

From Idea to Knowledge – Generating New Knowledge on E-Business

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ABSTRACT

Electronization or knowledgeization is under way in society, world-over. This process works the transformation of the industrial society into knowledge society, and requires a new level of border-crossing cooperation – and catalyzing of the same. This exploratory study seeks to make sense of catalyzing aimed at generating new knowledge on e-business by turning research initiatives stemming from Business, University, and Government (B.U.G.) from idea to knowledge. This action research based single case study focuses on eBRC, a university joint venture created as part of eTampere to fulfill the goals of eEurope. Theoretically, the study is anchored to network and service management literature.

Keywords: E-business, networks, service management, electronization, knowledge creation, knowledge society

1. INTRODUCTION

It can be argued that a major transformation process, of kin to industrialization, is under way in society, world-over. In the language of this study, the process referred to as ‘electronization’ or ‘knowledgeization’ works to transform the industrial society into knowledge society. It can be further argued that, to generate relevant knowledge on electronization or e-business, more and deeper interaction is needed across the sectors of Business, University, and Government (B.U.G.). [9] Based on far-reaching transformation strategies that involve the entire society, ranging from local strategies, such as eTampere, to international strategies, such as eEurope, it can be concluded that new type of catalysts are needed to tackle the challenges related to knowledge generation on e-business (www.etampere.fi, www.europa.eu.int).

The mission of this exploratory study is to make sense of catalyzing aimed at generating new knowledge on e-business by turning research initiatives stemming from B.U.G. from idea to knowledge. Following an action research based single-case-study strategy, the study focuses on eBRC, a university joint venture established as part of the eTampere knowledge society program to fulfill the goals of eEurope (www.ebrc.fi). The author team includes the founding co-directors, currently director and vice-chairman of eBRC and is led by the head of eBRC’s own electronic services and presence.

eBRC is a Tampere, Finland, based virtual research center, a 50-50 joint venture between two universities, Tampere University of Technology (TUT) and University of Tampere (UTA), established for a limited life (2001-2005) as part of eTampere. The mission of eBRC is to make sense of business in the knowledge society by enabling research, increasing B.U.G. networking, building a research project portfolio, and creating new, internationally acknowledged champions in its core research fields.

Theoretically, the study is anchored to the Nordic school approach by combining network research and service management thinking [6, 22]. Deriving from this tradition the remainder of the paper is structured into two main chapters: External Analysis (networks) and Internal Analysis (service management), before summarizing the findings in Conclusions.

2. EXTERNAL ANALYSIS

The transformation from industrial society to knowledge society is marked by two megatrends or phenomena that shape the organization and the operation of different kinds of organizations: (i) rapid technological development and (ii) networking. Herein, networking refers to all kinds of inter-organizational linkages between organizations, not only those that are caused or enabled by introduction of new technologies. The external analysis of the case organization is conducted by analyzing the environmental powers by using the two phenomena as lenses through which the environment is observed. It has to be noticed, however, that the phenomena are so closely related that it is sometimes extremely difficult to differentiate between the two. Consequently, the emphasis in the following analysis is on networking.

2.1. Rapid technological development

Since the successful launch of the first commercial Internet browser, in 1995, we have witnessed a strong and rapid development of Internet related technologies. After the boom and bust, in 2000, Internet and other ICT based solutions have again steadily introduced new e-business innovations, which have had remarkable economic effects across several industrial sectors. Many traditional industrial companies have, since 2000, developed unique e-Business solutions and innovations incrementally with clear, strategy related goals with little or no remainders of the hype era [23]. The service sector is an example of an environment in which new technological innovations related to ICT-

solutions can be used in very different ways. Some services can be fully automated and transferred to e-business platforms, while other services simply cannot be automated, due to, for example, their overly 'high-touch' or complicated nature. [30]

