Information Systems and Organisational Change
— a Theoretical and Empirical Study of Information Systems in Business and Process Oriented Environments

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Abstract

The aim of this paper is to describe my research question, research approach, methods for data collection, applied theories and expected contribution. The research questions are focused on how information systems/information technology can support a business and process oriented organisation; what information system strategies and features facilitate or obstruct business and process orientation? The systems in focus in this paper are used for order and production planning. A tentative theoretical frame of reference related to the study of information systems/information technology in business and process environments is also made up.

The paper is based on two case studies, related theories; and expected contributions are that the studied systems of today does not support the explicit core concepts of an organisation striving for increased business and process orientation enough to be efficient in these environments. The identified core concepts are for example co-ordination between different departments resources and activities and information system support for critical phases in business processes. Lack of integration between strategies for change programmes in business (organisational change) and information systems development, with a potential risk of disparate views of future workflows, has also been identified.

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1 Introduction

In the first section of the paper I will present a background, containing an introduction to the field of research, and the research questions.

1.1 Background

Many researchers and practitioners agrees that reorganisation today is frequent, not exceptional (e.g. Handy, 1991; Keen, 1991; Tapscott and Caston, 1993). Enterprises and other organisations are frequently faced with challenges initiated by pressure from the environment, from other actors on a market, even higher and more sophisticated demands from customers or clients. We can also see a kind of inner pressure[1] formed by the search for new markets or new products. Tapscott and Caston (1993) see these changes as contributions to paradigm shifts, influencing organisations. The four paradigm shifts (ibid.) are: new technology, new geopolitical order, new enterprise and new business environment.

To meet this new situation an open, skilled, flexible, market oriented and responsive organisation with a suitable structure is needed; often with information technology as one of the necessary and critical cornerstones. Keen (1991, p. 227) even claims that information technology (IT) and change are mutually associated today and for tomorrow. "Flat" organisations with information that flows fast both horizontally and vertically, supported by information technology such as computerised information systems (IS) is another way of expressing this.

Computerised information system or information technology is often described as enablers in currents such as Business Process Re-engineering/Re-design (e.g. Hammer, 1990; Hammer and Champy, 1993; Willoch, 1993), Process Innovation (Davenport, 1993), Kaizen (Imai, 1986), competition and marketing strategies (e.g. Porter, 1985; Slater and Narver, 1994). But has the IS/IT of today the features that are needed to meet this challenge? Is the technology managed in the "appropriate" way to *support* this "new" organisation, or is IS/IT *limiting* the organisation's flexibility and ability to change? Davenport (1993) and Keen (1991) identifies this very important question, and makes a point that it is important to be aware of the blocker or disabler to change, that IS/IT can constitute. In this paper I will examine this question by a theoretical overview and two case studies in organisations striving for increased business and process orientation.

1.2 Research Questions

As we can see above the role of IS/IT in organisational change is an important aspect[2] for the ability to change and possibly the outcome of efforts in order to change in general, and reach a higher level of business process and market orientation in particular. Out of this I have formulated the following research questions:

- How can information systems support an organisation that strives for a increased business and process orientation; what information systems strategies and features facilitate or obstruct business and process orientation? This paper's empirical part

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[1] That could be either a reactive response to the external pressure or a proactive effort to e.g. find and form new strategies.

[2] Of course among other aspects, such as management support, participation, learning etc. that will not be highlighted here.

will particularly deal with information systems related to sales administration and production planning. The study is of a explorative character.

- ▪ Another purpose of this paper is to reach a kind of further understanding of the concepts: *process, market, strategy* and *business* based on theories from different areas, e.g. marketing, total quality management, business process re-engineering. Section three in the paper contains a theoretical study of these concepts, and a development of a tentative framework for a comparison between the concepts in order to reach a understanding about the environment of the information systems studied.

The sections below will describe how I search for an answer to these questions.

2 Research Approach

In order to answer the research question above I have listed and analysed the problems/limitations and strengths associated with the management and features of IS/IT of today and compared these with the core aspects of business and process orientation. This comparison has been made from, on one hand a theoretical point (e.g. business process and market orientation literature, business action theory; see section three), and on the other hand an empirical point; the intentions and objectives which the studied companies have with their work on increased business and process orientation.

2.1 Choice of Research Approach

The choice of case studies as an approach to my research questions is motivated by the fact that I am interested in taking a "close" look at the IS in its real context, get access to regular system users and other persons involved, and their opinions on how these IS supports or obstructs the business in their work.

