Does the Loss of Tacit Knowledge in IT Outsourcing Matter?

A Transaction Cost Theory Analyses and Longitudinal Study of a Swedish Governmental Agency

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Abstract
Maintaining information systems is hardly considered being a core competence of most governmental agencies. Hence, according to most of the current research, it should be outsourced. On the other hand, it can be argued that the modern systems of today do not need expertise to run reliably. Also, since there will be transaction costs (such as supervising the external providers, negotiating contracts, monitoring performance, and so forth) in marketing contracts consideration should be taken to whether any cost savings mandates the loss of knowledge held by the IT department. The tacit knowledge, the insights of the primary processes and how the information systems are used in the specific organization, could be considered to hold significant value in outsourcing decisions. The research problem is the lack of knowledge about how loss of tacit knowledge influence the IT outsourcing. To find this out, the following research question has been made: What considerations should be taken regarding the tacit knowledge, held by the IT personnel, when outsourcing IT operations.

The case study research methodology has been used. Interviews with decision makers of a governmental agency in the process of outsourcing the IT operations were performed, and the results were triangulated with previous research within knowledge management, organizational learning and transaction cost economics. The statement created by the study gives few justifications for keeping tacit knowledge of secondary processes personnel in-house, only in organizations with a high uncertainty, or highly specified primary processes are there a theoretical ground for the advantage of tacit knowledge. Otherwise, the focus should be on standardization and use of best practices.
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Introduction

Information technology outsourcing (ITO) is a hot topic; the concept of outsourcing brings numerous of possibilities. Traditional outsourcing providers have specialized on a support activity in the value chain\(^1\). By offering the same service to other organizations, they gain the advantage of the economy of scale. Their employees become skilled in the activity, and incentives to improve the activity are greater. In fact, what is seen as support activities by others become the primary activities of the provider. Other organizations can then reap the benefits of this, by outsourcing the activity the outsourcing organization both gain access to the providing company’s advantages as well as the possibility to focus on their own primary activities.

The golden eggs of outsourcing are the well known activities. Every step is, or can easily be, defined. What is to be done is obvious and the outcome is easily measured. These activities can be acquired on the market with little effort. However, there are plenty of examples of less successful outsourcing decisions (Overby, 2010; Jones, 2006). Complex activities are more dependent on tacit knowledge\(^2\), the small adjustments to organization specific routines and know-how held by the participants performing the activities. As long as the activity is simple; knowledge can easily be transcribed, routinized and transferred to new participants. As the complexity grows, there will be an increased need to understand what is occurring and the context in which it occurs.

If the employees are laid-off, or will be transferred to the provider in the outsourcing deal, their tacit knowledge will leave the organization. Any costs brought by this knowledge erosion will not be immediately obvious\(^3\) making them hard to control.

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1 See section 2.3.1 for a description of the activities/processes in the value chain.
2 Tacit knowledge is the part of an individuals knowledge that is hard to transfer in writing or verbally, how to recognize a face or keeping the balance whilst riding a bike. We know how to do it, but its very hard to explain to someone else.
3 Especially if the employees are transferred to the provider, the loss of knowledge will be hard to observe since the outsourcing organization will still benefit from the knowledge.
1.1 Context of the used case

In 2009, the Swedish e Government Delegation presented its report “Strategi för myndigheternas arbete med e-förvaltning” (SOU-2009-86, 2009). In this report, the delegation recommends that Swedish governmental authorities should have an IT sourcing strategy. Likewise, the report recommends that The Legal, Financial and Administrative Services Agency (Kammarkollegiet) should develop guiding principles for agencies to follow when buying external IT-services. According to an article in Swedish IT trade press newspaper Computer Sweden, the delegation report will mean an increase in governmental ITO spending by more than twofold (Jerräng, 2009). Another trade press newspaper article calculates the public procurement for IT operations outsourcing, initiated by The Legal, Financial and Administrative Services Agency, to be worth more than 11 billion SEK over a seven year period (Bohlin, 2009).

This is in line with the ongoing global trend of increased ITO identified by, among others, Gartner Inc. In their survey analysis ‘Outsourcing and IT Services priorities, Europe 2010’(Rold, 2010), 53% of European organizations intend to increase their ITO in 2010 and 40% also intend to increase their spending in ITO.

1.2 Problem

A thorough scanning of research in the area was made without finding any previous publications concerning the impacts of knowledge loss in ITO of governmental agencies. Big losses, such as loss of nationwide important data, confidence for the agency and expenditures for the time needed to recreate the knowledge, could be created when tacit knowledge gets lost by outsourcing IT.

Due to the intangible nature of knowledge, there is a lack of direct linkage between knowledge management processes and business results. In order to show a connection, a number of steps need to be taken (Yelden and Albers, 2004). Dealing with knowledge losses is not a commonly accepted requirement. The knowledge dependency could result in both large costs for recreation of the knowledge needed to operate the outsourced environment, as well as costs due to lost time in the primary processes of an outsourced organization that is still dependent on the lost knowledge.

The research problem is the lack of knowledge about how loss of tacit knowledge (caused by ITO) in governmental agencies impacts their business success. To resolve the research problem the following research question has been raised:
1.2.1 Research question

What considerations should be taken regarding tacit knowledge, held by the IT personnel, when outsourcing IT operations.

1.3 Disposition

The previous research is presented in chapter 2, “Research background.” The research strategy and the methods used is presented in chapter (3), “Methodology.” In chapter 4, “Result,” the findings from both literature studies and the gathered data in the case study are presented. Finally, the analysis and conclusions are presented in both the 4.1, “Development of the propositions” section, and in chapter 6, “Conclusions.”
In this chapter, the previous research in the area is presented. Using the experience from other researchers, an extended background of existing research and concepts needed to address the research problem is provided. IT Management, a research area in the Department of Computer and System Sciences, has an intensive research in how IT resources of an organization are managed to achieve organization objectives. This topic adds new knowledge in this area.

2.1 Knowledge management

A short description of the history of knowledge management and its current status is provided. This is in order of describing the problem of the thesis.

“Knowledge is theory. We should be thankful if action of management is based on theory. Knowledge has temporal spread. Information is not knowledge. The world is drowning in information but is slow in acquisition of knowledge. There is no substitute for knowledge.” (Joiner et al., 1994)-foreword by W. Edwards Deming.

2.1.1 Historical development in knowledge management

Although mankind has discussed knowledge since Ancient Greece, and kept knowledge in a systematical approach at least since the middle ages (when the system of apprenticeship was formalized), academic research in knowledge management has only existed since the beginning of the 1990s (Serenko et al., 2010). Knowledge management, as an explicitly scientific area, can thus be considered as a relatively young branch of science.

There has, however, been academic research in adjacent areas. In the 1930s, the economist Fritz Machlup was interested in imperfect competition and monopoly; his research led him into the areas of information and knowledge production. Given a
need to analyze the knowledge production he developed a conceptual framework, letting him discuss different classes and elements of knowledge (Machlup, 1984). During the 1960s, Peter Drucker introduced the concept of ‘the knowledge worker’. Drucker argued, knowledge workers will replace the manual workers as a society become more modernized. Apart from being efficient, the knowledge worker also needs to consider the effectiveness. In other words, where the manual worker focus on doing things the right way, the knowledge worker also need to do the right things (Drucker, 1967). With the knowledge worker, the focus has shifted from the producing of goods to managing information with knowledge.

Chaparral Steel was one of the first organizations known to employ a knowledge-focused management, they did so already in 1975 (Wiig, 1997). The importance of managing knowledge in order to be competitive was, however, not commonly considered in organizations until the mid 1980s. By then knowledge management articles and reports began to be publicly available (Wiig, 1997).

In 1990 Prahalad and Hamel publish their article ‘The Core Competence of the Corporation’ in the Harvard Business Review. They call attention to the importance for an organization to look beyond the traditionally autonomous, strategical business units. Instead, the competitive organization should focus on building competencies and utilize them as effective as possible. They compare the employees’ knowledge with the funds of a firm;

“The benefits of competencies, like the benefits of the money supply, depend of the velocity of their circulation as well as on the size of the stock a company holds.” (Prahalad and Hamel, 1990).

Finally, the first book dedicated to knowledge management was published in 1993 (Wiig, 1997).

2.1.2 Current state of knowledge management

The initial attempts of knowledge management were to use information technology in order to store and analyze information. In the later years, the focus have shifted to areas such as transferring of knowledge and creating space for creativity (Prusak and Matson, 2006).

What is knowledge

A definition of knowledge have been sought since the days of Ancient Greece by epistemologies, the definitions are as plenty as their rebuttals. Plato discussed knowledge in writings such as Theaetetus and Meno, bringing concepts such as 'Justified
true beliefs\(^1\) and 'The Meno Paradox\(^2\). Gettier disproved the justified true beliefs definition (Gettier, 1963) and a solution to Meno’s paradox was explained by among others Poliany (Polanyi, 1983).

(Gorman, 2002) use four types of knowledge\(^3\), whilst (Machlup, 1984) divided knowledge into thirteen elements\(^4\) and five classes\(^5\).

Due to the intangible nature of knowledge, classifications become somewhat arbitrary. Instead of deluding into philosophy a pragmatic definition of knowledge is stated by Kjellin (2009) when he compares knowledge and information. He argues that:

"The main difference between information and knowledge is that knowledge describes a way to reach a goal" -(Kjellin, 2009).

Summing up to that information is rather passive, whilst knowledge is active with a context and a connected purpose. An assessment was made that this, rather high level, definition is sufficient for the following descriptions of knowledge related concepts. For a deeper understanding of knowledge, studies of epistemology are highly recommended.

