Loveable networks
A story of affection, attraction and treachery

Peter Dobers
Lars Strannegård

Centre for Advanced Studies in Leadership
Stockholm School of Economics

CENTRE
FÖR
ADVANCED
STUDIES
IN
LEADERSHIP

Loveable networks

A story of affection, attraction and treachery

Abstract

In an increasingly connected age, information technology can be argued to have become more politicized. The attempts of establishing network technologies to promote the development of an information society are tokens of an increasingly vested interest that politics have in information technologies. A recognition of the entanglement of politics and technology is crucial to understand contemporary organizational change. Instead of taking organizational stability for granted, we assume organizational change to be the norm. In this paper, we point at the many organizing efforts needed to prevent technologies to drift away into non-existence. We present two cases; one seemingly failed and one seemingly successful IT venture. Together, they illustrate the point that technological networks, as stable as they may seem, can only survive as long as they permanently fascinate actors from other techno-economic networks and thereby attract their unconditional love, affection and commitment.

Keywords

Broadband, Teleguide, industrial failure and success, failed innovations, sociology of technology, information technology.

Introduction

A stream of thought, especially in the Scandinavian countries, argues that change is not an exception, but rather a prerequisite for stability (Brunsson, 1989; Brunsson and Olsen, 1993; Czarniawska and Sevón, 1996). Change efforts are according to this view legitimizing actions to ensure stability. Changes occur on a regular basis and identity transformations and modifications in society are expressions of such a change (Meyer, 1996; Sahlin-Andersson, 1996; Spybey, 1996). It could therefore be argued that organizational change, in practice as well as in theory, is the norm rather than the exception.

If change is the norm, organizing processes express struggles of competing worldviews, discourses and actions. Neither organizations nor technologies are static, but must be seen as actors involved in the organizing efforts. A focus on organizations or technologies as static entities neglects the intricacies of such struggles. Organizations contain a swarm of change efforts but organizing implies a mobilization of the efforts in order to obtain configuration. It is therefore our attempt to focus on networks of actions in order to come closer to the construction of political technologies and technological politics.

To understand political technologies and technological politics it is necessary to refrain from predefined constructs such as intentions, society, and culture. Technologies are no stable artefacts that travel through society and live lives of their own but are constantly shaped and reshaped. Technologies are never stabilized once and for all, can never take a rest, but need to fight for their everyday survival. All technologies are temporary, fragile and must on a daily basis find proponents and supporters, *allies* to use Latour's (1996/93) terminology. The existence of a particular technology is an empirical question and can thereby only be determined at a particular time window in space.

Technology and society are intermingled, i.e. society constructs technology and technology constructs society (Latour, 1991; Law and Callon, 1992). Thus, if new technology emerges, it seems reasonable that such technology might lead to organizational change. In the case of information technology, this is certainly the case, although the extent of change is an empirical question.

It is therefore our approach to study projects in which technological efforts gain or lose degrees of reality when many different organizing efforts are undertaken by actants of disparate origins.

'Clusters', 'networks', 'virtual' organizations and 'temporary' projects are just a few labels of emerging organizational forms, enabled in particularly by the new emerging information technology, which mirror how the interest is turning from internal issues concerning size or technology to "the newly found fluidity in the external appearance of organizations" (Clegg and Hardy, 1996). This turn of interest raises the question of how techno-economic networks emerge and survive. Since a technology can be treated as an action program coordinating a network of roles (Akrich and Latour, 1992), a *technological network* might appear like a mess of roles and technologies colliding in society. In this paper we show how technologies of information networks become temporarily stabilized in a world of permanent organizational change.

We have deliberately chosen two technological networks to illustrate the point that even technological networks, as stable as they may seem, can only survive as stabilized entities as long as they constantly attract the unbroken love, affection and commitment of others. The first network, Teleguide, was a Swedish IT venture in the early 1990s that, after great expectations and high political interest, rapidly disappeared from the public scene and died. The other network, broadband infrastructure for fast Internet access, has the latest five years become the prime political symbol for Sweden as a modern and high-tech

nation. We try to illustrate that information technologies are never a-political and that politics is increasingly infused with technological content.

Methodology

The empirical material stems from one seemingly failed and one seemingly successful IT venture. Both IT networks over time drew on thought figures such as democracy, freedom of speech and political disclosure. They became explicitly political in expansion as well as in deterioration phases.

An introductory mapping of all press clippings in Sweden between 1985 and 1995 covering "Teleguide" was undertaken. A media mapping of how the term "IT" made its way into the public was made through studying all issues of Sweden's municipal weekly between 1990 and 1997. Interviews with 25 central IT-network actors and Teleguide users was carried out during 1997-1999, and members of the IT-council in Stockholm were interviewed on issues of the construction of IT-networks. In addition, 9 panel debates have been attended, recorded and transcribed, and numerous Internet sites have been downloaded.

From this sprawling data we form a narrative based on chronological descriptions of the developments of the two networks. As our intention is to study action nets instead of organizations we have focused on the narratives of events. This has enabled us to re-construct developments of the events, i.e. narratives. We follow Donald Polkinghorne's notions of narrative presentation in that our reception (interpretation and understanding) of the stories is transformed into a presentation of the development (Polkinghorne, 1987). Thus, the developments presented here are just one possible story. The point with our story is not to give a better or more reasonable account, but an alternative one which makes it possible to compare it with other stories that flourish in the field (Czarniawska, 1997).

Our perspective is that change is the norm in organizing efforts. To understand organizing it is therefore necessary to re-contextualize events and to recognize time as an important actor. Organizing, when viewed as a snapshot, is static, but emerging technologies must be seen in chronological context and as narrative reconstructions (Czarniawska, 1998; Czarniawska, 1999).

Theoretical framework – unstable technologies

A technology exist only as long as spokespersons can perform relevant translations by which networks of socio-technical "actants" are assembled as a whole (Latour, 1996). In this view, technology is seen as an emerging network in which coalitions of humans and non-humans, individuals and groups, come together in an ongoing chain of translations. Thus, descriptions of technological trajectories are not linear models of how ideas are implemented through plans and diffuse throughout society, but are the effects of heterogeneous interests, emotions and consensus, as well as carelessness, conflict and clashing intentions. So the nature of a technology changes whenever a new actor becomes allied to the technology or whenever another member leaves the coalition. It changes for every agreement or disagreement. To be precise, the ontology of a technology is the effect of ongoing negotiations where the technology never is real, but is gaining or loosing in degrees of reality. To Latour, links between actors, however fragile and subtle, determine technology, just as links between different technologies determine socio-technical networks of another magnitude (Latour, 1996).

