The Development of new IT Based Services through Organisational Networks
- an outline for a doctoral thesis

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Abstract. New IT based services usually imply that several companies and organisations have to co-operate. Co-operation in such a context is built on communication and relationships between participating actors. Furthermore, the actors involved in the cooperation usually have other commitments with other actors and interests. This implies that the production of the service has to be understood as acts of co-operation in a complex network. To develop a new IT based service means that several actors have to build an organisational network by making agreements with each other. Such services and development projects are often coordinated by a single actor as a driving force. The expected effects from a developing process are more problematic to anticipate in comparison with internal business development. In this paper I present an outline for my research in this context. The focus is on the study of creating inter-organisational services, and on innovative IT based services where IT and co-operation are prerequisites. The main research question for my doctoral thesis is how new IT-based services can be developed through organisational networks. The answer to this question can contribute to a better understanding and explanation of what these types of developing processes are and how they can be performed.

1. Introduction
My research interests within the field of Information Science are business and systems development in an inter-organisational context. Inter-organisational businesses, e.g. selling and delivering Tourism Packages within the Tourism Industry or delivering services within Transport businesses, imply that several companies and organisations have to co-operate.

Co-operation in an inter-organisational business context concerns communication and relationships between different actors. Furthermore the actors taking part in a specific business development project are also engaged in a complex network that consists of other actors affecting the developing project. When developing inter-organisational businesses, among them developing IT-systems and IT-services, the expected effects are, for those reasons, more problematic to anticipate in comparison with internal business development.

I have in my licentiate thesis (Hultgren, 2000) discussed both the need for and a methodology of taking network effects into consideration when analysing network based business development. I have furthermore obtained knowledge of how important it is to be aware of the complexity of the network context and how conflicts in interests between different participants in the network can affect the inter-organisational business development project.

In this outline I will present my ideas to proceed with my research in inter-organisational business and systems development. Compared to my licentiate thesis, there will be a shift in focus:

- from the study of inter-organisational businesses to the study of creating inter-organisational services, and
- from traditional co-operation services where IT often is a part of the improvement to more innovative IT based services where IT and co-operation are prerequisites.

My starting-point in this field of business and systems development is alliances consisting of several actors where no one individual has total control over the product or the production. However, one actor usually takes a coordinating role, i.e. they try to establish connections with other participants in order to enhance their own ability. Through this perspective my research will have a explicit inter-organisational focus.
The title of this paper is The Development of new IT Based Services through Organisational Networks. Development is intended to focus on the creative process of the new service. To understand such constructive processes, I also have to be able to understand business processes as such. New IT Based Services is concerned with a focus on services where the Internet, as a medium for the inter-organisational interaction, can be an enabler for new ways of doing business. Within this field there is an animated discussion on new business models and how to treat payments (see for example Earle & Keen, 2000), and the importance of service development. Organisational Networks reflects my view on a coordinating actor and its cooperation with other actors in the service production.

The thesis is related to Information system development. Previous research within this subject field has been carried out to enhance the understanding of IT based services (e.g. Lindberg, 2000). The research has furthermore links with business economics, with regard to the understanding of industrial markets (e.g. Håkansson & Snehota, 1995), virtual organisation (Hedberg, 1997), and relationship marketing (e.g Gum-messon, 1995; Grönroos, 1990). In short, the contribution of my thesis is the use of theories from business economics and information systems development to understand and explain the development of new IT based services through organisational networks.

The research questions are described in chapter 2. In chapter 3 my theoretical framework is presented. After that, in chapter 4, my research methodology is described. Finally, in chapter 5, a discussion follows on the expected contributions.

2. The research questions

The main research question for my doctoral thesis is how new IT-based services develops through organisational networks. The answer to this question can contribute to a better understanding and explanation of what these types of developing processes are and how they can be performed. Knowledge of how these kinds of development processes emerge and are performed is fairly limited both within research and the field of practice. The reason is that, within the topic of Information Systems Development, the understanding of networks is fairly restricted, and in the field of business economics the focus on business and IT development is relatively low.

The main research question can be divided into the three following sub questions:
1. How is the development of IT based services described in the literature?
2. How can separate projects for development of new IT based services through organisational networks be characterized and explained?
3. What patterns in prerequisites, actions and consequences can be generated from the separate development projects?