**Tacit and explicit knowledge**

Above all, there is one major dividing line in knowledge, the difference between tacit and explicit knowledge (Polanyi, 1983). What in everyday speech is called 'know-how' is considered as being tacit, 'knowing-about' on the other hand is deemed to be explicit. The different traits of the two types (particularly concerning our possibility to transfer them) have a considerable impact when it comes to knowledge management. Explicit knowledge is easy to communicate and store for future use. Tacit knowledge, on the other hand, is hard to formalize, making it very difficult to transfer between individuals as well as through time (Prusak and Matson, 2006).

In order to explain tacit knowledge Polanyi (1983) uses an example of our ability to recognize a face among millions without knowing exactly how we can recognize it, he alleges that:

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\(^1\) S knows that P IFF 1. P is true, 2. S believes that P, 3. S is justified in believing that P. (Gettier, 1963)

\(^2\) How can you search for something, says Meno, of which you know nothing at all? What sort of thing of all the things you do not know will you set as goal for your search? (Anderson, 1993)

\(^3\) Information (what), Skills (how), Judgment (when), Wisdom (why)

\(^4\) Being acquainted with, being familiar with, being aware of, remembering, recollection, recognising, distinguishing, understanding, interpreting, being able to explain, being able to demonstrate, being able to talk about, being able to perform

\(^5\) Practical knowledge, intellectual knowledge, (embracing scientific, humanistic and cultural knowledge), pasttime knowledge (news, gossip stories etc.), spiritual knowledge, unwanted knowledge
"We can know more than we can tell: This fact seems obvious enough; but it is not easy to say exactly what it means." - (Polanyi, 1983).

There have also been efforts to prove tacit knowledge with empirical tests. Lazarus (1956) performed a controversial experiment in which he exposed volunteers to symbols and electrical shocks. Even though the volunteers could not explicitly name the symbols that resulted in a shock Lazarus could measure an increased alarm in the volunteers when the symbols were displayed (Lazarus, 1956). This experiment did not go unchallenged. Eriksen (1956) claimed that there were statistical irregularities that made the results open for dispute (Eriksen, 1956). And then Eriksen did a similar test and proved the same thing, the existence of tacit knowledge. In the Eriksen and Kuethe (1956) experiment the respondents were asked to associate words and received a shock when uttering some of the associations. The respondents 'had learned' which associations that would result in a shock and avoided them, without actually realizing that they were avoiding them (Eriksen and Kuethe, 1956).

A rather distinct impact of the difference between tacit and explicit knowledge are the difficulties experienced by the Soviet Union in its attempt to plagiarize the atomic bomb. The project was extremely prioritized by Stalin, their scientists well experienced in nuclear technology, and they had access to explicit knowledge in the form of “a rather detailed diagram and description of the first American bomb” (provided by the physicist Klaus Fuchs who had been working for the American team). Even though, the Soviet team needed four years from receiving information from Fuchs to complete the task. Their engineers, scientists and physicists lacked the tacit knowledge needed. In the end, the Soviet team had to reproduce much of the American work in order of building their tacit knowledge (MacKenzie and Spinardi, 1995).

**Tacit knowledge and decisions**

The difference in transferability between the two types has an impact in where it is desirable to make decisions. Decisions that are founded mainly of explicit knowledge can easily be centralized; the relevant knowledge can be assembled, transferred and interpreted at the central office. Decisions that demand tacit knowledge are impeded by the low transferability of tacit knowledge; hence de-centralization is preferable (Prusak and Matson, 2006).

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6 The American team, who started from scratch, actually completed their task in less than four years.
2.1 Knowledge management

**Knowledge transfer**

Transferring of knowledge is mostly on an individual-to-individual basis, the recipient has to be both motivated as well as prepared to assimilate the knowledge provided (Machlup, 1984). The recipient will have a base of knowledge; to this the transferred knowledge will be added, bringing new knowledge to the recipient. The recipient’s ability to absorb the transferred knowledge, that is to combine the different elements of new and old will influence the efficiency of the transfer (Cohen and Levinthal, 1990).

The owner of knowledge will, of course, have to be motivated. If the owner wish to keep it a secret, it is "almost insuperable" for any transfer to take place (Machlup, 1984).

The most rudimentary approach of transferring the personal, tacit, knowledge is to transfer it by observation like the medieval apprentices once did. It is, however, a slow, costly and uncertain approach (Kogut and Zander, 1992). If the knowledge to be transferred can be aggregated, by a common language for instance, efficiency of the transfer will greatly increase (Grant, 1996). Furthermore, there is a possibility the knowledge can be transformed into explicit knowledge by creating rules, principles etc that are easily transferred (Kogut and Zander, 1992). The knowledge is then considered to having been codified. The codification often changes "the nature of the knowledge". When it is codified it become less complex and thereby less costly to assimilate, but the same time it is reduced from an expertise level to a lesser level, encumbered by more restrictions (Kogut and Zander, 1992).

**Codification**

By codifying the knowledge the dependence of the individuals who possess it is removed, making it easier to keep the knowledge within an organization (Kogut and Zander, 1992). This can be highly motivated since it is expensive to recreate personal (and team) knowledge (Kogut and Zander, 1992). Another reason to codify knowledge is noted by Machlup and considers patents. If an organization cannot describe a process in words, that process; "cannot possibly be included in the description of a patent" -(Machlup, 1984).

Machlup also notes the impact of time on knowledge, "...over time even the best guarded technology secrets are found out or become obsolete“ -(Machlup, 1984). Focusing on the latter part of the quote, that knowledge sooner or later becomes obsolete, a hazard of codification is revealed. If the knowledge is codified into rules, used by an organization, and the reason why is lost to the participants, the "knowledge" may deteriorate until it actually is obstructing the organization.
**Four modes of knowledge creation**

Nonaka (1994) wrote the seminal paper 'A dynamic theory of organizational knowledge creation'. Nonaka argued that there are four possibilities to create knowledge (Tacit-Tacit, Tacit-Explicit, Explicit-Tacit and Explicit-Explicit). At first glance, there can be some confusion of how knowledge can be considered as being created in the case of a tacit-tacit transfer. By using the blacksmith example; when the apprentice observe the performance of the master blacksmith the apprentice already have a base of knowledge to which the transferred knowledge is added. The result is that the apprentice gain a new, slightly different knowledge from the one held by the master. Thus, knowledge can be considered to have been created.

The first two modes of conversion are between the same types of knowledge. The tacit to tacit conversion (just mentioned) occurs when individuals collaborate. Nonaka named this **Socialization**. This transfer doesn’t rely on verbal communication alone. When participants are performing together, they observe and imitate each other. Insights and mental models are created and assumedly shared between the participants. The second type is when individuals have meetings, talk over the phone and exchange documents etc. in order of combining their explicitly held knowledge. The interaction might lead to a different sorting of information or a recategorization of the explicit knowledge. This explicit to explicit conversion Nonaka called **Combination**. The third and fourth modes are between the different types of knowledge. Perhaps the most obvious example\(^7\) is the conversion from explicit to tacit, **Internalization**. Nonaka briefly mentions this as the process most commonly associated with traditional learning. A typical example is to read a book in order of understanding a new area (Nonaka, 1994).

The last conversion type, from tacit to explicit, Nonaka named **Externalization**. In the initial paper Nonaka used an example of a Matshushita engineer, who went practicing at an acknowledged baker in order of understanding how to build a bread-baking machine. Her apprenticeship led to a revealing of how to handle the dough by ‘twisting’ it. According to Nonaka she then managed to externalize her tacit knowledge into an explicit dough handling concept that could be emulated by the machine (Nonaka, 1994). If so, she had transferred the tacit knowledge from the master into explicit knowledge that could be incorporated by her colleagues into the specification of how to build a machine.

The Externalization is, however, debated. Among others Ribeiro and Collins (2007) claim that there has been no conversion from the master chef to the machine. They did an empiric test, baking bread by hand and by machine. They concluded that; ‘For a novice, bread-making by machine was more reliable, more efficient, less stressful and physically easier: the machine ‘worked’. It did not, however, embody the

\(^7\) At least for someone reading a master thesis.
skills of a master baker”-(Ribeiro and Collins, 2007). Instead, the machine standardized recipes, reduced problems related to measurement of ingredients and reduced need for tacit assessments such as when a dough is ‘wet enough’. Further disputations of Nonakas proof of externalization come from (Bereiter, 2002):

“...She simply observed the practice and translated it into another medium. I am inclined to call this an example of dumb luck. In the absence of understanding, there was no reason to believe that twisting the dough was an important part of baking. It just happened that it was. Furthermore, if one understood how twisting made a difference, it might be possible to achieve the effect in ways much more efficient than building a machine to mimic the baker’s motion. Centuries of observing birds and trying to mimic them did not produce a flying machine. Success came with growth in understanding of lift” -(Bereiter, 2002), and also from Gourlay (2006):

“...the bread-machine designers did not “externalize” the chef’s bread-making knowledge into their machine; they transformed the problem into one that could be handled by a particular kind of machine. It is therefore not necessary to postulate tacit-to-tacit and tacit-to-explicit knowledge transformations when we can more simply refer to learning by doing on one hand, and to designing new tasks on the other.”-(Gourlay, 2006)

However, even though the master baker’s tacit knowledge may not be incorporated into the bread-baking machine, the engineers managed to build the machine due to the input received and users of the machine benefits from it. Which can be considered to be in line with the codification process mentioned earlier.

Nonakas knowledge spiral

According to Nonaka (1994), the creation of knowledge by any of the four modes by themselves is not enough. In order of being efficient in the creation of organizational knowledge, he suggests; “a dynamic interaction between the different modes of knowledge conversion.”. He depicts a spiral that repeatedly includes all four modes.