This is why we focus on a net of actions, or the action net (Czarniawska, 1998), that is needed for a technology to survive. Thereby, an action net does not have any analytic qualities, but it helps us to minimize taken-for-grantedness before the analysis starts. An action net gives preference to relations that we regard are more interesting than that what is related, since it is in the relation, through actions, that a temporary stability can be reached.

Technologies, artifacts, texts, images and are all acting parts in networks that consist of human as well as non-human 'actants' (Latour, 1987; Callon, 1991). Thereby, it becomes necessary to shift focus away from humans only. The networks build their strengths by recruiting allies, that is other actants, in order to construct stability. Over time a network can obtain sufficient amounts of support from allies in order for it to be temporarily stable. An actor that manages to turn the relevant actants into allies may settle the ongoing power struggle and temporarily stabilize it (Callon, 1986).

Technologies may lose relevant allies and thereby fade away to be forgotten. But they always leave traces that may be picked up at other times and in other places, and perhaps recruit stronger allies in order to again begin a journey through increasing degrees of reality. The technologies we see are not the ones that passed all the tests, filters and gateways, not the ones that reached technological, commercial and market success.

Instead, it is the ones that live at the moment, the ones that managed to recruit and mobilize actants that construct the technology, that speak on behalf of it and represent it.

> "A technology arrives, first as a nebulous idea, something only vaguely, in some minds, related to some actions, which then lands heavily on the ground, showing its nasty side, requiring still new investments and additional commitments." (Czarniawska and Joerges, 1996:19)

Why then, do some technologies die and others live? To scholars of innovation, the answer lies in actors failure or success to attend to a process of innovation including recognition of technical feasibility, potential demand, idea formulation, problem solving, solution through invention, development, and finally implementation and use (Marquis, 1969). Yet, such explanations of change or inertia are rooted in a separation between technology and society. But when technology and society are seen as intermingled, and technologies are seen as actants in networks of other actants, an alternative understanding of organizational stability and change can arise. In the following, we will describe the development of two communication technologies that appeared on the public arena during the 1990's. One that failed to recruit enough allies to survive, and another that has managed not only to survive, but also to recruit such a strong network of other actants that it is presently one of the most dominating actants that exist.

The rise and fall of a network. The Swedish Teleguide project

> "It was completely useless, it was not good for anything. It was expensive and bulky and it felt a little bit silly to keep it after it became clear that the project had collapsed" (Ex-user)
>
> "The ticket-ordering system never worked. Nobody understood how it was supposed to work. Besides, the Teleguide terminals were so big and ugly it is no surprise that the project was abandoned. It would have been completely different if the terminals were small and elegant like the ones in France." (Ex-user)

Minitel, the French forerunner

During the 1980's the state owned telecommunications operator France Telecom "the technology of freedom", the ingenious terminal system Minitel. The system consisted of small terminals that were connected to the telephone net, and was initially intended to be used mainly as a telephone directory. Rapidly other services developed and the small screen could be used to order train tickets, check airline departure times or to get weather reports. Minitel linked a number of servers together and became a nation-wide communication system. The terminals began being distributed for free in 1983 as a

substitute for a telephone book and two years later there were million terminals in operation. The investment led to that 15 million Frenchmen used Minitel in 1998. Approximately 25 000 services are available, almost all of them cost money when used, and the most common ones are classified ads, mail-orders, and different kinds of transportation orders. In 1998 Minitel generated around 6.5 billion FF in revenue to France Telecom, and the service providers received approximately the same amount. That Minitel became a success on the user side was according to France Telecom's own customer satisfaction reports, that the terminals were small, simple and cheap, that no fixed subscription or investment in hardware was needed; customers pay only for the time they used the services.

That Minitel became such a large success depended, according to Castells (1996), partly on the interest from the French government, and partly on that the system was user friendly and with an easy payment system and extensive accessibility. The French government supported the project for 12 years, and it became profitable first at the end of 1995. The project was edged by political, structural decisions and was organized according to a very clear model. It was imprinted by a will to construct a well organized, homogeneous system that the government, through France Telecom, could keep control over. It was a gigantic infrastructural investment, and France's reputation as a "high-tech" nation grew at the same time as the number of high-speed (TGV) trains increased throughout the country. Minitel was an effort to boost the diminishing electronics industry in France (Castells, 1996). France Telecom opened up the Minitel to all interested parties, and no license was needed to provide services over Minitel. The grand interest appeared when the so-called 'messageries' entered the Minitel system. They were communication channels for private persons, and many of these channels specialized on sex and sexual services. By 1990 more than half of the Minitel traffic was sex related. But the system did not only turn out to be a tool for electronized sex-trade, but also, according to Castells (1996), a space where individuals could live out their sexual fantasies and dreams, i.e. a democratized sexual fantasy. Castells strongly puts forward the idea that it was the sexual allurement that made Minitel take off at the end of the 1980's. As the usage rate increased the sex-rate percentage of total traffic diminished. But, according to Castells, it was the detour through individual actor's personal fantasies that enabled the future expansion.

Birth of the Teleguide project

On April 9, 1989 the Swedish news agent TT cabled out that 50 000 Swedish households were offered a free computer terminal. The Swedish Telephone Agency (Televerket), IBM and the office supply manufacturer Esselte would invest 120 million USD in the so-called Teleguide project. Televerket had already in the early 1980's tested home-terminals, at a time when the Videotex system was completed. Videotex was aimed at business rather than private use, and Televerket had invested 25 million USD in it. The subscribers could use the network to access rapid stock-market information and a national telephone directory. The subscription rate of Videotex was not considered to be satisfactory, and the new Teleguide project could use the Videotex net as it had idle capacity. IBM could sell terminal-accessories that enabled the PC to be used as a Teleguide. Esselte considered Teleguide to be a strategic product that could give them a position in electronic services. The terminals were to be connected to the telephone socket and the subscriber could order tickets, mail order products, and do bank errands. The objective was to connect one million Swedes to the network.

The Teleguide was a screen and a keyboard in one piece. On top of the screen rested a telephone in order for the terminal to be used as an ordinary telephone as well. The consultancy companies described the Teleguide as a system that made it possible for companies to reach new customers. Yet the technology was not risk-free. It jeopardized the role of intermediaries, wrote a large consultancy in their competitive analysis of the Teleguide. If customers could buy travel services and transport, travel and transport agencies would become obsolete.

Nine months after TT broke the news the ambitions had changed substantially. The budget was reduced by 75%, and the goal was according to the project manager at Esselte, to distribute 500 000 terminals within five years. The terminals should still be free, but a subscription rate of 7 USD was added. Thereafter, the use of services would cost around 1.25 USD per minute. Smart cards were to be used, in order for each subscriber to use any Teleguide terminal. The smart card also enabled the system to identify the subscriber, something that the Minitel was not able to do. Since Televerket had earlier invested in networks, Teleguide seemed to be an excellent occasion to generate revenue in order to match the large investments.