Problems associated with IS/IT and the limitation that the systems can make up, can be viewed as obstacles for the companies to reach a higher degree of business and process orientation, and are therefore relevant to get more knowledge about. These obstacles need to be reduced in order to take full advantage and value of the investments in IS/IT, even if this leads to changes in management and features of the existing systems, and new investments as a consequence. Of course it is also important to be aware of, and make the best use of the strength and potential that the existing IS/IT also can offer.

The strategies for management of IS/IT has also been studied in the two companies. The interest in strategies is based on questions concerning the IS/IT strategies and its connection to business strategies and organisational development.

Grounded theory (Strauss, 1987) is a central approach in my research and the qualitative analyses of empirical data that will follow. The use of Grounded Theory has, however, not been absolute "pure"; in a sense that a quite extensive theoretical study in the field has been made before the empirical work has started. From the result of interviews, studies of documentation and direct observation I have generated categories which has been compared and synthesised with categories drawn from the so called technical literature (Strauss, 1987, p. 60). Selected parts of the technical literature is presented in section three, below.

The choice of case studies and the inspiration from Grounded Theory has of course affected the methods for data collection; below I will present the different methods for data collection and analysis that I have used in my research so far.

2.2   Methods for Data Collection

In combination with my choice of case studies as a research approach I have chosen data collection methods of mainly qualitative character in order to identify and express characteristics of the phenomenon (Repstad, 1993). Another motive for this choice is that I study and will study delimited and specific organisations, where the purpose is to reach some kind of comprehensive picture (ibid.).

Methods for data collection mainly has, as mentioned above, been constituted by *interviews* with people from different departments and from different hierarchical levels of the companies. The choice of informants has been made in order to get a "rich picture" of the IS/IT and catch different perspectives of the phenomena (see paragraph "Interviews", below). This has hopefully been giving me some kind of data triangulation (according to Denzin's terminology, 1978). *Studies of documentation* (system manuals and user guides) should have been made in the first case study. Unfortunately there was no documentation of that kind available for the systems in focus of my research at the Paper-mill. Documentation from the change programme and IS/IT strategies, however, where available. In the second case study, the manufacturing company, I have found sufficient documentation concerning the system, the IS/IT strategy and the change process as a whole. A *direct "face-to-face" study* of the systems in work has also been made in the first case study, and is planned to be carried out in the following one. Denzin and Lincoln (1994, p. 14) identifies these three methods (interviewing, observing, and document analysis) as typical for a case study.

With these three methods and sources for data collection it is my intention to have a solid ground for a high degree of methodological triangulation and data triangulation (ibid.). My ambition in having different types of triangulation is to make sure that I will have a broader data material and a "safer" ground for understanding and further analyse (Repstad, 1993, p. 19). Triangulation is not a tool, or strategy for validation, but according to Denzin and Lincoln (1994, p. 2) an *alternative* to validation.

2.2.1   Interviews

The interviews can be classified as qualitative. This type of interview, in concordance with the research approach, is made in order to discover and identify unknown, or unsatisfying known phenomena, features or meanings (Svensson and Starrin, 1996). The structure of the interviews has been more of a guide, than a highly structured, arranged line of questions. The questions has, however, been focused at certain areas of interest even if the exact formulation of the questions has been adjusted to the situation and the informant. Flexibility in designing the interview guide is desirable according to Repstad (1993, p. 60) in order to reach improvements in design during the study and adjustment to different informants.

The informants in the case studies where the following:

- Head of quality and improvement project
- IS/IT-manager
- Market assistant(s)
- Production/operation and maintenance assistant
- Production planner

The informants are from different departments and hierarchical levels as mentioned above.

2.2.2 Studies of Documentation of Change Processes and Information Systems

The documents studied are from three different areas; the change processes (project plans including purposes, objectives, descriptions etc.), system documentation and the user guides to IS/IT (can be viewed as a source where a "ideal picture" of the usage of a certain information system is expressed. The meaning of this is that it is the developers "imagine" of the system in use that is expressed. This is not necessarily the same thing as the "actual usage", see e.g. Goldkuhl, 1995). The last area of documents studied are covering the development of new IS/IT-strategies.

2.2.3 Direct Studies of Information Systems

I have also accomplished direct studies of information systems, up to now in the first case study. The studies consists of the system user performing an everyday task (e.g. the market assistant's registration of a customer order and the following dialogue with people at the production planning department), demonstrating and telling how the system, including surrounding information flows, works in this situation. The demonstration shows the "actual usage" of the IS and performing of tasks, as a possible counterbalance to the "ideal picture" (see above). Differences between these two "pictures" can reveal some strengths and weaknesses of the system and the use of it.