Beginning with the formation of a team the socialization starts as the members begin to interact and talk with each other. When they are verbally transferring their knowledge the second phase, externalization, has begun. By using metaphors members can convey tacit knowledge that they otherwise might not be able to share. The third phase occurs as the members begin to document their findings, perhaps coordinating their knowledge with literature, combination. The last step in the first turn of the spiral is then when members begin to experiment and learn-by-doing with input from their previously combined material. The spiral then continues into the next turn with the members socializing again (Nonaka, 1994).
Nonaka emphasizes the importance of the externalization phase;

“While tacit knowledge held by individuals may lie at the heart of the knowledge creating process, realizing the practical benefits of that knowledge centers on its externalization and amplification through dynamic interactions between all four modes of knowledge conversion.” - (Nonaka, 1994).

The spiral metaphor is conveying that knowledge creation begins at the individual level, turning up into the team level as it spins and may even continue out to the organizational and inter organizational levels (Nonaka, 1994).

However, as both Gourlay (2006) and Ribeiro and Collins (2007) questions the validity of the knowledge conversion, they also dispute the knowledge spiral.

“Nonaka’s proposition that knowledge is created through the interaction of tacit and explicit knowledge via four knowledge conversion processes has been found wanting on empirical and conceptual grounds.” (Gourlay, 2006)

On the other hand, whether knowledge is created or just transferred between participants can be considered to be of academic interest. Knowledge is transferred, and the recipient will be influenced (if ever so little) by the transferred knowledge.

**Classifying the strategic level of knowledge**

Apart from classifying knowledge based on content, from a management view there is also a need to classify it on an over-all strategic level. That is, how important is the knowledge. Pruzak and Matson’s strategic framework for mapping knowledge identify three levels. At the very least, there is the core level containing the absolute minimum of capabilities to manage the everyday tasks. This core knowledge (not to be mixed up with Prahalad and Hamel’s Core Competence) is regarded as held by all members of an industry. Thus, at the core level the knowledge cannot convey a competitive knowledge advantage to the organization. In order to use the knowledge as a competitive advantage, it must at least be at the advanced level. In the advanced level, the knowledge is differentiated from competitors, although the quality and quantity might still be on par with competitors the content is somewhat specialized.

At the final level, the innovative level, an organization is capable of leading and differentiates itself considerably from its competitors (Prusak and Matson, 2006).

Following from this, every organization needs at least a core level of knowledge in order to maintain everyday tasks. In the scope of ITO, this gives the lowest level at which the organization can still manage its outsourced tasks.
2.2 Frameworks used for describing organizations

A description of the history of organizational analyzing, relevant concepts and the current status is provided. This in order to give the common frame needed to describe the entities having the problem in the domain.

2.2.1 Transaction cost economics

In 1937 Ronald Coase wrote the article 'The Nature of the Firm' in which he gave his view of the economic reasons for the existence of firms (organizations). Coase explained why organizations emerge as well as the reasons for firms boundaries. According to Coase (1937) the boundaries of an organization can be explained with the view of transaction costs. Coase based his arguments by the economic system of market economy and its price mechanism. In addition to the price asked by a provider, there are 'transaction costs' that have to be added to the total cost in order to use a product or service. Costs such as negotiating a contract or time spent finding providers. By collecting these tasks, and performing them within an organization, the additional costs can be avoided. This alone would imply that every organization ought to do everything themselves as there are always 'transaction costs' associated with using the open market. There is, however, an opposite force, the force of diminishing return. As the organization grows, the cost of managing additional tasks will increase as there are more resources that require attention (Coase, 1937). Furthermore, when the resources increase in number, it will be harder to put the resources to use where their value is at its greatest. Sooner or later the decrease in efficiency will render the internal alternative as costly as the open market. In other words, there are also 'transaction costs' applied to tasks performed within the organization.

Postponing the decision

Herbert A Simon added further variables to the choice of buying in the open market or hiring additional employees in his article 'A Formal Theory of the Employment Relationship' (Simon, 1951). He notes a major benefit of hiring an employee. By agreeing to be hired, the employee, (W)orker also accepts that there will be an authority, (B)oss that will decide what tasks the employee will perform (x).

"It will be advantageous to B to offer W added compensation for entering into an employment contract if B is unable to predict with certainty, at the time the contract is made, which x will be the optimum one, from his standpoint. That is, B will pay for the privilege of post-poning, until some time after the contract is made, the selection of x."—(Simon, 1951).

8 Some researcher call these costs for "coordination."
Simon argues that the hirer can avoid the risk of deciding what is to be done in advance by hiring an employee. In market contracts, both parties agree on a set of criteria that will be fulfilled, and then promise to undertake the actions that will, hopefully, lead to the desired results. In the employment situation, there is no need to specify the acts (in such detail) as the worker agrees to be prioritized by the boss (Simon, 1951). Thus, the need of exactly defining criteria's to be fulfilled diminishes, as well as the need of predicting the future. However, this advantage comes at the price of the added managing cost of the employee. As a result, there will be an added transaction cost whatever direction taken. To sum it up, Coase put it as:

“The question always is, will it pay to bring an extra exchange transaction under the organizing authority?” (Coase, 1937).

The transactions have been further elaborated by Simon and later Williamson. Continuing the work of Coase, some limitations that could influence our efficiency is described.

**Bounded rationality**

The concept of bounded rationality was coined by Herbert Simon in the 1950s. It deals with the limitations of our mental capacity. Although we wish to think of ourselves as being rational, at any given time we can only hold a finite amount of information related to a decision (Simon and Barnard, 1957). Williamson explains it as:

“Bounded rationality involves neurophysiological limits on the one hand and language limits on the other. The physical limits take the form of rate and storage limits on the powers of individuals to receive, store, retrieve, and process information without error... . Language limits refer to the inability of individuals to articulate their knowledge or feelings by use of words, numbers, or graphics in ways which permit them to be understood by others. Despite their best efforts, parties may find that language fails them (possibly because they do not possess the requisite vocabulary or the necessary vocabulary has not been devised), and they resort to other means of communication instead. Demonstrations, learning-by-doing, and the like may be the only means of achieving understanding when such language difficulties develop.” (Williamson, 1975).

In other words, as we cannot know everything, every possible outcome of our choices and every fact that influences our decision, we cannot be rational, only limitedly rational.

“Thus individuals and groups tend to satisfy, that is, to attempt to attain realistic goals, rather than maximize a utility or profit function.” (Simon and Barnard, 1957)
Opportunistic behavior

Some people will tend to act out of self-interest rather than from an altruistic fair-dealing conviction. Thus, through bounded rationality comes the possibility of opportunistic behavior. Since everything cannot be known by everyone on beforehand, occurrences not foreseen (or deliberately withheld by a part at the time of an agreement) will sooner or later occur. Opportunities for less noble persons to gain personal advantages appear. Although it is not claimed that everyone always does so, one cannot rule out that some will do it from time to time (Williamson, 1981). The big problem, according to Williamson, is that it is very hard to know when someone is acting opportunistically 'before the event'.

Qualification of transaction costs

(Williamson, 1975) also gave three qualifications to the transactions.

Uncertainty: Resulting from bounded rationality, all transactions will have a level of uncertainty. This becomes a problem due to the existence of opportunistic behavior.

Asset specificity: Another characteristic of a transaction identified by Williamson is that of the Asset specificity. Considering any resource bound to a specific transaction, does the resource actually yields the highest return possible? Can it be used for another transaction with a better result? (Williamson, 1975). The easier it is to relocate an object in a transaction to other transactions the lower its asset specificity is. Objects with high asset specificity are hard to relocate due to the considerable adaptations, and hence cost, needed.

Williamson (1981) divides the assets into two categories which are the physical and human assets. Concerning the asset specificity of human assets, Williamson emphasizes the importance whether a skill is transaction specific or not. Employees; engineers, technicians, lawyers and so forth, are supposed to use their professional skills to perform their tasks (and of course be paid for doing so). This is, however, not enough to be a problem. As long as the employees use what is common knowledge within their professions, there are not any special interest from neither the employee nor the employer to maintain employment. But if the common knowledge of the profession is combined with transaction specific knowledge the asset specificity of the employee skills increase (Williamson, 1981).

“Knowledge of a particular firm's filing system, in contrast, may be highly specific (nontransferable). Continuity of the employment relation in the latter case is a source of added value.”-(Williamson, 1981).
Frequency: The third and last qualification of a transaction identified by Williamson (1975), it deals with how often the transaction occurs. As it is rather self explanatory it is seldom explained in any length (and will not be so here either). This should not be seen as a sign that frequency is unimportant. On the contrary, the frequency will be a big influence to the final cost associated with the transaction.

2.2.2 Resource based view

Even though the goal of the resource evaluation in RBV is to explain competitive advantage (something a governmental agency don’t have to worry about) an assessment to include the RBV was made based on two reasons. First and foremost it is a prequel to the knowledge based view. Secondly it also facilitates understanding the theoretical value of the components affected by the outsourcing decision.

The resource based view has its roots in Edith Penroses book 'The theory of the growth of the firm' published in 1959. In order to explain the growth of organizations, she utilized a wide view of the resources of an organization. Whereas traditional economic theories preferred easily measured units, such as labor and capital, Penrose added properties such as ‘technical skills’ to the units of analysis (Wernerfelt, 1984). Initially she received rather sparse attention. According to Wernerfelt (1984) this was, at least partly, due to the problems of quantifying the properties such as ‘technical skills’ into mathematical models used by economists.

In the article 'The resource based view of the firm’ Wernfelt focused on the resources within an organization, rather than the products it produced. Initially it was also rather neglected (Wernefelt, 1995), but at the beginning of the 21 century it was considered:

“At present, the resource-based view of the firm is perhaps the most influential framework for understanding strategic management.” -(Barney et al., 2001).

VRIN

Barney developed the resource based view further by specifying criteria to evaluate the resources. According to Barney (1991) any resource of an organization can be measured by its:

Value: To be valuable, the resource should enable the organization to “conceive of or implement strategies that improve its efficiency and effectiveness”.