In the Swedish press during 1990, the visions were blown up with constant references to Minitel. In five years the 500 000 Swedes would pay one billion USD for different services and the average subscriber would use Teleguide 100 minutes per month. The

project would turn profitable in 1994, and the terminal forecasts now estimated 2 million terminals in total. The subscribers could book taxi, follow the stock market and gamble on the horse races. Teleguide, however, demanded from the suppliers that they should deliver attractive services to the subscribers. The key success factor, according to Teleguide project management, was that the services should be attractive enough. In November 1990, the first terminal prototypes were delivered. The 50 000 terminals were to be distributed in 1991. Late 1990, the forecasts had once more been re-calculated and increased. The Teleguide was now referred to as the biggest media project ever in Swedish history.

Approximately one year later, in October 1991, Teleguide was launched. The most popular services were estimated to be the Swedish national telephone directory, the bank service and the travel services. A test was conducted with some hundred households in the three largest urban areas in Sweden. To be among the 100 test households was attractive: 13 000 volunteered. The subscription rate had now increased to 10 USD per month and the services were to be as expensive as 1,75 USD per minute. No particular target group was identified since the Teleguide project management considered the terminals to be part of each citizen's everyday practice. A blue- as well as white-collar household was included in the target group. That Teleguide was a product geared for the general public was recognized in the use of the term "household". Representatives from the Teleguide project group never used the term "individual". Rather, the term "household", with its roots in the Swedish people's home tradition, signalled the mass distribution that the project aimed at.

During the late summer of 1991 the consultancy Coopers & Lybrand published a report on Minitel's profitability. The report revealed that the French project had not been as profitable as was earlier thought. According to the report, Minitel would not show profitability until 1998; a great impairment as compared to the earlier forecasts. The Teleguide management, who had earlier used Minitel vastly as comparison, dismissed the similarities between Teleguide and Minitel. At this point it was the technological differences that were drawn upon. Minitel had to construct an entirely new network, while Teleguide had the already existing Videotex net to build on. Teleguide, according to the CEO, also had Minitel to learn from. Teleguide could use "first-follower advantages" and avoid all the traps that Minitel had gone into. Hence, it was possible to take out all the goodies from the Minitel-cake. For instance, the CEO suggested, Minitel had not made it possible to supply products that were not available anywhere else. Teleguide would be different. It would in Teleguide be possible to be much more specific

in a search function. Thereby, Teleguide would make it possible to find products and services that were impossible to get as easy through any other medium.

At this time the pressure on Teleguide increased. To show profitability after three years only demanded 250 000 subscribers to be connected around 1 hour each month. The Swedish business weekly Veckans Affärer sarcastically wrote that it was a hard task to motivate the households if they had to pay 25 USD per month just to use the telephone directory and use mail-order services that they could just as well use a printed catalogue for. Sweden was at the time amidst a recession, and most companies were under great pressure for profitability. Esselte appointed a new managing director, and his task was to decrease costs, focus on core competencies and increase profitability. Teleguide was a great cost for Esselte, and when the three-year profitability forecast was considered to be too optimistic, Teleguide started to be seen as a black hole in the treasure chest. If the new managing director was to meet the business community´s expectations to within two years make Esselte vastly more profitable, it was considered to be an impossible mission with Teleguide in the nest.

Nevertheless, a national marketing campaign was initiated. One of Sweden's hip advertising agencies was contracted, and full-size advertising was seen in all the influential Swedish dailys. Teleguide had great expectations, and in February 1992 some 50 000 terminals and 24 000 PC converters were ordered from Loewe and IBM. The order was not considered to be satisfactory, as 6500 subscribers already were connected, and the number of connected households was expected to reach 100 000 before the end of the year.

In March 1992 the board of Televerket decided to stop the costly Videotex net. The total number of subscribers was at the time, 10 years after the introduction, around 30 000, and the expected figure had been 100 000. Teleguide was thought to be a project that had the possibility of saving Videotex, but as it turned out, Teleguide could just as well use the existing telephone net.

Meanwhile, in Germany, a similar project called Videotel was underway. It was in many ways a mirror image of Teleguide, and in May a quote from Erik Danke of Videotel could be read in the Swedish press: "We have been in contact with the Swedes for a long time and we are now studying how their system is constructed. Of course we are looking into the technical details, but also we are looking into the marketing." A statement that echoed the Teleguide relationship to Minitel. Videotel and Teleguide initiated a collaboration where mainly the small businesses among the 15 000 subscribers could

access a limited number of German data-bases. The plans to connect Teleguide to more countries and substantially increase the number of services now became a highly prioritized concern.

Some clouds at the sky of Teleguide

During Summer 1992 the number of subscribers increased to 22 000 a number that was considered to be far too low. On September 25, approximately 6 months after the ordered 74 000 terminals and plug-ins were considered way too few, one of the Swedish dailies wrote: "The Teleguide became a flop". The article stated that the subscribers had not used the Teleguide sufficiently. As long as useable services were lacking the usage rate was prognosticized to be low. At this point in time, Televerket started to work hard to develop services. Bank services were to be added, and cinema and theatre tickets were to be available. To search for telephone numbers for 25 cents per minute, or get a weather report for 50 cents per minute was not attractive enough, especially when the weather report could be accessed for free over Text-TV. To know about disposable amount and coming payments on the bank account cost 30 cents per minute, a service that was free when the customer called the bank's toll free number. Yet the largest problem, according to Televerkets representative, was that people were not used to the technology. To him, too few were willing to do their bank errands on a small, strange terminal. The challenge is to make people get used to the technology, but, as he put it "by then Teleguide may well have disappeared from the market".

In October 1992, it came to the general public's knowledge that Televerket leaves the Teleguide project, and that they were willing to sell their stake in the company. The costs began to be too high, and Televerket had now begun to look into alternatives, most of them connected to their new revenue-generator – so called 071-numbers. These were numbers that service providers could use and charge high rates. At this time, there were 50 000 terminals and 20 000 plug-ins in stock. No profit was to be seen within a graspable future. Teleguide's managing director was convinced that the project would prolong, and that it at this time was absolutely crucial to have a single, stable, long-term owner. The Swedish Post, Posten, which at the time had begun investing heavily in electronic communication channels was seen as a possible new owner. Posten was already a service provider in Teleguide and was the only provider that did not use a time-based charge when subscribers used Posten's bank services. Posten stated that they had faith in the Teleguide project, and that it was necessary to be patient in order for more service providers to join and thereby develop a sustainable communication system.

