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## **Organizational effects of e-business in companies**

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## ABSTRACT

The end of the 1990s witnessed a firm establishment of IT, Internet and various forms of e-commerce in business-to-business trade. The new technology is commonly presented as a new, revolutionary way of doing business. In our study we examine this image in practice, describing how a fashionable idea, in this case Internet-based e-commerce, meets local practices at Swedish Technology Corporation (S-Tech). The circulation of the idea is in the hands of many people who can act in many different ways. As a consequence, the idea is continuously changed, often undergoing creative transformations. The specific event under study is the implementation of the e-commerce system called 7Summits at S-Tech's purchase division. The new system is expected to produce drastic changes in the purchasing process as such. As the implementation goes on, several changes of the original plan of the process and of the study itself take place. The implementation of 7Summits is going to take more time than originally planned, and we will continue to follow this process. It has also become clear that the study needs to be expanded beyond S-Tech - to suppliers and contractors, but also to other companies belonging to the holding company A-Tech, since S-Tech cooperates with these in the development of 7Summits. The first insights confirmed also the necessity of applying a gender perspective to study how work tasks, positions and professions in this rather masculine context are changed (or not) by the implementation of e-commerce.

## PART 1: TOWARDS AN EXTENDED STUDY

### *Background*

During the 1990-ies ICT, Internet and different types of electronic commerce became established phenomena within both consumer business as business company-to-company. The new technology has been introduced as revolution for conducting business. (Fredholm 1997, Kalakota and Winston 1996, Castaldo and Premazzi 1999). The revolutionary was an aspect that was heavily emphasized in media during 1999 and 2000 before the start of the so-called dot-com death. Today, major parts of the consumer-oriented companies have been closed. E-business company-to-company grows however stronger with solutions that are implemented both within companies and also between companies. Initially the argument for e-business over Internet was that it would put forward improvements in an organization, due to savings and increased efficiency. Studies show though that the implementation of Internet based e-business also increases companies desire to influence suppliers and customer service to use corresponding technical solutions (Chan and Swatman 2000, Ratnasingam 2001). Internet based e-business in companies then turns out to be an increasingly complex process compared to what was initially expected, especially when it comes to integration of internal existing application system and existing methods to do business.

The reasons to implement e-business is usually that it is assumed to increase efficiency and that it might be a way to increase a companies business opportunities (Fredholm 1998). Among the long-term gains there is opportunities to long-term and close partnerships. E-business is said to increase the customer's loyalty and organizations/companies can get a better control of the physical flow and the opportunities to following-up. Internet and e-business also gives the companies possibilities to do business and compete all over the world (Kalakota and Whinston 1996). Disadvantages with e-business are most of all connected to questions of law. Sweden and

other countries have accounting law that demands certain physical documentation.<sup>1</sup> When big companies start working with e-business it might give as a result that small supplier and customers are pushed into certain technical forms of e-business. Except from high initial costs, it might denote that some companies in the production line must work with parallel systems. Other disadvantages that are discussed are connected to the development of the Internet. Rationalizing can lead to decreased human contacts (Jones 1998). This might then turn into worse flexibility since the computer have limits when it comes to solving simple problems. The technical aspect and the development of new technology also mean that the systems must be changed and taken care of.

### *The implementation of "7Summits" at S-Tech*

In an ongoing project we study what happens when "an idea in fashion", in this case internet based e-business, meets the local praxis at Swedish Tehnology Corporation (S-Tech). S-Tech works with development and production of highly advanced technology, mainly for the Swedish market. The purpose of the study is to follow the consequences e-business has for organizing of companies. The idea of e-business is introduced at S-Tech at the same time as several different tendencies of development occur, for example the one who comes from the overwhelming fusion with A-Tech (American Technology Corporation). A-tech works in the same area as S-Tech, but has a more global market. In the ongoing study of the purchasers department at S-Tech shows that these tendencies of development are significant for how the idea of e-business is received and how it is transformed into action in the local practice. It has turned out that it is interesting to study the implementation of the change, as well as the connection to holding company in United States (A-Tech) and how the implementation of the new technology will affect the S-Tech's suppliers organizing.

In order to understand what consequences e-business has for organizing it is hence not enough to study one organization since the organizing is affected from many different

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<sup>1</sup> From "Elektronisk handel – Intern kontroll och redovisning" – "Electronic commerce – Internal control and accounting"

angles. In this study we would like to extend the study in time and space. First we will though briefly introduce the ongoing study as a background for the questions in our coming study.

