm represents a specific, market-driven approach to the adoption of an open innovation business philosophy. It provides a dynamic understanding of firms' innovation boundaries, which opens the possibility for a better competitive positioning through a better articulation of their innovativeness. Existing literature clearly emphasizes that customer participation in value co-creation activities should impact their innovation outcomes, such

as innovation cost, time-to-market, new product/service quality, and development capacity. It also points out that firms tend to measure the performance of co-creation practices from an innovation perspective alone, neglecting the remarkable side effects, such as brand perception or customer-firm relationship quality, which may even exceed in value the actual innovation performance. Online co-creation platforms, or virtual customer environments serving the purpose of co-innovating with external stakeholders, can be considered as massive interactive marketing campaigns due to the sheer number of contact points with potential customers. In light of these additional benefits, collaborative innovation with consumers, if properly managed, may become a cost-efficient or even costless way of innovating. However, most of the existing studies are case-based and there is little quantitative research focusing on the relationship between the degree and the scope of firms' involvement in value co-creation activities and their innovation-related outcomes. This gap could be explained by the emerging nature of the value co-creation paradigm; however, its emergence has gained enough momentum to enable more systematic studies of the relationship between co-creation and innovation.

A Business Co-Creation Perspective

It is important to point out another emerging research direction focusing on business (or enterprise) co-creation. The development of business co-creation frameworks integrating the participatory role of universities (scholars) in vibrantly emerging new business ecosystems represents a valuable addition to traditional technology transfer, entrepreneurship, and business administration approaches. This has not been articulated enough in research publications but it has become the subject of several action research projects at multiple locations across the world. Two representative examples are Lead to Win (http://leadtowin.ca) and the Global Venture Lab initiative (GVL; http://gvl3.com). This sec-

tion will focus on a brief summary of the philosophy behind the GVL.

The Global Venture Lab is a product of an American-Finnish-Indian co-creation initiative. The need for a global approach, community, and platform to educate those who can solve the Big Problems through entrepreneurship was jointly addressed by three professors from three continents at a conference at the University of California at Berkeley, in December 2007. This initial momentum was followed by additional kick-off meetings at the Indian Institute of Technology at Kharagpur and at the University Alliance Finland at University of Jyväskylä. The Global Venture Lab Network was formally launched in November 2009 at UC Berkeley as a community of 26 members worldwide.

GVL Finland, a consortium of seven Finnish universities, stands to enhance co-creation of enterprise for problems worth solving by aiming at a distributed, globally scalable, web-enabled, university-based production environment: a smartly co-owned factory in which faculty are "foremen" and students the "labour". It is a factory where enterprise is raw material, entrepreneurs are suppliers, and industry and investors subcontractors. In other words, GVL Finland envisions a new role for faculty and students in an emerging new domain of knowing which, as of November 2010, was coined as Art of Business Creation (see the University of Jyväskylä press release dated 24 November 2010: http://tinyurl.com/4kv52y5).

In all of the business administration disciplines, enterprises are investigated from the outside, via interviews, surveys, and statistical analyses. In the Art of Business Creation approach enterprising is investigated from within by participating in the creation as part of the entrepreneurial team, for example, in the role of a knowledge investor (See Seppä 2006: http://ebrc.fi/kuvat/eBRC_rr29.pdf).

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"Whereas the Science of Business Administration aims at generalisation and repeatability, the Art of Business Creation aims at the opposite: uniqueness. In the former one interviews champions to understand their actions, in the latter you participate in the creation, because you are a champion yourself."

Christian Aspegrén
Serial entrepreneur and PhD candidate
University of Jyväskylä

The inspiration of the approach is the research that produces new materials, devices and medicines, even symphonies, and the fact that research on enterprise has classically produced less concrete outcomes.

"If enterprise growth is wanted as a research outcome, there are no shortcuts. Swimming instructors should be able to swim, also in this sport, and the swimming schools be located by the water."

Mikko Reinikainen
Partner of PwC in Finland

Action learning and action research are at the heart of the Live Case approach. Faculty and students participate alongside entrepreneurs in the growth resourcing action: real life, real time. Herein, the roles of entrepreneurs, investors, customers, faculty, and students are often rotating and sometimes multiply integrated. PhD candidates willingly participate in delivering study courses to multidisciplinary groups of master's level students whose work produces valuable research data for them. Needless to say, the ideal PhD candidate is a co-founder of a Live Case target enterprise.

We underscore that there are only early observations available from the GVL action. The value and potential of the pilot ending at the end of 2011 is under evaluation and will be reported in December at EBRF 2011 at Aalto University in Helsinki.

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Conclusion

As final note on the future of the value co-creation business and innovation paradigm we could summarize a somewhat prophetic view of Prahalad and Krishnan (2008; http://tinyurl.com/4vhnnyy). According to them, there is a fundamental transformation of business under way, which is supported by two basic pillars: i) value is based on unique, personalized experiences and firms have to focus on one consumer experience at a time (N=1), even if they serve 100 million consumers; ii) no firm is big enough in scope and size to satisfy the experiences of one consumer at a time, therefore, all firms will focus on acquiring resources from a wide variety of other big and small firms, i.e. the focus will be on access to "R"esources on a "G"lobal scale (R=G).

As Prahalad and Krishnan state:
"We believe that the traditional sources of competitive advantage, such as access to capital, physical location, and raw materials or technology, will become table stakes. These factors are diminishing in their importance as sources of competitive advantage. Access to these factors is becoming easier. As we move to an N=1 and R=G world of value creation, we believe that competitive advantage will depend on a firm's approach to business processes that can seamlessly connect consumers and resources and manage simultaneously the needs for efficiency and flexibility."

The Future of Co-Creation
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Marko Seppä is a "serial co-creator". In 1981, at age 16, he co-created an American football club in Finland, and in 1991, he co-created a pioneering VC firm focused on the emerging markets of Russia and the Baltic countries. In 2001, he co-created an ambitious e-business research centre for a pilot of the eEurope programme. He currently serves the University of Jyväskylä as Professor of Growth Venture Creation and works to co-create a global faculty partnership for problems worth solving. He is founding chair of Global Venture Lab Finland, a university consortium that is developing a "distributed business co-creation environment". He is also a co-founder of the Global Venture Lab Network, which is co-ordinated at UC Berkeley.

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A Network-Centric Snapshot of Value Co-Creation in Finnish Innovation Financing

Jukka Huhtamäki, Martha G. Russell, Kaisa Still, and Neil Rubens

*"In co-creation, strategy formulation involves imagining a
new value chain that benefits all players in the ecosystem."*
Venkat Ramaswamy and Francis Gouillart (2010)

In this article, we apply the concept of value co-creation to the analysis of linkages between organizations and their human and financial resources to observe the emergence of cooperative activities in a specific innovation system. Through visual network analysis of a federated and socially constructed dataset of organizations and their related actors, we show how co-creation occurs through financial linkages.

We use the ecosystem concept as a metaphoric reference to value co-creation with a network-centric mindset. Business financing linkages reveal convergence and co-creation in the innovation ecosystem, and network analysis is used to visualize the relationships between firms. Through the lens of relationship-based synergy, we provide a snapshot of innovation funding, which highlights the collaboration of venture capital and government agencies in co-creating the emerging Finnish innovation ecosystem.

Introduction

The term co-creation was coined to explain emerging relationships between customers and the companies though which they were jointly creating value. Recently, the frame of reference has been extended to an emerging business and innovation paradigm that leads to the need of "changing the very nature of engagement and relationship between the institution of management and its employees, and between them and co-creators of value - customers, stakeholders, partners and other employees" (Ramaswamy, 2009; http://tinyurl.com/47c9ook).

Strategic value creation networks can be observed through network analysis of small, medium, and large enterprises, and they are important examples of co-creation. A leading idea in open innovation is that, because valuable knowledge exists outside of an individual organization, companies purposively co-create value networks through vendor-supplier relationships and collaborative service offerings that are specific to market segments. Inter-firm relationships created by the participation of executives and board members in two or more enterprises with related missions, markets, products, or social initiatives are additionally a potentially powerful force for value co-creation. In a similar way, enterprises receiving investment resources from the same financial source may share complementary visions of the future, complementary benefits from new technologies, and synergistic market development. Business ecosystems are comprised of the aggregate of these relationships among individuals and groups of individuals in clusters of companies. The com-

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petitive advantage of clusters accrues from the linkages and the synergy between activities (Porter, 2000; http://tinyurl.com/4csuj9u).

Co-creation is an essential force in a dynamic innovation ecosystem because a continual realignment of synergistic relationships of people, knowledge, and resources is required for growth of the system and responsiveness to changing internal and external forces (Rubens, et al., 2011; http://tinyurl.com/4rnup6h). On one hand, venture capital is the "independent, professionally managed, dedicated pools of capital that focus on equity or equity-linked investments in privately held, high growth companies" (Gompers and Lerner, 2001; http://tinyurl.com/4vd5r2z), has specific termination objectives that drive investments. On the other hand, government development agencies are often framed around capacity building missions – building markets, standards, supply chains, and technical and managerial talent. The investment strategies of development agencies vary in outcome objectives, as well as in time frame and financial objectives. For examples, differences in the "cultivation vs. harvesting" strategies evidenced by investments into and out of China have been described (Rubens et al., 2011).

Jungman and Seppä (2004; http://tinyurl.com/4cpwxm5) differentiate the role of angel investors, incubators, advisors, and corporate investments in bridging the gap between seed funding of prospective companies and capital infusion into investable companies. While all these types of financial resources may be available for business investment in a region, the role and proportion may vary. Investors' ultimate objective is for a new company to undergo the major liquidity event that allows it to become listed on a stock exchange. An ecosystem including both experiential and financial resources is needed to co-create successful journeys across the gap from a prospective to a listable company.

In this article, we use data-driven social network visualization to present a network analysis of venture funding in the Finnish innovation ecosystem. A socially constructed dataset is used to study the nature of business co-creation through syndicated venture capital investments. We show that the dataset can be explored to provide value to researchers as well as ecosystem facilitators and other agents of change. The snapshot of innovation funding in Finland is examined by means of network analysis to visualize inter-firm relationships, following the ecosystem as metaphoric reference for value co-creation in a network-centric mindset. The analysis concentrates on investments of venture capital, which in Finland have been oriented to early equity-phase financing of high-tech startups. A total, all-inclusive analysis of the Finnish system is outside of the scope of this article, but the visualization snapshot of venture funding will serve as a starting point to stimulate the development of insights relevant to innovation experts, analysts, and decision makers within the context of the Finnish innovation ecosystem.

Venture Funding for the Finnish Innovation Ecosystem

The Finnish national innovation system has been described as a network of various actors, with education, research, product development, and knowledge-intensive business and industry at its core. Regarding the flows of investments into this system, it has been noted that "because of the importance of the public venture capital/private equity organizations, the Finnish venture capital system can be described as dual one in which some private venture capital funds have been initiated by public intervention" (Luukkonen, 2006; http://tinyurl.com/5v4tota). Furthermore, special characteristics have been noted: i) due to the small markets in Finland, the growth expectations oftentimes have been limited, which has impacted non-Finnish investors' perceptions of the attractiveness of investment in Finnish companies; ii) these existing public investors many times have been passive; and iii) that there are very few corporate venture capitalists in Finland (Luukkonen, 2006).