Rareness: Important from the view of gaining a competitive advantage. Without a shortage of a specific resource, there cannot be any competitive advantage to possess the resource.
Imperfect imitability: If a valuable and rare resource cannot be obtained, or created, by a competing organization the advantage for the possessing organization will be sustained. Imperfect imitability can occur from three different reasons (or a combination of them):

Unique historical conditions: According to the RBV, organizations are “…intrinsically historical and social entities…”. They may have different backgrounds, different resources acquired, different experiences gained and so forth. This may give an organization a unique historical condition that cannot be imitated by competitors.

Casual ambiguity: Occurs “.When the link between a firm’s resources and its sustained competitive advantage are poorly understood..”. Competitors who wish to imitate a successful organization must first understand what parts to duplicate and which resources and links that are important in order to succeed with the imitation.

Social complexity: Not everything in an organization can be managed systematically. Barney quotes examples such as interpersonal relations, organizational culture and the reputation among suppliers. Even though competitors may realize that it’s culture of an organization that gives it an advantage; they may not be able to systematically duplicating that culture.

(Non-)Substitutability: An organization that does not have access to a specific resource that is valuable, rare and imperfectly imitable may have the possibility to achieve the same strategies by substitution. In order to gain a competitive advantage a resource also has to be non-substitutable. That is; it should not be possible to replace it with another resource. Barney mentions two different forms of substitution:

Similar: The first form of substitution is when an organization achieves the same possibilities by substituting the resource with a similar resource. Even though the resource is not exactly identical, its performance may still be on par. Barney takes the example of substituting a “High quality top management team” by developing “…its own unique top management team”. Although the team consists of different people, different routines etc they can perform equally well and achieve the same results.

Different: Second form is the opposite, instead of having a similar resource performing the same function it may be possible to achieve the same goal by a completely different type of resource. Barney uses the example of substituting “…a charismatic leader with a clear vision of the future” with “a formal planning system”.

2.2.3 Knowledge based view and Organizational learning

Knowledge is always the result of interpretation, which depends on the entire previous experience of the interpreter and on situatedness in a tradition. It is neither 'subjective' (particular to the individual) nor 'objective' (independent of the individual).-(Winograd and Flores, 1986).

The Knowledge Based View (KBV) emanates from the RBV. Although the RBV recognizes knowledge as an important resource, the KBV claims that knowledge is the most important resource of an organization. Focusing on knowledge the KBV strive to explain coordination, organizational structure, innovation and management and decision-making within organizations (Grant, 1996).

Specialist vs Generalist

Based on our cognitive limitations, especially the ones leading to bounded rationality, Grant concludes that specialization is necessary in order of being efficient at producing knowledge. “This implies that experts are (almost) invariably specialists while jacks-of-all-trades are masters-of-none.” -(Grant, 1996). In other words, the generalist have specialized in knowing a little about many things in order of understanding their relationships rather than the specific parts.

Single and double loop learning

According to Argyris (1977) there are two levels of learning within an organization. The first level, named single-loop-learning, is the continuous refinement of daily tasks in order of making them more efficient. With a specific goal; actions can be taken to enhance processes and reduce errors. However, at that level there is no realigning of goals. No question if there really is any need to enhance the task or if it should be abandoned totally. The second level, named double-loop-learning, deals with the goals and values that decide what should be performed in the first place. Single-loop-learning can shortly be described as enhancing efficiency whilst double-loop-learning would enhance the effectiveness.

Argyris use the example of a thermostat in order of separating the two levels. A thermostat is typically a single-loop device. It is capable of monitoring the temperature and act from a predefined set or rules. (Decrease the temperature if it is warmer than the desired temperature). If it were capable of questioning what the desired temperature should be, it would be considered as double-loop-learning (Argyris, 1977).
2.2 Frameworks used for describing organizations

Moving knowledge from single loop to the double loop

Considering organizations, Argyris (1977) describe the failures of insights, held by low level management, to reach the top executives in a timely fashion. Low level management is mostly concerned in making their teams perform efficiently, thus focusing on single-loop-learning.

In an example used by Argyris, the lower level managers knew that a specific product was experiencing grave problems. As they could not amend the problems by single-loop-learning, they realized that the product should be discontinued. However, due to organizational culture the lower level managers felt a need to create creative solutions to the problems, causing a first delay of knowledge flow as they spent time crafting the required documents to the middle management. When the middle management, who was responsible for the studies sponsoring the product, received the documents they considered the documents to be too open minded. Since the middle management knew how important the product was to the top executives the middle management wanted to be absolutely sure of the bad news before passing it on, of course they also wished to suggest creative alternatives to amend the problems leading to further delay. To make matters even worse, they felt a need to lessen the bad news by portioning it bit by bit and implying that the situation was under control. Resulting in a failure for the top executives to realize how serious the problem was. In the end, it took the top executives 6 years to reach the insights needed to discontinue the product (Argyris, 1977).

The double bind

In order to describe the organizational incapability, Argyris (1977) points to contradictory norms which he calls the Double bind. With norms embedded in norms, a chain of information withholding can be initiated. The first norm is “Do not confront company policies and objectives, especially those top management is excited about” but in order of sustaining that norm another norm, “You cannot openly confront norms that tell you not to confront policies and objectives”, have to be in place. The double bind occurs since there probably is a norm who demands that employees should reveal errors. This, of course, contradicts the hide errors meaning of the first two norms. Either way the employee will be breaking norms and thus fear of being punished for doing so. Leading Argyris to the conclusion:

“One common way to reduce the tension that results from conflicting aims is to begin to conceive of the error hiding, deception, and games as part of normal and organizational life. The moment individuals reach this state, they may also lose their ability to see the errors. This is one reason some employees are genuinely surprised and hurt when they are accused of behaving disloyally and
immorally by those (usually outsiders) who discover the longstanding practices of error hiding.” -(Argyris, 1977).

Knowledge perspective of transaction costs

According to Conner and Prahalad (1996), the opportunistic reason for organizational existence in the transaction-based view need to be complemented with a knowledge parameter. They argue that due to bounded rationality and tacit knowledge it is perfectly possible for two sincere individuals to reach different conclusions without influence of any opportunism. Guilelessness does not prohibit disagreements. There is a plentitude of causes for honest individuals, presented with the same facts, to reach different conclusions. They mention different assumptions of the future will hold. Who will win the presidential elections? How will the candidates act? Will the promises, or threats, made by the candidates be enforced once the election is won? Further reasons can be differences in highly subjective views such as how important environmental awareness is or their risk willingness. Thus:

“Truthfulness does not guarantee automatic agreement, easy recognition of a present or future ’common interest,’ or absence of haggling. Instead, these exist only if we eschew bounded rationality itself.”-(Conner and Prahalad, 1996).

Non-existence of perfect information

One of the intrinsic features of the market is the possibility for parties to specialize in their specific tasks. The involved parties don’t have to grasp every step of an entire chain that produces a product or a service. The market coordinates their efforts and thereby combats the non-existence of perfect information9 (Conner and Prahalad, 1996). Coordinating tasks are, of course, also available within an organization; thus organizations can specialize too. Actually, according to Rumelt (1995) the organization is capable of surpassing the market in terms of coordination.

From their knowledge perspective, Conner & Prahalad identifies the organizational advantage of postponing decisions10 by hiring an employee as the “Knowledge-substitution Effect”. They argue that a market contract can be encumbered with the need of transferring knowledge prior to the agreement is made (as the performer might otherwise choose not to enter into the agreement). As the employee, on the other hand, can be directed to act (and thereby be productive) prior to having acquired the knowledge; there is a possible knowledge advantage to the organization vs. the market. The organization can benefit from the combined knowledge before it has been agreed. They do, however, note that the advantage only arises if ”...there

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9 Bounded rationality again, no-one can know everything.
10 See 'Postponing the decision' on page 13
must be valuable aspects of Z’s knowledge that Y cannot use autonomously until Y fully understands and absorbs them” -(Conner and Prahalad, 1996). Thus, due to the knowledge-substitution available for organizations they, ideally, have an additional mean of combating the problem of our cognitive limitations (Conner and Prahalad, 1996).

**Keeping abreast of the future**

In order of exploiting unforeseen possibilities, or perhaps to change procedures resulting from organizational learning, organizations need a mean to change their commitments. Since it is impossible to foresee unforeseen possibilities, there will have to be renegotiations in market contracting. Such flexibility in the market is achieved by using a series of contracts (Conner and Prahalad, 1996). The possibility of changing responsibilities/duties between parties is named as ”The Flexibility Effect“ by Conner and Prahalad (1996). They note that the need of flexibility is different between organizations and that the impact of the additional cost of renegotiations thereby is dependent on the environment within which the organization operates. Further, they note that, in the market it is upon the part who has gained the new knowledge to convince the other to ”...disturb the status quo“ (Conner and Prahalad, 1996).

### 2.3 Model used to analyze organizations

The traditional, somewhat crude, view of a value creating organization is to divide the employees by their roles. A marketing department, a finance department, a production department and so forth. Information is mostly supposed to move vertically, between workers and management within the same function. If the information is considered useful for other departments, it can be fed back between departments (Pearlson and Saunders, 2006).

#### 2.3.1 Value chain

Michael Porter supplemented this view with his introduction of the value chain. The value chain have a different angle than the functional view, the value chain is based on the processes of an organization. The value chain differentiates between primary and support activities. At the bottom of the chain is the activity that adds value, the primary processes of the organization. They
span the functions used to transform the inputs to outputs. Other activities, such as human resource management and technology development are considered as being support activities (Porter, 1985).

The functional view can be used in order of exploring similar activities, getting to know the basics of the profession. Whereas the procedural is better suited to examine the trans-functional information flows, which are necessary to produce specific products/services (Pearson and Saunders, 2006).

2.4 Framework used to describe behavior between organizations

With in-house IS, the top managers of the organization have the unchallenged privilege of directing the IS department, and aligning its goals as appropriate. With the outsourcing decision, a new organization, that may have conflicting goals is introduced. In order to describe the new relationship, the Agency theory is briefly explained.