2.3 Data Analysis

Grounded Theory (e.g. Strauss, 1987) has been used in the data analysis work, as mentioned above. In combination with this approach I have used a kind of cause-and-effect diagrams (Goldkuhl and Röstlinger, 1988) for analysis of strengths and weaknesses/problems of the information systems.

The different phases and actions in a business process (see appendix) has also been used in order to identify strengths and weaknesses with the information systems, related to certain parts of the business processes (see e.g. weak system support concerning the offer and delivery promise in the expected contribution section).

2.4 A Short Description of the two Cases

Below I will give a short description of the two companies in my empirical study. One of the case studies (the Paper-mill) was concluded by the autumn 1996, and the second one (a manufacturing company) was initialised in spring of 1996 and should be concluded by the summer of 1997. These two companies has reached different degrees of business and process orientation and has made different alignment efforts of their IS/IT to the "new" situation.

2.4.1 The Paper-mill

The paper-mill has a long tradition in production of e.g. napkins and other paper semi-manufactured articles. There are about 200 persons employed at the production plant that I have been studied. This plant is one unit of a group of companies in this line of business.

The company's strategy is to be a flexible supplier that competes with fast switch-overs between different types of products and short production series.

A change programme was initiated at the company in 1995 with strong emphasis on process orientation, customer focus and information systems.

2.4.2 The Manufacturing Company

The manufacturing company has started a large improvement programme in order to reach continuous improvement, a higher level of process orientation and the development of a higher ability to handle several customer at one time. Parallel activities are the development of a new IS/IT-strategy for process oriented information technology.

 The company's market is changing from a stabile one with a high degree of domestic military production to a more uncertain market situation, with keen competition. The case study has focused on one business process related to one product-line at the company.

3 Theory: A Business and Process Oriented Framework

In this section I will give a brief presentation of the theories related to the research questions and the purpose of this paper. I will also present a tentative comparison between these theories in order to reach a further understanding of the concepts.

3.1 Market Orientation

Market orientation is based on the hypothesis that when an enterprise becomes more market oriented, a long term improvement of its economic and competitive performance will be the result (Lambin, 1995, p. 14). This propositions are supported by observations that a market oriented company will have a large number of satisfied customers and therefore high rate of repeat purchases, fast response to changing customer needs and bringing more value to customers and therefore has a lower price sensitivity and higher market acceptable prices (ibid.). Customer satisfaction is a cornerstone here and the quality of the products or services are identified by the customer[3].

 A market oriented enterprise can be defined as a company where the culture is systematically and committed to the continuous creation of superior customer value. This entails e.g. collecting and co-ordinating information on customers, competitors and other different significant market influencers (e.g. suppliers) (Slater and Narver, 1994, p. 22) where IS/IT can play a major role. These authors describes market orientation as composed by: customer orientation, competitor focus and interfunctional co-ordination. I believe that the essential contribution from this perspective on marketing is that the authors see customer focus just as *one* component among others in the concept; not just isolated customer focus or customer satisfaction. Lambin's (1995) work is partially based on Slater and Narver's conclusions, but Lambin broadens even more the concept:

> …market orientation is a business philosophy involving all the participants in the market and at all levels within the organization (Lambin, 1995, p. 9)

Lambin (ibid.) also lists five components of market orientation in his broad definition: end-customer orientation, distributor-customers orientation, competitors orientation, socio-economic climate and inter-functional co-ordination.

 Gummesson (e.g. 1996) is an another example of an author (from the so called relationship marketing school) that also has a broad definition of marketing. He claims that

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[3] "Customer focus and satisfaction" is also the most weighted category 300 points (of the total 1.000 points) in the 1994 version of Malcom Baldridge National Quality Award (see Keen and Knapp, p. 50; Bergman and Klefsjö, 1994).

the back-office work has a substantial influence on the front-office work and the quality of products or services perceived by the customer, and therefore essential to include in studies of marketing. Gummesson (1996, p. 5) has a specific concept "that everybody, irrespective of task and expertise, influences customer relations" and are therefore called part-time marketers and full-time marketers. This point of view is e.g. shared by Grönroos (1988, 1990, 1993) who claims that it would be disastrous to isolate customer service as a variable of marketing (cf. full-time marketers according to Gummesson) from the rest of the organisation, just as the traditional 4P marketing mix-variables does (transactional marketing) (Grönroos, 1993, p. 4). Customer service is the responsibility of everyone in an organisation - not of a separate department or role. Another definition of these two roles is made by Goldkuhl (1997, p. 11) and he calls them *full-time business performers*.