### *Implementing an e-business solution*

In the field material from the ongoing study of the work with the development and implementation of the e-business system "7Summits" at S-Tech's purchasers department is documented. "7Summits" is an Internet based e-business solution that was initiated 1999 of the CEO of that time. He had a wish to use the solutions that the development of the new technology brought forward. The name 7Summits alludes to that they are going to ascent every highest mountain at each continent (Mount 7Summit (29,029 ft.), Aconcagua (22,840 ft.), Denali/Mount McKinley (20,320 ft.), Kilimanjaro (19,339 ft.), Elbrus (18,510 ft.), Vinson Massif (16,067 ft.) and Mount Kosciuszko (7,316 ft.)) and when finally on the top they will have a general view all over the world.<sup>2</sup>

The purchaser at S-Tech is described as an intermediary between constructor and supplier. To have good relations to suppliers is regarded as central since the suppliers hints what they develops to other car companies and what the actual trends looks like. Today the suppliers works very independent and after their own rules of thumb. They have their own contacts with the suppliers and invites these when it is time for bidding on new quotations and so on. The thought with 7Summits is to change the complete purchasing proceedings. The change includes everything from inquiry for quotation, the possibility to do auctions on the net among suppliers (so called Online Quoting), overviews over available material (in electronic catalogues), payment routines, order routines, routines for attestation to in the future also influence the suppliers way of working. The solutions that 7Summit will offer are described with great optimism and confidence in the future. The last is what Jones (1998) points out as a usual romanticizing idea about the opportunities of new technical solutions. Examples of the confidence in future are often visible in the interviews that have been done so far.

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<sup>2</sup> **THE SEVEN SUMMITS:** Climbing the Seven Summits is the ultimate accomplishment for a climber and is comparable to winning the Grand Slam in tennis. The Seven Summits include: Everest (29,029 ft.), Aconcagua (22,840 ft.), Denali/Mt. McKinley (20,320 ft.), Kilimanjaro (19,339 ft.), Elbrus (18,510 ft.), Vinson Massif (16,067 ft.) and Mt. Kosciuszko (7,316 ft.). Until today an elite group of approximately 100 athletes have climbed the Seven Summits.

<http://www.sevensummitsexpedition.com/> 2002-12-16

The work with the implementation of 7Summit among the purchasers at S-Tech started the summer of 2001 and is done step by step. It is however a slow process that means that the most of the about 400 purchaser early spring 2002 just have heard about 7Summit but few knows what it will mean in practice and even fewer have tried parts of the system.

To establish 7Summit so called pilots are done where a few purchasers try the technical solution for a month or so. Afterwards the solution is evaluated and changed before the other purchasers implement it. The work at S-Tech reminds partly of a case reported by Chan and Swatman (2000) where questions concerning the technology process dominate the introduction of the implementation, while questions concerning management and business questions become more important when the implementation is more "mature". On S-Tech the management has, on the initiative from A-Tech, already in the beginning discussed the importance of producing a program of what they call "change management". This is done in spite of the early stage of the internal organization for what 7Summit will do. They also try different solutions to make the actual radical change possible. They who work with the new technology, 7Summit, also have the responsibility for "change management". It is hence experts (internal) who have the major part during the process with the change and their task is to organize and manage the same. The benefit of a small group that is responsible for the conducting of the implementation of the change is that it is given the opportunity to work with the change in depth and they can thereby develop specific knowledge about it.

### *Method*

In the ongoing project we follow about ten persons of who some works with the development of 7Summits at S-Tech and some are purchasers who are going to use the new technology. We also do participant observations at big meeting where 7Summits is introduced to the employed and also by tests of different e-tools. An important part in the ongoing study is the current reports of our evolving research results that we bring back

the management of the 7Summits project. This way the results are immediately useful for S-Tech.

To summarize the change the participants describe process at S-Tech as a systematic way to reach the solutions that has been designed in advance. In the literature such a process is named a top-down process where the implementation is seen as rational and relatively without problems since the direction of the change already is set. The strategy is to handle or neutralize the opposition against the implementation and deviations on the road to the planned goal is seen as moment of disturbance (Wilson 1993). On S-Tech it is obvious that the co-workers are treated as receivers of the change. It means that they can be seen as object with none or small opportunities to influence the design of the solutions.