2.4.1 Agency theory

Agency theory deals mainly with the problems that can arise when two parts join forces in order of having the first part fulfil tasks for the other part.

"We define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent" - (Jensen and Meckling, 1976).

The agency theory is somewhat divided as the focus among researchers is different. There are two main tracks, the positivist and the principal-agent. Both tracks agree on the two major problems. The first problem; arise when there is a conflict of goals between the parts and the principal have a hard time verifying that the agent is actually performing the desired duties. The second problem; concern the risk sharing, the parts may have different preferences considering how much risk they are willing to endure (Eisenhardt, 1989a). The positivist track has focused mainly on the governance structures in the relation between top executives and the owners of large corporations. As they may have different goals, the owners need methods to monitor the executives. As an example is the approach of having a board of directors to monitor top executives in order of preventing them from acting mainly out of self-interest (Jensen et al., 1984).

The principal-agent track strives to be a full theory that can be applied to any situation that has a principal-agent relation. As a result, the literature is more prone to use mathematical proofs and logical deductions.
“The focus on the principal-agent literature is on determining the optimal contract, behavior versus outcome, between the principal and the agent.” - (Eisenhardt, 1989a).

An assumption for motivating agency theory research is the unavailability of complete information at no cost. The principal and agent may have different goals, the agent may behave out of self interest, and the principal cannot tell if the agent is behaving suitably. Hence, the literature mainly focus on the situations where the effort of the agent is not entirely known by the principal.

**Moral hazard & Adverse selection**

Considering the self-interest of the agent, two obvious problems arise. Everyone knows about slackers, people dodging work. In agency theory, this is described as *Moral hazard*. There is a discrepancy between what the agent promise, and the effort being delivered. The other problem, *Adverse selection*, is the assessment of abilities held by the agent. Since the principal may not have the competence to verify the skills of the agent, the agent can exaggerate the skills possessed (Demski and Feltham, 1978).

The principal has two alternatives to combat the moral hazard and adverse selection. Either it can increase the information of the agent performance, or use a contract where the agent is rewarded by the outcome of the work performed. There is, of course, not a single contract type that is optimal in every situation. Instead, the agency theory pinpoints the benefits and consequences with the two contract types. There is a balance between the cost of monitoring the agent, on one hand, and the cost of moving risk to the agent and monitoring of the outcome instead (Eisenhardt, 1989a).

**Behaviour based contract**

The behavior based contract assumes that the principal somehow can judge the performance of the agent (by introducing reporting structures, information systems, managers and so forth). The complexities of the task affect the feasibility of doing this. Tasks that are easily mapped in advance will be easy to monitor as it lessens the burden of the principal to acquire the information needed. Further, as it keeps the risk at the principal, it is preferred by the risk unwilling agent when the outcome is uncertain. However, there are accompanying drawbacks. It is vulnerable to goal conflicts. It moves the risk toward the principal who may be reluctant to carry the risk. Furthermore, it may be expensive to get enough information to evaluate the agent (Eisenhardt, 1989a).
2.5 IT Management / IT Governance

There are few who dispute the impact Information Technology has had on the business sector. It has greatly changed the game plan and continues to do so. However, as the field matures, the Information Technology is becoming a commodity and erodes the possibilities of being used as a competitive advantage. Instead, it has become increasingly habitual in the strategies of the business sector, almost to the extent that it ceases to be a specific IT concern (Carr, 2004). Paradoxically, the ubiquity of Information Technology creates a necessity of maintaining it (due to its increased presence). It becomes increasingly important to align the IT to business and vice versa (Luftman, 2004).

“IT governance is the responsibility of executives and the board of directors, and consists of the leadership, organisational structures and processes that ensure that the enterprise’s IT sustains and extends the organisation’s strategies and objectives.” (ITGI, 2007).

Pearson and Saunders (2006) highlights the importance of alignment with their Information Systems Strategy Triangle. At the top is the business strategy, supported by the organizational strategy and the information strategy. They are interlinked and should be balanced in order of fulfilling the business goals. Changes in any of the strategies will influence the remaining two and probably mandate adaptations of them as well.

2.5.1 Competencies needed to exploit Information Technology

In order of maintaining control of its information systems, regardless of the existence of an inhouse IS department or not, organizations need competencies to handle the high rate of change and technically difficult nature of IT. Specifically three areas (Business and IT Vision, Design of IT Architecture, Delivery of IS services) are

**Outcome based contract**

If it’s deemed too costly to gather information in order to evaluate the behavior of the agent, another approach can be taken. The results of the agent effort are measured, that is the agent is rewarded by the outcome of the work performed. This aligns the agent motives to the principals. However, it increases the risk taken by the agent as the outcome may be dependent on other factors than the sole performance of the agent. Another disadvantage is that the outcome must be easily measurable. For instance, the assignment may span a long time without deliverables or require input from others than the agent (Eisenhardt, 1989a).
identified by Feeny and Willcocks (1998). They argue that any organization need capabilities of continuously adapting and, occasionally, make profound changes in all three areas (Feeny and Willcocks, 1998).

**Nine core IS capabilities**

Basing their argument on the need for an organization to handle the three areas Feeny and Willcocks (1998) deepens the discussion of core competencies. Instead of focusing on what's core or not they argue of nine competencies that need to be present within almost every organization.

"Instead of focusing on IS as core or non-core, the debate should really center on which IS capabilities are core to the business's future capacity to exploit IT successfully". (Feeny and Willcocks, 1998).

**Leadership**: The linkage between IT and the business. There is a need both to build the IT organization, setting goals and envisioning the road ahead, as well as propagating the opportunities that can be brought by IT.

**Business systems thinking**: To understand the business processes and their interconnections. To perceive new possibilities of increasing the efficiency of the processes with the help of IS. Capable of explaining the comprehensive view of the IS enabled organization.

**Relationship building**: The starting point of a fruitful alignment between business and IT. Helping the users understand the possibilities that IS can bring and understanding their needs. Being a 'bridge' between end users and technical savvy IT personnel. Should create “confidence, harmony of purpose and successful communication among those focused on the business and technical agendas”

**Architecture planning**: The capability needed to create the overall 'technical platform', with accompanying policies, on which the organization will operate. Combining technical possibilities with the coming business needs.

**Making technology work**: As every user need will not be be captured in the architectural plan, or implemented in the resulting platform, there will be a gap between the design and the service provided. Due to the gap and the complexity of modern systems a thorough understanding of the technical architecture is needed. Firstly in order of quickly addressing the business needs that cannot be achieved through the standard architecture. Secondly to troubleshoot the problems that exist between the parts of the systems, as they are often renounced by others who perceive that their part of the system is working.

**Informed buying**: Understanding the offerings on the market, extremely important for organizations who wish to outsource most of its IS/IT. “..selection of a sourcing strategy to meet business needs and technology issues, and leading the tendering, contracting and service management process.”
Contract facilitation: The active role of handling complaints and interpretations towards the provider as users may not have the necessary competencies to negotiate directly. There is a need to attend the existing contracts in order of ensuring that the services are delivered to the satisfaction of the organization.

Contract monitoring: Ensuring the long time performance of the organization on contractual terms. Creating measurements and benchmarking suppliers in order of maintaining the control for both present and future contracts.

Vendor development: Striving to enhance performance of the vendors, to continuously improve the service they offer in order to benefit from new possibilities provided by the technological progress. In order to assist the vendor to understand the organizational needs, helping them to profit by added services, the outsourcing organization need to go beyond the existing contracts, identifying opportunities for win-win situations, where both vendor and organization gain from adaptations.

Lastly, Feeny and Willcocks (1998) explains the absence of project management among the core IS capabilities. They do not claim that project management is not a competency needed in order of successful IS Management. However, they do not consider it to be a 'core IS only' capability. Instead, they describe it as “an enduring, core and organizational requirement. However, it may be a transitory requirement in the IS domain, pending achievement of appropriate project management capability throughout the organization.” (Feeny and Willcocks, 1998).

2.5.2 IT Governance models

A brief explanation of well established frameworks for handling IT is provided.

The process based CobiT, is a framework that focus on what IT should deliver, aligning business and IT. ITIL, on the other hand, is a service oriented framework, focusing on how the IT should be delivered, ensuring efficient usage of IT. They overlap each other in many areas, which can be a bit confusing at first, but they can be combined in order of gaining the best practices from both (Wallhoff, 2004).

Also, a brief note of the relationships between CobiT/ITIL and the information security framework ISO/IEC 17799:2000 is provided (The Swedish translation of the standard is named; 'Ledningssystem för informationssäkerhet - Riktlinjer för styrning av informationssäkerhet', shortened to 'LIS' in everyday speech11.)

CobiT

The CobiT is a business focused process based framework, intended for top management to manage the IT of an organization. It creates a linkage from high level

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11 The English title is: The Code of Practice for Information Security Management
business goals down to performance measures of IT activities. CobiT consist of 34 standardized processes, which are grouped into four domains\textsuperscript{12}. The descriptions contains important performance guidelines and control objectives to govern the processes.

The CobiT Mission: “To research, develop, publicise and promote an authoritative, up-to-date, internationally accepted IT governance control framework for adoption by enterprises and day-to-day use by business managers, IT professionals and assurance professionals.” (ITGI, 2007).

From the Enterprise (Organizational) strategy, the Business goals for IT are derived which are then translated to pure IT goals (clear definitions of IT objectives). These objectives describe what the organization requires from IT and defines the IT architecture. Finally the realization of the IT architecture needs to be monitored in order of ensuring that the organization is exploiting the technology as desired (ITGI, 2007).

**ITIL**

The IT Infrastructure Library is a service based framework, focusing on the efficient management of IT. The current version of the framework provides best practices in five areas related to the lifecycle of a service. (Cartlidge et al., 2007).