Interactivity is also an important concept in this line of marketing. The customer typically interacts with the systems, physical resources and employees of supplier (ibid., p. 9). All these interactions and the customers perception of the providers ability to handle them certainly has an influence on the total quality[4] of the service or product. Grönroos (1990, p. 16) express this thoughts like this:

> The marketing impact of the customer's contacts with people, technology and systems of operations and other non-marketing functions determines whether he or she (or the organisational buyer as a unit) will continue doing business with a given firm or not.

Here we can see that the interface to the customer could be made up by people or technology. The technology, e.g. a information system, will probably in most companies support people in the "customer interface" with information concerning e.g. the firm's ability to produce services or products, different designs, expected time of delivery, prices and so forth. In order to provide the potential or established customer with a interaction (process interface) of good quality (and of course good quality in the output as well) the information systems need to be suitable. Information from the systems that builds a ground for peoples decisions and actions, such as agreements with customers, e.g. acceptance of an order[5] needs to be able to mediate "trust" in some respect. Lack of information, doubts of the validity of the information, and obviously incorrect information as well as bad interpretations of that information can be forwarded to the customers and influence their perceived quality.

In order to improve quality, gathering various types of data about customer feedback are very important (Grönroos, 1993, p. 17). Here again we have potential applications for information systems in order to store data from a large number of customer contacts, collected by different employees.

Orientation towards a customer or market, as well as processes, as we have seen above, are also two cornerstones in the next section. I will also further discuss the information systems relation to business processes.

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[4] Quality can be discussed from at least two different sides: the quality of the output (so called technical quality) and the quality of interactions (process-related functional quality dimension) (Grönroos, 1990, p. 146).

[5] A commissive speech act according to Searle [(1979, see also Reijswoud, 1996, p. 74 and Goldkuhl, e.g. 1997)].

3.2   Business Process Orientation

The orientation towards business processes is driven by competition. Nowadays companies are not so much differentiated by their products or services features, but the overall experience of dealing with the company in terms of reliability, quality, consistency, ease of ordering, responsiveness to queries and problems, and so forth (cf. business action theory, below). The something extra, or difference, is often process advantage (Keen and Knapp, 1996, p. 4).

We can find process orientation in different theoretical traditions related to change concepts, e.g. Business Process Re-engineering/re-design (BPR), Kaizen, Process Innovation and Total Quality Management (TQM). In Business Process Re-engineering (e.g. Hammer, 1990; Hammer and Champy, 1993) the message about processes is clear: use the power of modern information technology to radically design the business processes in order to achieve dramatic improvements in their performance. Processes are seen as adopting a view of the business that represent a revolutionary change in perspective that turns the organisation on its head (or side) (Davenport, 1993, p. 5). If we take a look at Kaizen (Imai, 1986, pp. 16) it generates a process-oriented thinking, since processes must be improved before we get improved results. The Kaizen concept stresses management's supportive and stimulative role for people's efforts to improve processes (c.f. the co-ordination of work, below). Measures and criteria in this concept are based on the process itself (and not on the result). The criteria are also of a long-term character - continuous improvements rather than radical changes is the focus.

Roughly benefits (Keen and Knapp, 1996, p. 57) from process change take the form either of: (1) improvements in process outputs (e.g. better quality, service and higher customer satisfaction), or (2) time improvements in the execution of the processes (e.g. shorter cycle-time from order to delivery).

These authors (ibid., p. 11) also identifies two somewhat different interpretations of business process; one is of a process as a:

- workflow (a series of activities aimed at producing something of value) and the other as:
- the co-ordination of work (a set of skills and routines exploited to create a capability that cannot be easily matched by others).

Davenport (1993, p. 5) can be classified as a member of the "workflow tradition" with his definition:

> …a process is simply a structured, measured set of activities designed to produce a specific output for a particular customer or market. … A process is thus a specific ordering of work activities across time and place, with a beginning, an end and defined inputs and outputs: a structure for action.

A focus here is a strong emphasis on *how* work is done within an organisation, in contrast to the more "traditional" product focus's emphasis on *what*.

This distinction between process orientation (how) and result orientation (what) is also made by Imai (1986), even if this author belongs to the TQM movement. The TQM movement usually focuses on the interpretation of process on the existence of clearly delineated input and outputs, most obviously products. The principal target for BPR is services and transaction processes that involve managing paper flows etc. (Keen and Knapp, 1996, p. 13). See also Goldkuhl (1995) below (Business Action Theory) for another definition of process and business process.

