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Management of Information Systems Outsourcing: Challenges and Lessons Learned

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ABSTRACT

To be successful in Information Systems (IS) outsourcing the necessity of better management practices has been pointed out. This research contributes to the knowledge base on management of IS outsourcing by addressing management of IS outsourcing relationships. The research describes two cases of IS outsourcing relationships that differ in type of activity outsourced, IS development versus IS maintenance and operation, and relationship composition. From the cases lessons learnt are identified which with support from IS outsourcing literature are proposed as propositions for management of IS outsourcing. It can be concluded that if the propositions, related to negotiation, communication and way of working, are adopted in an early stage they could contribute to successful IS outsourcing relationships. Another conclusion is that the IS outsourcing management approach should not differ between type of IS activity outsourced, but rather reflect the nature of the IS activity; if it is a simple or complex activity.

Keywords

Information systems outsourcing relationship, information systems outsourcing management, lessons learned, information systems development, information systems maintenance and operation.

INTRODUCTION AND PURPOSE

Outsourcing of various firm processes has been increasing during the last few years. Numerous firms have realized benefits of outsourcing such as ability to focus on core competencies, achieving reductions in human resource costs and flexibility in tapping into technical expertise when needed (Lacity and Willcocks, 2001). Maturity in the outsourcing market has resulted in that outsourcing to a high extent is part of firms' strategic initiatives. Access to global markets and commercial exploitation are mentioned as strategic drivers for outsourcing (Beverakis, Dick and Cecez-Kecmanovic, 2009). Outsourcing has especially been evident in the area of Information Systems and Information Technologies (IS/IT). A survey published by KPMG (2007) showed that 89 % of the firms planned to maintain or increase their current IS/IT outsourcing level. Gonzales, Gasco and Llopis (2010) reported a global market growth with an average of 6.3 % over the year 2008. In this research IS outsourcing refers to a relationship where a firm contracts out or sells IS assets, people and/or activities to a supplier. The supplier provides and manages these assets and services for monetary returns over an agreed time period (Kern, 1997). Although IS outsourcing (abbreviated ISO henceforth) has experienced a dramatic growth in recent years, research shows that several ISO initiatives fail to fulfill expectations on business performance improvements (Dabhilkar, Bengtsson, von Haartman and Åhlström, 2009). Negotiation and communication are issues discussed in relation to failure or success of management of ISO relationships (Rai, Maruping and Venkatesh, 2009; Vlaar, van Fenema and Tiwari, 2008). To reach successful ISO outcomes the necessity of having better management practices has been pointed out (Gonzales et al., 2010; King and Torkzadeh, 2008). However, it is unclear what these "better management practices" in an outsourcing relationship should deal with. As stated by Lacity, Khan, Yan and Willcocks (2010) there is a need for more research with a relationship perspective in ISO research. This research aims at providing knowledge on management of ISO relationships.

ISO relationships face numerous challenges in developing and delivering software services across firm boundaries (Levina and Vaast, 2008). Given the critical role that ISO relationships play in integrating business and technical knowledge at the client-supplier boundary, it is important to understand challenges that they face and to identify mechanisms that enable to overcome these barriers to effectiveness. Therefore is *the purpose of this research to describe and explain management of Information Systems outsourcing (ISO) relationships.*

The remainder is structured as follows. First the research design is presented. Thereafter the two ISO cases are presented. The presentation focuses features of each ISO case, such as the activity outsourced and the ISO relationship. The ISO cases and

challenges and lessons learnt are then presented. Thereafter a summary of the lessons learnt follows and propositions for ISO management are presented. The paper concludes by presenting some conclusions and by suggesting further research.