The management of the change process is hence described as a causal chain of actions, which is as a process of diffusion (Latour 1998). This perspective has also affected previous studies of the implementation of e-business that mainly has taken theories of distribution of innovation and change management as a starting point (Chan and Swatman 2000, Willy Åmo 2001). This perspective shows however not the importance/meaning of other ongoing processes in the organization. A perspective that has become much more usual is instead to see change as a process of translation (Czarniawska and Joerges 1996, Latour 1998). The process of translation contributes to create an understanding for how an idea can get different form and meanings. The distribution of an idea is then in the hands of people who can act in many different ways, which gives you a continuing transformation of the idea. This means that you in many ways assent to the creative parts that occurs in the transmission.

### *Towards an extended study*

Since the e-business phenomenon is not that well researched yet, this study works with grounded theory (Glaser and Strauss 1967). That is; the first cases will help us to formulate a temporary theory that will be developed by the following cases. To find out more on

how e-business influences organizing we will collect practice's stories in interviews and make participant observations in the organizations.

From the ongoing study mainly two areas have appeared that has caught our interest. First we see the implementation of e-business at S-Tech as a clear example of a top-down change process. We mean that the perspective that sees the change as a process of translation demands a study of what happens when ideas that have been initiated by A-Tech meets the local practice at S-Tech. Hence we will continue to study the implementation of 7Summits at S-Tech and also study the relation to A-Tech and the ones there who are working with the development of 7Summits. Second, we see an obvious connection between S-Tech and their suppliers that has a meaning for the implementation of the new technology, since S-Tech demands that the suppliers will use this technology. There is also an overwhelming question concerning how gender is (re-)constructed in the organization when new technology is implemented. These areas would we like to develop in three different studies.

## PART 2: THE EXTENDED STUDY

### *The purpose and organizing of the study*

The general purpose of the study is to describe and explain what consequences e-business has for the organizing of companies. This is conducted by studying how actions related to e-business is connected to - new and old - action nets, where translation is seen as the mechanism of connecting. It should also be put forward that the new technology aim at creating a new place for the market. This gives new questions at hand: How is a market constructed? Will the "market forces" dominate the new market place or will the hierarchical forces win? Will the new technology be used in order to manage and control or in order to find the "right price"? Another purpose is to study how gender is constructed in these processes.

In order to answer the different questions we would like to conduct three different projects; implementation of the purchase system, relation to A-Tech and relation to suppliers. The different projects are hold together by a common theoretical framework.

### *Project 1: 7Summits at S-Tech*

At S-Tech 7Summits is described firstly as a new purchasing system. From that perspective it is mostly wanted among the purchasers who today works with obsolete solutions. Another description of 7Summits is that it is not just a new purchasing system but also a technical solution that will change the hole working process. When you are supposed to work more global, as the cooperation with A-Tech demands, you also have to develop new roles and use more of shared ways of working. In the new system will thus the present working roles be divided in that way that some will take care of the strategic work that contents planning of which supplier that will be good for the different products, while the others will take care about the operative work with negotiations, order fulfillment and following-up of the business. The model for this way of working comes from A-Tech and is built in the new technical solution. A worry that comes forward between the lines is that the purchasers at A-Tech have different role compared to the ones at S-Tech. S-Tech's purchasers seem to have a bigger responsibility while at A-Tech the managers are responsible. Another worry is that the new division easily can be seen as dividing the employees in an a- and b-team.

We would like to continue studying the implementation of 7Summits among the purchasers. The whole system is expected to be incorporated during the summer and fall of 2003. We would like to be able to do following-up interviews and participant observations of how the system is used in practice to be able to see its consequences. These would best be done during 2004 and 2005. Our questions concern what has become new with the new technology. More specifically: What has happened in the working relations, or, in our terms, how do new connections between actions affect the relations between people. Has the vision of the new purchasing roles come true? What does this

mean from a gender perspective? Which general reflections do the people at S-Tech have concerning the model that been chosen in order to do the implementation?

The expected result from this project concerns a developed understanding for the new technology as management instrument and control system, and the transparency that will be a result of this.