An example of on of the members of the "co-ordination tradition", according to Keen and Knapp (1996, p. 14) is Flores (1991. p. 21) and the following definition:

> Rather than tracking the flow of materials or data, business processes chart the coordination of action between people (and sometimes machines) involved in an activity.

One can say that the latter definition builds on the previous one. Aspects of co-ordination, teams and collaboration complements the earlier workflows and activities - it equates business processes with a combination of technologies and skills (ibid.). We can also see this trend e.g. in newer publications from Davenport (1994), where the author focus more on the "human side" of re-engineering than before.

The use of information systems or information technology in the two traditions above is, according to Keen and Knapp (1996, p. 23), motivated by the need for co-ordination of business processes. In the workflow tradition the technology will be used to *replace* people, and by the co-ordination tradition to *augment* their capabilities. This polarisation is of course a simplification, and we can probably find both replacement and augmentation in different "applications" of the same tradition.

Keen and Knapp are inspired by Zuboff's (1988) definition of two types of technology: *automating* (replace people or reduce their ability to influence a process) and *informating* (expand workers understanding of their work and let them be free to use that knowledge for decision making). Parallels can also be made to the systems-theoretical perspective (includes the automating concept) and the humanistic perspective (includes the informating concept) by Nurminen (1987, 1991).

The relationship between information systems/information technology and the business is also discussed by Reijswoud (1996, p. 193). He describes that the business processes in an organisation demand effective and efficient business communication and information technology to develop the communication process and the business processes to their full potential (see figure 1).
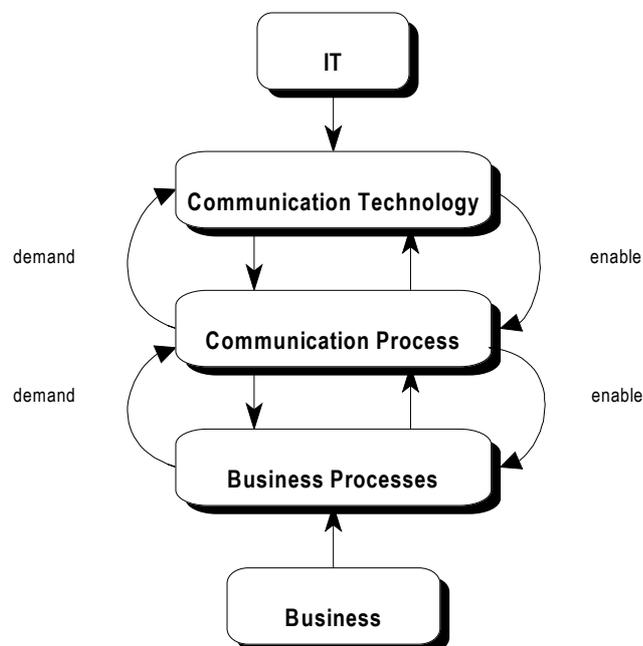

Figure 1. The relationship between IT and the business (Reijswoud, 1996, p. 193)

In figure 1 we can identify "enabling" arrows/relations between IT and communication technology and between communication technology and business process. As seen in the expected contribution of this paper there seems to be a risk that the IS/IT also can ob-

struct certain communication and activities within a business process - in other words: there is no *automatic* enabling effect of the use of the technology. There is also a lack of customers, or market in the figure above - the business, processes, communication and IT can also be shared by[6] more than one business, e.g. inter-organisational information systems.

3.3   Business Action Theory

The Business Action Theory (Goldkuhl, 1997, p. 10) is made with inspiration from two main theoretical sources: communicative action theories (e.g. Austin, Habermas and Searle) and business relationship theories (business and marketing theories, e.g. network theory, service management and relationship marketing). This theory emanates from a study of different process definitions (Goldkuhl, 1995). The author has studied different process definitions and made a critical examination of them and criticise the fact that the internal business conditions (e.g. the role of the those who accomplish the work) and the business character has an indistinct definition. The definition suggested by Goldkuhl consists of two concepts*: operational process* and *business process*. Business process is regarded as a certain class of an operational process. The operational process is defined as:

> A totality of connected activities, often executed by different performers (different areas of responsibility), transforming input to products, by utilising infrastructures, where products should have a apparent value for customers/clients, by solving tasks for them. [my translation of: Goldkuhl, 1995a (in Swedish)]

The business process is defined as:

> A business process is an operational business process that is initiated and controlled by business relations between a supplier and a customer and by that means by different business generic actions, such as offers, purchase interests, orders, mutual commitments and fulfilment of commitments. Such actions are essential and governing other activities in the process which are dependent of them. [my translation of: Goldkuhl, 1995a (in Swedish)]

As we can see business process is regarded as a certain aspect of the operational process and elucidates the important business relation between a supplier and a customer. Generic business actions such as offers, purchase interests, orders, mutual commitments and fulfilment of commitments are parts of the business process, and essential in this definition.