Shortly after, Esselte declared that they were leaving the project as well. They had invested 12 million USD in Teleguide but told one of the Swedish business dailies that the decision to leave Teleguide had nothing to do with profits or losses, but rather that the project no longer fitted with the rest of their operations. The managing director of Esselte even stated that their involvement in the project was "completely off track" since it had nothing to do with Esselte's core competence, a concept that at time was the buzz-word par excellence at management seminars in Europe. IBM was now the only partner left. Right before Christmas 1992 IBM, Televerket and Esselte negotiated, and on December 31st it could be read in the papers that "Posten buys Teleguide". In total, the three owners had invested some 30 million USD, and analysts considered Posten to be able to buy in at a very much lower price. Teleguide fitted in Posten's new electronic direction: bank services could be provided, and Posten could take care of the subsequent need for parcel delivery.

But only three weeks later Posten declared that they said no to the deal. "We saw no development potential…Teleguide is technically a good system, but considering our new focus on electronic business to business mail, the system was not right". Posten stated that price was an issue where no agreement was found, but it was a strategic decision not to proceed. Simply, Teleguide did not fit in Posten's operations either.

After Posten's decision panic broke out among Teleguide's owners. Esselte had the objective of selling Teleguide within one week. They were anxious for Teleguide not to be included in the profit and loss statement for 1993. According to the owners there were a number of prospective buyers. But on February 1, the outcomes became public. All negotiations had stranded. No buyers, no deal. Teleguide is closed down. The 29 employees lost their jobs and the total losses were reported to be 50 million USD.

Spring 1993 was a time of explanations and rationalizations. Teleguide's CEO quickly left the sinking ship and became the new public relations manager for Intel Scandinavia. Teleguide's managing director was disappointed that the project was not given the time it needed to develop. He stated that ventures like Teleguide demanded at least five years in order to provide profitability, and that the patience in Sweden apparently was much shorter than in France. The CEO proclaimed that there was a lack of courage and pride in Sweden. The country was simply not yet mature for on-line services, and the owners did not accept the learning period that was needed. The CEO was disappointed with Posten's behaviour in the project's final phase. The contract was ready to be signed, but there was too much internal antagonism in Posten in order for the deal to be closed. The

deal stretched out too much in time and Teleguide lost so much time and a discontinuation was the inevitable outcome. Minitel was once again used as reference. Minitel had been given eight years in order to break even. France was a much more technologically sophisticated, visionary and long-term oriented country. The biggest mistake was according to the managing director of Content (supplier of terminals to Teleguide) that the venture was far too modest. The service costs were too high which resulted in too few subscribers. If the demand was missing the system did not attract service providers. If more money had been invested, the viscous circle could have been avoided, and the project would have been a success. Just like in France.

Posten's representative Bengt Norin was a critique to the entire Teleguide project, and his voice was said to have played an important role for the outcome of the project. He found the Swedish market to be immature and considered it "ridiculous" to believe that people were willing to pay for services that could already be accessed for free through other channels. There was no possibility for Esselte to get their investment back, and according to Norin, an adjusted price could have made the outcome different. The critique against Posten arose quickly however. The journalist Rolf van den Briink wrote that Posten deliberately had delayed the deal in order to win competitive advantages in the construction of their own electronic services. Posten was at the time involved in building what they called "the electronic post office" which was a service that could be accessed through the cable-TV network.

In the end, Teleguide had lost it all

During March 1993, the image of Teleguide being a fiasco was confirmed. The explanations to the outcome were shifting and came from a large number of sources. Among the explanations were: services too few, services too expensive, the entire project was unnecessary, the interphase was too complicated and boring, the terminals were too bulky, etc. The 22 000 terminals that were out in the Swedish households were in practice useless except if they were used as ordinary telephones. In addition, another 28 000 were in stock, worth 20 million USD and considered to be completely useless. The magazine Computer Sweden launched a scornful competition of what to do with the terminals. The suggestions were along the same lines "Send the world's most bulky telephone to Eastern Europe! Scrap them and sell the material at market price! Make an exhibition of them! Sell them to Poland under the name Swed-phone and stick a Swedish and a Polish flag to them." It turned out that Posten, who earlier had been accused of

delaying the project, now wanted to buy the terminals and use them for their Electronic Post Office. But some weeks later, that idea was abandoned as well.

Teleguide thereafter quickly disappeared from the public spotlight, but came to be used as an example not only of a failed technological venture, but also as an example of a lost pedagogical tool. Televerket was considered to be impatient since there was an existing stock of subscribers and a technological system in place. Minitel had given France a position of digital familiarity of conducting errands on-line.

There is no consensus today that Minitel has sustained France's position as a leading nation concerning Information Technology. Minitel is seen, on the highest political level in France, as holding the Internet development back. In 1998, 5% of French managers had e-mail accounts that can be compared to their U.S. colleagues where the corresponding figure is 65%. In 1999 4% of the French general public had access to the Internet while Minitel still is a part of everyday life in France. It is considered hard to make people buy large expensive personal computers when they are used to small, elegant, free Minitel terminals. IBM and France Telecom see Minitel as far too important just to abandon. At a time when the investment finally was showing black figures they found it unwise to scrap the project. Instead Minitel and Internet is to be combined. France Telecom is convinced that Internet is a technology for the future. The latest version of Minitel is semi-open to the Internet, but it is not functioning like the web-browsers that other Internet-users throughout the world are using.

Only the sky is the limit. Broadband in Sweden
The use of the Internet has exploded during the last years. Reasons for this can be found in the rising processing capacity of personal computers and the increasing availability of fast communication access to the Internet. Fast access to the Internet is crucial for new Internet-based services to be developed and demanded, especially for new media companies to supply the broader public with content for radio, TV and video transmitted through the Internet. The term "broadband" has become synonym with a very fast electronic highway on which Internet-based products of "the new economy" can travel. Although there exist alternative technologies for broadband, fibre optics seem to be the widest used infrasystem technology of today.

Recent mergers and contracts of co-operations can illustrate how strategic the global availability of optical fibre enabling broadband is. The new media company AOL recently bought the traditional media company Time Warner, partly because they own a

large amount of cables for media distribution. Also, the leading Swedish telecommunication company Telia, soon to be traded on the stock market, has during early spring gained access to 31 600 km optical fibres in North America through co-operation agreements with Worldwide Fibre and Williams Communications.

Other examples in Sweden include newly found companies such as Utfors (http://www.utfors.com) or the Broadband Company (http://www.bredband.com) who run off with market shares of the broadband market from established companies such as Stjärn-TV and Telia, two major suppliers of cable TV in Stockholm for the last 10 years. The desire behind such efforts is to connect as many households as possible to the broadband infrasystem of each company. Rolling out fibre optical cables is quite expensive, but profit comes in the next phases when new Internet-based services are introduced that depend on fast Internet access.