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Jukka Huhtamäki, Martha G. Russell, Kaisa Still, and Neil Rubens

In this sample of 108 high-tech companies, 53 investments were announced from 28 institutional investors, made in 29 rounds between 2005 and 2010. An examination of the social networks and other structures produced from this data is much like a walkabout in the Finnish innovation funding ecosystem. Visual analysis shows the patterning of connections between company actors as well as those of financial resources flowing to Finnish technology-based companies, implying co-creation from innovation funding. For example, the walkabout reveals a landscape of four

companies that have come of age – sold or issued an initial public offering (IPO), amidst many independent firms – and a few with international connections. One actor dominates the investment landscape.

Figure 1 shows all 136 actors in our sample, which consisted of 108 technology-based companies with a home office in Finland and 28 investment organizations. Companies and their funding organizations are interconnected with edges. The actors are colour-coded: companies

Figure 1. Network of Finnish Technology Companies and their Investment Organizations

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are gray, unless they were sold or have issued IPO, in which case they are red. Investors with their home office in Finland are blue; investors whose whereabouts are international or unknown in the dataset are orange. The nodes are inflated according to their degree (i.e., the number of connections that they have to other nodes): the bigger the node, the more connections it has.

Among the notable relationships in the sample, Figure 1 shows:

1. Ipsat Therapies, Medisapiens, Iqua, and Silecs have the largest number of connections to investors.

2. Finnish investment organizations represent roughly half of the investors for these Finnish companies.

3. Conor Venture Partners, Veraventure, Eqvitec Partners, Innovations Kapital, Midinvest Management, and Nexit Ventures are linked to more than one company by their investments.

4. Biofund Management, Sitra Ventures, Varma Mutual Pension Insurance Company (Varma),

and Finnish Industry Investment invested in Ipsat Therapies. This was the first investment in the sample and occurred in April 2005.

5. Medisapiens received investment from VTT Ventures, Eqvitec Partners, Veraventure, and Lifeline Ventures. This was the most recent investment and occurred in June 2010.

6. Most of the companies (75%) in this sample are not receiving funding from an investment organization. Although some companies have investments from individuals, angel investors are not included in this analysis.

In our sample, 56 of the companies and investment organizations (41%) are connected to one or more actors. Figure 2 shows the betweenness centrality values for the 26 actors that have a value larger than zero. Betweenness centrality is one of the key metrics in social network analysis (http://wikipedia.org/wiki/Centrality#Betweenness_centrality). It is based on counting the number of times that a given node is included in the shortest path between two nodes. Of the companies, Iqua has the largest betweenness centrality value: 610. Of the investment organizations, government-owned Finnish Industry In-
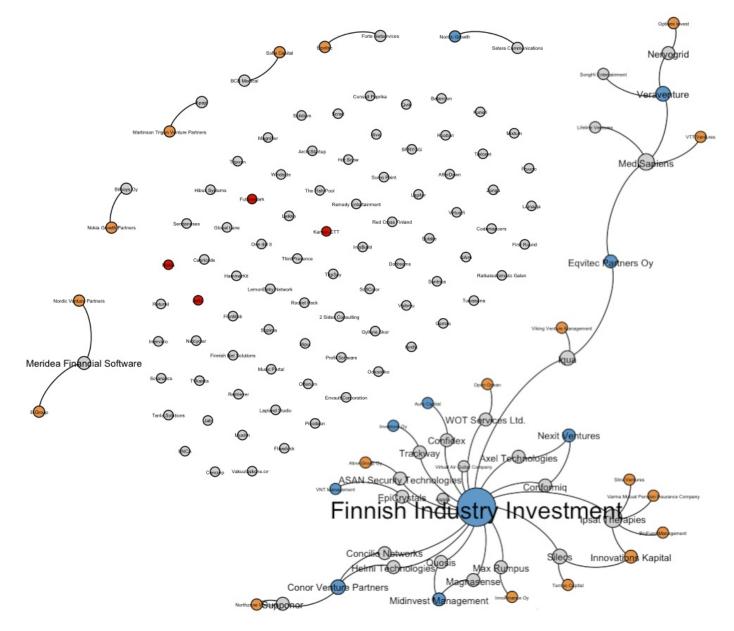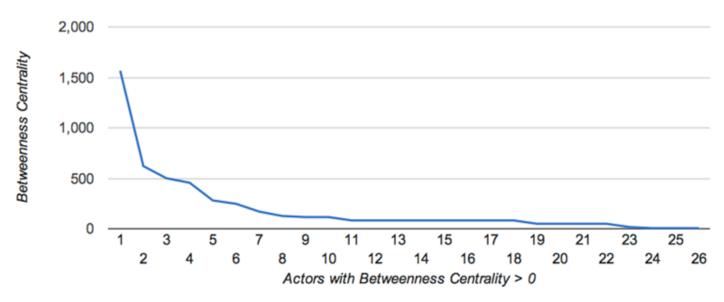
Figure 2. Distribution of Betweenness Centrality

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vestment is connected to the largest number of companies, with a betweenness centrality value of 1557. For the whole sample, including the actors with no connections, betweenness centrality values of the lowest, low-medium, and upper medium quartiles are zero, making the average value 36.

The value distribution of betweenness centrality roughly follows a power law. Node degree value, the number of connections per actor, has a similar kind of distribution. This suggests that the network is scale free – characterized by a very small number of nodes that are highly connected and many nodes with little connection (Barabási and Bonabeau, 2003; http://tinyurl.com/4e3oxof). In scale-free networks, growth patterns that show preferences for attaching to highly connected nodes are typical and generally lead to the development of hubs (i.e., nodes with an enormous number of links) in a rich-get-richer manner. Scale-free networks tend to be "robust against accidental failures but vulnerable to coordinated attacks" (Barabási and Bonabeau, 2003).

Through the companies they co-fund, relationships between investment organizations are of strategic interest for co-creation. Sunburst diagrams were applied to visualize patterns in the Finnish innovation ecosystem. Figure 3 shows the co-investments of 22 investment organizations into 19 Finnish companies. Each investor that co-invested with another investor in this sample is shown in the inner circle. Their co-investors are placed in the outer circle adjacent to each investor, without specification of the time of investment. In this design, each investor appears as co-investor at least two times in the diagram. Investment organizations identified as Finnish are shown in blue. The Finnish Industry Investment co-invested with 15 other funding organizations; some co-investors were Finnish, while the location of others was not available in the data. (It should be noted that some of the investors are known by the authors to be Finnish, but their Finnish locations were not identifiable

programmatically. The locations of these investors were therefore classified as unknown and are shown in orange in Figure 3. These organizations include, among others, Varma, Sitra Ventures, and VTT Ventures.)

Figure 4 reveals funding paths or bursts for companies that have received two rounds of funding; no companies in this dataset were reported to have received a third-round investment. Second-round investors are shown on the outer circle adjacent to the investors of the first round for the same company. Finnish Industry Investment, for example, has been both a first-round investor and a second-round investor. When Sitra Ventures and Varma are regarded as being Finnish, we can see that a small majority (57%) of funding organizations participating in multiple funding rounds are Finnish organizations.

Discussion

The approach for visual co-creation analysis presented here is a synthesis of visual social network analysis and data-driven information visualization. Visualization and measurement are claimed to be the two main factors enabling the explosive development of modern science. Visualization has been a key element of social network analysis - and its precursor, sociometry - in supporting the exploration, presentation, and analysis of the structure of communities. The general objective of information visualization is to amplify the cognition of a user through an expressive, often interactive view that gives insight on a given phenomena represented by the data.

Data-driven visual storytelling allows insights on the structure and dynamics of a network to be shared with the help of visualizations. "[S]torytelling allows visualization to reveal information as effectively and intuitively as if the viewer were watching a movie" (Gershon & Page, 2001; http://tinyurl.com/6k8nb3t). Hans Rosling gives particularly inspiring examples of such storytelling; his presentations are some-

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Figure 3. Patterns of Co-Investing in Finnish Technology Companies

times referred as "the best stats you've ever seen" (TED Talks, 2006; http://tinyurl.com/99rnmm)

This study's visual social network analysis revealed structural connections between Finnish technology-based companies and their investment organizations. A significant proportion of Finnish companies in the high-tech sector have not received funding from investment organizations since 2005. For those Finnish companies that have received funding, 63% of have received either first or second-round funding from Finnish Industry Investment. A handful of investment organizations (some Finnish and some not) provide modest diversification to the

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Figure 4. First and Second-Round Investment Paths in Finnish Technology Companies

Finnish funding landscape, which shows a scale-free pattern.

Further, this analysis has generated preliminary insights about the general patterns of co-creator networks supporting the Finnish innovation ecosystem in the high-tech sector. The sunburst visualizations display funding pathways and highlight the flexibility of Finnish government investment organizations to co-create in both first-round and second-round funding. The co-creation role of these organizations is visualized through both concurrent and sequential cooperative investments. At the same time, the visualizations also reveal a dependency on Finnish Industry Investment and an opportunity to fur-

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ther diversify institutional investments in Finnish companies.

These initial patterns suggest avenues for future study. Investment relationships reflect an intentional alignment of business resources and goals that may be based on technologies, markets, or globalization strategies. A resource-based relationship implies that the partners share objectives, share risks, and share rewards as they co-create value through investments. In co-creation, both the risks and rewards are shared; however they may not be equal. The roles of first and second-round investors may be specialized with respect to the amount of risk, the financial and temporal objectives for exit, and the value of the network itself. Across public and private Finnish organizations making investments in technology-based companies with headquarters in Finland, this study showed that Finnish Industry Investment is unique in both leading and following the investments made by other entities.

This study lacks two very important investment players for a full view of the Finnish innovation ecosystem. Since firms were used as the unit of analysis, individuals serving as angel investors were not included. In a subsequent study, we seek to gain further insight on the business angels' vital role in seed financing for new technology-based companies – an act of co-creation in this sense. An interesting, though difficult, task for future work is visualizing the role of incubators and business angels in closing the gap between venture and capital.

Further studies could include the utilization of temporal data, which often yields insights about the evolution of a network. Network visualization tool-development initiatives such as Gource (http://code.google.com/p/gource/) and Gephi (http://gephi.org) are clear indicators of the interest that the open source community has in temporal network visualization. These tools are of high value when the dynamics of innovation ecosystems are studied for insights on trends, the roles of different actors, diffusion of information and innovations et cetera, but they insist on the availability of rich data sources.

Conclusion

Applying information visualization and visual social network analysis has huge potential for revealing the social structures and network dynamics within innovation ecosystems, from individual organizations to the whole world. Despite recent rapid development of visual tools for social network analysis, one major issue that hinders data-driven visual analysis of co-creator networks in innovation ecosystems is the lack of accessible, timely data about the global ecosystem of high-tech companies. We anticipate development in this area in the near future with the advent of (open) linked data (see http://linkeddata.org), which is currently endorsed with respect to opening up public administration. The authors are contributing to this opportunity by creating a dataset representing high-tech companies and building up research methods for this dataset.

The scale-free patterning of the Finnish venture capital network is similar to the findings of Barabási (2010; http://brsts.com) who claims that such patterning can be found in nearly all kinds of human activities. Adding the temporal dimension to data enables the analysis of the evolution of the network. This opens up a new level of insights into changes in the network that, at best, supports the formulation of future scenarios for agents of change in different innovation ecosystems. Two important opportunities for innovation policy analysts concern identifying incentives to effectively encourage the reinvestment of exit resources and orchestrating mechanisms to strategically encourage global participation in a manner that provides a return on investment back to its origin.