The public sector organizations also face challenges in order to use the ICT enabled new forms and ways of operation effectively. Initiatives and practices referred to as 'eGovernment' have become an essential part of the development of public services. Public online services are perhaps the most popular ICT solution in public organizations. Such can take different forms (Internet, extranet, intranet) and cover various kinds of interactions (e.g., information exchange, negotiations, support, transactions) with different stakeholders (e.g., customers, suppliers, partners, internal customers). The concept of public online services is customer oriented in itself; the aim is to fulfill the customers' need in a cost effective way. [14, 24, 25]

eBRC's basic mission is related to enhancement of deployment – not development – of new technology. As a catalyst of electronization, eBRC aims at finding new types of business and operational models that employ the newest technology. Although development of new technology is not at core of eBRC's operation, it nevertheless creates challenges because, the faster the development, the faster new needs arise for concepts that enable deployment of the technology in question. In addition, eBRC is utilizing the newest technology in its own operation; mainly through public online service. eBRC's online service includes Internet, intranet and extranet solutions. The online service is targeted to the public, all those interested in e-business: Researchers involved in projects, research financiers, business practitioners, as well as eBRC's own team members. The different types of interactions covered include information exchange, communication and support. The special characteristic of eBRC's online service is the matching point function, which enables eBRC's key stakeholders (researchers, businesses, and research financiers) to find the right partners.

2.2. Networking

2.2.1. eBRC and its networks

It has been argued that networks of inter-organizational relationships are partly replacing traditional markets and hierarchical organizations [1, 7, 22]. Business firms and other entities enter into various kinds of dyadic arrangements such as joint ventures and strategic alliances, but also arrangements that concern numerous actors, such as supplier networks and research consortia, in order to gain strategic advantages and, simply, to operate more effectively. [29] It has also been argued that, in our rapidly changing society, networks offer a flexible way to cope with uncertainty and dynamic environmental pressures. These are

caused by globalization, technological development, regulatory uncertainties, ambiguous market signals, increasing innovation costs, unbalanced market structures, and increasing amount of information – to name the top challenges. [3, 22, 29]

In the network context, eBRC can be seen as an intermediary between different kinds of players representing researchers, businesses, and financiers. As in the case of the public sector service organizations, discussed above, eBRC also serves different customers in different levels. The services are targeted to the three groups, referred to above. In addition, eBRC serves the interests of its founder universities, as well as the underlying eTampere program, and the city of Tampere as key financier, and of course the society at large by providing the new knowledge. In traditional sense, it is also difficult to describe the suppliers of eBRC; the three main groups also represent the suppliers, as through their inputs eBRC is able to generate the value added to different customer groups. Consequently, it can be argued that the traditional view of vertical and horizontal networks (Möller-Halinen 1999) is not as such applicable to eBRC's operational format. In figure 1, the network of eBRC is described.

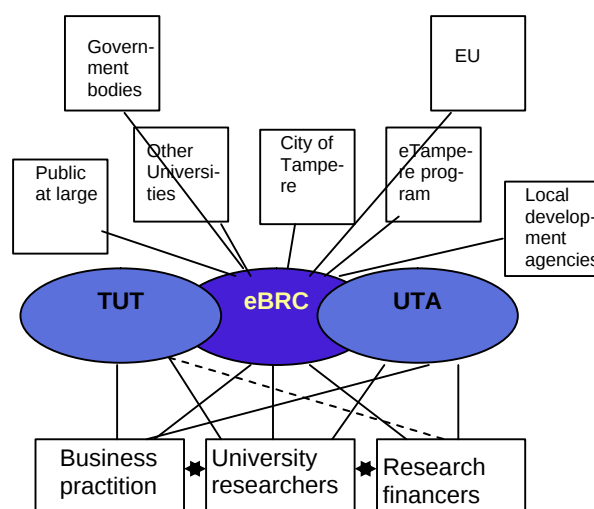


Figure 1. The eBRC network depicted

Figure 1 illustrates the network and key stakeholder groups of eBRC. As mentioned earlier, the role of the three key groups (see bottom of figure 1) can be described as both customers and suppliers, and thus the most suited nominator for them could be "partner". eBRC's relationships with its partners (partnerships) are long-term in nature, and the aim is to form mutual, cooperation based win-win relationships [1, 8]. For eBRC, the most challenging partnerships are those with businesses. During the last 20 years, Business-University relationships have gradually increased and intensified, as well as grown in relative importance. Two elements can be underscored in this development. First, universities possess such business and technical competence which, combined into a helicopter