If we classify these definitions according to the two traditions above (workflow or co-ordination) the first definition concerning a operational process seems to have most in common with the workflow tradition, even if the Goldkuhl's process definition also includes different performers. The second definition, business process, includes keywords such as: relations and actions, and even if the word co-ordination is not mentioned we can see aspects of it in the definition - to be able to handle a relation and perform actions you must co-ordinate to get a good result.

The generic business actions, mentioned above, are a part of the Business Action Theory and the Generic Business Framework (Goldkuhl, 1996, 1997) that I am applying in my research. The author describes business as action game and makes comparisons with action workflows (e.g. the Action Workflow loop from Action Technologies, 1993).

Goldkuhl (1997; based on his work 1996) also made a division of this framework into six phases, compared here (figure 2) with the Action Workflow framework:

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[6] And therefore constitute a relation between to different organisations.

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Action Workflow              Six Phases of a Business Process

1. Preparation               1. Business prerequisites

2. Negotiation               2. Exposure and contact search

3. Performance               3. Contact establishment and negotiation

4. Acceptance                4. Contractual (mutual commitments)

                             5. Fulfilment

                             6. Completion
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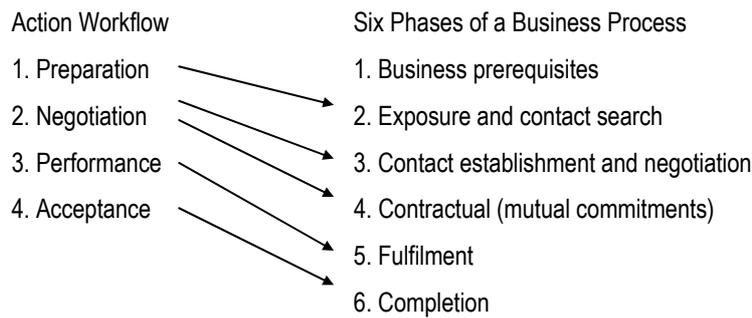
Figure 2. Action Workflow vs. the six phases of a Business Process

In my research I have used the Business Action Theory and the Generic Business framework (see appendix) as a model for studying the degree of support that the IS/IT-systems offers. The realisation of generic business actions is often supported by information technology and I believe that the companies performance in the phases (figure 2) has an extraordinary signification in how the customer values the quality of the goods or services that the company offers. Therefore it is critical to study the IS/IT features and the way the technology is managed when the company is striving for increased business and process orientation.

3.4   Information Systems and Business Strategies

"Strategy" is one part of the research question, concerning how to manage information systems in the most appropriate way in order to support an organisation striving for increased business and process orientation. Company strategies usually includes terms like "the art of using a company's resources in order to reach their goals" (e.g. Bakka et al., 1993). Strategies can be associated with different hierarchical levels of an organisation and have different alignment with interests. One example is business and competitive strategies that are associated with the creation and maintenance of competitive advantage (e.g. Porter, 1985). We can also look at strategies as planned, developing ("ad-hoc"), unrealised, intentional and realised (see figure 3).
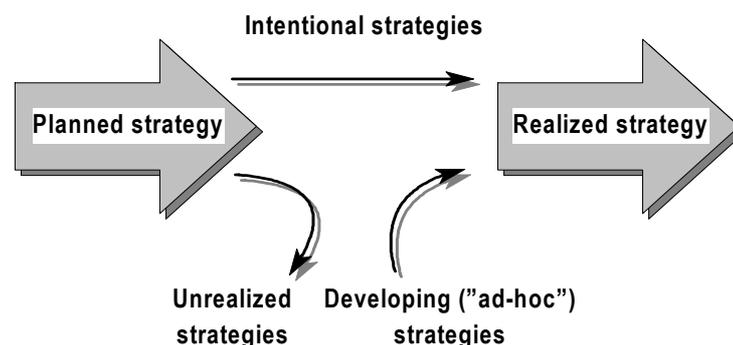

Figure 3. Different forms of strategy (Mintzberg, 1991)

IS/IT is one of the important tools for realising business concepts. By working with strategies for IS/IT one is trying to increase the possibility to reach an information system with the capability of supporting the organisation by being flexible and to have a potential for further development under different conditions.