Value Co-Creation in Finnish Innovation Financing

Jukka Huhtamäki, Martha G. Russell, Kaisa Still, and Neil Rubens

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Using Value Co-Creation to Redefine Business Models

Kati Järvi and Antti Pellinen

"No man is an island, entire of itself; every man is a piece of the continent, a part of the main."

John Donne

In the information and communication technology (ICT) sector, a revolution is underway in the delivery channel of mobile service (or application) production and provision, and application stores are building up a central position as intermediaries in service delivery. The market is transforming from being one-sided to being two-sided. Thus in this article, we focus on integrating the business model concept with value co-creation with respect to the emergence of two-sided markets and intermediaries. As the transformation from a one-sided to a two-sided market and the birth of intermediaries bring forth value co-creation possibilities, this article aims to find out how value can be co-created in different mobile service production and provision models.

Introduction

Volatility in the competitive environment forces firms to reinvent value instead of just adding it. In addition to reinvention, different economic actors have to work together in order to co-create value. With many innovations, value is co-created through intense collaboration and complex business models. This is highlighted especially in the ICT sector, where several other factors also contribute to the urgent need for the business model to become more comprehensive in terms of value co-creation.

Most of the business model literature has focused on value creation towards the customer; this is one-sided market logic. In one-sided markets, the traditional value chain applies, as shown in Figure 1a. Value moves from left to right, meaning that the left (upstream) represents cost, and the right (downstream) represents revenue. In the two-sided market, as shown in Figure 1b, there are distinct participants on each

side, both of which represent cost and revenue. However, this duality of both sides representing cost and revenue is often neglected. Even in the presence of two-sided markets, the one side is often treated as a source of profit while the other side is treated as a loss or as financially neutral.

Business Models for Two-Sided Markets

A typical two-sided market in the information era brings together two groups of users, namely suppliers and customers. Examples of these two-sided markets include personal computer operating systems (which bring together software providers and users), web search services (which bring together information providers and seekers), video games (which bring together game developers and players), and online recruitment sites (which bring together employers and job seekers). In the telecommunications industry, the proliferation of application stores has transformed a previously one-sided market into a two-sided market. On one side of the market,

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Figure 1. Value and Revenue Flow in One-sided and Two-sided Markets

a. One-sided Market

b. Two-sided Market

there are third-party application developers, who have previously lacked an attractive delivery channel to end-users, such as the Internet has provided for software developers to reach users. On the other side of the market, there are mobile phone users, especially smartphone users, who are hungry for value-adding services that are easy-to-download, easy-to-use, and even free-of-charge. As a two-sided market, application stores give birth to a new delivery channel choice for application developers.

Application stores act as intermediaries between the two sides of the market. They have become the hubs of the telecommunications industry value chain and representing a delivery channel revolution, particularly from the perspective of application developers. Application stores also generate the need to redefine the business model with value co-creation. We argue that the telecommunications industry, to which the Internet world has brought major technological changes and revolutionary commercial changes, is adopting new models of providing the communication and related services or applications. These

new models combine the most suitable features from traditional and new approaches so that telecommunications operators can operate in a more agile and co-operative manner.

Based on our empirical data, we have identified four different types of mobile service production and provision models, which will be described in the next section. These models represent different types of delivery channel choices available to application developers.

Choice of Delivery Channel

In general, an application developer has three different delivery channel choices in their pursuit to provide a service (or application) to an end user: the direct channel, the operator channel, and the application store channel. For the application developer, the sales and distribution challenge is to reach an end-user audience that is as broad as possible. For independent or smaller developers, this challenge may be greater because of limited marketing resources; acquiring the attention of their target audiences often re-

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quires multiple resources beyond those required to develop the service or application. Similarly, both consumer and business end users, have an interest to gain information and offers from services and applications that potentially provide utility, entertainment, or enhancements. End users cannot approach all relevant developers or even acquire knowledge of their products and offerings. Furthermore, it requires significant technological knowledge to be able to distinguish the suitability of the service or application to the end user's mobile terminal or access network. Direct distribution of services or applications (i.e., the direct channel), is likely to lead a very fragmented, expensive, and non-user-friendly environment due to the phenomenon called the long tail.

Figure 2 illustrates the four different types of mobile service production and provision models. They represent the different delivery channel choices available to applications developers, the two-sided market phenomenon, and also value-creation possibilities. Production is required with services and applications that have an on-line element, meaning they utilize server or backend infrastructure. Similarly, we can include certain support and maintenance requirements, even for standalone application. In addition to production, provision includes packaging or bundling, customer management, billing, branding, marketing, sales, and customer acquisition. Thus the delivery channel choice also represents a business model choice and leads to value co-creation possibilities.

Figure 2. Models of Mobile Service Production and Provision

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Traditional operator model: The Internet is changing the way services (or applications) are being provided and used. In the telecommunications sector, application developers have traditionally chosen the telecom operator as their delivery channel when reaching the consumers and enterprise end-users. The applications provided are usually white labeled (branded under the operator's brand name). The operators have traditionally managed – and created value through – both the technology and service provision. Traditional communication services, like voice and SMS, have been produced and provided by the operators, who have invested in networks and service platforms, as well as operated them for service production. The operators have, at the same time, acquired the customer, managed the customer relationship, and billed the customer, as well as packaged and marketed the service. This is the *traditional operator model* of providing services.

The traditional model of distributing services and applications to mobile devices is operator centric, where the mobile operator provides the services and application with their communication and access offerings. Where the basic technology may be provided by various sources, the operators develop, operate, package, and bundle the services. They are also handling customer management, marketing communications, and sales activities. The operator-centric model has been dominant in an environment where mobile devices are closed and no real external interfaces are opened for external service provision. The value capture is clearly in the operator's hands.

Application store model: End users are becoming familiar with the service-provision model from the Internet: services are being made simple to download and easy to use, even free of change. During the past few years, there have emerged an increasing number of terminal-dependent – and thus operator-independent – application stores. For example, Google's Android Market, Apple's App Store, and Nokia's Ovi Store provide applications for corresponding communication terminals, or mobile phones. These stores even provide applications that can be used for communication services – the traditional operator services. This is the *application store model* of providing services.

Open operating systems in mobile devices have enabled the development of native applications on the particular environment. Mobile device manufacturers and providers of open operating systems have established market places, or application stores, to promote their environments and advertise an increasing number of services and applications based on their environments. Whereas the operator channel is limited to the geographical area where the mobile operator is operating, the application stores are practically limited to the certain mobile operating systems or devices from a certain manufacturers, thus limited the target market. Generally, the application stores act only as the distribution and billing channels. Everything from development and production to packaging and bundling are managed by the developer. Application stores form market places where the end users are able to find and purchase a great number of services and applications, but the fulfilling is the responsibility of the provider. Applications stores charge developers for the distribution and billing, but most of the value creation is gathered by the developer.

Managed service model or brand co-operation model: Between the two extremes shown in Figure 2, there are a number of potential ways of combining these models. In some communication services, operators outsource the technology and even creation of the service concepts to smaller, more agile players that are even able to produce the services in the Internet or the "cloud." This results in faster service-creation

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times and more cost-efficient structures. Operators are able to brand the services and include them in their product portfolio, increasing the value brought to their customer. These are the *managed service model* and *brand co-operation model.*

Operators have many advantages in their markets: they have an existing customer base, a brand, a billing mechanism, an established distribution network, and, in many cases, a marketing budget among the biggest in the market area. However, operators are limited to their market area and a global or wide geographical presence requires co-operation with a number of operators. Furthermore, different operators have different interfaces to which the developers have to adapt. And in many cases, the operator channel may not be the most cost efficient for the developer. The operators know that they are the most prominent distribution channel for their customer and often price their services correspondingly.

Value capture in the operator channel model varies depending whether there is a contractor relationship or a revenue-sharing relationship, or whether the operator acts only as the billing mechanism. But in the cases where services are provided by the operator channels or with the operator banding, the developer has fewer possibilities to capture most of the value.

Impact on Value Co-Creation

In one-sided markets and in traditional value chains, value creation is sequential, with the value moving from left to right. With the sequences from left to right, value is 'added'. However, with technological advancements, value is no longer created in a linear and transitive process; value creation is becoming less sequential, more synchronic, and more interactive.

Three types of value co-creation and related interdependence between the supplier and customer can be distinguished (Forsström, 2005; http://tinyurl.com/675gb6h). The first type is sequential, which implies that one party gives something to the other, thus making the output of one's activity the input of another. This type of value co-creation and interdependence represents the linear value chain, one-sided market logic, and in our study, the traditional operator model.

The second type is pooled value co-creation and interdependence, which refers to supplier and customer or any two or more collaborating or coopetiting parties providing a joint pool of resources from which they both draw. In our study, this is the managed service model or brand co-operation model, where both application developers and operators need and benefit from the resources of the other.

The third type is reciprocal value co-creation and interdependence, where parties mutually exchange inputs and output and there is a need to learn from each other. This type of value co-creation involves the customer as a co-producer of value. Reciprocal value co-creation is present with our application store model.

Research Implications

The different models described in this article highlight several noteworthy issues. First of all, the traditional operator model represents linear and transitive-value-creation logic, thus making the model and the application developer's delivery channel choice a manifestation of a one-sided market, where value in the chain moves from left to right and it is added in different stages. Thus, with respect to this type of delivery channel, value co-creation possibilities are narrow due to the inherent characteristics of the delivery channel.

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Second, with the managed service model or brand co-operation model, value co-creation possibilities are relatively greater compared with the traditional operator model. However, the value creation process in these models is still more linear and transitive than synchronic and interactive. Thus, in terms of the number of market sides, the managed service model and brand co-operation model are still seen as representations of one-sided markets.

Third, the application store model is a true occurrence of a two-sided market, where the application store acts as an intermediary. Whereas the long tail of mobile applications makes it difficult for application developers to bring their applications to the awareness of a wide end-user audience, the application store model (or the "open garden approach") can enable and stimulate the emergence of mobile applications along the long tail in a positive way. As a central hub, the application store offers visibility for application developers. Since the application demand is distributed over an increasing number of applications and the mobile application market is more fragmented than earlier, there is more variety both in supply and demand where niche products can achieve high usage among the few who adopt them. The increasing number of applications and greater variety of supply and demand accentuate the intermediary role of an application store in order to generate positive network effects. With the application store model, value creation is synchronic and interactive; hereby value is co-created.

While no model studied here is preeminent compared to the others, the developer has to make the choice between the channels and, as described in the study, the business model related to it. This choice is based on the application, the target market's brand awareness, and above all, the developer's strategy. Naturally one can choose multiple channels or accommodate channel decisions for the different target segments or markets. In this case, however, the developer has to maintain consistency between channels in order to avoid conflicting business models or pricing plans for individual end-customer segments.

Channels, operators, and application stores typically see application sales as a complementary tool for enhancing the attractiveness of their core product, such as a communication or access service for mobile service operators, or an end user device or platform for application store operators. In this sense, application sales have been seen only as an individual tool for creating competitive advantages in marketing. However, in recent years, the financial importance of application sales has increased along with the growth of the ecosystems and, subsequently, the number of applications and developers in the network.

Conclusion

This study illustrates that the inherent characteristics of the delivery channel have implications on the business model, both in terms of the delivery channel choice from the perspective of the application developer and in the function of the delivery channel from the perspective of the operator or application store. These delivery channel characteristics, such as value co-creation possibilities whether operating in a one-sided or two-sided market, have been discussed here in the context of mobile service or application production and provision but they also have relevance in other settings.