It seems as if fibre optics have become the backbone of a network that attracts a lot of attention. Many big organizations like AOL or capital cities around the globe back up the development and utilization of such informational networks. Although multinational corporations have had cross-country information channels since decades, it poses a challenge for cities to construct new productive infrastructures, thereby turning cities and regions into critical agents of economic development by introducing informational city concepts like the *technopoles* or *technoburbs* (Fishman, 1987; Castells, 1989; Castells and Hall, 1994).

But this is not when the network technology of fibre optics started its establishment in Stockholm. The media attention is rather a result of a lot of work of establishing technology standards, finding financial resources and spokespersons, thus maintaining an increasing and stabilizing support for the fibre optical net. We will now learn more of how the broadband net in Sweden gained in reality.

Tearing down the Swedish telecom monopoly in early 1990s
Deregulation of formerly monopolized markets was suggested to be the most important factor for the development of infrasystems of the information communication of tomorrow (Brooks, 1988:249). In the early 1990s a conservative government enabling deregulation of several markets ran Sweden. In 1993, the Swedish parliament passed a new telecom act (Reg.Prop.1992/93:200, 1992). This was an important step towards increased competition in the markets of telecommunication and computer

communication. Stockholm soon became a test market for international telecom service providers before the expected European-wide deregulation in EU in 1998.

Before the deregulation, Telia (formerly Televerket or the Telephone Agency) had monopoly in the construction and maintenance of telecom services in Sweden. High prices on telecom services in urban areas financed the unprofitable provision of telecom services in non-urban areas. Due to the deregulation, competitors to Telia appeared offering low prices of telecom services. These companies focused their efforts in urban areas and avoided costly investments in non-urban areas. Televerket found that their pricing differentiation did not hold since, in the beginning, competitors could win over customers in urban areas when they also did not invest in non-urban areas. However, it suffices to go back to the beginning of this century to find fierce competition on the telecom market in Stockholm. Before the turn of the century, the telecom market in the capital of Sweden was dominated by the Stockholm Allmänna Telefonaktiebolag (Stockholm General Telephony), being strong in the region of Stockholm, and the Telegrafverket (Telegraph Administration) serving customers on a national basis. During decades they competed on the Stockholm telecom market. In 1918, Telegrafverket bought Stockholm Allmänna Telefonaktiebolag and by that gained a monopoly situation in Stockholm that was passed on to Televerket and eventually to Telia (Helgesson, 1998; Helgesson, 1999).

Telecommunications in Sweden has therefore a long tradition of state owned management, and as such, state responsibility for the construction of a country-wide network for telecommunication. When it had become widely accepted that the infrastructure for telecommunication also could be used for transmitting data, this infrastructure became increasingly important for regional politics in Sweden. However, the state seemed rather reluctant to take an overall responsibility to secure the infrastructure in the country (KA 1990, No. 29).

Early start for laying fibre optics

Early 1990, the Telephone Agency was involved in a small-scale project testing fibre optics for tele- and datacommunication. Fibre optics was used on a small scale in rural Hemavan-Tärnaby in the northern parts of Sweden, with only 600 inhabitants but well-known for Swedes since the skiing king Ingemar Stenmark was born there. The aim of the project was to show that modern infrastructure for tele- and datacommunication leads to better service and lowered costs for operating such services (KA 1991, No. 5). Little later, electronic mail was launched by several actors as an efficient way to send

office mail. When outsourcing their internal computer service administration in 1994, Stockholm created an IT council to focus on what core competencies should remain with the city management. The IT council consisted of representatives from different administrations in Stockholm and they soon decided upon creating a common technical standard for e-mailing, since there were as much as 12 different standards at hand. E-mail had become an important tool in city management and in their communication with each other. Although Telia at that time were the major supplier of tele- and datacommunication services to the city, they began feeling the effects of the deregulation of the Swedish telecom market.

The deregulation of the telecom market in Sweden had shattered the well established idea of who is responsible for the infrastructure of information flows. City managers in Stockholm took a strategic step when founding Stokab, thus responsible for all channels for different cables in the streets of Stockholm. One idea for establishing Stokab was to construct an alternative information infrastructure to Telia's dominant infrastructure. This would lead to rate-lowering competition and attracting new IT companies to the region including clean, high paid, information based business. Owned to 91 per cent by the City of Stockholm and to 9 per cent by the Stockholm County Council, Stokab inherited infrastructure from the county council, including 450 kilometres of channels to be filled up with fibre optics. Also, lessons were learned from the early liberalization of the telecom markets in the United Kingdom, when the streets of London were dug up several times of different telecom companies turning occasional traffic jams into an almost everyday hassle for drivers.

(Please also see www.americasnetwork.com/issues/98issues/981001_edge.html and www.swedtel.telia.se/Ireland/stokab.htm.)

> "As a result of early liberal legislation, the City of Stockholm started to install an extensive fibre-optic network via Stokab in order to stimulate multiple investments and innovative new telecommunications and IT services in the Stockholm region. Since Stokab offers the market the fibre-optic infrastructure only – dark fibre – and leaves provision of services and the development of new services to the market, Stokab provides a level playing field for all market players."
> (http://www.stokab.se/english/about/formation.html)

Despite an increased construction of new fibre optics in the streets of Stockholm not many organizations actually used the fibre-optic infrastructure at the beginning. The basic use of the city net was to decrease the telecom costs and to enable an increased rationalization of the city management. Stockholm had a critical mass of city

administrations and local companies to make the heavy investments in fibre optics possible, but most other cities had to rely on Telia in the mid-1990ies. Helsingborg was the first city that bought an ATM-based infrastructure from Telia and cities like Göteborg, Malmö, Halmstad, Lund, Boràs and Ronneby were soon to follow in 1995 (KA 1995, No. 2).

Today, cables filled with dark fibre have been rolled out throughout Stockholm and its surrounding cities. With or without light enlightening those dark fibres, the IT net remains a net covered by streets and buildings. On a normal day in Stockholm, you cannot grasp the net, nor can you see it. But it's there, and at rare occasions you can see construction going on when fibre is rolled out and when streets are up.

Symbolic manifestation for the IT net

Despite these rare occasions of material manifestation, the IT net is also represented in symbolic ways. In their presidential campaign of 1992, Bill Clinton and Al Gore emphasized how important it is to construct a national information infrastructure enabling a strategy for enhanced economic growth:

> "In the new economy, infrastructure means information as well as transportation. More than half the US workforce is employed in information-intense industries, yet we have no national strategy to create a national information network. Just as the interstate highway system in the 1950s spurred two decades of economic growth, we need a door-to-door fibre optics system by the year 2015 to link every home, every lab, every classroom, every business in America." (Bill Clinton campaign speech on "The Economy", held at Wharton School of Business, University of Pennsylvania, Philadelphia, on 16 April, 1992 (Leer, 1996:24).)