Tapscott and Caston (1993, p. 26) identifies the relation between business strategies and IS/IT-strategies and argues that IS/IT-related questions should be a part of the overall business strategy. They also identifies a fundamental problem in, what the call, traditional approaches that separate responsibilities and processes for strategic business planning from those for IS/IT-strategic planning. Tapscott and Caston (1993, p. 190) also argues that the ideal strategy for information systems is owned by the hole business, and not only by the IS/IT-department. The strategy should, according to the authors, also include external aspects such as information that customers requires, information concerning customer satisfaction and unsatisfaction etc. Another motive for including external aspects is made of Andersen (1994, p. 96). He claims that the IS/IT in use have an influence on e.g. customers, suppliers impressions of the business as a whole.

Keen (1991, p. 18) also discusses the role of a strategy for IS/IT in companies and argues that companies that lack a coherent corporate platform end up with fragmented and incompatible information resources. In order to solve these problems, extensive efforts has to be made so this "islands of information" can be integrated. Keen (1991, p. 91) uses another term that can be of interest; "application-by-application strategy". This strategy can be compared with Mintzberg's "ad-hoc strategy" (see above) if it is unplanned. It can of course also be a intentional strategy if it is planned to invest "application-by-application".

3.5   A Tentative Comparison Between the Different Fields

From the four fields above; market orientation, business process orientation, total quality management and business action theory several overlaps of areas can be identified[7]- but there are also different focuses. If we look at the overlaps of focus, there are at least the ones presented in table 1 that is of interest in this study. There is also an overlap between the fields as a whole; e.g. process orientation can be viewed as a part of market orientation, or even vice versa. Focus levels are categorised in four different groups: (+) strong focus, (-) weak focus, (+/-) different "schools" within the field has different focus, (0) the specific focus not identified in the field.

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[7] The theoretical ground for the fields in table 1 above can of course be more comprehensive. At this very moment the theories in this chapter is the ground, and the conclusions are preliminary ones. The result is not explicitly applied in section four.

Table 1. A tentative comparison between core concepts (focus) in different fields

Field / Focus	Market Orientation	Process Orientation	Total Quality Management	Business Action Theory
Competitor focus	+	+/-	-	0
Customer focus	+	+	+	+
Customer relations	+	-	-	+
Education/training	-	-	+	0
Eliminate non-productive activities	+/-	+	+/-	+
Improvement efforts	+/-	+	+	0
Interfunctional co-ordination	+	+	+	+
Interfunctional communication	+	+	+	-
Internal producers/actors	-	-	+	+
Measurement	+	+	+	0
Process focus	+/-	+	+	+
Supplier orientation	+	-	-	0
Team focus/participation	0	-	+	0

The different focus areas are generated from core concepts of the different fields respectively. From the table we can see that customer focus, inter-functional co-ordination and process focus are common areas of the four fields. We can also see that TQM is the only field that I have studied that has an explicit education/training and team/participation focus. The business action theory has the largest number of "(0) not identified focuses" since it is the least written one. The marketing literature, as well as the process and TQM literature is very spread and there are therefore a lot of opinions on what should be included in the field.

I identify a need to place the concepts of business *and* process at the same level - not just business, or process, or business process. The business process definition in BPR often stands for a focus on the process (see analysis made by Goldkuhl, 1995). I believe that it is important to look at, and focus both the internal processes *and* the business and make well-balanced compromises between them in order to reach both efficiency and effectiveness. In my choice of the *business* term (see e.g. in the title of the paper) I also include the broad definition of market orientation (Grönroos, 1990 and Lambin, 1995).

4   Expected Contribution and Further Research

The expected contribution from my empirical research is primary based on the preliminary results from two case studies (Melin, 1996, 1997). This is what I have identified so far in the studied companies[8]:

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[8] Mainly focused on problems e.g. related to IS/IT in this description.

- Lack of integration between strategies for change programmes in business (organisational change) and IS/IT development. Here I have seen different views of, and weak dialogues about, the future workflows and information needs between different departments and project groups. As a consequence there are a potential risk that the IS/IT will not be in harmony with the "new" organisation, and therefore not as supportive as it could be with a better dialogue and a common view. This fact (separate responsibilities and processes for business planning and IS/IT) is a typical problem identified by Tapscott and Caston, 1993, p. 190; see also section 3.4). McFarlan (1990, p. 73) also claims that no separate group in a firm can succeed by themselves in this kind of work.