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Renewal Through Co-Creation in Business Networks

Raimo Hyötyläinen, Katri Valkokari, and Petri Kalliokoski

"Human beings, by change, renew, rejuvenate ourselves; otherwise we harden."

Johann von Goethe

This article presents four models of business renewal within networks based on a theoretical framework developed from earlier literature. According to the typical dimensions of business development, our framework distinguishes between the exploitation of present knowledge for efficiency and the exploration of new knowledge for new business development. Furthermore, the two network development and governance types (i.e., hub-spoke and multiplex) form the other dimension of the framework. The framework was empirically tested with five case companies and their business networks. The framework of network models may help managers to structure the business network and its renewal based on the strategic targets of a firm. Furthermore, the theoretical contribution of the paper deepens the understanding of how co-creation and interaction between the participants differ according to business focus and complexity of networks.

Introduction

Today there is a wide spectrum of business network types, ranging from supply chain networks and strategic alliances to networked innovation. As the dynamics of change are often seen as the dominant challenge to firms in today's economy, research interest has recently focused on those business networks that enable flexibility or agility, renewal, and even exploration of new business opportunities. This practical challenge of firms' business development has been studied separately from several research perspectives. Our intention is to bridge the gap between several perspectives, and study how in practice firms utilize the business networks within their strategic development work.

The practical purpose of this study is to create new knowledge for managers and business developers about development and management within business networks. A central point in this study is the question of renewal within the business networks. Here, renewal is understood as a network's joint efforts to gain competitive advantage through co-creation in a rapidly changing environment. According to the business development needs of network actors, the focus of co-creation can be on either efficiency or innovation.

A Framework of Business Network Renewal

The theoretical framework of this article consists of four network models (Figure 1), which are constructed in the light of earlier research. The two basic models for network governance are a hierarchical hub-spoke model and a multiplex model (Doz, 2001; http://tinyurl.com/4edy94n) and thereby similar models can be distinguished in network development (Eccles, 1981; http://tinyurl.com/48t2vz8). The network gov-

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Figure 1. A Framework for Renewal and Co-Creation Models in Business Networks

ernance structure influences the complexity of a network and network members' willingness and ability to participate in co-creation. In our framework, we distinguish between two types of network complexity: bilateral relationships of independent actors and multilateral relationships between interdependent actors.

While our focus was on the business development of firms, we distinguished between the *exploration* of new knowledge and the *exploitation* of new knowledge. First, we consider those activities that increase an organization's innovativeness and stock of knowledge – what March (1991; http://tinyurl.com/4lf59dy) refers to as "exploration," and Spender (1992; http://tinyurl.com/6k4p5dr) calls "knowledge generation."

Second, we consider those activities that deploy existing knowledge to efficiently create value – what March refers to as "exploitation", and Spender calls "knowledge application." This forms the other dimension of our theoretical framework.

The *hub-spoke model* is founded on the activities of the core company (i.e., the hub firm). The major objective is to increase the efficiency of the present operations of the core company. Typically, development responsibility belongs only to the core company. The main point in the model is to use present resources of networks, and therefore the model is labelled as an exploitation dimension. The *strategic network model* is by its nature normally a multilateral network

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where several firms co-operate with each other. The firms in the network can set common goals and objectives for businesses to find new solutions together. However, the main target is to exploit strategic assets. The strategic alliance model is based on integrating different competences. The aims are to explore new business opportunities and reach new markets and customer groups. By combining technological or other knowledge bases, it is possible to achieve new business opportunities. Some of the network partners may also be competitors, which makes it difficult to discuss further measures and agree on common targets. The *open innovation model* is source of intense discussion (Chesbrough, 2003; http://tinyurl.com/5w5npgq). Typically, there are many parallel and loosely coupled networks, and only some network partners join together and start new businesses development.

In earlier literature, a distinction has been made between different types of co-creation within networks, and some authors (e.g., Brown & Keast, 2003: http://tinyurl.com/5ws26qy; Keast et al., 2007: http://tinyurl.com/6x2u5be) summarize these as: cooperative, coordinative, and collaborative, or as originally proposed by Ellis et al. (1991; http://tinyurl.com/6gf36mx), the 3C's: communication, coordination and cooperation. In both the cooperative and coordinative business networks, participants are independent organizations that come together for a specific purpose. In a collaborative network, the participants are interdependent and co-creation occurs in several levels of network organizations.

Research Design and Case Studies

With this research, we aim to support the development of businesses and organizations by using knowledge based on research data. We also aim to create new conceptual knowledge that can be generalized. When solving business and network problems with case companies, a cyclic-

al development procedure has been applied. Each stage of the development process has been assigned certain tasks, actors (i.e., an organization), and development results. Naturally, the progress is not linear from one stage to the next.

The cases represent different models of renewal and co-creation in business networks, as summarized in Table 1. In the sections that follow, the case descriptions are described in more detail, including an examination of the different dimensions of co-creation based on the theoretical framework.

Case A: Open Innovation Model of a Small IT Company

The software products of case company A are partly focused on free/libre open source software (F/LOSS) and its employees are participating in certain open source communities. IT consulting services to both industrial and public markets form more than half of its turnover. The company has actual business partnerships with the core companies of F/LOSS communities. These core companies offer commercial products based on F/LOSS and the case company also utilizes these solutions. In order to *explore new business opportunities*, the CEO and owner of the company has also led the employees to participate in certain discussion forums. From these connections and interaction with potential customers, the company has found opportunities to offer its services to new customers, who have been looking for knowledge related to the utilization of new IT tools. Although case company A operates continuously in different open communities and social networks with *multiplex relationships*, its CEO has a clear vision about knowledge sharing and protection in business networks. For this reason, the case company also has several models of co-creation within business networks, and they vary from co-operation with larger companies to collaboration in communities.

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Table 1. Case Summaries

Case	Industry	Network configuration and partners	Business focus of collaboration	Co-creation process
A	Software products, services and consulting	Several concurrent network models	Exploration of new business opportunities	Dynamic horizontal and vertical collaboration networks
B	Industrial services + robots/ material handling systems	2 companies + customers	Exploration of new service based on existing resources of partners	Bilateral collaboration between SMEs based on complementary competences
C	Industrial services, metal products, and subcontracting	Strategic alliance between four SME companies	Broader service offerings based on exploitation of partners' complementary resources	Strategic coordination based on bilateral relationships
D	Marketing + advertising + business consultancy + printing + media planning + market research	6 companies (independent companies that form a group) + 1 customer	Development of existing service concept and exploration of the unified way of managing the network	Horizontal and multilateral collaboration between network companies
E	Wood products and industrial and customer services	Several direct suppliers within the different factories of the firm	Development of suppliers to adapt to customer-based and efficient production	Co-creation of new models within service business together with selected partners and customers

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Case B: Strategic Network Model of a Technical Trading Company

The major customer segments for Company B are the metal industry and building industry. Its services include machine deliveries, installation, implementation, training, maintenance, and replacement part services. In case B, a new service concept was developed jointly in a network of interdependent companies, including its partner offering material handling systems and customers in the metal industry customer segment. The new concept seeks improved *exploitation of present competences* of network members. The plan was for the case company to sell the total solution and manage the customer relationships in the chosen customer segment; the partner company would offer technical support and documentation. Therefore, the network consists of *bilateral relationships* and co-creation has characteristics of both coordination and collaboration. The co-creation of the new business concept was based on complementary resources. The companies have each defined their roles, motives, and goals for co-creation to find mutually beneficial opportunities.

Case C: Strategic Alliance Model of a Subcontractor

Case C company is an SME offering industrial services, metal products, and subcontracting to global product companies in the technology industry. During the last ten years, its customers have been outsourcing their production and the case company has taken larger responsibilities. In order to cover an even broader range of customer needs and to offer life-cycle services, the case company has built relationships with partners with complementary resources. The target was *exploitation* of partners' complementary resources and their integration with business solutions of the core company. The partner companies are a small engineering company, an electrical installation company, and a maintenance service company. The companies have ex-

perience in co-operation but they started the collaboration with a joint strategy process. Within this process, the companies co-created the joint business concept and defined the roles, responsibilities, and share of risks and benefits of the collaboration. Still, the case company wanted to ensure the commitment of partners and interdependence was strengthened with cross ownerships between the case company and partners. The co-creation was founded on *bilateral partnerships* between case company and partners and the case company's strong governance and coordination of joint processes.

Case D: Strategic Alliance Model of Marketing Companies

Case D involves a group of six companies offering marketing services in the areas of marketing, advertising, business consultancy, printing, media planning, and market research. The case companies are part of a larger group and they form a network with *multiplex relationships*, both with each other and with other companies. Particularly large customers are common to the group, although the companies also serve customers that are independent of the network. Accordingly, the group's management plans to take the responsibility of the co-ordination work and offer the customer the entire service package. According to their view, their customers would benefit in many ways from this more co-ordinated way of selling marketing and advertising services. The business development focus was on *exploration* of knowledge and competences at a network level. The group has already described the networked service concept on some levels, including for example, common aims, processes, some tool,s and documentation procedures. Further development work and co-creation between the group members will be undertaken to develop a common understanding of the service concept of the network and a unified way of managing the network. Thus, because co-creation existed in several levels, it can be described as collaborative.
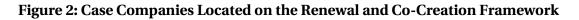
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Case E: Hub-spoke Model of a Wood Product Company

Although the case E company has in recent years moved into services, wood products are still an essential component in its service business. The company has four of their own assembly factories and some component factories. Many part assemblies and materials are acquired from outside the company. Production has been trimmed to be as efficient as possible. Thus, production makes a great demand of the supply chain and its development. The network co-operation focused on *exploitation.* The manufacturing costs of products are only a small part of the total price when products are sold to clients and customers. Besides, service functions deliver all products to all clients and customers. Service functions have developed a new kind of services for client and customers. They co-operate with new partners and develop new services together with their new partners. This activity has increased the complexity of networks and thereby led a shift in the relationships from *bilateral* to *multilateral.* The company is strategically moving in a new direction, however the production side will still continue in exploitation mode in the future.

Empirical findings

As described above, the case companies simultaneously have several network operations, but still they have been located on the framework according to the main focus of business development at the studied time (Figure 2).

Figure 2: Case Companies Located on the Renewal and Co-Creation Framework

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First, cases C and E represented the hub-spoke model, where the *co-operation* relationships were typically bilateral and the focus was on knowledge exploitation. In case C, the present development needs related to the service business have guided the network to knowledge exploration. However, in Case E, the service business development has led its network to the direction of the strategic network model. Second, case B illustrates a more complex network where three companies have developed a new service concept together. The service concept was based on *coordination* and complementary resources of companies, and it did not require intensive exploration of new knowledge. Third, case D stands for the strategic alliance model with horizontal *collaboration* and knowledge exploration between the companies, who belong to same group. Because of this ownership situation, the legal relationships and sharing of risks and benefits between the companies were clear and the complexity of network was constrained. Finally, case A portrays a more open innovation model where the case company intentionally utilized parallel network models. Within this kind of innovation model, it is important to have a clear vision about knowledge sharing and protection.

Network renewal has emerged based on co-creation process (i.e., the interaction and relationships of network companies). In the case descriptions, we distinguished the level of co-creation as 3C's (cooperative, coordinative, and collaborative) (Brown & Keast, 2003; Keast et al., 2007). The cases highlighted how exploration of new business opportunities led the network actors to more intensive, multiplex, and collaborative relationships. Still, even in case D's network, where case companies were part of a larger group, the customers bring out how network companies appeared to be targeting their own interests before the network's targets.