RESEARCH DESIGN

In this research two ISO cases conducted at the supplier firm, the focal firm for the research, are presented and described: case DevMen and case MainOp. Case DevMen focuses outsourcing of IS development (ISD) whereas case MainOp focuses outsourcing of IS maintenance and operation. Empirical data for these both ISO cases has been collected through semi-structured interviews with representatives from all involved parties, in this case the client firm, the supplier firm and the supplier's offshore site. The client firm and the supplier firm are located in Sweden whereas the supplier's offshore site is located in Czech Republic. In total, 35 interviews have been conducted from June 2010 until early 2011 – 20 interviews for case DevMen and 15 interviews for case MainOp. The interviewees represent business level, process level and system level of included firms. Among the ones interviewed are business unit managers, head of customer management, line managers, one ICT manager, one system manager, system designers, one service desk manager and IT/IS specialists. Each interview lasted between 1 ½ to 2 ½ hours. In addition to the interviews, documents describing the outsourcing cases have been included. These documents have primarily been used for verifying some statements from the interviewees but also as complementary sources to the interviews.

The qualitative data analysis has been inspired by the technique of open coding (Strauss and Corbin, 1990). The data generated by interviews and documents were examined and coded by focusing on the interviewees experienced challenges associated with ISO. Data quotes have been coded, ordered in units, rearranged and then categorized in themes. The results are thus grounded in data rather than imposed by theory.

DESCRIPTION OF THE TWO IS OUTSOURCING CASES

Both the client firm and the supplier firm are firms within telecommunication equipment and services. They are experienced within outsourcing and have both national and international outsourcing relationships. The following descriptions focus the activities outsourced and the outsourcing relationships and their features. Due to confidentiality the firms included are not mentioned by their real names.

Case DevMen

In the DevMen case the relationship is built upon three parties, i.e. the client firm, the supplier firm and the supplier's offshore site. Figure 1 is a graphical representation of the relationship and each party's role in the DevMen case.

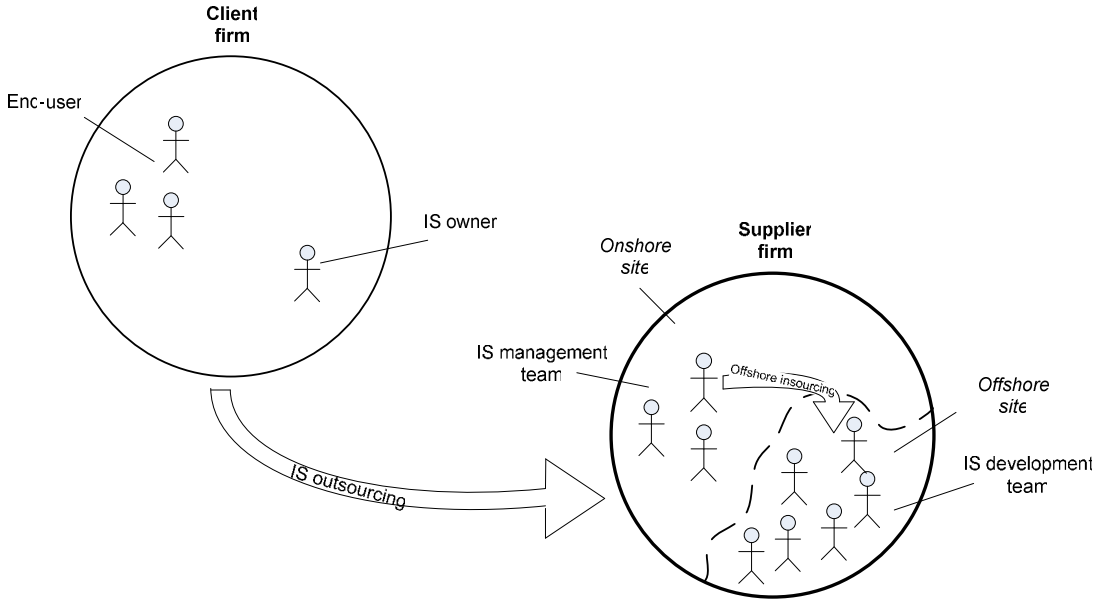

Figure 1. The Different Parties and Their Role in the DevMen Case

In 2002 the client decided to outsource management, maintenance, development and support of the specific IS. The IS can be described as a correction and maintenance system which is employed by the client's end-users and the client's clients for

trouble reporting on the client's products and equipment. It is a business critical IS and it has to be available 24 hours a day, 7 days a week.