perspective, can advance competitive advantage of business firms. Second, universities increasingly need to rely on external financing to finance their operations. Deeper Business-University cooperation has also been called for with the requirement for increased practical relevance of academic research. [28] eBRC is established by two universities with quite differing traditions with regard to Business-University cooperation. At the TUT, close relations with businesses are perceived as a natural element of scientific knowledge creation. At the UTA, such relations are clearly viewed with more skepticism, due to classic emphasis of the objectivity argument. The TUT tradition as 'the university of the industry' stems from its general roots in technology and engineering, while the UTA's more 'classic' university tradition from roots in humanities and social sciences.

eBRC's relationship with the city of Tampere is marked by the city's role as eBRC's main financier: eBRC's basic funding is based on a conditional five-year contract, in which results are evaluated twice a year. While this relationship is operatively not as deep as the relationships with the key stakeholder groups, eBRC, by definition, provides value to the city by performing its functions as a sub-program of eTampere. Of the other network partners (see top of figure 1), Other Universities form an interesting group as 'partner-competitors'. Besides cooperating, eBRC is also competing with them on research funding and business partners in research projects. These relationships can be described as 'co-optive' [2]. In such relationships the parties can cooperate in some functions and compete in others. Important is to be able to separate these two from each other in order to avoid conflicts.

2.2.2. eBRC as Intermediator

Discussion of business network intermediators has been scarce in the literature on business networks. Business networks are typically depicted as structures with no boundaries. In a network with no boundaries every actor can be regarded as intermediary as it is connected to several entities [10].

The intermediary role can also be approached as 'triad' [10, 31]. Havila [10] distinguishes between two types of triadic business relationships. First, the serial triad, is a relationship where the intermediary mediates most of the contacts between the other two actors. Serial triad reminds of a series of two dyads: (i) between intermediary and seller, and (ii) between intermediary and customer. Second, the unified triad, is a relationship where each actor has more or less equal contacts with each other, and thus this type of triad is like a group of three actors. It can be argued that, outside the context of triads, the actors can act as intermediators whose basic function is to mediate the relationships between other actors [12]. Chambers of Commerce are examples of organizations that operate

as intermediators between companies both on local and international level. eBRC can be also regarded as a specific type of intermediary in a network. The intermediating act is often performed in a certain project by, for example, finding a suitable business partner to a specific research project or helping researchers find the right financiers for their project.

In the literature related to intermediators in triads, it is argued that actors may have different roles or functions, and at different times any of the triad members may play one of the different roles. Mediator, *tertius gaudens*, and oppressor functions of the third party in the triad can be distinguished [26, 31]. The mediator is involved in both sides of the relationship (often buyer and seller), and aims at enhancing the relationship between the two by keeping them together. Thus the mediator is interested in finding solutions and creating situations, which benefit both parties. Mittilä [21] uses the term 'bistomer' for a similar type of intermediary in business relationships as mediator. The *tertius gaudens* and oppressor have the opposite attitudes as they are in the triad in order to satisfy their own interests. The *tertius gaudens* is ready to take advantage of every emerging possibility, but not taking an active role like the oppressor. [26, 31]

Järvelin and Koskela [12] have discovered two additional intermediary roles in the network context, labeled as 'initiator' and 'invisible hand'. The initiator is more or less door opener with a large contact base and a role of bringing different parties together. The invisible hand is an actor that only provides facilities for the other actors in order to help the others to build the contacts and relationships. The mediator, *tertius gaudens*, and oppressor roles can only exist in the ongoing relationships while initiator and invisible hand roles are central in the beginning of the relationships. eBRC can be in many cases regarded as an initiator which brings different actors together. In research projects more tightly connected to eBRC, it can also have a mediator role. In addition, by having created and launched an annual international research conference, eBRF (www.ebrc.fi/conference2004), eBRC also acts as an invisible hand by offering a forum for networking.