After the recursive recycling of lessons learned from the literature, the theoretical framework and case findings, we were able to identify the focus of renewal and co-creation together with pros and cons of each network model. These aspects of co-creation within business networks are summarized in Table 2.

The importance of joint intents and shared understanding for collaboration become evident in all cases. Only one of the case companies was able to utilize more open models of innovation, and thereby its business model was mainly based on services and consulting when sharing of its software solutions was not harming the business goals. The others were utilizing co-creation networks for business renewal when the competences of network actors were clearly complementary and interests of participants were not conflicting. Still, too often their own competence base was described as too broad and the companies could benefit if they opened their innovation process.

Conclusion

Typically, firms and their managers have more experiences of certain business networks, and one important challenge is to understand that different network situations require different approaches. Hence, the characteristics of network members influence their willingness and ability to take part in development work. The development of closed, vertical, and rather hierarchical hub-spoke networks can thereby quite easily be foreseen and managed. In these networks the focus of renewal was on operative issues: efficiency and productivity of network level processes. Within strategic alliances and networks, co-creation required more negotiations between the network members and the ability to discuss future business opportunities. Still, quite often the strategic approach to business net-

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Table 2. Aspects of Co-Creation Within Four Network Models

Network model	Focus of renewal and co-creation	Pros	Cons
Hub-spoke model	Business development is based on co-operation between actors.	Bilateral relationships are more easily managed.	Renewal of network is based on hub firms initiatives.
Strategic networks	Business development is based on coordination between complementary knowledge sources.	Knowledge exploitation is facilitated and broadened through multiplex relationships.	Multilateral relationships lead to conflicting interests between network participants.
Strategic alliances	Business development is based on collaborative co-creation.	Equal relationships between participants improve co-creation and renewal.	Stable configuration of alliance limits the exploration of knowledge and emergence of new approaches.
Open innovation model	Business development has a focus on innovation potential and future competitiveness.	Opportunities exist to explore and create new knowledge by integrating knowledge sources and network nodes	Strategic approach to knowledge management and clear vision about parallel network models are required.

works was missing and the firms did not distinguish the network models.

The practical implications of this article are connected to the strategic management of business networks. The framework of network models may help managers to structure the business network based on the strategic targets of a firm. The theoretical contribution of the paper deepens the understanding of how co-creation and interaction between the participants differ according to business focus and complexity of networks.

The empirical material about renewal in business networks was based on activity research into five case networks. Due to the multiple-case approach and business networks being the main unit of analysis, it was not possible to give deeper consideration to entrepreneurship and strategic management. Still, several case examples demonstrate that the role of managers and entrepreneurs in network organizations is challenging. Therefore, one important subject for future studies would be to research entrepreneurship and networks as strategic choices.

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The Strategic Impact of Corporate Responsibility and Criminal Networks on Value Co-Creation

Frederick Ahen and Peter Zettinig

"Meglio soli che male accompagnati."
(Better alone than in bad company.)
An Italian proverb

This article is motivated by the increasing concern about the ever-declining security of pharmaceutical products due to the abundance of counterfeit network actors. We argue that if networks are effective mechanisms for criminal organizations to infiltrate into any value chain, then networks should also work for responsible businesses in their quests to counter this phenomenon of value destruction, which is ultimately detrimental to the value co-creation process. Thus, this article demonstrates a nuanced understanding of the strategic impact of corporate responsibility of actors in networks on value co-creation.

The current discourse on value co-creation in business networks is structured in such a way that it precludes its inherent corporate responsibility component even though they are not mutually exclusive. Moreover, research on value co-creation aimed at the proactive and responsible defence of a network substance via value co-protection has been mostly scant. We propose a model of value-optimization through value co-protection and ethical responsibility. This way of theorizing has several implications for both policy making and managerial decision making in the pharmaceutical industry and beyond.

Introduction

An age-old African proverb says, "If you want to go fast, go alone. If you want to go far, go together with others." This still rings true and explains why "no business is an island" as epitomized in Håkansson & Snehota's (1989; http://tinyurl.com/4zf9brg) seminal work. This mode of going together (in mutual interest) with others to co-create value is referred to as "networks" in business parlance. Firms do not exist in isolation nor indeed are other business and social actors self-sufficient without firms, at least not in contemporary times. With the changing business landscape, firms are inextricably interlinked with various actors at every step of their functions and operations along the value chain, both at home and across borders, for the co-creation of value (Freeman & Velamuri, 2006: http://tinyurl.com/4lmwqcf; Grönroos, 2008: http://tinyurl.com/4u98ovq). Thus, business relationships are indispensable; however, such relationships should be with the right actors (i.e., those with matching values and practices) in order to ensure a productive process of value co-creation. We strongly press this point because the pres-

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ence of sinister actors in a network leads to value destruction and hence competitive disadvantage for the other actors.

The main premise of this article is that, far from being an afterthought, value co-creation does not only involve product and service development activities with other business actors and consumers but also their protection along the value chain, which comes about through corporate responsibility and specifically the ethical values of the actors. Analytically, it becomes too rigid and unconstructive to separate value co-creation from corporate responsibility because value must be co-protected – first, to bring it into existence and second, to maintain such existence in the long term. Value protection is fundamental to value co-creation, which is mostly highly effective within a strategic scenario of ethically responsible socio-economic network substance, thus, actors, resources, and activities (Håkansson & Snehota, 2006; http://tinyurl.com/49hup5a).

A relevant question is how do we explain the co-creation of value among actors in science and innovation contexts such as pharmaceutical firms? Our conceptual contribution is motivated by the increasing concern about the ever-declining security of pharmaceutical products due to the abundance of counterfeit networks. We argue that if networks are effective mechanisms for criminal organizations to infiltrate into any value chain, then networks should also work for responsible businesses in their quests to counter this phenomenon of value destruction. The value destruction in business networks comes about mainly via: i) shirking and secret information leakage to infringe on intellectual property rights and ii) contamination of the value chain with adulterated goods and services that affect reputation, pilfer customers, lower profitability, and send mixed messages to consumers about brand identity and product quality, thereby ulti-

mately being detrimental to the value co-creation process. The value destruction in essence creates competitive disadvantage for the affected actors. This has huge implications for the performance of startups especially.

We argue that the construct of value co-creation presents some form of social ambiguity when used in the classic sense without its ethical component. Given the complexity of network organizations and managerial opportunism within such relationships, we agree with Nielsen (2003; http://tinyurl.com/4a4dc2n), who argues compellingly that: "just as it is not possible to have an organizational form without an at least implicit ethical or normative foundation, it is also not possible to actualize social ethics without an organizational form." This ethical preference is even more complex for business networks to foster sustainable innovation and competitiveness. This is to propose value co-protection as an integral and strategic aspect of value co-creation which can be applied in empirical studies whilst offering managerial guidelines and policy recommendations to policy makers. Now, we argue that the key to long-term success is ethical behaviour not only constrained by one firm but as an aggregate of acceptable social actions among its network of actors. We propose a model of value-optimization through value co-protection and ethical responsibility, as well as a redefinition of value co-creation to comprehensively capture the responsibility component.

The notion of value destruction in networks can be exemplified in how, in the pharmaceutical industry, business and non-business actors' interests and activities converge as inhibitors or enablers of value co-creation. Irresponsibility on the part of one actor has a very high potential for value destruction. The effect is even more damaging in the case of incongruence in actor motives, resources, activities, and the affected actors' inability to defend themselves against ir-

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responsible behavior by others. There is certainly a strategic impact of corporate responsibility in business networks on value co-creation. We operationalize corporate responsibility as the ethical (shared value systems), social (trust, bonds, and ties), and environmental defense and protection of each member and the economic obligations of all strategic network actors in the value co-creation process. Institutional and market dynamics make networks an interesting concept to study. That notwithstanding, global socio-economic, cultural, environmental, and technological changes have meant that several sophisticated criminal networks also pervade economic activities by infiltrating into global distribution and logistics value chains in ways that destroy value for all actors. Criminal networks refer to organized crime built on tight and often impermeable networks guided by an illegal, unethical, and irresponsible business mission (Gummesson, 1994; http://tinyurl.com/5stp8y4).

The Concept of Business Networks

For Håkansson and Snehota (2006), the organizational context can be viewed as a "social symbolic reality in which the firm chooses to exist, and does so by framing it." The framing of the context and a firm's structural and social process with dynamic characteristics is the basis of defining the firm's identity. This comes about through learning and routines, as well as institutionalization, that guide future behavior (Fletcher, 2008; http://tinyurl.com/6c8otnu). Networks are web-like sets of relationships connected with other sets of relationships (Håkansson & Snehota, 2006). They can be explained in terms of actors, activities, and resources. For Easton (1992; http://tinyurl.com/5sfzzpn), networks can be explained in terms the structure, positions, and processes of relationships. A more complex definition by Achrol and Kotler (1999;

http://tinyurl.com/6afqwpz) posits that "a network is an independent coalition of task and skilled economic actors operating without hierarchical control but embedded in a dense connection, mutuality and reciprocity in a shared value system that defines the 'membership' roles and responsibility."

The Strategic Impact of Networks on Value Co-Creation

For Håkansson and Snehota (2006), "managing strategy thus means managing the process whereby the pattern of activities to be performed by an organization is conceived (that is strategy formulation) and then creating the conditions to ensure that these activities are carried out" (i.e., strategy implementation). This process is continuous given the dynamic nature of the environment. On the strategic impact of networks, Thorelli (1986; http://tinyurl.com/6395ep6) asserts that networks serve as alternatives to vertical integration and diversification as well as a means to reaching new clients in different geographical areas.

The strategic impact here refers to the long-term competitive disadvantage created by sinister actors. The analysis of networks must include non-business actors such as non-governmental organizations (NGOs), institutions, governments, and the wider society, which stand to gain by prioritizing ethics or operating with the lack thereof in a dynamic global economy. The significance of the strategic impact is still dependent on the core actors' corporate responsibility commitment. The social capital in networks such as trust, bonds, and ties allow the prevention of value destruction from within or outside the business network. This in turn encourages ethical behavior since the consumer's ethical concerns cannot be ignored in the co-creation process.

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Co-Protection in the Actualization of Network Actor Core Values

If value is either destroyed or created in a network relationship (Ritter & Gemünden, 2003; http://tinyurl.com/4brbb8s), then the activities of counterfeiters and several other external actors may pose potential hindrance to the expected outcome of the co-creation process. This is exemplified in how, in the pharmaceutical industry, the actors' interests, roles, and activities converge in value co-creation, but the value chain can also be destroyed by illegal profit-seeking groups across the value chain. Actors include specialized pharmaceutical firms and contract research organizations. Distributors include hospitals, pharmacies, and other smaller outlets linking consumers. Others are active pharmaceutical ingredient suppliers, NGOs, venture capitalists, etc. Resources are mainly scientific expertise, technology, and finance which converge at the activities of R&D, discovery, formulation, and clinical trials on human subjects, as well as tests on animals. Clinical trials are sometimes off-shored to contract research organizations in emerging economies where operations are cost-effective and regulatory demands are flexible. Nevertheless, institutions have the power to obstruct clinical trial processes if they do not meet the good clinical practice (GCP) and if trial subjects are not treated according the regulations. The interface of both business and non-business actors may delay the authorization for commercialization by European Medicines Agency (EMA) or Food and Drug Administration (FDA) in the United States, and competitors will enter the market first. This will eventually affect general performance of all the actors; the reverse is also valid (Reich, 2000; http://tinyurl.com/4uwaehp).