Until early 2009 the outsourcing relationship was represented by two parties, the client firm and the supplier firm's onshore site in Sweden. In 2009 the supplier received requirements on cost reductions which resulted in that IS maintenance, ISD and IS support were outsourced to the supplier's offshore site in Czech Republic. The special case of outsourcing when the supplier/client outsources work to an affiliated firm is referred to as offshore insourcing (Bergkvist and Fredriksson, 2008). The practice of IS management was kept at the supplier's onshore site. As a result the outsourcing increased to include three parties: the client, the supplier's onshore site and the supplier's offshore site. The DevMen case focuses issues related to outsourcing of development of the specific IS. To manage ISD related issues two interfaces were established: between the client and the supplier's onshore site and between the supplier's onshore site and the supplier's offshore site (see Figure 2), used as communication channel(s), creating single point of contact for specific competence areas.

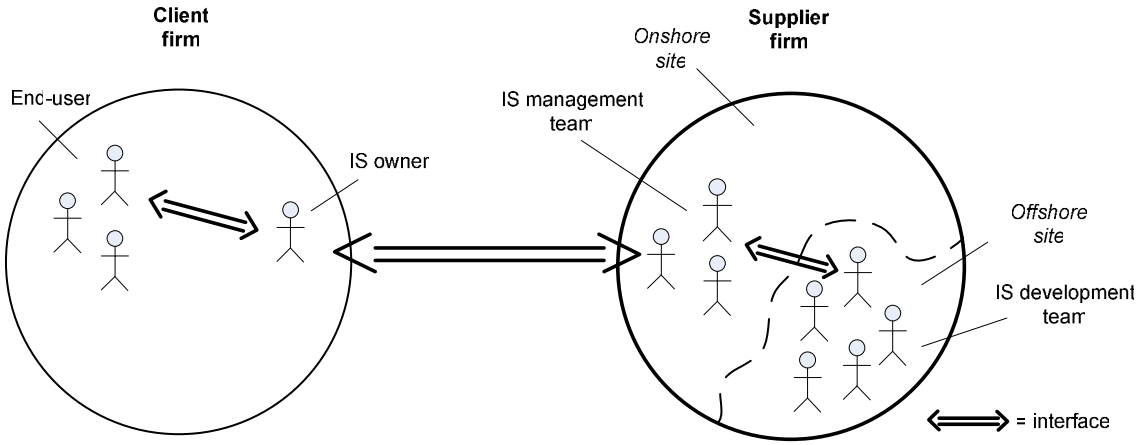

Figure 2. Firm Boundaries and Interfaces in the DevMen Case

The interfaces are used on a daily basis. As the ISD activities are conducted in an agile way of working the management team and the development team meet virtually each morning during the daily stand-up meeting (see e.g., Kniberg, 2007). Almost every team member at the supplier's onshore site communicates now and then with the IS owner. The communication relates to, for example, end-users' and client's requirements and requirement analysis.

Case MainOp

In the MainOp case the relationship is built upon two parties, i.e. the supplier firm and its offshore site. Figure 3 gives a graphical representation of the relationship and each party's role in the MainOp case.