Once the Clinton administration had won the election they initiated *The National Information Infrastructure. Agenda for Action*, which in September 1993 stated the goal of the national information infrastructure (NII):

> "A major goal of the NII is to give our citizens access to a broad range of information and information services. Using innovative telecommunications and information technologies, the NII–through a partnership of business, labour, academia, consumers, and all levels of government–will help the United States achieve a broad range of economic and social goals." (Larry Irving, the head of the National Telecommunications and Information Administration (US Department of Commerce) mentioned this goal at a speech (*Constructing the National Information Infrastructure. Ensuring that All Americans Get Connected*) at the Vermont Telecommunications Forum, Winooski Park, Vermont, 20 March 1995 (Leer, 1996:24).)

At both occasions in 1992 and 1993, the factual construction of the national information infrastructure was preceded by the symbolic and visionary statements of the political leaders of the USA. The IT net was put on the political agenda, not only in the USA but

also around the world. In Sweden, in 1994, the prime minister Carl Bildt also took a few symbolic steps to emphasis the importance of IT issues and demonstrating the use of the Internet. On February 4, 1994, Bildt sent an e-mail to president Clinton, which interestingly enough seems to have been the first e-mail between country leaders (Ilshammar and Larsmo, 1997:31f). Merely three days later, at a speech at the Royal Swedish Academy of Engineering Sciences (IVA). Bildt announced the launch of a governmental IT commission to explore the potentials of information technology. Many reports were to be written since then and thereby giving information technology a political voice in the ideological debate of technological use for creating welfare.

Thus, support for the IT net has increasingly come from the public sector, and not only from the political leaders. The convergence of telecom and datacom into information technology in the middle of the 1990 coined the new acronym of "IT" pushing out the acronym "ADP" for automatic data processing into the cold. The first time "information technology" was used in the municipal weekly in Sweden, *KommunAktuellt*, was in an ad of a computer consultant in 1992 (KA 1992, No. 11). And the first their journalists were comfortable enough to use the acronym "IT" was in 1994. This was after Bildt had announced his efforts to create governmental knowledge around information technology by introducing the IT commission (http://www.itkommissionen.se), when an article appeared with the title: "Stockholm wants to be the IT centre" (KA 1994, No. 14).

Broadband becomes real

Today we have long heard of the acronyms of TIME (Telecommunication, Information technology, Multimedia and Entertainment), TIMES (Telecommunication, Information technology, Multimedia, Entertainment and Security) and TMT (Telecommunication, Media, and Technology). And the rather technological description of an information infrastructure for telecommunication (IT net) got paced when the analogy to electronic highways was formulated. Although starting from small numbers, more and more people got to know the Internet and how slow it at times could be. Thereby, electronic highway was an easy way to create an understanding among ordinary people not familiar with information technology on a professional basis. But the real catch to the subject was created when focus increasingly came on the bottleneck of the Internet; slow transmission of larger data chunks such as pictures when homepages were loaded. A word was borrowed from radio transmission, bandwidth, and insiders started talking about the necessity of broadband transmissions. In *KommunAktuellt* "broadband" was

first used in 1997 when the net company of Telia, Telia PubliCom, had an ad before a major conference regarding the renewal of the public sector (KA 1997, No. 31).

More allies also from the private sphere were waiting on their chance to join the growing crowd around broadband and fibre optical networks in Sweden. Several internet consultancies have been founded in the mid 1990ies, for instance, Framfab, Icon or Spray Ventures to mention the largest companies in this sector in Sweden. But the one person giving the so called new economy the most recognized face in Sweden is the founder of Framfab, Jonas Birgersson, especially after the IPO of his company in June 1999. Not only did he become popular due to his casual clothing in bright orange coloured fleece, but also by taking on politicians and challenging them to turn Sweden into a huge lab to enable startups of new software companies, internet consultancies and thus turning Sweden into the leading country of the new economy *par excellence.* The way to go is to roll out fibre optical cables throughout the country on a massive scale. Conveniently enough, Birgersson had also just founded a company specializing in broadband technology, Broadband Company (B2). Birgersson and the Swedish Minister for Industry, Björn Rosengren, were often seen together at meetings and the broadband net found two very prominent figures as important allies…

At about the same time, the Swedish government also presented a governmental report named "Broadband for growth all over the country. Economical, regional and welfare perspectives of the IT infrastructure" which was followed up by the recent governmental bill of March 2000 "An information society for everybody" (Reg.Prop.1992/93:200, 1992; Reg.Prop.1999/2000:86, 2000). Broadband plays a central role in these reports and the government suggests to put aside about 100 million dollars for constructing a country wide broadband net.

Most recent sign that the developments in the IT sector in Sweden is internationally noticed appeared in February 2000. First, the international newsmagazine Newsweek had Stockholm on its cover of the European edition stating: "Stockholm (February 7, 2000). Hot IPOs and cool clubs in Europe's internet capital" and a special report on the advanced use of and production of internet services, putting Sweden at the leading spot in Europe. Second, the International Data Corporation (IDC) presented their latest report of the global development of the information society, in what they call their World Times Information Society Index (ISI). The share of individuals in Sweden in the age of 15-84 years old with access to a PC has increased from 58 per cent in the spring of 1996 to 68 per cent in the fall of 1998. In comparison, the share of individuals that have access to

the Internet have jumped from 13 per cent to 50 per cent during the same period (Reg.Prop.1999/2000:86, 2000:245). It is probable the private purchases of PCs that has rocketed the Internet use and competence of computers making Sweden the number one IT country, surpassing even the USA, according to IDC. Thereby, Sweden in the lead is in a cluster of advanced countries since Finland, Norway and Denmark close in after USA.

Discussion

Organizations in general, and organizational change in particular are stabilizing effects of organizing processes and not something that exists a priori. In a network of actions there are endless attempts of organizing reality, over and over again. Organizations and institutions change when technologies and network of actions lose or gain in degrees of realities (Latour, 1996). When actions are repeated and lead to an identifiable path of actions, these paths get an aim and fulfil certain functions and get a normative, intentional tenor. Eventually, when we take action paths for granted and several action paths are linked together, temporary creations appear that we can call network of actions, i.e. action nets. Even if focus is on collective attempts to stabilize or destabilize networks of actions and events, rather than on people and technologies, we do not say that processes exist without structures. We are more inclined to think that they create each other, exist simultaneously and are loosely coupled to each other where the link easily can cease to exist and randomly can find new harbours of couplings (Weick, 1979; Weick, 1995).