Service Strategy: The lifecycle begins with a business need that is not fulfilled (new requirements have emerged). The service to be created is defined in a 'Service Level Package' containing the requirements and desired business outcomes.

Service Design: The design phase creates the service from the Service Level Package. The solution and methods for the remaining phases is described in a 'Service Design Package'.

Service Transition: The transition phase contains the evaluation, testing and validation of the service. The end of this phase is the deployment of the service into operational mode.

Service operation: The actual usage of service in production, the service should now fulfill the business outcomes defined in the Service Level Package.

Continual service improvement: Ideally performed during every other phase, the improvement of the service, it “…combines principles, practices, and methods from quality management, Change Management and capability improvement” - (Cartlidge et al., 2007).

ISO/IEC 17799:2000

The ISO 17799 standard concerns the information security of the entire organization; as such it goes beyond pure IT related security concerns. The alignment and overlapping seen between CobiT and ITIL is, therefore, not as evident when it comes to the ISO 17799. Its main purpose, if paired with CobiT and ITIL, would be to; “...adress security issues and mitigate risks”-(Wallhoff, 2004).

Concerning the management models

Almost all literature describing these frameworks dissuades from a let’s-implement-everything-at-once stance. "A big bang implementation is bound to fail. The difficult task is instead to choose issues that are important for you" -(Wallhoff, 2004).

2.6 Outsourcing

A short description of the history of ITO and its current status is provided. This is in order to describe the domain of the thesis.

“The most notorious example of outsourcing critical activities is probably IBM’s decisions in the 1980s to outsource the resources and capabilities that became Microsoft and Intel.” -(Lonsdale, 1996).

2.6.1 Historical developments in IS technology outsourcing

Outsourcing is not a new occurrence in the IS industry, for almost as long as there has been computers there has been some sort of outsourcing. In the early days of computing, the hardware was expensive. As a result, in the 1960s most organizations got their computations done via time-sharing by renting computing time from specialized service bureaus (Lee et al., 2003). In the 1970s, the demand for new applications and shortage of qualified personnel led to a shift. Instead of hardware, the major part of outsourcing became programming on a contractual basis (Lee et al., 2003). In the beginning of 1980, another shift occurred, the entrance of relatively cheap minicomputers and PCs created new possibilities for the organizations. Availability of standardized hardware and software packages gave the organizations opportunities to build their unique infrastructures, suiting their particular needs. As it became more important to control every step in product-development, most organizations opted to manage their environment in-house (Lee et al., 2003). This led to a decline in outsourcing. In the 1990s, the complexity of hardware, software and the infrastructures built by the organizations gave room for a new type of outsourcing, expert outsourcing vendors who manage the complex environment created by the organizations (Lee et al., 2003).
2.6.2 Current state of IS technology outsourcing

Today there is a multitude of ITO options and even more buzzwords to differentiate the offerings from each other. However, according to (Lee and Kim, 1999; Pearlson and Saunders, 2006) all ITO deals can be categorized in two broad categories with regards to the handling of the outsourcing organizations assets/resources.

Full/Asset outsourcing

Assets such as employees, software and hardware, are transferred to the provider. Depending on the asset specificity of the outsourced objects, different levels of commitments are desirable. Joskow (1988) summarizes Williamson (1983) categorization of assets with regards to their specificity...

Site specificity: Where the location of the assets is of importance, in order to minimize inventory and transportation costs.

Physical specificity: The degree to which the physical properties of an investment made are dependent on the particular transaction. In other words, how easy it is to reuse them for another purpose.

Human specificity: The unit of analysis for the thesis. The relationships between the parties, the specific knowledge gained by employees when they perform their tasks and thereby “learn-by-doing”.

Joskow also mentions the fourth entity 'Dedicated assets' (investments made by the provider in order of selling large quantities to a specific customer) alongside the specificities. However, from the perspective of this thesis, the dedicated assets are considered an investment to overcome the physical specificity. Stuckey and White (1993) uses the same three specificities but labels two of them somewhat differently. 'Physical specificity' is instead 'Technical specificity' and 'Human specificity' is labeled 'Human capital specificity'.

By examining the assets, and the activities being performed by them, the outsourcing organization can gain valuable insights of the feasibility to outsource the particular activity. Asset specificity can be judged by the cost associated with a replacement of the asset, or the cost of any modification needed to use the asset in another activity (Arnold, 2000). Arnold mentions two things with regards to the specificity. Firstly, if the asset specificity is high, there is not any economy of scale advantage to be gained by an external part. Secondly, the lower the specificity the less need to feed the activity with information. From a transaction cost perspective, Arnold (2000) draws the conclusion that activities with the highest specificity should be kept in-house (insourcing). The need to transfer a lot of information between the outsourcing organization and the provider will bring a high transaction cost.
However, if there is no identified advantage of retaining IS competence within the organization Pearlson and Saunders (2006) still reckoned that IT could be fully outsourced. This would ease the need to transfer information between the outsourcing organization and the provider, but would also resign control. Even though, it is a viable option as one of the major advantages of full outsourcing, identified by Pearlson and Saunders (2006), is to free internal resources for other tasks. This postulates that IT is of lesser strategic value to the organization hence resources should be devoted to other areas where they will yield a higher return.

Arnold (2000) also notes the closeness between the assets with highest specificity and assets that are of strategic value. According to the core competence idea advocated by Prahalad and Hamel (1990) assets that are both of strategic value and have a high specificity are probably the core competence of the organization and should be kept in-house, everything else should be outsourced, including the assets that has a high specificity but are not strategically important.

Selective outsourcing

Can also be referred to as “service outsourcing” or “tactical outsourcing”. A choice is made what to outsource. IT employees may be kept on the payroll and specific tasks are outsourced. In order to provide flexibility the contracts are often written in five years or less. This is in order to gain access to expertise workforce when needed (Pearlson and Saunders, 2006). Access to specific applications may be acquired from an external part, an Application Service Provider. This is commonly used when there is a necessity for the application, but the service provided is not of significant importance for the primary goals of the organization (Pearlson and Saunders, 2006).

Even though assets, most notably employees, may be retained within the organization in selective outsourcing, alternatives where most of the personnel is no longer employed by the organization exists. Selecting a couple of providers to manage most of the IT environment bring the advantage of access to the best providers in specific areas. It lessens the cost associated with managing many providers, and provide the flexibility of not being encumbered with an in-house IT department (Pearlson and Saunders, 2006).

Alternative views of outsourcing alternatives

By focusing on the providers instead of the organization assets, Currie and Willcocks (1998) divide the sourcing alternatives into four categories.

Total outsourcing: By using one provider for the major part, 70-80%, of the IT facilities. Often in rather long term contracts, up to 10 years. The outsourcing organization strives to focus solely on its core activities. Giving full confidence to the provider of operating the organizations IT environment.
Multiple-supplier sourcing: Selective outsourcing, using different providers in order of not relying in a single provider. Contracts are most often shorter than five years. This give the outsourcing organization access to the competition in the open market but at the cost of having to manage the agreements with the providers.

Joint venture/strategic alliance sourcing: The outsourcing organization buys a large part of the provider, or giving an internal department the mandate to compete as a player in the open market sharing risks and rewards. An example is Volvo IT who was initially founded as a subsidiary of Volvo in 1967 (VolvoGroup, 2010).

In-sourcing: If the IT is deemed to be of strategic importance, an organization may opt to sustain its own IS department. Any use of external contractors is most often negotiated for a very short time period.

Bringing even another view Quinn and Hillmer (1995) mentions the 'Multi-tier Partner Strategy', used by Nike, which is somewhat a combination of the Multiple-supplier sourcing and Joint-venture-alliance. In cases where the services provided by the providers are closing in on the core competence of the organization, different levels of commitments towards the providers can be used. Working closer with some providers, who even might be co developing products, and investing in techniques, high end products are manufactured. Other providers, who also have other customers, provide access to cheaper mainstream products (Quinn and Hillmer, 1995).

Co-Sourcing/Consultants, not really outsourcing

An alternative to outsourcing is the concept of co-sourcing or consultants, in opposite of traditional outsourcing the organization’s staff is part of the work being performed. Employees of the co-sourcing provider complement the internal workforce working together and adding specific skills not being held by the organization (Thomas and Parish, 1999).

Limitations in sourcing alternatives

There are many other views available to describe outsourcing options. However, to describe the situation relevant to the thesis the classification of full and selective outsourcing (Lee and Kim, 1999; Pearlson and Saunders, 2006) has been assessed as being sufficient. Even though there will be knowledge loss in the different versions of selective outsourcing as external parties perform the tasks, the unit of analysis for the thesis are the occurrences of full outsourcing, where the employees are either transferred to the provider or dismissed.

A couple of sourcing concepts have been deemed irrelevant to the scope of this thesis. Sourcing alternatives like crowd-sourcing, where a company can utilize the
'good enough' quality work of non professionals Howe (2006), can influence the options of tactical outsourcing, see the Selective outsourcing section 2.6.2). In the scope of this thesis, the crowd-sourcing is just another way of acquiring services in the marketplace. It will, therefore, not be treated as a specific sourcing option.

Same thing with the different alternatives of where to outsource, in the scope of retaining knowledge within the organization, it has been assessed that it doesn't matter if the outsourcing is done within the country, to a relatively close country, near-shored, or far-far away, off-shored. What are important are options such as whether the personnel are transferred or not.

Also cloud computing is not particularly considered, from the view of the thesis all that it brings is another place of storing the information used/created by the organization.

2.6.3 Constituents of modern IS technology outsourcing

A couple of outsourcing concepts is provided in order to merge the outsourcing vocabulary with the theoretical theories.