All this has a positive and negative effect on the co-creation of value, which helps to explain the importance of corporate responsibility on the part of all the actors within a network context. The roles of FDA, EMA, and NGOs, for example, are typically normative and regulatory in a pharmaceutical network context, but they can exert great force on strategy implementation. This means they are not necessarily economic actors, which contradicts the popular view that all actors in a network have an economic motive. Their role as institutional structures is to safeguard resources (tangible and intangible) and intellectual property, prevent supply chain risk in international markets and to co-create more value with and for the consumer. Mpedigree (http://mpedigree.net) for example is a technology-support actor that permits patients to call a toll-free number to verify the authenticity of pharmaceutical products after purchase. This is strictly value co-protection input, but without it the value co-creation cannot be guaranteed for consumers.

Conclusion

Value co-creation is an activity-based dynamic relationship whereby actors' core values and responsibilities are embedded in creating and protecting or safeguarding the service or product that is of worth to the consumer; the ultimate goal of such relationship-driven process is to satisfy the different mutual expectations of the actors with the firm as the nucleus.

The contribution of the present work lies in the re-orientation and re-conceptualization of value co-creation in a network context for value co-protection via corporate responsibility. The establishment and maintenance of a network relationship is a resource and hence a value in itself. Moreover, value is created in terms of: i) economic gains (incremental turnover; due to competitive advantage created by perceived value of offers) and ii) social capital (bonds, ties, trust, and commitment), which represents an "ethical cheque" or core values for the future or long-term concerted efforts by actors to exploit opportunities through innovation, learning, and value protection. Most importantly, value consists of the implicit ethical responsibility of actors to

commit to making optimal value propositions to consumers in cooperation with strategic (core) network-actors with the aim of meeting their needs sustainably by protecting such value co-creation processes.

Value co-creation without a network substance for value co-protection is tactically possible but strategically deficient; therefore, it will lower the networks' ability to combat or decrease value destruction which is a constant internal and external threat. Cooperation with committed network actors seems to be a plausible direction with positive results and a matter of necessity for value co-protection. Any deviation from that would be pointless.

Networks achieve their aim when they are both proactive and reactive in the value co-creation in aligning actor core values, value co-creation, and value co-protection activities with the process of providing consumer solutions with and for the consumer. Value co-creation in networks is therefore not measurable in monetary terms only, but in socio-cultural, economic, institutional, reputational, and environmental terms. Most importantly, the future potential of all the above requires value protection from any sinister bunch or saboteurs who may hinder the ultimate desired value of network actors and consumers. Value protection is hence dependent on prioritizing the selection of actors with matching values, for it is better to be alone than to be with sinister actors in a network.

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Peter Zettinig received his PhD in International Business from Turku School of Economics, 2003. Before joining Turku School of Economics as Assistant Professor in 2008, Peter held the position of Senior Lecturer at Victoria University of Wellington, New Zealand. His research interests relate to international business strategy – among others.

Quality-Based Co-Value in SaaS Business Relationships

Xian Chen and Paul Sorenson

"Business is not just doing deals; business is having great products, doing great engineering, and providing tremendous service to customers. Finally, business is a cobweb of human relationships."

H. Ross Perot

In the past decade, the focus of information technology (IT) development has been on service-oriented architecture (SOA), especially the new service delivery model, Software-as-a-Service (SaaS). Accordingly, interest in quality management in the planning and operation of SaaS systems has increased tremendously. In practice, it is necessary to take into greater account the nature of service quality shared by both service provider and customer in the SaaS delivery.

This paper introduces a study on a theory that integrates the service quality and value co-creation (co-value) in the SaaS business relationships between service provider and customer. The theory is established, in part, based on the results of a survey of CIOs (Chief Information Officers) that shows a strong correspondence between the service quality required or desired by a client and the business relationship needed between SaaS clients and providers. We have used the theory as the foundation for an approach and tool for evaluating SaaS applications.

Introduction

This article examines the effect of service quality on business relationships between clients and SaaS service providers. To date, most of the focus from both business and research perspectives has concentrated on how the provider of SaaS services can deliver services that meet their advertised service objectives and that are predominantly performance-based. Most SaaS customers are relegated to a "take it or leave it" situation with respect to many important service quality factors such as usability, sustainability, or adaptability of a service offering. To be competitive in the future, SaaS vendors will need to be more flexible with clients' service quality needs and seek out co-value approaches in their business relationships with clients. This work recognizes this direction by developing a theory that integrates service quality and value co-creation (co-value) in the SaaS business relationships between service provider and customer.

Quality Management in SaaS Business Relationships

The notion of service quality considered in our research is derived from the following three perspectives:

1. Conformance Quality: conformance to specifications

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2. Gap Quality: whether customer expectations are met or exceeded

3. Value Quality: the direct benefits (value) to the customer

From the view of service providers, both Conformance Quality and Gap Quality measures are managed as part of their business relationship with customers. The focus on Conformance Quality aspects, typically expressed in the service level agreements (SLAs), is initially determined in the provider organization, often involving marketing, sales, and production units. The Gap Quality concerns, commonly determined by the provider using survey tools involving the customers, assist in determining the gap between what customers expect from a service when compared to what the provider is delivering.

From the view of service customers, Functional Needs and Value Quality are managed as part of their business relationship with providers. The Functional Needs express the user requirements for supporting their workplace activities in the customer organization. The Value Quality measures, such as ROI and risk analysis, capture the value the customer organization places on deploying a service using a SaaS.

Ideally, both the SaaS provider and customer continue to seek ways of maintaining a "win-win" business relationship where new or added co-value is continually being created for a service offering. Therefore, a major factor affecting the SaaS business relationship is a clear understanding of the co-value present in the service offerings.

Specification of Quality-Based SaaS Business Relationships

By integrating a quality management approach with co-value in SaaS business relationship, we can produce a specification of SaaS business re-

lationships and illustrate its features using existing SaaS applications. The specification prescribes four service types based on the maturity levels of business relationships between service provider and customer. These service types are summarized in Table 1, in which four service types are prescribed based on the maturity levels of business relationships between the service provider and customer, which are called Ad-hoc, Defined, Managed, and Strategic.

We have a strong belief that quality measures play an increasing role in SaaS business relationships. Based on this belief and towards a theory of SaaS business relationships, we establish the following conjecture:

- The primary service attribute of interest in an Ad-hoc Service is functionality.

- The primary service attributes of interest in a Defined Service are those measured by Conformance Quality approaches.

- The primary service attributes of interest in a Managed Service are those measured by Gap Quality approaches.

- The primary service attributes of interest in a Strategic Service are those measured by Value Quality approaches.

Survey Approach: Validating the Theory on Service Attributes

To assist in validating the conjecture of our theory, we conducted a web-based, on-line survey involving primarily CIOs from twenty commercial, governmental and academic organizations in the local areas. This survey was intended to capture the service customer's general view on the twelve typical service attributes in the selection and monitoring of SaaS services. The survey results were analyzed and used to confirm or refute our conjecture relating to SaaS business relationship.

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Table 1. Four Service Types in SaaS Business Relationships

Level	Service Type	Definition	Service Provider Goals	Service Customer Goals	Examples	Quality Measures
1	Ad-hoc	SaaS service used by a customer on an as-needed basis in response to business requirements.	Service delivered on an as-needed basis	Critical functional needs achieved	Expedia.com used widely in an organization to facilitate travel purchases	No quality measures are necessarily in place
2	Defined	SaaS service described in a contract or an agreement that outlines service usage and guarantees the service level capabilities typically through SLAs	Service delivered on a regular basis with defined capability	Functional needs achieved plus desirable performance requirements guaranteed such as availability and responsiveness	SAP's Business ByDesign which provides SaaS capabilities for ERP level applications	Conformance quality approaches (SLAs defined and tracked)
3	Managed	A defined service with additional agreed upon commitments by both the service customer and provider to share the responsibilities of managing the service	Service delivered with shared responsibility in monitoring service quality	Goals of Level 2 plus agreement on monitoring of service quality assurance	Salesforce.com CRM (Customer Relationship Management) service	Conformance plus gap quality approaches
4	Strategic	A managed service in which both the service customer and provider are able to identify the common, agreed upon, business value of deploying the service	Service delivered with the shared goal of continuous service improvement with customer	Proper governance of service to ensure value goals defined and achieved using approaches such as cost-benefit analysis, ROI, or risk analysis	Google Apps used in an academic institution by building a strategic partnership	Conformance, gap and value quality approaches

In July 2009, we sent an invitation letter by email to the CIOs of 70 commercial, governmental, and academic organizations from Edmonton and Calgary areas to ask for participation in the survey, and initially we received 30 positive responses. We then sent a second invitation letter to the 30 CIOs and directed them to a web-based online survey. At the end of August 2009, we received answers from 20 CIOs, 10 of which were willing to participate in a follow-up study should we wish to conduct one. To explore in greater detail some aspects of SaaS, we did a brief follow up questionnaire study in September 2009 with these 10 CIOs. Seven of the 10 CIOs responded and the result of this follow up study will be described later in this section.

In the Generic Survey, 19 questions were asked in the following six sections:

1. Background information: questions about the background of the customer organization, such as size and nature of market focus, and respondent's role in the organization.

2. Use of external IT services/SaaS services: questions about the use of external IT services in the customer organization.

3. Service attributes: questions about the priority of certain service attributes considered by the customer decision-maker (typically CIOs) when planning the use of IT services/SaaS services in four service types.

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4. IT service governance: questions addressing the issues of IT governance strategy used in the customer organization and how a SaaS evaluation model might support the organization's IT governance approach.

5. Strategic planning of IT: questions about how the customer takes the external IT services and SaaS services into account in strategic planning.

6. Use of personal web-based services: questions about the impact of personal web-based services, such as eBay, Wikipedia, Google Maps, Facebook and Youtube, on IT-services planning in the customer organization.

In this article, we only focus on the first three sections of the survey that are related to our analysis on service attributes with respect to the four service types, especially section 3 (service attributes). We asked respondents to select the best estimate of the priority of eight typical service attributes for each of the four service types defined earlier. We used a 5 point scale for the priority, where 5 stands for "high", 3 stands for "medium," and 1 stands for "low". Therefore, if a priority of 5 is selected, this indicates that the respondent would rate this service attribute as high when making decision about selecting a SaaS system. To extend our study to other five service attributes related to the business planning such as ROI and risk, we asked the participants of the follow-up study to select a priority for five additional service attributes, using the same scale system.

To categorize the service attributes, the most intuitive way is to calculate and compare the mean values of the priority. However, analysis on the mean values may not reflect the relative priorities of service attributes. Instead of using the mean value for the analysis, we calculate the relative importance for service attributes in the four service types. The relative importance of a service attribute in a service type is defined as the percentage of population that consider the priority of that service attribute in that service type higher than or equal to all the other three service types. For example, if 18 out of 20 respondents rank the priority of Security in the Defined Service the highest over the four service types, the relative importance of Security in the Defined Service is equal to 90%. By comparing the relative importance, we avoid the difference of rating standards between individual participants. The relative importance values calculated from the survey results are shown in Table 2.

The stair-like shaded areas in Table 2 strongly support our conjecture. When the business relationship intensifies from Ad-hoc to Strategic, the service customer should use progressively more types of quality approaches to manage the service quality. The only two outliers in the grouping results are usability, which is typically measured by a gap quality approach (surveys) on the customer experience, and cost, which is directly measured by a value quality approach (monetary value). From the comments from the survey respondents, we conjecture that the reason for the misplacement of usability may be caused by the confusion with user capability of a system, which is considered as part of functionality by our definition. Both outliers need to be further investigated in future, more extensive, and more intensive studies.