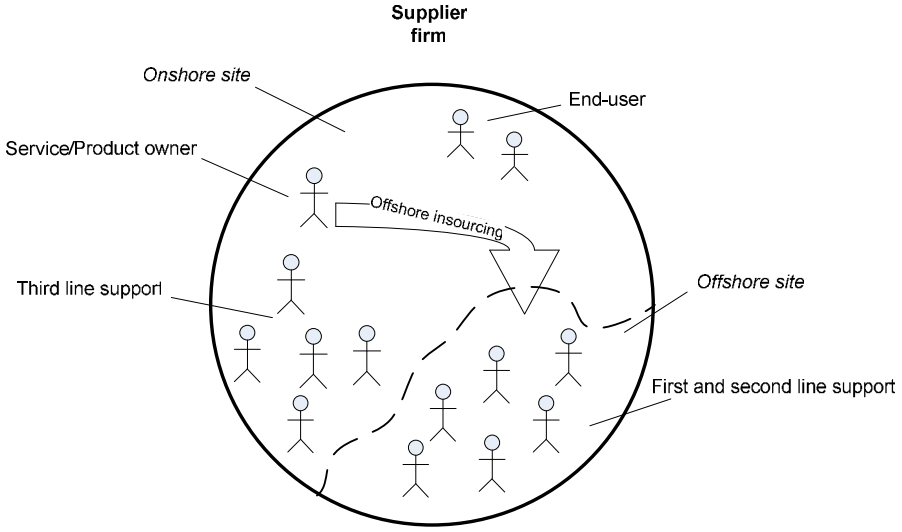

Figure 3. The Different Parties and Their Role in the MainOp Case

The support process at the supplier firm includes maintenance and operation of the technical infrastructure. The technical infrastructure can be described as a business specific service meaning that it is a result of end-users' requirements rather than a result of a standardised way for infrastructure set-up. The support process is divided into three parts: first line support, second line support and third line support. First line support solves more simple and routine based errands such as password problems. Second line support manages infrastructural problems related to for example servers and workstations. Complex problems and changes such as further development of the technical infrastructure are managed by third line. Third line also helps end-users with set up of specific projects IT environments. Thus, first and second line manage more routine based IS/IT operation and third line manages more specialized maintenance work. In the autumn of 2009 it was decided that first and second line should be outsourced to the supplier's offshore site in Czech Republic. Among the reasons mentioned were harmonized way of delivering services, reduction of costs, better utilization of capacity and better service follow up. To exemplify, outsourcing of first and second line support aimed at increasing innovative development of technology at third line support. The main reason for going offshore was that the affiliated firm already had processes established for the kind of business required. Consequently, necessary competence was available immediately.

To manage the support process, interfaces between the onshore and offshore site were necessary. In addition interfaces at the offshore site were needed between different competence areas at second line, as well as between helpdesk (first line) and different competence areas at second line. The different interfaces are illustrated in Figure 4. Shown interfaces in second line are just examples since interfaces exist between every competence area (CA).