Application Service Provider/Software as a Service

With the rise of the internet, and the maturity of communication techniques, it has become feasible to use applications hosted outside organizational premises. This has led to the Application Service Provider model, shortened to the ASP model. By using the internet, preferably, applications are provided as a service, rented by the end user organization Tao (2001), bringing benefits both to the provider and the buyer. The provider benefit from advantages such as the lack of distribution costs, no installation support, reduced piracy, instant upgrades and a consistent user base. At the other end, the buyer will have unlimited access to alternatives, no installation/compatibility difficulties to worry about, less internal support and reduced downtime (Tao, 2001). The ASP model is considered to be an alternative of selective outsourcing as it provides access to specific services (Tao, 2001).

However, the ASP/SaaS model is still considered, by some, as being a rather immature business sector. Most noticeably is the lack of integration between applications/systems which hamper its competitiveness (Smith and Kumar, 2004).

Service Oriented Architecture

Even though the concept service oriented architecture (SOA) is more related to enterprise computing than outsourcing, it is briefly mentioned as an opportunity for future outsourcing capabilities. The concept of SOA builds on two building blocks
a 'service consumer' and a 'service provider'. Each service offered by a SOA component has a clearly defined set of capabilities. Targeting the application logic level, the components created with the SOA principles have a close relation to business functionality, easing interoperability (Krafzig et al., 2004). This carries the benefit of a stable border between components.

Service Level Agreement

As the name implies, the Service Level Agreement (SLA) is 'an agreement between parties'. The agreement, negotiated between the consumer and the provider, define the quality of the service provided (Ludwig et al., 2003). It is an example of the outcome based monitoring of the agent (see 2.4.1).

2.6.4 Advantages of outsourcing

The views of advantages with outsourcing are rather uniform among researchers. However, they are not to be taken as truths that always apply. For instance, many organizations outsource too much, or not efficiently. Leaving them in a position where the costs of maintaining all subcontractors actually are higher than it would be to keep the outsourced activities in-house (Quinn and Hillmer, 1995).

The advantages have been limited to the advantages directly visible to the outsourcing organization. Advantages realized by the provider, such as the providers’ assumed superior competence in hiring qualified IT personnel, are not listed. They are instead considered as being reasons for the availability of the 'Cost reducing' alternative.

Cost savings:(Pearson and Saunders, 2006; Currie and Willcocks, 1998; Ireland, 1999) Perhaps the most commonly cited benefit among them all. The providers can actually sell the service with profit due to their capabilities to perform the activities at a much lesser price then the outsourcing organization. This is due to factors such as economies of scale at the provider, increased incentives to improve the processes as they are the core competence of the provider and so forth (Pearson and Saunders, 2006; Currie and Willcocks, 1998).

Focus on core activities: Another non-controversial reason. Transforming the hard-to-grasp problems, associated with maintaining in-house IT employees and technical assets, into an easy-to-understand amount on an invoice. Reduced management burden for non core activities is a common reason for outsourcing (Loh and Venkatraman, 1991; Pearson and Saunders, 2006).

Capacity on demand: A less obvious benefit identified by Pearson and Saunders (2006). If the contract with the provider is adequate, the outsourcing organization can get access to the vastness of resources held by the provider. There is
no need to be burdened by the cost of maintaining high-performance equipment, rarely used at more than a fraction of its full potential, in order to cope with a few occurrences of high performance needs. As long as the customers of the provider don’t need the capacity at the same time, the cost of unused computing power can be minimized.

Liquidity infusion: (Pearlson and Saunders, 2006) Not really a self sustaining benefit in the scope of the thesis, but not the less existent. If the organization is in dire need of cash, to prevent bankruptcy for instance, the option to sell it’s assets, including IT operations, is always an alternative to consider. Being a benefit it may influence the motivation to outsource, but preferably it should be combined with other benefits.

2.6.5 Disadvantages of outsourcing

The same disclaimer is present with the disadvantages; this list is provided as a context for commonly accepted disadvantages in outsourcing with relevance to the thesis. It should not be considered as thorough list of every identified disadvantage.

Lost knowledge/skills: (Quinn and Hillmer, 1995) Which is the unit of analysis for the thesis. It can be very costly to reverse an outsourcing decision; the current IT staff will most often be lost either to the provider or to other companies (Pearlson and Saunders, 2006).

Loss of control: When a task is outsourced the outsourcing organization will have to rely on the provider’s capability of managing that task. The choice of provider and negotiation of contracts is paramount (Pearlson and Saunders, 2006).

Provider dependency: Rather close to the previous item but still worth standing on its own. Problems may occur due to different priorities between provider and outsourcerer (Quinn and Hillmer, 1995; Pearlson and Saunders, 2006) also notes the reliance given to the provider. The outsourcing organization will be very dependent on the provider. Mandating carefully written contracts that pay attention to changed conditions, quality of the service provided (and so forth) as it can be very hard to leave a provider that cannot provide for the needs of the organization (Pearlson and Saunders, 2006).

Loss in flexibility: As it is impossible to foresee the future, contracts are written without certain knowledge of what will be needed or the benefits that new technology can carry. As an example, Pearlson and Saunders (2006) notes that some providers were rather slow in their adaptation to the internet.
2.7 Ending the theoretical background

This ends the theoretical research chapter. In the first part of chapter 4 the theories described are used as a base, to formulate propositions used to deduce a tacit knowledge assessment statement.
Methodology

3.1 Introduction

The purpose of the thesis is to gain an understanding of whether tacit knowledge should influence outsourcing deals. My intention is to look at the service buyer organization, their understanding of the situation and the decisions made based on their view. Hence research methods used in social sciences have been considered.

3.1.1 Scientific approach

John Dewey argued that systematic inquiries should follow “the double movement of reflection” (Dewey, 2007). Reasoning is performed in order to provide meaning, the reasoning should move back and forth from the given facts to the whole situation aiming to describe the facts. And from this situation the facts should again be considered in order to test the situation. “Roughly speaking, the first of these movements is inductive; the second deductive. A complete act of thought involves both -it involves, that is, a fruitful interaction of observed (or recollected) particular considerations and of inclusive and far-reaching (general) meanings” (Dewey, 2007).

Deductive and inductive reasoning

Kerlinger and Lee (1999), basing their arguments on Dewey, describe the deductive reasoning as “moving from a broader picture to a more specific one”. They also point out that the deduction might lead to the need to revise the initial problem. The original thought might, for instance, be a part of a larger phenomenon.

Moving in the other direction is called inductive reasoning, Kerlinger and Lee (1999) describes it as “It starts from a particular facts and move to a particular statement or hypothesis.” They also note how easy it is to end up with the wrong conclusions since “the method’s natural tendency to exclude data that does not fit the hypothesis.”

See section 2.1.2, “Tacit and explicit knowledge” for the traits of tacit knowledge.
I wish to identify concepts, to generate a theoretical statement relevant to the tacit knowledge held by the IT personnel in ITO. As such, the methodology used can be argued to be mainly inductive as it has movement from facts to a generalizable theory/statement. However, as Dewey pointed out, there is of course the need for deductive reasoning to be present in order to build the statement.

3.1.2 Qualitative vs Quantitative research

In addition to the establishment of whether the research should be of the inductive or deductive type there is also a need to determine whether the data collection should be qualitative or quantitative. Newman and Bentz argues; “The qualitative, naturalistic approach is used when observing and interpreting reality with the aim of developing a theory that will explain what was experienced. The quantitative approach is used when one begins with a theory (or hypothesis) and tests for confirmation or disconfirmation of that hypothesis” -(Newman and Benz, 1998).

There are obvious ways to keep the tacit knowledge within the organization when outsourcing that could be used as a base for a hypothesis in a quantitative study. For instance, one could promote the best employees (preferably) of the 'to be outsourced task' as managers of the outsourced task. Such decisions may, however, be based on outsourcing rules of thumb. Not on a sound understanding of the possible problems inherited in outsourcing deals.

Also, as the thesis somewhat questions whether decision-makers are aware of the tacit knowledge concept at all, an assessment was made that a quantitative method would not be able to rule out assumptions and pure guesses from the respondents making it hard to ensure validity. Further, as there are no well-established theories to draw conclusions and create propositions from the thesis aim to fill this vacuum.

In order of creating a theory statement, which can be used by other researchers, a qualitative study is preferred.

Sampson’s Two Views of the Science of Social Psychology

Kerlinger and Lee (1999) provides further views to the qualitative vs. quantitative approaches. Basing their arguments on Sampson’s “two opposing views of science”, they draw a dividing line between the "traditional perspective" and the "sociohistorical perspective". In order to summarize Sampson’s views Kerlinger and Lee (1999) provide the following table;

---

2 See section 2.1.2, “Tacit and explicit knowledge” for the traits of tacit knowledge
Table 3.1. Sampson’s Two Views of the Science of Social Psychology

<table>
<thead>
<tr>
<th></th>
<th>Traditional (Quantitative)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Goal</strong></td>
<td>Describing the reality of human social interactions and functions</td>
</tr>
<tr>
<td></td>
<td>Describing the variety of human social experience and activity through social and historical information and the roles they play in human life</td>
</tr>
<tr>
<td><strong>Philosophical Position</strong></td>
<td>Reality can be discovered independently by nonpositioned observers. Reality can be grasped without occupying any particular biasing standpoint</td>
</tr>
<tr>
<td></td>
<td>Reality can be discovered only from some standpoint; thus, the observer is always a positioned observer</td>
</tr>
<tr>
<td><strong>Metaphoric Statement</strong></td>
<td>Science can be perceived to be like a mirror. It is designed to reflect things as they are.</td>
</tr>
<tr>
<td></td>
<td>Science is perceived to be a storyteller. It gives different or personal accounts and versions of reality.</td>
</tr>
<tr>
<td><strong>Methodological Considerations</strong></td>
<td>Methods created and used to control or eliminate factors that would weaken the researcher’s ability to discover the true shape of reality.</td>
</tr>
<tr>
<td></td>
<td>The researcher’s understanding of reality is shaped by broad social and historical factors. The methods can yield a richer and deeper understanding of reality based on encountering the diverse accounts used by people in making sense of their lives.</td>
</tr>
</tbody>
</table>

The methodological consideration comparison between quantitative and qualitative research methods is especially important. In choosing methodology for the thesis, the quantitative desire to eliminate as many factors as possible was assessed as a major weakness. The loss of tacit knowledge cannot be explored without a broad understanding of the influence from many factors. The assessment was made that the research of tacit knowledge is not mature enough to provide clear demarcations of relevant factors. Further, the comparisons show some of the most fundamental differences between qualitative and quantitative research design that was used sub sequentially in creating the research methodology.
3.1.3 Research approach

According to de Figueiredo (2012) there are five methods that "stand out as more relevant in Information Sciences and Technologies research".