The third question above implies that there is a need to generate an explanation model – a Grounded Theory. The theory is valid for the development projects being studied, but can also be seen as potentially relevant for similar development projects (Walsham, 1995).

3. Theory

My theoretical starting-points is based on Business Action Theory (Goldkuhl, 1998) from the field of information systems development, and from network theory (Håkansson & Snehota, 1995) and virtual organisations (Hedberg et.al., 1997) from the field of business economics.

3.1 Business Action Theory

To emphasize the business logic in a business process, the Business Action Theory (BAT) has been developed (Goldkuhl, 1998). The theory takes a starting-point in an action perspective when focusing on a two-part relationship concerning a seller and a buyer. To view communication as acting can be grounded in speech-act theory (Austin, 1962; Searle, 1969; Habermas 1984). The reason why communication acts are so important in the business interaction is that they fulfil several important functions, where the exchange of information is only one of these functions.

The Business Action Theory is based on both the information content and the communicative function, also called communicative action. The theory establishes that the business making usually can be viewed in six phases (Goldkuhl, 1998):
- Prerequisite phase
- Exposure and contact searching phase
- Negotiation phase
- Contact phase
- Fulfilment phase
- Completing phase
As the phases indicate, business action is about the exchange of different kinds of values, e.g. delivery of a service and charge. To be capable to exchange values, one has to communicate, which involves action aspects such as a business offer and binding agreements.

### 3.2 Network Theory

In the network theory (Håkansson & Snehota, 1995) it is emphasized that the business processes of a single company are performed in a complex network of several interacting companies, organisations and consumers. Furthermore, the network theory is focused on the extensive Business-to-Business interaction that is a prerequisite for the Business-to-Consumer interaction. The business processes of a single company are often performed in co-operation with a number of partners, i.e. other companies and organisations that belong to the network. The network also includes other actors that are not partners with the company but are partners with partners, i.e. third parties. The network theorists also claim that actors can influence the development of the network but that the network is too complex to be controlled by a single actor. This implies that the development process cannot be seen as a structured design process that is controlled by a single company. It can be better described as a process of evolution and dynamics.

If we consider the evolution aspect, it is important to realise that evolution takes time and that it is not possible to fully anticipate the effects from a specific development activity (e.g. a design activity). This means that the network perspective emphasizes the long-term perspective of business development. The dynamic aspect of the development process concerns the web of actors and their interests, where even third parties can influence the development process.

In the network theory the significance of the business relationships are emphasized both for the development of the network and for the internal development of the single company. The concept of relationship is defined as a mutual interaction between two parties that create reciprocal obligations. Relationships emerge, evolve and are sustained through the interaction between the actors in the network. This implies that the network theory is focused on the understanding of relationships and the interaction in the business network. The interaction analyses are focused upon the co-ordination of the activities and routines between the companies.

According to the network theorists, the substance of a relationship can be described in terms of:

- **Resource ties**, i.e. the companies have to interact to get access to needed resources.
- **Activity links**, e.g. administrative routines between companies.
- **Actor bonds**, where social relationships between human actors is emphasized as an important part in a relationship.

This means that it is an important task for a single company to try to develop long-term business relationships, which implies the development of the interaction between their business partners.

### 3.3 Virtual organisations

The concept of Virtual Organisations (Hedberg et.al. 1997) relates to new business models, where the customer’s view of a specific company by outsourcing is fragmented into several independent companies. Virtual Organisations is firstly a comprehensive concept for the new enterprises using IT, alliances, attractions and customer loyalties to run and keep together the overall business. The extension of a virtual organisation is then far beyond a single company’s legal border and it is based on cooperation and synergies from external companies. Secondly, Virtual Organisation is a concept of the perspective when viewing virtual logic and virtual resources within old businesses.

A virtual organisation has a coordinating actor who takes a standpoint on a business concept. By creating a strategic map, a design for the business process, the coordinator identifies the most strategic activities and then striving for to build a core competence around it. This core competence from the coordinating actor gets support from other actors to achieve a complete business process in order to produce the products or the services.