With the two outliers adjusted, the service attribute groups are consistent with the types of quality measures:

1. Functionality is the basic operational attribute required whenever a service is delivered successfully (i.e. Ad-hoc, Defined, Managed, and Strategic Service).

2. Conformance quality attributes (Security, Availability, and Reliability) are measured by conformance quality approaches and typically are required when a service is delivered as a Defined, Managed, and Strategic Service.

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Table 2. Summary of Relative Importance in the Four Service Types

Service Attribute	Ad-Hoc	Defined	Managed	Strategic
Functionality	**90.0%**	70.0%	75.0%	70.0%
Security	85.0%	**90.0%**	80.0%	85.0%
Availability	45.0%	**95.0%**	85.0%	70.0%
Reliability	50.0%	**90.0%**	85.0%	70.0%
Usability	70.0%	**80.0%**	60.0%	60.0%
Efficiency	55.0%	70.0%	**75.0%**	65.0%
Sustainability	40.0%	65.0%	**75.0%**	60.0%
Adaptability	25.0%	50.0%	**70.0%**	**70.0%**
Cost	42.9%	71.4%	**85.7%**	57.1%
ROI	28.6%	71.4%	71.4%	**85.7%**
Risk	14.3%	57.1%	71.4%	**85.7%**
Continuity	14.3%	42.9%	**71.4%**	**71.4%**
CSI	14.3%	57.1%	57.1%	**71.4%**

3. Gap quality attributes (Usability, Efficiency, Sustainability, and Adaptability) are measured by gap quality approaches and are typically required when a service is delivered as a Managed and Strategic Service. Gap quality attributes take into account more perspective from service customers.

4. Value quality attributes (Cost, ROI, Risk, Continuity, and CSI) are measured by value quality approaches and are typically required when a service is delivered as a Strategic Service. In this sense, the value quality attributes are the most closely aligned with the business strategic objectives of both the service customer and provider.
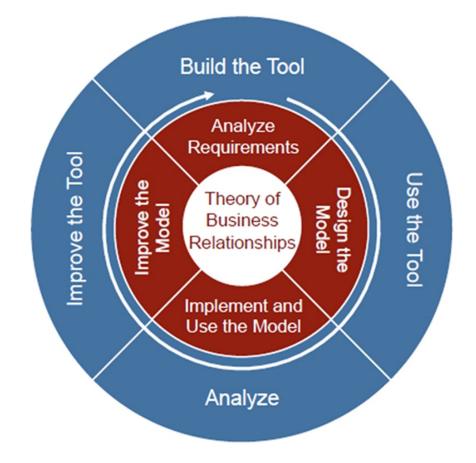
Defining and Using the SaaS Evaluation Model

Based on our initial theory for integrating service quality and value co-creation (co-value) in the SaaS business relationships, we have developed a SaaS evaluation model. The model is intended to assist the service customer in selecting an appropriate SaaS system and provides the service provider and customer with a guide to monitor the service operation. The decisions related to both service selection and monitoring should be driven by the perceived co-value of the service provider and customer in establishing their business relationship. A two-cycle evolutionary approach is adopted in building our model (see Figure 1).

The inner cycle around the core theory lists the steps in defining and refining the SaaS evaluation model. We first analyze the requirements that the model should achieve from the perspectives of both the service customer and provider. We then design the model using the UML object-oriented design tool. The model is then

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Figure 1: Evolutionary Cycles for the SaaS Evaluation Model

implemented and used by developing an evaluation tool, which starts the evolution of the outer cycle.

The outer cycle focuses on the evolution of the evaluation tool, which can be used in various SaaS service areas. Based on the evaluation model, the tool is built and used in a particular service area.

As an example, we have used a prototype of the tool by simulating how it can assist in selecting SaaS in email services in the service-planning phase. Three steps are followed in the service selection procedure:

1. Build the experiential data. The experiential data are typically retrieved in service selection and updated in service monitoring. However,

when we initially use the tool, there is no real experiential data. To assist in building the experiential data for the evaluation tool, an online survey was conducted to collect experiential data in the particular SaaS service area - a SaaS solution for email systems. This email survey was focused on the adoption of a specific SaaS email service, such as those provided by Google Mail and Microsoft Hotmail.

We undertook the email survey from June to July in 2009. The survey objectives were set as academic institutions all over the world that were recognized as successful adopters by Google and Microsoft. The invitation procedure was similar to the generic survey conducted earlier. The key questions in the email survey asked the priority of service attributes considered in service selection and the monitoring frequency in service op-

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eration. The results are used to build the experiential data for producing the selection and monitoring report.

2. Take inputs for service selection in email services. The service selection procedure takes inputs from both the service customer on the functional and non-functional requirements and the service provider by capturing the service offering description and/or SLA templates from the worldwide web.

From the service customer's perspective, the evaluation tool collects the requirements from service customers. In general, the following information is taken as the input from the service customer:

- general business motivation and business objectives for the adoption of an email service as provided by the customer organization

- specific objectives to be achieved by adopting an email service system (ranking of these specific objectives, if applicable)

- the service type (Ad-hoc, Defined, Managed, or Strategic) the customer believes is most appropriate for the service is then determined

- estimate of the priority of the service attributes used in making the decision to adopt a SaaS system

- estimate of the monitoring frequency of service attributes when using the SaaS system

- IT governance frameworks or strategies used when selecting and monitoring the SaaS system

To assist the decision maker in determining the requirements on service quality, we chose the following twelve service attributes used for decision making of service selection and monitoring of service operation: Functionality, Security, Availability, Reliability, Usability, Efficiency, Sustainability, Adaptability, Cost, ROI (Return on Investment), Risk, and Continuity.

From the service provider's perspective, the evaluation tool needs to determine if the service offerings are consistent with the service customer's requirements collected in the previous step. In the email service area example, Google Apps for Education and Microsoft Live@edu are selected as the candidate service providers for the email system. Both applications provide email services for educational institutions. The input from the service provider includes the service terms and the initial version of SLAs, which can be captured from the provider's websites.

3. Produce the service selection report. The selection report summarizes the information from both the service customer and provider, finds the potential problems such as incompleteness and inconsistencies with the views of other customers in the service area, and recommends the appropriate service candidates and service type in the business relationship between the service customer and provider. The selection report typically contains parts addressing the following concerns:

Introduction: the background section defines key terms, such as the service types and service attributes, introduced in the evaluation tool and outlines the report contents and major findings.

Comparisons: the tool compares the service customer's input to the historical results as derived from surveys of existing customers that use the provider's service. In our example, the customer's input is compared with the experiential data collected from the email survey. In the comparisons, the tool detects potential issues the service customer may want to examine more closely, such as the priority of some attributes in customers input deviates significantly from the survey results.

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Analysis and evaluation: The tool analyzes the inputs from the service customer and the service provider, and points out inconsistencies and incompleteness for decision-making. According to our evaluation model, four groups of service attributes can be directly related to the four service types: Functionality, Conformance quality attributes, Gap quality attributes, Value quality attributes.

Recommendations: Based on the analysis, the tool recommends the appropriate service type for the business relationship that should be established in the service delivery.

The update of the tool leads to the beginning of next cycle. The lessons learned in the development of a specific tool are also used to improve the model in the inner cycle.

Thus far we have developed a prototype of a tool for email SaaS services that might be used in academic institutions. The details of the design of the tool and the deployment of the prototype can be found here: http://gradworks.umi.com/NR/62/NR62880.html. Based on this prototype, we have introduced some enhancements to the evaluation model that incorporates the role of a broker.

Conclusion

In this paper, we discussed service quality management and value co-creation (co-value) in building the SaaS business relationships. In order to determine the co-value for both the service customer and provider, a specification of four service types (Ad-hoc, Defined, Managed, and Strategic) was defined based on maturity levels of the business relationships in SaaS delivery. This led to a conjecture that the intensification of the service type can be managed by the addition of quality measurement approaches. A web-based survey was conducted with a selected group of CIOs from service customer organizations to validate this conjecture. Four service attribute groups identified in the survey results can be consistently aligned with the incremental evolution of the four service types. The conjecture is used as a foundation for defining the SaaS evaluation model that helps service customers in selecting and monitoring SaaS systems in service planning and operation. Based on the model, a SaaS evaluation tool is built and used for the assistance of the SaaS adoption in a particular service area. In particular, a case study was run to assist the decision making of email service adoption.

The results of this research are important initial steps in building a better understanding of co-value in business relationships between the service customer and provider in SaaS delivery. Based on these studies, the following research work can be pursued in future: i) extending the use of the tool to other scenarios; ii) further investigations to assist in evolving the evaluation model; and iii) more conceptual surveys used as a tool to validate and improve the model.

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Xian Chen received his Ph.D degree in Department of Computing Science, University of Alberta, in 2010. He focuses his research interest on Service-Oriented Architecture (SOA), Cloud Computing, Software-as-a-Service (SaaS), Software Process Management, etc. His Ph.D thesis poses the problem of developing a service quality based evaluation model in SaaS that incorporates business relationship between service provider and service customer. The model can be used to assess service quality and improve decision making related to the adoption of SaaS systems.

Paul Sorenson is Professor Emeritus of Computing Science at the University of Alberta. He previously held several academic positions at the University of Saskatchewan (Professor & Head) and the University of Alberta (Professor, Chair of Computing Science, Assoc. VP (Research) and Vice-Provost (Information Technology)). He teaches courses and has research interests in software engineering and the management and delivery of software service systems. He co-authored books in data structures and compiler design and he co-founded two start-up companies: Avra Software Lab and Onware Systems. He is co-author on more than one hundred journal and conference papers and has served on the Boards of a large number of research institutes and centres.

Trusted to Lead:
Trustworthiness and its Impact on Leadership

Taina Savolainen and Sari Häkkinen

"Trust is the essence of leadership."
Colin Powell

This article discusses trust in leadership, a major issue in current business management. Paradoxically, in the environment of continuous change that characterizes many organizations today, trust is needed more but is enacted less. Trust forms a foundation for functioning relationships and co-operation. Trust is intangible – it is an intellectual asset, a skill, and an influencing power for leaders. Leadership by trust emphasizes trustful behaviour towards employees. In this article, we suggest that, in trust formation, it is trustworthiness in leader behaviour that matters. Showing trustworthiness by competence, integrity, benevolence, and credibility makes a difference in daily leadership work. The importance of trust in leadership has been widely recognized in the literature and business practice.

This article focuses on how leaders enact on trust by showing trustworthiness to subordinates. The ways of building and sustaining trust and the effects of trustworthy and untrustworthy leader behaviour are examined. Two real life cases from industrial companies are presented and their implications are discussed. In conclusion, a leader's competence (ability) is one of the key dimensions in showing trustworthiness. As to untrustworthy behaviour, it is worth noting that building and sustaining trust is reciprocal in nature. A practical implication for leaders is that the development of an awareness of trustworthiness and skills for demonstrating it should be a top priority in the current business environment, which demands strong interaction, cooperation, and communication abilities.