When entities are loosely coupled, and their links easily dispersed, change is thus the norm, and socio-technical networks are in constant struggle to reach temporary stability. The networks seek to strengthen the links between actors, as this is a way to mobilize other actors in order to reach stability. When a sufficient amount of actors in a network are convinced that a fact, or a machine, or a technology is relevant and existing, it is on a track toward gaining degrees of reality:

> "The fate of facts and machines is in later users' hands; their qualities are thus a consequence, not a cause, of collective action." (Latour, 1987:295)

To become stable, network technologies seduce politicians to gain strength and become alive and kicking. The network technology also gives the politicians reasons to pick up their voice. Like insecure teenagers, both networks originally had a rather timid and fragile start. With little or no self-confidence, Teleguide and the IT-net were two rather

small ideas of how dialogue between users and information seeking could go about by different means than before.

The Swedish Teleguide had major support in her older French sister of Minitel. Minitel introduced Teleguide into the world of amorous adventures when her idea was introduced in Sweden by Televerket, IBM and Esselte. An increasing number of Swedes were attracted to the idea of free computer terminals and an easy access to on-line information. The economic situation was good since the economy was booming and people got devoted to stock market information. Their appeal grew when it became known that Teleguide flirted with existing Videotex users. Backed by a planned investment of 120 million USD, the project seemed to engage not only users, but also investors. More and more allies seemed dependent on Teleguide and their initial romance looked as if it would turn into a stable relationship.

This has also been the case with the fibre-optic based broadband net. Originally given life by the deregulation of the Swedish telecom market, the establishing of Stokab was a daring attempt in Stockholm to challenge the existing wedlock between Telia and the Swedish people. Broadband was still not given its real name, but had a fuzzy identity as an alternative information infrastructure. As such, it had cousins in the existing cables and networks of cable TV operators such as StjärnTV. That actors was engaged in the same field, but was not yet looked at as potential side-jumps or competitors in the tender development of broadband services. But when important figures such as Bill Clinton in the USA and Carl Bildt in Sweden gave the information infrastructure its political legitimacy. Potential flames embodied as future customers appeared on the dance floor of fast Internet access and were ready to engage in liaisons with an increasing number of broadband suppliers like Utfors or the Broadband Company.

So far in the story, both networks got an increasing number of allies and thus gained in degrees of reality. Intermediaries such as texts, technology, people, and money interacted with each other helped to support the techno-economic network of broadband and Teleguide (Callon, 1991:135). Both appeared as successes, but one day in May 1992, Teleguide broke up with Minitel. Grounds for the divorce had been a report from Coopers & Lybrand that revealed that the French project was not profitable enough. Teleguide was exposed and became quite vulnerable, since the economics in the project seemed endangered. Soon other actors turned their back on Teleguide, such as the Swedish business weekly Veckans Affärer wrote sarcastically about Teleguide. That was the beginning of the downward spiral of decreasing support, when one partner after

another left Teleguide after they had lost interest. Initially a token of love for many, Teleguide turned into a punchbag and all there remained was the unglamorous rest of an unattractive techno-economic network.

Now, is Teleguide a complete failure in Sweden and should have been avoided at any cost? No, we don't believe so, since the entire techno-economic network of Teleguide has been punctualized into one single actor in the other network of this paper; the construction of broadband in Stockholm. As one of our informants told us, the story of Teleguide serves as an illustrative example of how information and dialogue systems have been shaped previously, but under different circumstances. And these circumstances carry a bag full of historical networks of other punctualized networks from other time and other spaces (Callon, 1991).

Conclusion

Along with Callon (1991), it seems fair to say that the game of technology never comes to a stop, and its offshoots are endless. Recruiting and securing allies is a constantly ongoing process. Actors, human as well as non-human, define one another and become interlinked through documents, artefacts, human beings and money (Callon, 1991). In France, Minitel managed to recruit a substantial amount of allies and sustained them over a long period of time. But as Internet entered the scene in 1995, Minitel experienced a competitor. Minitel had support from France as a high tech nation and from the invested affection of the French. Yet, affection is volatile. When Internet, with its global allies, craved for French love, hesitation arose. The former object of love could not just be left to drift. Minitel was treated as an ex-spouse by the French. By leaving stepwise, with sensibility and financial support the transfer to the next lover seemed to be smoother. In the case of Teleguide in Sweden, the departure was more brutal. Teleguide never reached the same attractiveness as the French big sister. In comparison to Minitel, the lover spent little time and money on Teleguide, and thereby the separation never became traumatic. Eventually, in the case of broadband in Sweden, devoted believers stand in line to become part of the techno-economic network of modern information society.

Apparently, love costs. France used to be in the technological lead with Minitel. But the loving relationship between Minitel and its allies has put France far behind in the rankings of technological maturity. And Sweden, that used to be behind France, quickly fell head over heels in love with the beautiful broadband based Internet. The intimate relationship now ranks Sweden number one in the world when it comes to information

technology. But the romantic French are not as heartless. Their affection did not die overnight, and they could not bear leave the one they loved so much.

As we have tried to show with Teleguide and broadband in Sweden, failure and success are no unequivocal concepts. Ideas that do not reach technical, commercial and market success are categorized as failures. But in another time, at another place, the traces they leave may be altered, translated by other actors, to better fit in the dominating Zeitgeist. Then an idea or a technology that was earlier considered to be unfeasible may suddenly reach a position in the Innovations´ Hall of Fame. Traces of ideas remain in the collective conscience. Fragments of ideas are collected and assembled into new ideas or technologies that may, or may not, blow out in the world materialized in products or images. Sometimes the big plans, the target group thinking and rational actions succeed. But more often, they fail. By awakening dead theories and technological projects, techno-social change can be studied. In the projects that fail against all odds, or succeed against all odds, knowledge about contemporary social life is embedded.

References

Akrich, M. and Latour, B. (1992) *A summary of a convenient vocabulary for the semiotics of human and nonhuman assemblies*, In: Bijker, W. E. and J. Law (Eds.), *Shaping technology/Building society. Studies in sociotechnical change*, The MIT Press, Cambridge, MA, pp. 259-264.

Brooks, H. (1988) *Reflections on the telecommunications infrastructure*, In: Ausubel, J. H. and R. Herman (Eds.), *Cities and their vital systems. Infrastructure, past, present, and future*, National Academy Press, Washington, D.C., pp. 249-257.

Brunsson, N. (1989) *The organization of hypocrisy. Talk, decision and actions in organizations*, John Wiley & Sons, Chichester.

Brunsson, N. and Olsen, J. P. (1993) *The reforming organization*, Routledge, London.