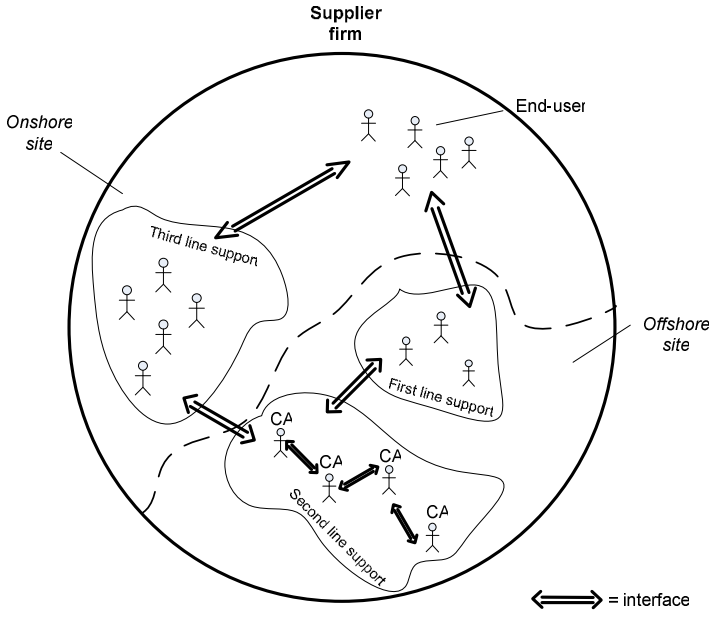

Figure 4. Firm Boundaries and Interfaces in the MainOp Case

When end-users encounter problems they create a digital ticket describing the problem. All tickets reach first line support first. First line support either manages the ticket or passes it on to second line support. Sometimes first line support needs to contact the end-user. If first line cannot solve the ticket they send it to the most appropriate competence area in second line support. This is mostly done through the ticket system but sometimes first line needs to contact second line for discussing a specific ticket. When a ticket reaches second line support there are different ways of dealing with the ticket. The idea is that each ticket can be solved by one person alone, through team discussion, by involving people from different competence areas and/or by involving third line support. The general agreement is that third line support should only be contacted when absolutely necessary. Third line support should only manage the most difficult tickets that include problems related to changes in the technical infrastructure.

IS OUTSOURCING: CHALLENGES AND LESSONS LEARNED

Case DevMen

Offshoring brings geographical limitations, cultural differences, time differences and difficulties in verbal communication. This is reasons why unstructured and business specific activities, such as requirement analysis, are recommended not to be offshored (Edwards and Sridhar, 2005). In the DevMen case this problem was managed by keeping IS management at the onshore site. This means that activities such as requirement analysis and systems management were still managed at the onshore site. Thus, in terms of literature recommendations this was an appropriate decision. Reasons for keeping IS management onshore could be explained by for example the complexity of the IS and the members' deep knowledge on the client's business processes and way of working. The system manager at the supplier's onshore site described the complexity by saying: "*It is not only about knowing the product and its code but also about processes and the client's way of working. […] The product is complex and it is difficult to understand what it is really used for."* This is confirmed by a system designer at the supplier's offshore site who stated "*it was difficult to understand the system from the beginning."* The designer continued *"It is hard to learn the system and to find code quickly. Some parts are difficult and you have to read much documentation to learn how the system works"*. As a result, the onshore members had to write detailed requirement specifications and requirement analyses before they were handed over to the offshore site. Explanation for keeping IS management onshore can also be related to the close and informal business relationship between the client and the supplier's onshore members. The IS owner at the client firm described the relationship: *"It is completely perfect, I do not think you can have a better relationship. We trust each other and we always try to fulfill each other's requirements and wishes."* An unreserved client–supplier relationship, the onshore members' deep IS knowledge and the difficulty of outsourcing business knowledge are thus reasons for keeping IS management onshore, i.e. in the same country as the client. This story reminds of the difficulty of outsourcing business specific activities and business knowledge. The lesson learnt could be that when outsourcing IS activities keep activities that require deep business knowledge in-house or onshore.

The decision of moving maintenance, development and support to the supplier's offshore site resulted in two teams geographically dispersed from each other, one team in Sweden and one in Czech Republic. At the onshore site team members spoke of the importance of a leader at the offshore site, a person that felt great responsibility towards the client and the outsourced product. The system manager at the onshore site explained: *"You must have a strong person [at the offshore site]. If the team does not have a leading figure it will be extremely difficult."* Even though team members at the offshore site rarely spoke with the client they mentioned a feeling of responsibility for the product. The team members relied on their leader and they had confidence in their leader. This was not just a result of the style of leadership but also a result of technical knowledge; their leader could answer most of their questions. One system designer at the supplier's offshore site mentioned the importance of a leading figure: *"It is important to have someone who is really skilled in the offshore site; somebody with technical skills, developing skills and also communication skills."*

A strong leader was mainly mentioned as an advantage however the onshore team experienced some challenges connected to having a strong leader at the offshore site. One apparent challenge was experienced during the daily morning meetings. Each team member at the onshore and offshore site should say something in relation to what has been done since yesterday, what are the plans for today and problems that prevent future work (Kniberg, 2007). In reality the leader of the offshore site became the offshore team members' spokesman. The line manager at the supplier's onshore site stated: *"During Scrum meetings the idea is that everyone should say something. This was very difficult. It felt as if we had to point. It became better and better but it was difficult. They wanted to speak through their leader."* This was experienced as a problem since the onshore team had difficulties in assessing the continuous work at the offshore site. The team members kept a low profile and the system manager at the onshore site pointed out: *"Often we had to pull out information about status and their feeling, if everything was ok or not."* The offshore team members' silence could be a result of having a strong leader but it could also be explained as a cultural matter. Czech management culture is recognized by a hierarchical approach. The line manager at the supplier's onshore site experienced *"that it was extremely hierarchical, the leader was guru and the other did not dare to say anything."* A system designer at the offshore site explained their silence and the Swedes desire to talk as a cultural difference by saying:

> *One cultural difference is that Swedish work climate is more open and friendly and people are more involved in discussions and meetings. We do not ask so many questions which is also visible during Scrum meetings. Here we discuss problems before the Scrum meeting and then take a note or mention it during the Scrum meeting.*

From this two things could be learnt. First the importance of having a leader at the offshore site; a person that has the ability to guide the offshore team in the right direction. This research shows that problems may follow with having a strong leader,

however it is assumed that the advantages outweigh the disadvantages. Second the importance of knowing each other's cultural differences in order to better understand different ways of working and behaviors.

As a result of keeping IS management at the supplier's onshore site, the outsourcing relationship was composed of three parties. The supplier's onshore site and offshore site should however act as one towards the client. The line manager at the supplier's onshore site mentioned the importance of creating a team and a feeling of 'we' instead of 'we and them': *"Our main focus was on how we should perform work: we should work with Scrum, we should meet. We should be a team with good communication. We should work together and meet face-to-face as often as possible."* Besides the possibility to meet face-to-face during the knowledge transfer, the agile way of working was mentioned as contributing a team feeling. Agile methods promote daily meetings and short development cycles (Lindstrom and Jeffries, 2004) which have facilitated the activity of getting to know each other. One system designer at the offshore site mentioned strengths with the relationship: *"We respect each other, the relationship is friendly and we try to respond each other as soon as possible.*" Challenges related to virtual team cooperation and creating a feeling of teamness are suggested to be mitigated by adopting methods that are built upon people and their teamwork rather than upon methodologies and techniques. From this could be learnt that agile methodologies, such as Scrum, are preferable when development is conducted by geographically dispersed teams.

Case MainOp

The members at third line support mentioned the problem with tickets going ping pong between second and third line. The ICT manager at the supplier's onshore site described this by giving the following example:

> *Say that a ticket passes first and second line and arrives to us at third line. We look at it and assess it as a ticket that should have been managed at first or second line. As a result we send it back with a note saying something like: this you ought to have managed. And then the ticket comes back to us with the message: but we have not received any instructions.*

The underlying cause for this action is believed to be related to the non-existence of a clear and written specification for what should be solved at second and third line respectively. The unix specialist at the supplier's onshore site requested *"an explicit definition of which services that should be transferred and which should be kept onshore.*" When support concerns a business specific infrastructure, as in this case, importance of instructions becomes even higher, as pointed out by both second and third line. One unix specialist at the offshore site described the technical infrastructure as being one of the biggest and strangest he had ever worked with:"*Because it is not standardized, because it was built during many years by only a few persons. They have done it by themselves and everybody had everything in their minds."* This makes instructions necessary for knowing which tickets should be solved at second and third line but also for the management of tickets. From this two things could be learnt. First, it is primary that involved actors have a common understanding of what each party is intended to manage in the outsourcing agreement. Second, the business processes and the set up, for example of technical infrastructures, need to be documented so that the offshore site can manage their part of the agreement. This is particularly important when the outsourced activity is tailor-built. Consequently it is recommended that an outsourcing knowledge transfer should include work packages for documentation, the creation of formalized instructions and hands-on training.