### *Project 2: 7Summits at A-Tech*

A-Tech is described in terms of that they are better in managing business and processes compared to S-Tech. They have rules for what have to be done and if the pattern is broken, there will be consequences. The reason for this is that A-Tech historically have been better at mechanical processes and thereafter have been forced to sophisticate this even more because of their size. A-Tech is described as more hierarchical managed and the co-workers at A-Tech have a reputation of being more controlled by their manager in line compared to the situation at S-Tech. At S-Tech there are more of unwritten rules, they work in a higher degree without documentation, and instead it is more dependent on individual knowledge in the organization that in the long run makes it work quite good. A problem though is that there is no room at present for working with other projects since that would make the working process far to complex. From S-Tech's perspective they say that they cannot become a new A-Tech. At the same time they have to be open for new ideas but they cannot accept the complete solution. The people behind the solution expresses some apprehensions about that the complete solutions will be accepted since it is hard and takes a lot of energy to argue against the A-Tech model. It is hence an opening for creative – but also destructive – translations.

The questions we asked in this project is among others: How do the purchasing role at A-Tech look and how can the organizing at A-Tech be described, that is, is the picture depicted from the 7Summits people at S-Tech where A-Tech is seen as hierarchical and S-Tech as decentralized true? Is it A-Tech who puts forward the development to the

incorporation of the new technology? How far have they come? Which effects have the implementation of the new technology have at A-Tech? How does these differ from the effects at S-Tech? Do also A-Tech see that they have a model that have to be used all over the company or is it more space in their interpretation of the idea of the system? Is there space for local translations of A-Techs system? Did it have any significance that the man behind the idea of e-business resigned? How is the romantic and idealised view of the new technologies possibilities expressed at A-Tech?

With the study of A-Tech we expect to get more material of the 7Summits project that can be compared to the situation at S-Tech and also on a more general level be able to compare effects of the fusion between A-Tech and S-Tech.

### *Project 3: 7Summits and the suppliers*

An effect of the implementation of the new purchasing system is that the relation between the purchasers and their suppliers will be affected. This is partly showed in previous studies (Chan and Swatman 2000). To understand the changed work among the purchases the suppliers must thus be studied.

With the implementation of e-business as with 7Summits at S-Tech the relation to the suppliers also changes. In the beginning it is expected that the new system will not increase the number of supplier but instead it will be a development towards bigger module suppliers. This is a part of the general work with decreasing the number of suppliers. The advantage with 7Summits in the work with the suppliers is that the communication can become more efficient over the Internet. In order to be a supplier so S-Tech they are "forced" to implement the new technical solution that comes with the purchasing system. Besides, the suppliers becomes financial responsible.

The questions that stems from this project is among others: Do S-Tech consider the organizing of (big) suppliers when they plan organizing for this new system? Which

consequences do the implementation of a new purchasing system have for the suppliers? How is this idea of e-business translated in the organizations of the suppliers? How do the organizational change at S-Tech affect the suppliers and vice versa? Are the relations between purchaser and supplier affected by the new technical solution? Does the new system bring forward an increased control of the suppliers? Does the new technical solution contribute to the development where small suppliers are eliminated in advantaged to the big ones?

With this project we expect to put light on how the implementation of e-business effects other organizations than the "mother organization" where they were developed and thereby be able to enlighten parts of the complex process as the new technology is said to contain.

### PART 3: THEORETICAL FRAMEWORK

The three different projects are hold together by our starting point, which is that we study how an action net arises when 7Summits is developed and implemented. Action net is not a theory but rather a methodological starting point. When actions connect there must be translations. Hence can studies of action nets help to further develop the theory of translations (see Czarniawska 2000:8). By following the travel of the idea in time/space - in an action net that is both reconstructed and constructed again - can we see what traces it leaves in the shape of objectifications and we will also meet the actors that takes part in the translation of the idea. To understand change as a translation process hence brings forward that both imitation and innovation is studied and that actions and connections in between them are seen as a ensemble of effects of unexpected events and efforts of control (Czarniawska and Joerges, 1996).

The new technology, 7Summits that is implemented can be seen as a platform in order to externalize actions. Knorr Cetina and Bruegger (2000) uses the term "platform" to describe a virtual room that makes it possible for actors to act as if they were physically present and where organizational processes and activities can be externalized. Organizational

processes and activities connect the purchasers, but also the suppliers, to the platform and makes the externalized available for reaction, reintroduction, reproduction and change. Is this platform the same as a market place?

A net of actions contains of is made of actions connected to each other since they, because of an institutional order that prevails at that specific time and place, are assumed to be needed for each other. As everything else can these actions be tight or loosely coupled. By studying actions in an action net not only the result but also the process by which the actions are connected becomes focused.