Introduction

This article examines trust in leadership by looking at trustful or distrustful leader behaviour towards employees. The objective of the article is to increase leaders' awareness and knowledge of the importance building interpersonal trust within work relationships, particularly between leader and follower. The article looks at trust in a relational context, which means that trust develops and evolves in interactions and relationships between organizational actors (Mayer et al., 1995; http://tinyurl.com/6y59dv3). Trustworthiness is examined through leader behaviour and in the context of intra-organizational, inter-personal work relationships. The main question is how leaders show trustworthiness by building and sustaining or violating trust. The consequences of trust and lack of trust for collaboration activity, commitment, and mental work well-being are discussed.

There is no doubt that studying the topic of trust is highly timely, relevant and meaningful. This is grounded in the recently increasing awareness that existing bases for social co-operation, solid-

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arity, and consensus have been eroded and new alternatives are needed. Because organizational change is a frequent threat to trust, better understanding is needed of ways of enacting on trust in inter-personal work relationships within organizations. However, the consequences of intra-organizational trust spread far beyond the organizational boundaries. In trustful leader behaviour, competence (ability) is seen one of the main dimensions of trustworthiness, together with three other factors: integrity, benevolence, and predictability. Distrust is associated with negative expectations and a lack of confidence in the other party. Distrust also involves the belief that one party may not care about the other's welfare and may act harmfully (Lewicki et.al, 2006: http://tinyurl.com/65lk2xe; Gillespie & Dietz, 2009; http://tinyurl.com/6c3or6m). Mutual trust and perceptions of trust play a crucial role in trustworthiness pertaining to cooperation and interpersonal and inter-group relationships in organizations (Ferring et. al., 2008; http://tinyurl.com/4gf39z3). Personality is also a strong facet of trusting (Ben-Ner & Halldorsson, 2010; http://tinyurl.com/4saf95t).

Trust and Trustworthiness

Trust influences organizational processes such as communication, cooperation, and information sharing, and it affects productivity. Accordingly, trust is one of the most frequently examined constructs in recent organizational literature. Following the well known definitions of Deutsch and Rotter (1962 and 1967; http://tinyurl.com/48vj7dz), trust comprises a person's beliefs and expectations on how the trustee will behave. Interpersonal trust is defined as the individual's or group's expectation that the word or promise – verbal or written – of another individual or group can be relied upon.

Human resources management has become more and more competence-oriented in the knowledge-intensive society. Organizations focus on offering career opportunities for personnel and fulfill their motivational needs in order to build commitment. An employee's commitment to their work and the organization is related to mental well-being, and both affect the success of the organization. Trust appears at many levels, organizational or managerial, and is manifested in the way, frequency, and quality of interaction between employees and managers.

Trust is a basic element of functioning relationships in organizations. Employees in organizations create trustworthiness by their daily behaviour and actions. Feelings of insecurity appearing in workplaces may be often a reason for atmosphere- related problems such as teasing, conflicts, and disputes. All of them affect the level of trust. Mental well-being is largely sustained by emotional support such as appreciation, respect, openness, and feedback. A commitment to the work and the organization is reflected in employees' work motivation and satisfaction (i.e., work welfare).

Employees that trust their leader work effectively and have a high level of commitment. In addition, they share ideas and knowledge, tacit knowledge in particular. Trust in the behaviour of other people grows when cooperation is reciprocated. Psychologically, trust declines most often when positive expectations are disconfirmed (Lewicki et al., 2006). Respect and appreciation stimulate the development of trust, while poor leadership underestimates employees' personal competences and this eventually results in declining work and company performance.

Building trust is considered an essential activity in managerial leadership. However, the task of building and maintaining trust is complex. A leader's traits, behaviour, leadership style, and skills all matter in building trust and creating an impression of trustworthiness. By implication, a

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leader's mundane behaviour plays a key role; trust is built and maintained by a leader's "daily deeds."

In addition to leader behaviour, organizational culture plays a key role in the development of trust and distrust in an organization. Culture is largely influenced by leaders' actions. In the case of a very authoritarian management style, for example, employees become socialized by the actions of their leaders and adopt the style. As managers act as role models to subordinates, leaders who fail to behave in the expected ways earn disrespect and may block promotions in management careers. This has consequences to the entire organization. Further, subcultures within organizations play a role in employee socialization and commitment. Subculture may be even more strongly related to work commitment than the overall organizational culture.

Two Cases of Leader Trust

In this article, we present two cases of leader trust, which are based on an inductive, qualitative empirical study made in two manufacturing companies. Both companies are SMEs and are well recognized in their own business fields.

The primary data were gathered from several actors and sources: the leaders, employees, and human resources manager. The data consist of narrative material, collected through informal, open discussions (i.e., storytelling) with employees and the general manager. The themes of the interviews focused on trust, leadership style, and leader behaviour.

The secondary data is based on an empirical study which formed the second author's graduate thesis. Empirical material consists of three different kinds of data: i) 75 employee questionnaires; ii) open interview questions with the human resources manager of the case company following analysis of the questionnaires; and iii) a participant observation diary and notes written and analyzed by the researcher during the process.

Case Company A

Company A manufactures and sells valves and pumps, and it operates worldwide. The company's headquarters are in Finland. At the time the research was done, 43 people worked in the company. Four of them were middle managers and one was a general manager. Half of the employees worked in the manufacturing department and the rest were office workers in marketing, purchasing, sales, and financial administration. Some of the functions, such as cleaning and maintenance, were outsourced. The company has sales representatives all over the world.

The leadership style in company A was fairly authentic and the organization structure was quite hierarchical. Middle managers had formal responsibility, but this was not actualized; the general manager made all the decisions. Also, the behaviour of the general manager was neither predictable nor equal toward employees. Open dialogue between managers and subordinates did not occur. Fear and suspicion were prevalent reactions to the general manager's attitude. Thus, co-operation and co-creation could not develop between employees and management in the organization.

Case Company B

Company B is a vegetable supplier with customers who are predominantly professionals in the food industry (e.g., restaurants and catering companies) in Finland. The company's 25 staff members include a general manager, a financial manager, and a sales and marketing manager; the rest of the employees work in production.

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The leadership style in company B was democratic and participative. The atmosphere in the organization encouraged open communication and debate. The company has a flat organizational structure with flexible job descriptions; authority, responsibilities, and liabilities are more dispersed and shared, which lead to a more diverse division of daily work. Collaboration was successful between employees and managers and it was found important.

Key Findings from the Cases

In these cases, it seemed that employee trust or distrust towards the organization and leader develop as a result of appreciation or undervaluation of people by skilful or unskilful management, and authentic (democratic) or authoritarian leadership styles.

In company B, as an indication of the trustful atmosphere and a demonstration of trustworthiness, spontaneous sociality emerges between organization members (Fairholm & Fairholm, 1999; http://tinyurl.com/63m5gmq). In company A, a distrustful atmosphere prevails, which hinders communication and interaction. Poor leadership underestimates employee competences. As a result, trust does not develop, and disputes and conflicts occur. Eventually, such situations show declines in employee and company performance.

Low leader trustworthiness in company A was associated with the development of subcultures. Employees did not trust managers, particularly the top management (i.e., the owner-manager). This manager lacked business knowledge and knowledge of the industry, and did not possess the necessary leadership and management skills. As a result, leader behaviour by top management was perceived as untrustworthy due to incompetence in business and leading people. This was reflected in the leader's actions, which aroused suspicions and mistrust among employees. Incompetence and unethical behaviour by the leadership of company A lead to emerging distrust in the organization. In the course of time, distrust permeated the organization and resulted in declining well-being and a low level of commitment to the organization.

An interesting finding in company A is that, despite the lack of trust, the employees were still confident with their own competencies and skills, but felt that the organization was not worthy of them. They still had faith in themselves and trust in a future outside the organization. It is also somewhat contradictory that people were highly confident with the continuity of work and felt physically well, despite evidently low levels of mental well-being. Trustworthiness and untrustworthiness of general managers is represented by the leadership style. In contrast to company A, the leadership style in company B is very democratic and participative, thus stimulating interactions and co-creation with employees. Internal communication is flowing and frequent; this is supported by the flat organizational structure. The structure also enables open communication and high morality in the treatment co-workers.

Implications and Conclusion

In the case studies presented here, the behaviours of the two leaders clearly demonstrate the difference between trustworthy and untrustworthy leader behaviour and their consequences to employees. In these cases, there are a few important lessons to be learned. Firstly, you can favourably influence the workplace atmosphere by showing trustworthiness through competence, integrity, benevolence, and predictability. In case company B, a trustful climate prevails, along with evidence of enthusiasm, high commitment levels, effective communication, and knowledge sharing. In contrast, case company A reveals a distrustful atmosphere, fear, low commitment levels, and a lack of willingness to collaborate and share knowledge. Secondly, employees become socialized by a leader's good

or bad habits and the action style of their trustworthy or untrustworthy leader. As culture develops by unwritten, enacted daily manners strictly influenced by the leader, a lack of respect and appreciation stimulates feeling of distrust (Fairholm & Fairholm, 1999).

Leadership by trust matters in innovative and co-creative work environments. The two cases presented here imply that it is the small mundane deeds of the leader that matter for employees in forming opinions of trustworthiness. Leaders should increase their awareness and knowledge about building trust, and they should develop behavioural skills for demonstrating trustworthiness. Trustworthiness cannot be overemphasized as a leadership trait and managerial skill. It should be on the top-three list of leader competences, along with the social skills of collaboration and communication.

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Upcoming Events

May 11 - 14

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Contribute

The goal of the Open Source Business Resource is to provide quality and insightful content regarding the issues relevant to the development and commercialization of open source assets. We believe the best way to achieve this goal is through the contributions and feedback from experts within the business and open source communities.

OSBR readers are looking for practical ideas they can apply within their own organizations. They also appreciate a thorough exploration of the issues and emerging trends surrounding the business of open source. If you are considering contributing an article, start by asking yourself:

1. Does my research or experience provide any new insights or perspectives?

2. Do I often find myself having to explain this topic when I meet people as they are unaware of its relevance?

3. Do I believe that I could have saved myself time, money, and frustration if someone had explained to me the issues surrounding this topic?

4. Am I constantly correcting misconceptions regarding this topic?

5. Am I considered to be an expert in this field? For example, do I present my research or experience at conferences?

If your answer to any of these questions is "yes," then your topic is probably of interest to OSBR readers.

When writing your article, keep the following points in mind:

1. Thoroughly examine the topic; don't leave the reader wishing for more.

2. Know your central theme and stick to it.

3. Demonstrate your depth of understanding for the topic, and that you have considered its benefits, possible outcomes, and applicability.

4. Write in third-person formal style. Formal first-person style (we only) may also be acceptable.

These guidelines should assist in the process of translating your expertise into a focused article which adds to the knowledgable resources available through the OSBR.

Upcoming Editorial Themes

April 2011: Communications Enabled Applications

Formatting Guidelines:

Indicate if your submission has been previously published elsewhere.

Do not send articles shorter than 1500 words or longer than 3000 words.

Begin with a thought-provoking quotation that matches the spirit of the article. Research the source of your quotation in order to provide proper attribution.

Include a 2-3 paragraph abstract that provides the key messages you will be presenting in the article.

Any quotations or references within the article text need attribution. The URL to an online reference is preferred; where no online reference exists, include the name of the person and the full title of the article or book containing the referenced text. If the reference is from a personal communication, ensure that you have permission to use the quote and include a comment to that effect.

Provide a 2-3 paragraph conclusion that summarizes the article's main points and leaves the reader with the most important messages.

If this is your first article, include a 75-150 word biography.

If there are any additional texts that would be of interest to readers, include their full title and location URL.

Include 5 keywords for the article's metadata to assist search engines in finding your article.

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