3. INTERNAL ANALYSIS

Professional service organisations (or expert services or knowledge intensive services) can be seen as true embodiments of the emerging knowledge society; the products or outputs of these organizations represent knowledge or competence as such, and can be thus regarded as being fundamental elements of the society and its development [15, 21]. eBRC's offering is new and fresh in many different aspects; the research center operates in a way that utilizes the opportunities enabled by the rapid technological and social development. eBRC thrives to be a modern, virtual, and above all

dynamic meeting place for researchers, business practitioners, and financiers – a new type of actor in the field of academic research.

In order to clarify the service and to go deeper into the concept, basic principles of service management are utilized. Professional services are being characterized as the most intangible of services. The intangibility of these services concerns not only their physical nature but also their mental characteristics. As professional services are markedly intangible, they are also often quite hard to comprehend, both for the employers, customers and other stakeholders. (11, 12, 18, 19).

The intangible nature of professional service is also present at eBRC; the concept and services offered are abstract both physically and mentally; and it has taken time to 'educate' the different stakeholder groups. The other clear professional service characteristic that is present in eBRC's operation is the almost simultaneous production and consumption (and partly also marketing) of services, which causes problems for balancing with supply and demand. This can be partly solved via 'digital presence'.

A Special characteristic of professional services is also the importance of customer participation, especially as resources as they provide valuable information, serve as references, etc. [19]. As mentioned earlier, a customer segment of eBRC also serves as its key suppliers: A prime example of customer participation in production of professional services.

3.1. Service components

Products and services are described as bundles of different benefits. Kotler's [17] three-level structure of products focuses on the core benefit which is the target of the customers' needs. This benefit is served through the actual product which includes the brand name, packaging and other features. Finally the product concept is supplemented by augmented services and benefits such as warranties. Similar models have been developed for professional services. The basic level is the core service, which defines the key problem-solving element of the service. This is the service that the customer primarily desires. Support services include conditional, additional, and surplus support services. The support services make the service accessible or give the customer more choices and options to benefit from the entire set of services. [27]

3.1.1. Core service

eBRC's core service or core benefit is project facilitation services which comprises matching of three stakeholder groups: researchers, business practitioners, and financiers. The objective is to create research and development projects by combining the stakeholders' interests. eBRC seeks to act as a catalyst in the

interface of researchers, businesses and financiers serving as a matchmaker in the process. Various research projects are conducted under the eBRC umbrella. The projects differ from expert opinions, drafted within weeks, to research programs lasting for years and comprising several subprojects. The focus is on research that is both academically valuable and purposeful for businesses.

The researchers from the founding universities serve as the key resource for eBRC and research initiatives often derive from within this group, from within each individual's own research field. An initiative for a research project can also stem from the practical needs of businesses or from the research financiers, often the EU or national government related research programs.

eBRC's role is to find and match the right partners and offer assistance in the funding process. Execution of the research projects is always led by an individual professor of a TUT or UTA institute or school and often joined by representatives of other such – outside or inside, Business or University, domestic or foreign – entities. In addition, eBRC works actively to develop different forms and tools for effective co-operation. It can also participate as a coordinator in the management of the projects.

3.1.2. Actualised service

Marketing of professional services lies usually in the hands of the professionals themselves; the service is demonstrated through earlier work. Brand-awareness is, however, increasingly important and eBRC has also developed features and services that support its brand building. eBRC's service production includes several support services. There are no particular conditional support services; the core service can be utilized as is. As an additional support service eBRC offers the option to publish research results its publication series: Research Reports (RR). The publications are available both in print and electronic format.

To augment the offering, eBRC has surplus support services. It offers its stakeholders opportunities to network with each other both virtually and physically. At eBRC's web service the visitors can, for example, discuss topical issues and acquire the latest research information. The annual conference eBRF gathers the different stakeholders together and gives an opportunity to present ongoing research for instant feedback. eBRF is multidisciplinary window on current issues related to electronization and e-business research and a border-crossing meeting ground. Participating researchers have the option to publish their final research papers in *Frontiers of e-Business Research (FeBR)*, the conference proceedings.