- Lack of planned strategies for management of investments and development of IS/IT. Former operative decisions concerning IS/IT equipment that should be invested in, choices of specific standards, operative systems, vendors etc., has lead to mainly isolated "islands of information systems". These strategies could be classified according to Mintzberg's terminology (1991) as ad-hoc strategies, or Keen's application-by-application strategies (1991, p. 91) that has highly affected the systems, and also the departments capability to communicate and co-ordinate activities efficiently, in a negative way. Another explanation is that the technology has not always been mature enough to integrate across traditional departmental "borders" and other systems.

- Inadequate support for the co-ordination of different departments resources and activities. Some of these defectives, that are core concepts in business and process orientation, can be deduced from the lack of integration between the two IS for production planning and sales-administration. Other consequences of this is that a number of non-productive actions are performed (i.e. double registrations of the same data and consistency controls) and miscommunication occurs. Miscommunication has a negative effect on the important validity claim, and "trust" factor of information (see e.g. Searle, 1979; Reijswoud, 1996, p. 74; Goldkuhl, 1997). These errors occurs mostly in the interfaces between the two departments and in combination with two information systems boundaries.

- Inadequate functionality and lack of support from IS/IT to the phases in a business process. An example of this is a situation at the Paper-mill: in contact with the customer the computerised order system cannot present information about planned production and therefore is the answers to the customers to that kind of questions (concerning the offer and delivery promise according to Business Action Theory, see section 3.3; Goldkuhl, 1997) unsatisfactory. Due to this, one can say that the proposal (ibid.) to the potential or established customer is not successfully communicated. The quality of the communication is one important aspect in the customer's valuation of the product or service delivered as a whole (see e.g. Grönroos, 1990). Another example taken from the same company is that the marketing/sales department has no systematic tool for measuring the customer satisfaction or dissatisfaction in a systematic way (acceptance or claim in completion phase; see Business Action Theory, Goldkuhl, 1997; appendix). In the future (the next re-iteration of the "business loop" with the same customer) maybe this can lead to uncertainty about the customers desires and demands, and further problems related to improvement of the customer driven quality.

These identified problems will certainly block the organisations striving for increased business and process orientation, and the problems need to be reduced in order to reach the companies objectives.

If we take a look at the research questions on how information systems can support an organisation that strives for a increased business and process orientation and what systems strategies and features that facilitate or obstruct business and process orientation and summarise the contribution above I identify the following hypotheses (see table 2).

Table 2. Hypotheses of information system features and strategies in business and process oriented environments

	Features	Strategies
Facilitators	Support for horizontal (cross departmental) communication and co-ordination	Integration between change programmes and IS/IT development
	Support for the phases, and actions in business processes; e.g. support for, and distribution of customer/market information across the company	Joint business and IS/IT dialogues and formulation of strategies
		IS/IT-strategies including external aspects such as information that customers requires
Obstructions	Isolated systems to functions/departments	Ad-hoc strategies
	Disparate ("close environments") operative systems etc.	Weak dialogues between IS/IT development and organisational development
		Unclear system responsibilities

Another expected contribution is further development and integration of theories from marketing (e.g. Gummesson, 1981; Lambin, 1995) and the "process field" (e.g. Davenport, 1993; Hammer, 1990). One can say that these fields together with influences from the quality literature (e.g. Imai, 1986) have at least two things in common; they contains parts that focus on customer and process orientation (see also table 1). A more comprehensive ground for a comparison between these fields will however be a matter for future research.

Another concept that deserves further attention is co-ordination. What do we mean by co-ordination? Inspiration can, among others, be collected from Iden (1995, pp. 36) who explores this concept in one essay.

Further analysis of business communication, both theoretical and empirical, are also required. Reijswoud (1996) is one interesting source covering e.g. a theory of communication, the communication process, communicative action.

Further development of the tentative comparison between the fields in table one is also needed - both theoretical and empirical. Are the focus areas and classifications relevant?

5   Acknowledgements

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Appendix

Supplier

| Prerequisites: know-how, capacity, supply |

Customer

| Prerequisites: operations with lacks, needs |

Business interest

| Offer | Exposure and contact search

Contact establishment and proposal | Desire and demand |

| Delivery promise | Contract

(mutual commitments) | Order |

| Delivery | Fulfilment | Payment |

| Completion: satisfaction or dissatisfaction | | Completion: satisfaction or dissatisfaction |

Claim   Claim

Business Action Theory: A phase model (Goldkuhl, 1997)