Action net differs from both organizational fields and net works. The difference between action net and organizational field, in for example as DiMaggio and Powell (1983/1991) uses it, is in the aspect of the room. In an action net you do not introduce the original borders between branches and sectors or between imaginary and real contacts. Instead all connecting is interesting from the beginning. The difference between action net and network is rather in the aspect of time. A network presupposes that actors are in the beginning and they will then create connections, while an actor net assumes that connections between actions creates actors (roles). Thus the action net catches the actual connections that are built in time and space and hence there is no limit to the study of a place (organization), actors or problems. These do instead become products of the organizing that is in full progress in the action net (Czarniawska 2000). Action net gives place for both what have been created and for that which is created. Thereby both the history and what happens here and now is taken into consideration. Action net thus means that the limits is not decided before the study begins, which is important while studying the implementation of 7Summits.

By studying actions we can avoid the risk that comes with making differences between person and institution, small and large units, same and different shapes and meanings, in advance. There are differences but as Latour (1998) points out are this a result of power relations and network constructions that will escape analysis if we make these assumptions a priori. The society is not only made of social elements but of a mix between

social and not-social elements. It is not enough with social bounding, but also connections to not-social elements are needed in order to give the society a stable structure. Studies of action net means that both objects and actions as well as the connection them between should be studied (Czarniawska 2000).

We will study the action net that is established and the translations that are done when the purchasers at S-Tech translates the idea of Internet based e-business in action. In order to study *how* the process is done our starting point is constructionism, where we see organizing as an ongoing process (Berger and Luckman 1967) as we study "in situ" (Czarniawska 2001).

### *Gender aspects when implementing new technology*

An example of what is constructed by that kind of organizing is gender. This is something that has not been in focus in studies of e-business (se i.e. Ellegård and Jerndal 1999), even though gender has been the subject in quite a few studies of the Internet. There are for example studies of how the Internet offers possibilities to cover a persons gender identity (Dietrich 1997/1998, Danet 1998, Kramarae 1998, O'Brien 1999). In spite of optimistic future forecasts on how the information society should equalize men and women (Toffler 1981) it is mostly men who use the Internet today (Stanworth 2000, Turban et al 1999). Taken together with the male dominance within technical educations it affects the gender relations within e-business. They who develops the technology, who implements it at the company and who uses both within e-business company-to-company and among consumers are hence more men then women (Stanworth 2000). In the development of the new technology the masculine will then be treated as a norm and women are expected to adapt to this masculine way of relating to technology (Grint and Gill 1995, Grint and Woolgar 1997).

With background of the fact that this is a technical dominated sector, it is interesting to take gender aspects into consideration while studying the effects of e-business in

organizing. The management of the companies are likely male dominated (SOU 1997:135), they who are in charge of development and maintenance of the home pages are because of education and the character of the branch most likely men and so on (SOU 1995:110, Fredholm 1999). According to Stanworth (2000) the women are mostly found as low paid, low educated routine workers on the lower levels of the organizations. The work task that vanishes because of automatization is often "women's work". Parallel there are a growing interest for the new technology among women in the coming generation that has better education, higher expectations at work and career and who maybe has the possibility to redefine the gender typifying of work, Stanworth (2000) says. With this as background the work tasks, positions and professions that are changed while implementing e-business in companies, have to be scrutinized from a gender perspective.

Specifically in this study the focus is on differences and similarities between male and female purchasers, their relations to suppliers and the adoption of the new ways of working that follows from the internet based e-business solutions (in order to take care of the purchasing tasks) and finally also on aspects of age in this. The purchasing division at S-Tech has been introduced to us as male dominated, even if more women become employed since a period of eight-nine years ago. What has turned out so far in our study is that elderly men suffer from the implementation of new technical solutions. However we have not seen any evidence that the (few) women who works at the purchasing department falls outside the technical development but rather the other way around. They are represented in different groups at different levels. It should though be emphasized that the average age is lower among women then men at the working place.