Another challenge that arose during the MainOp case is related to differences in way of working. The guiding-star for the support team at the supplier firm has always been to keep their clients satisfied. Their main client is constituted by internal end-users which do not diverge much in type of support requirements. As a consequence it has been possible to build a business specific technical infrastructure that meets end-users' requirements. The supplier's offshore site, which manages first and second line support, is referred to as a factory, supporting several clients. This means that the work processes have similarities with industrialized, routine based work. First and second line support a range of different clients but how does not differ. The outsourcing coordinator at the supplier's offshore site summarized the challenge of different ways of working:

> *The way of working in Sweden is very, very different from way of working here in [the offshore site]. Basically it is about that in Sweden the support was in a very customer oriented way, very tailored way, it was not so much based on processes, it was based basically on a very close relationship towards the customer and there was a dedicated team for the support. This is something that we do not have in [the offshore site]. This is a big service center, and it is a very process and rigid directed way of working, strictly based on processes. It is more like a factory so to say. I guess that a lot of people in Sweden were surprised how we work and how we organize our work. So this is more or less the big difference between the [offshore site] factory approach and this very customer oriented approach in Sweden. This was the main challenge during the outsourcing preparations.*

From this it can be stated that ISO should be preceded by an examination of involved parties' way of working so that differences will not be a surprise when outsourcing is up and running.

During outsourcing the need of communication channels came apparent. Team members at third line support experienced the necessity for single point of contacts to facilitate the communication between second and third line support. One unix specialist at the supplier's onshore site said:

> *Channels of communication are important for knowing with whom to communicate. It does not have to be a personal relation but communication must be easy. For example if I want to share information with a group of people I can use this communication channel. Then I know that the information has received the other ones. The communication channel can be informal or formal; the main thing is that communication is easy.*

Through a single point of contact it becomes possible to share information between different teams through one person. Thus, communication channels such as a single point of contact is believed to facilitate problems related to information and knowledge sharing. The team members at first and second line support did not however mention any problems connected to communication and information sharing. Explanations are related to that they received answers to most of their questions and if they did not, unmanaged tickets were passed on to another competence area or to third line. From this it can be stated that communication channels for information and knowledge sharing are important in ISO.

One finding from the interviews is that members from third and second line differ in their mentality towards their client, i.e. the end-users. The members of third line support always strive for satisfied end-users and that is why they help second line when needed, if they should not the end-user would suffer. For second line, on the other hand, the end-users are quite unknown and that is why their motivation is related to the business agreement rather than to satisfied end-users. The outsourcing coordinator at the supplier's offshore site explained it as: "*We miss this very close relationship with the customer. […] We really made it work based on service level agreements."* Thus, people at second line conduct work according to what is written in the business agreement. One explanation is that second line support a lot of different clients and end-users, not only end-users at the supplier firm. From this it can be recommended that expectations should be discussed during the ISO preparations to avoid misunderstandings later on. The suggestion is that not only representatives from business level should be part of ISO preparations but also representatives from system level and process level to be able to learn more about each other.

SUMMARIZING LESSONS LEARNED

In this section lessons learnt are summarized along the two ISO cases and presented in Table 1 (case DevMen) and Table 2 (case MainOp). The lessons learnt focus the inductive conclusions drawn from the two ISO cases. With support from ISO literature the lessons learnt are then formulated as propositions for management of ISO.

Lessons learned	**Support in IS outsourcing literature**	**Propositions for management of IS outsourcing**
Keep IS activities that require deep business knowledge in-house or onshore	Shao and David (2007) ---------- **Findings**: IS activities that require constant face-to-face (F2F) interaction and are dependent on knowledge of the firm need to remain onshore	Keep IS activities that require frequent F2F interaction and deep business knowledge in-house, at least at the outset
Make sure to have a strong leader at the offshore site	Holmström Olsson, Conchúir, Ågerfalk and Fitzgerald (2008) ---------- **Findings:** When establishing new offshore relationships designers need to be trained	A management approach is useful in training new and immature outsourcing relationships with non-established processes for way of working

Table 1. Case DevMen: Lessons Learned and Propositions for Management of ISO *(to be continued)*