3.2. Electronization of eBRC

E-business in an organization can take different forms

depending upon, for example, the nature of the product, processes, or organization. The development of e-business or electronization in a specific organization evolves often through different stages. The development starts from simple Internet applications and ends up with total organizational '(e)transformation'. [5, 16]

In figure 2, the 'eState' of an organization is depicted through three dimensions: Product, process and agent [4, 30].

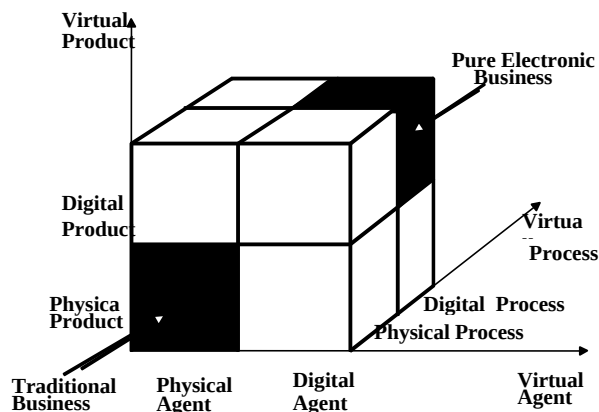


Figure 2. Dimensions of e-business

Within figure 2, eBRC would become positioned somewhere in the middle. The product of eBRC is a service, but only part of it is in digital format; the process is only partly digitalized; and the agent is still more or less physical. Consequently, in the expert or professional services, the face-to-face interactions and the personal relationships play a central role, and this also still strongly the case with eBRC as well. The professional service needs to have a face/faces in order to create the credibility needed for starting cooperation.

3.3. Service process

Another efficient way of describing the service concept is to use process descriptions. As mentioned above, services are formed through different chains of functions. Due to the project nature of eBRC's operations, each service process is individualized. However, there are also features that are similar in each process. Every project starts from an analysis of the research field, examining the different parties and their interests. The research ideas are evaluated from several points of views and the feasibility is discussed. After a project begins, eBRC's role is to facilitate the process and follow its progression. The results can be reported in eBRC's publications and possibilities for teaching implementations and further research are examined. The eBRC process is described in figure 3.

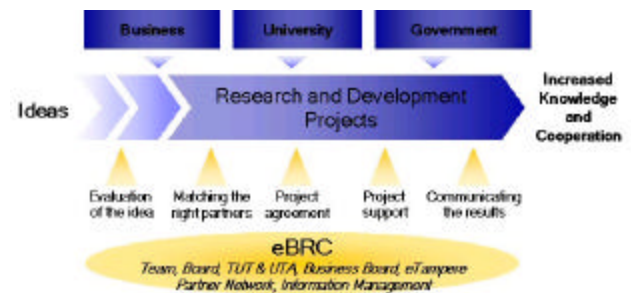


Figure 3: The eBRC process: From Idea to Knowledge

4. CONCLUSIONS

There are historic, cultural, and financing-related barriers to working closely together across the borders between universities, even individual schools and institutes within a given university, let alone those between B.U.G. Nevertheless, faced with emergent phenomena such as evidence-based-policy thinking and the increased complexity related to utilizing ICT enabled models and to understanding what is relevant to business competence, societies need to (seek to) be successful in breaking borders, not just between nations, but also sectors of economy.

While it can be argued that at least generation of new knowledge on e-business, in the emerging knowledge society, requires deeper and ever more intensive cooperation between representatives of B.U.G, this is by all means easier said than done. In this single case study, an effort has been made to introduce and analyze catalyzing of new e-business knowledge by turning research initiatives, stemming from B.U.G., from idea to knowledge. Theoretically, the exploration has utilized the Nordic school approach: A combination of network research and service management thinking.

The case organization is faced with the challenges of a typical professional service organization with regard to, in particular, (i) the dual role of key stakeholders as both suppliers and customers and (ii) electronization of its own operation. In terms of electronization, organizations and operations in the B.U.G. interface need to cope with the challenges related to ever further virtualization of their Product, Process, and – last but not least – Agent.

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