*References:*

- Berger, P and Luckmann, T (1966) *The Social Construction of Reality*. London: Penguin Books
- Castaldo and Premazzi (1999) E-commerce in Italy: an empirical research project. Paper presented at for the 15th Nordic Conference on Business Studies, Helsinki, Finland. August 19-21
- Chan, C and Swatman, P (2000) From EDI to Internet commerce: the BHP Steel experience. *Internet Research: Electronic Networking Applications and Policy* 2000 vol 10, nr 1, pp 72-82
- Czarniawska, B (1997) *Narrating the organization. Dramas of institutional identity*. Chicago, The University of Chicago Press
- Czarniawska, B (2001) Social Constructionism and Organization Studies. Kommande i Clegg, S and Westwood, R (ed) *Point and Counterpoint*. London: Blackwell
- Czarniawska B. (2000) Att studera management som skapande och återskapande av handlingsnät. *Nordiske Organisasjonsstudier* 2(3): 5-24.
- Czarniawska, B and Joerges, B (1996) Travels of ideas ur Czarniawska, B. And Sevón, G. (red.) *Translating organizational change*. Berlin, de Gruyter
- Danet, Brenda (1998) Text as Mask: Gender, Play, and Performance on the Internet. In Jones, Steven (1998) *Cybersociety 2.0*. Thousand Oaks: Sage Publications
- Dietrich, Dawn (1997/1998) (Re)-fashioning the Techno-Erotic Woman: Gender and Textuality in the Cybercultural Matrix. Ur Jones, Steven (1998) *Virtual Culture. Identity and Communication in Cybersociety*. London: Sage Publications
- Ellegård, K and Jerndal, R (1999) IT in womens control?i Karlsson, M och Östlund, B (ed) *Users in Action*, KFB-rapport 1999:8
- Fredholm, P. (1999) *Elektroniska affärer*, Lund: Studentlitteratur
- Fredholm, P. (1998) *Elektronisk handel: status och trender*, Teldok rapport 121, Stockholm TELDOK och KFB

- Glaser, B. and Strauss, A. (1967) *The Discovery of Grounded Theory*. New York: Aldine Publishing Company.
- Grint, K and Gill, R (1995) *The Gender-Technology Relation: Contemporary Theory and Research*. London: Taylor and Francis
- Grint, K and Woolgar, Steve (1997) *The machine at Work. Technology, Work and Organization*. Cambridge: Polity Press
- Hultmark, C (1998) *Elektronisk handel och upphovsrätt*. Stockholm: Norstedts
- Jones, Steven (1998) Introduction ur Jones, Steven (1998) *Virtual Culture. Identity and Communication in Cybersociety*. London: Sage Publications
- Kalakota, R & Whinston A. B., (1996) *Frontiers of Electronic Commerce*, Addison-Wesley Publishing Company Inc, Menlo Park
- Knorr Cetina K. and U. Bruegger (2000) Transparency Regimes and Management by Content in Global Organizations. The Case of Institutional Currency Trading. *Journal of Knowledge Management*.
- Latour, B (1998) *Artefaktens återkomst*. Stockholm: Nerenius och Santérus
- Kramarae, Cheris (1998) Feminist Fictions of Future Technology ur Jones, Steven (1998) *Cybersociety 2.0*. Thousand Oaks: Sage Publications
- O'Brien, Jodi (1999) Writing in the Body. Ur Smith, Marc och Kollock, Peter (red) (1999) *Communities in Cyberspace*. London: Routledge
- Ratnasingam, P (2001) Inter-organizational trust in EDI adoption: the case of A-Tech Motor Company and PBR Limited in Australia. *Internet Research: Electronic Networking Applications and Policy* 2001, vol 11, nr 3, pp 261-268
- SOU 1995:110 *Viljan att veta och viljan att förstå*. Stockholm: Fritzes
- SOU 1997:135 *Ledare, makt och kön*. Stockholm: Fritzes, SOU 1998:6 *Ty makten är din...* Stockholm: Fritzes
- Stanworth, C (2000) Women and Work in the Information Age. *Gender; Work and Organization* 2000, vol 7, nr 1
- Toffler, A (1981) *The Third Wave*. London: Pan Books
- Turban, E, Lee, J., King, D, and Chung, H.M (1999) *Electronic Commerce. A Managerial Perspective*. New Jersey: Prentice-Hall

- Willy Åmo, B (2001) *Barrierer for adopsjon av elektronisk handel*. Hovedoppgave i Bedriftsøkonomi, Siviliøkonomutdanningen i Bodø, våren 2001
- Wilson, David C. (1993) *A Strategy of Change – Concepts and controversies in the Management of Change*. London: Routledge.