Lessons learned	**Support in IS outsourcing literature**	**Propositions for management of IS outsourcing**
Learn about differences in organizational culture during ISO preparation	Fabriek, Brand, Brinkkemper, Harmsen and Helms (2008) --- **Findings**: The more cultural alike and the more familiar the client and the supplier is the more likely ISO will bring successful outcomes	ISO preparation should include examination of differences in the client's and supplier's organizational culture
Adopt agile ways of working to facilitate cooperation and the feeling of teamness in geographically dispersed teams	Holmström Olsson et al. (2008) --- **Findings**: In new and immature outsourcing relationships intense communication on a daily basis between both managers and designers are important due to non-established ways of working	When outsourcing relationships are new and immature it is fruitful to adopt a development methodology that focuses the team rather than techniques

Table 1 *(continuation).* Case DevMen: Lessons Learned and Propositions for Management of ISO

Lessons learned	**Support in IS outsourcing literature**	**Propositions for management of IS outsourcing**
Make sure that actors at both the onshore site and offshore site have a common understanding of each party's expectations and responsibilities according to the ISO agreement	Lee, Lee and Shin (1999) --- **Findings**: A prerequisite for managing ISO is the client's and the supplier's common understanding and a systematic way of working	ISO negotiations should result in a common understanding of each party's expectations and responsibilities according to the contractual agreement
When outsourcing tailor-built IS detailed IS specifications should be included as part of the knowledge transfer	Davey and Allgood (2002) --- **Findings**: A recommendation for outsourcing is that packaged IS solutions are preferable to tailor-built IS, since packaged systems often are well specified	Tailor-built IS should not be outsourced but if, detailed IS specifications should be included in the knowledge transfer
ISO should be preceded by an examination of involved parties' way of working	Fabriek et al. (2008) --- **Findings**: To reduce distances related to organizational prerequisites team members should be introduced on both sides	Team members should be introduced on both sides to learn about each other's way of working

Table 2. Case MainOp: Lessons Learned and Propositions for Management of ISO *(to be continued)*

Lessons learned	**Support in IS outsourcing literature**	**Propositions for management of IS outsourcing**
Established communication channels for information and knowledge sharing are crucial during ISO	Fabriek et al. (2008) ---------- **Findings**: Facilitating informal communication between team members positively influence ISO outcomes Poor communication contributes poor productivity, poor knowledge exchange and poor relationships	Communication channels must be in place to reach desired levels of knowledge exchange quality and for informal communication opportunities

Table 2 *(continuation).* Case MainOp: Lessons Learned and Propositions for Management of ISO

CONCLUSIONS AND FURTHER RESEARCH

This research contributes to the knowledge base on management of ISO by describing two ISO cases and lessons learnt. The given propositions for management of ISO are a result of the empirical study supported by ISO literature. The ISO management propositions are recommended to be adopted already during ISO preparations, such as during the ISO pre-contract stage and contract stage. When adopted in an early stage it can be assumed that ISO relationships will be more successful.

As a result from the research it is concluded that the ISO management approach, in general, should not differ between type of IS activity outsourced, development versus maintenance and operation. The presented propositions can be applied in a broad sense and adapted to the specific ISO case. The research supports the finding from a previous literature review study (Bergkvist, 2007) that ISO management should reflect the nature of the IS activity outsourced, i.e. if it is a simple or complex activity. Tailor-built IS are for example categorized as complex products since they are non-standardized and result from specific business processes and should thus influence ISO management. There are also indications that outsourcing of IS maintenance and operation requires less collaboration, compared to outsourcing of development which often requires intensely teamwork. Future research in this area would be interesting.

Besides differences in activity outsourced, the cases presented differ along the number of parties involved in the outsourcing relationship. This research has not identified any managerial challenges related to if the outsourcing relationship is composed of two or three parties. For further research it would however be interesting to, in more detail, study IS outsourcing relationship composition and how it influences conditions such as communication, knowledge sharing, cooperation and relationship quality. This is motivated since the majority of the interviewees mentioned communication difficulties as the main difference between before and after outsourcing.

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