Callon, M. (1986) *Some elements of a sociology of translation. Domestication of the scallops and the fishermen of St. Brieuc Bay*, In: Law, J. (Ed.) *Power, action and belief*, Routledge and Kegan Paul, London, pp. 196-233.

Callon, M. (1991) *Techno-economic networks and irreversibility*, In: Law, J. (Ed.) *A sociology of monsters. Essays on power, technology and domination*, Routledge, London, pp. 132-161.

Castells, M. (1989) *The informational city. Information technology, economic restructuring, and the urban-regional process*, Blackwell Publishers, Oxford.

Castells, M. (1996) *The rise of the network society*, Blackwell, Oxford.

Castells, M. and Hall, P. (1994) *Technopoles of the world. The making of twenty-first-century industrial complexes*, Routledge, London.

Clegg, S. R. and Hardy, C. (1996) *Organizations, organization and organizing*, In: Clegg, S. R., C. Hardy and W. R. Nord (Eds.), *Handbook of organization studies*, Sage, London, pp. 1-28.

Czarniawska, B. (1998) *A narrative approach to organization studies*, Sage, Thousands Oaks.

Czarniawska, B. (1999) *Writing management. Organization theory as a literary genre*, Oxford University Press, Oxford.

Czarniawska, B. and Joerges, B. (1996) *Travels of ideas*, In: Czarniawska, B. and G. Sevón (Eds.), *Translating organizational change*, de Gruyter, Berlin, pp. 13-48.

Czarniawska, B. and Sevón, G. (Eds.), (1996) *Translating organizational change*, de Gruyter, Berlin.

Fishman, R. (1987) *Bourgeois utopias. The rise and fall of suburbia*, Basic Books, New York.

Helgesson, C.-F. (1998) *På jakt efter en naturlig ordning. Ansträngningar för att organisera telefonsystemet i Stockholm 1891-1918*, In: Blomkvist, P. and A. Kaijser (Eds.), *Den konstruerade världen. Tekniska system i historiskt perspektiv*, Brutus Östlings Bokförlag Symposium, Stockholm/Stehag, pp. 231-257.

Helgesson, C.-F. (1999) *Making a natural monopoly. The configuration of a techno-economic order in Swedish telecommunications*, Stockholm School of Economics, Stockholm.

Ilshammar, L. and Larsmo, O. (1997) net.wars. *Kampen om nätet*, Atlas, Rabén Prisma, Smedjebacken.

Latour, B. (1987) *Science in action. How to follow scientists and engineers through society*, Harvard University Press, Cambridge MA.

Latour, B. (1991) *Technology is society made durable*, In: Law, J. (Ed.) *A sociology of monsters. Essays on power, technology and domination*, Routledge, London, pp. 103-131.

Latour, B. (1996) *Aramis or the love of technology*, Harvard University Press, Cambridge, MA.

Law, J. and Callon, M. (1992) *The life and death of an aircraft. A network analysis of technical change*, In: Bijker, W. E. and J. Law (Eds.), *Shaping technology/Building society*, The MIT Press, Cambridge, pp. 21-52.

Leer, A. C. (1996) *It´s a wired world. The new networked economy*, Scandinavian University Press, Oslo.

Marquis, D. G. (1969) *The anatomy of successful innovations*, Managing Advancing Technology, Vol. 1, pp. 35-48.

Meyer, J. W. (1996) *Otherhood. The promulgation and transmission of ideas in the modern organizational environment*, In: Czarniawska, B. and G. Sevón (Eds.), *Translating organizational change*, de Gruyter, Berlin, pp. 241-252.

Polkinghorne, D. (1987) *Narrating knowing and the human sciences*, State University of New York Press, Albany, N.Y.

Reg.Prop.1992/93:200, *Telelag och en förändrad verksamhetsform för Televerket, m.m.*, Regeringen, Stockholm, 1992.

Reg.Prop.1999/2000:86, *Ett informationssamhälle för alla*, Regeringen, Stockholm, 2000.

Sahlin-Andersson, K. (1996) *Imitating by editing success. The construction of organizational fields*, In: Czarniawska, B. and G. Sevón (Eds.), *Translating organizational change*, de Gruyter, Berlin, pp. 69-92.

Spybey, T. (1996) *Global transformations*, In: Czarniawska, B. and G. Sevón (Eds*.), Translating organizational change*, de Gruyter, Berlin, pp. 173-190.

Weick, K. E. (1979) *The social psychology of organizing*, Addison-Wesley, Reading.

Weick, K. E. (1995) *Sensemaking in organizations*, Sage, Thousands Oaks.

About the Authors

Peter Dobers, Ph.D.
Gothenburg Research Institute (GRI)
Göteborg University
P.O. Box 600
SE – 405 30 Göteborg
Sweden
E-mail: peter.dobers@gri.gu.se
URL: http://home.swipnet.se/peter_dobers/index-eng.html
Telephone: +46 702 – 07 07 07
Fax: +46 31 773 5619

Lars Strannegård, Ph.D.
Center for Advanced Studies in Leadership (CASL)
Stockholm School of Economics.
P.O. Box 6501
SE – 113 83 Stockholm
Sweden
E-mail: lars.strannegard@hhs.se
URL: http://www.caslnet.org/
Telephone: +46 8 736 96 24
Fax: +46 8 33 72 90

Publications from Centre for Advanced Studies in Leadership

Research Paper Series

2000/2   "Ledarskap och ledning i offentlig sektor – en problematisering"
Roger Henning

2000/1   "Loveable networks – a story of affection, attraction and treachery"
Peter Dobers & Lars Strannegård

1999/7   "High-touch and high-tech - the merger of two banks. Using paradoxes as rhetorical devices".
Johan Berglund, Lars Strannegård & Ulrika Tillberg.

1999/6   "Swedishness through *lagom* Can words tell us anything about a culture?"
Ester Barinaga.

1999/5   "Black-boxing eco modernization. The interplay of the Nature and Market discourses".
Lars Strannegård.

1999/4   "The Practical Men of Action - The Construction of Macsculinity and Model Leaders in Business Magazines". Johan Berglund.

1999/3   "Ontology and Epistemology, Stories of their Contexts. Implications for Research".
Ester Barinaga.

1999/2   "Conceptualising Opportunity Recognition as A Socio-Cognitive Process". Alice J. de Koning & Daniel F. Muzyka.

1999/1   "Dialoger i litteraturen" - en studie i dialogbegreppet speglat i tre författarskap.
Johan Berglund & Ulrika Tillberg.

1998/2   "Leadership and the Ethics of late Modernity". Markus Kallifatides.

1998/1   "Primus inter pares" – Leadership and Culture in Sweden. Ingalill Holmberg & Staffan Åkerblom.

CENTRE
FOR
ADVANCED
STUDIES
IN
LEADERSHIP