### 4. Methodology

After an initial presentation of three main phases in my research design, my overall methodological approach follows. Finally, a presentation follows of how each case study can be executed.

#### 4.1 Phases

The first step in my research plan is to investigate how the development of new IT based services through organisational networks is described in the literature (theories, models and methods) and how practitioners describes the phenomenon. The next step would be to make three sequential case studies. Each case-study could then gradually contribute to generate a theory that is empirically grounded. Finally, I will relate my empirically grounded theory to existing theories of systems and business development.
4.2 Overall approach

My research will be based on a qualitative research approach, which involves the characterization of conspicuous phenomena. When performing qualitative studies the numbers of case studies are usually few, but instead the studies are striving to achieve a rich picture. Qualitative studies are characterised furthermore by the close relationship between the researcher and the environment or the individuals being studied.

My empirical studies will focus on a development process, which means that I have to make longitudinal studies, i.e. I intend to follow important parts in the development processes being studied for at least six months. My intention is, in spite of this, not to have particularly extensive influence on the development process. This is because no presentation of results will be carried out while the longitudinal studies are in progress. To increase the reliability I will check my interpretations after the respective interviews. My questioning and the following checks will then have some influence on the object being studied.

I will also apply a kind of abductive research methodology (e.g. Alvesson & Sköldberg, 1994). Abduction implies that my empirically generated theory (inspired by a Grounded Theory approach (Strauss & Corbin, 1998) will be influenced and grounded in existing theories. The selections of case study two and three, together with the data collection, will be influenced by my evolutionary growing theory regarding new IT based services through organizational networks. To increase the reliability of my inductively generated grounded theory, I will relate it to existing theories, like business models and business development (e.g. Tapscott, 1996; Earl & Keen, 2000; Normann & Ramirez, 1994; Porter, 1985). I will also relate it to network theory, Business Action Theory and Virtual Organisations.

4.3 Empirical studies

The selection of the three empirical case studies will be guided by the following criteria:

- New and, to some extent, innovative IT based services.
- Internet as a medium shall be represented in the business process.
- One coordinating actor who controls strategic parts of the business process.
- A number of actors participating in the business process and in the development process.
- The services shall belong to the field of Intelligent Transport Systems (ITS) or the Tourism Industry.
- Services containing mobility to some extent are preferable.

In the selection of case study one, there will be a low extent of understanding for IT based services and the development process behind them. Through the successive enhancement of knowledge about such business and development processes, the selection of case study two and specially three will be influenced. For the same reason my ability to question will be enhanced. The selection of case studies will be described and motivated from the services themselves and in relation to the three case studies. I have no ambitions to relate the case studies to an overall structure.

Each of the three case studies will be conducted using the following methodology:

- Theory based interviews where the concepts from network theory, Virtual Organisations and Business Action Theory will enhance the stringency.
- Sound recording of interviews.
- Transcriptions of tapes and checks with respondents.
- Analyses of actions, problems, goals and strengths.

The performance will be done by triangulation between the following sources:

- Interviews.
- Analyses of written documents about the development process and about involved actors
- Observations at project meetings.
- Analyses of the developed IT based services.

The longitudinal approach will focus on the following:

- Analyses of realized actions (historic).
- Analyses of action in progress and planned actions.
- Ongoing analyses of actions during the development process.

The case studies will not be intervening because no analysis results will be presented to the respondents until the study is finished. However, the interviews and the checks as such can have some influence on the development process.
5. Contributions
The research process is intended to result in two main contributions:

- Aggregated knowledge of the development of new IT based services through organisational networks. The explanation models (the grounded theory) are based on the principal of prerequisites, actions and consequences. Valuation will be made about successful and less successful development constellations, actions and resources. This contribution focuses on the development process.

- Separate case descriptions where network theory, Virtual Organisation Theory and Business Action Theory establish a base to understand the development process in the specific case. Valuation will be made for problems, goals and strengths. This contribution focuses on the specific development process of each case study.

The research process is intended to result in two supplementary contributions:

- Increased knowledge of organisational networks and development activities, regarding constellations, coordination, strategies and so forth. This contribution focuses on organisational networks as resources.

- Increased knowledge of new IT based services, regarding offer, business logic, charging, strategic resources etc. This contribution focuses on the products and the business processes.

References