- Case study
- Ethnographic Research
- Grounded Theory
- Action-Research
- Design-Based Research

Case study

Somekh and Lewin (2005) describes the case study as more of an approach then "a single, coherent form of research". The common denominator for all case study approaches, according to Somekh and Lewin (2005), is the "emphasis of study-in-depth" of a particular phenomenon. The case study is targeted to explain complex situations where important factors could be lost or not described thoroughly enough in a broader generalized method.

As case studies can be used in different areas of research, the demands of the different areas influence the building blocks of case study. Somekh and Lewin (2005) compare the area of social sciences; where the need to understand the settings of an occurrence, to induce meaning, can be more appropriate than the comparatively objectivity sought by medicinal research.

As the social sciences are vulnerable to the arbitrariness of the human mind it is important to remember, that "things may not be as they seem". Therefore, in order to provide a meaningful understanding of a situation, the possibility to generalize is most often lost as coverage has to stand back for the in-depth inquiry needed to understand a particular situation (Somekh and Lewin, 2005).

"Case study thus is particular, descriptive, inductive and ultimately heuristic - it seeks to 'illuminate' the readers' understanding of an issue" - (Parlett and Hamilton, 1972).

Somekh and Lewin (2005) identifies two major weaknesses with the case study approach. Firstly they note that the in-depth focus and relatively small sample constraint of case studies impair the feasibility of generalization towards population. However, some researchers argue that a good case study will invite the reader to generalize from personal experiences (Stake, 1995). This "naturalistic generalization" occurs when ".readers recognize aspects of their experience in the case and intuitively generalize from the case rather than the sample of one being statistically representative of the population as a whole." (Somekh and Lewin, 2005).
The second major issue regards the boundaries of the case study. Somekh and Lewin (2005) argues that too often the case is "assumed to be coterminous with the physical location". They give an example of a school where the parents’ influence of the learning easily could be neglected.

"...drawing the boundaries of a case is not straightforward and involves crucial decisions."-(Somekh and Lewin, 2005).

**Ethnographic Research**

The focus of Ethnography is 'the people'. Understanding how humans understand the world in which they live and act. "The distinctive features revolve around the people as meaning-makers, around an emphasis on understanding how people interpret their worlds..."-(Somekh and Lewin, 2005). The ethnographer strives to be involved in the daily life of a social group/society which is being researched. The goal is to identify how the participants experience the situations. Thus there is a significant focus on peoples actions, what they say and what they do. Behaviors are motivated by thorough descriptions in order for the reader to "develop a strong sense of the particular realities involved."-(Somekh and Lewin, 2005).

This method was deselected due to its inability to measure the actual impact of the loss of tacit knowledge. Ethnography is used to understand the interpretation of the participants. The results of an ethnographic approach would measure a particular organizations view of the tacit knowledge loss in a particular outsourcing deal.

**Grounded Theory**

The goal of grounded theory research is to generate an "integrated theoretical formulation that gives understanding about how persons or organizations or communities experience and respond to events that occur." -(Somekh and Lewin, 2005).

Somekh and Lewin (2005) describe the procedure of grounded theory in "Research methods in the social sciences." An initial identification of concepts is achieved by "open coding" literature and initial interviews. These concepts should then be used in a procedure called the theoretical sampling. That is, the iterative process of data collection and analysis which leads to further development of the concepts. The concepts are continuously grouped into more generalized categories, called "axial coding." These categories are then abstracted even further until a single category, called the core category is produced. The theoretical sampling should be performed until the data collected begin to be repetitive and no additional concepts are identified. At which point the research is said to have reached saturation (Somekh and Lewin, 2005).
As grounded theory is theory generating, it was initially considered as a viable approach, it was even scrutinized at length. It was, however, also discarded. The literature describing the methodology stresses the importance of an experienced researcher; it is a time consuming and difficult approach, and the goal is a full theory. Further, an assessment was made that the research question of tacit knowledge would merely be considered as one of the themes included in the theory. Hence the grounded theory approach was discarded due to its magnitude and complexity.

**Action-Research**

Action research is an experimental approach; the research is embedded in the actual process. The knowledge generated in the research is used immediately. The action researcher influences the actual actions taken. Theory and practice are applied in cyclical steps and become part of the daily work. The base for the research is to generate hypothesizes that are actually implemented and tested (Somekh and Lewin, 2005). Hence, it was quickly discarded due to its cyclical nature and bad alignment to the research question, the feasibility to implement and the extreme difficulties to pinpoint the effects of the tacit knowledge lost among the multitude of other influencers.

**Design-Based Research**

According to the "The Design-Based Research Collective," the Design-Based Research is "an important methodology for understanding how, when, and why educational innovations work in practice". Further, they claim that "help us understand the relationships among educational theory, designed artifact, and practice"-(Baumgartner et al., 2003). It was discarded due to its focus of learning.

**3.1.4 Ethical issues of the research**

The ethical aspect of research in social sciences is considered to be of utmost importance; hence numerous principles to guide researchers have emerged. Somekh and Lewin (2005) claims that "Ethical decisions are the result of the weighing up of a myriad of factors in a specific complex social and political situation in which we conduct research".

Somekh and Lewin (2005) identifies a couple of "common assumptions“ that any research in social sciences should adhere to. The most prominent are "Informed consent“ and "confidentiality and anonymity”. Further, they mention "prepublication access".

In order to adhere to the informed consent principle, the interviewees were informed of the research area prior to the interviews were performed. Reaching a
feasible level of the initial information proved to be difficult. After thorough consideration, the initial information was rather brief for two reasons; firstly in order to minimize the influence of the participants’ views, and secondly an assessment was made that the arbitrariness of the tacit knowledge concept could be confusing. Instead, the interviewees were encouraged to ask for clarifications or even postpone the interview at any stage if they felt any discomfort. At the end of the interview they were also informed that they could amend; clarify or even revoke their entire participation if they so desired. This continuous consent focus in the interviews is in the line of the concept of "rolling informed consent", identified by Somekh and Lewin (2005).

Apart from the interviews, information was also gathered by direct observation and participant observation. Due to the impracticality of informing the entire organization of the research and getting their consent to participate; the usage of these two information sources as arguments were kept at a minimum.

Likewise, the confidentiality and anonymity principle proved to be anything but easy. The decision to include the organizational positions of the interviewees could be considered to weaken the anonymity of the participants. The assessment defending this decision is that there is too much relevance in the difference, in views of the different positions that would be lost if the positions are left out.

Considering confidentiality, large parts of the interviews could be considered to "set a price" to the value of the existing IT department, hence the participants was continuously reminded of their confidentiality. As in the case with informed consent, they were informed that they could amend or revoke their participation without any need to clarify their reasons.

Perhaps the most eye-catching deviation from the general assumptions is the omission to encourage the participants to read the final research report before it is published. However, would they have expressed such a desire they would of course have been given the opportunity.

A large part of the work conducted in this thesis was performed in the literature review and examination of previous research phase, the principle of sound referencing was of course immediately recognized.

3.1.5 Chosen methodology

Among the qualitative research methods the case study approach was assessed to be the most appropriate among the considered alternatives. It strives to describe a whole, to illuminate, to give a base of understanding of an issue. Eisenhardt (1989b) summarizes the process of building theory from case study research in the following table:
### Table 3.2. Eisenhardt’s Process of Building Theory from Case Study Research

Source: (Eisenhardt, 1989b), "Process of Building Theory from Case Study Research".

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Reason</th>
</tr>
</thead>
</table>
| Getting started     | Definition of research question  
                    | Possibly a priori constructs  
                    | Neither theory nor hypotheses                                                                 | Focuses efforts  
                    | Provides better grounding of construct measures  
                    | Retains theoretical flexibility |
| Selecting Cases     | Specified population  
                    | Theoretical, not random, sampling                                                                 | Constrains extraneous variation and sharpens external validity  
                    | Focuses efforts on theoretically useful cases-i.e., those that replicate or extend theory by filling conceptual categories |
| Crafting Instruments and Protocols | Multiple data collection methods  
                    | Qualitative and quantitative data combined  
                    | Multiple investigations                                                                 | Strengthens grounding of theory by triangulation of evidence  
                    | Synergestic view of evidence  
                    | Fosters divergent perspectives and strenghtens grounding |
| Entering the field  | Overlap data collection and analysis, including field notes  
                    | Flexible and opportunistic data collection methods | Speeds analyses and reveals helpful adjustments to data collection  
                    | Allow investigators to take advantage of emergent themes and unique case features |
| Analyzing Data      | Within-case analysis  
                    | Cross-case pattern search using divergent techniques | Gains familiarity with data and preliminary theory generation  
                    | Forces investigators to look beyond initial impressions and see evidence thru multiple lenses |
| Shaping Hypotheses  | Iterative tabulation of evidence for each construct  
                    | Replication, not sampling, logic across cases  
                    | Search evidence for "why" behind relationships | Sharpens construct definition, validity, and measurability  
                    | Confirms, extends, and sharpens theory  
                    | Builds internal validity |
| Enfolding Literature| Comparison with conflicting literature  
                    | Comparison with similar literature | Builds internal validity, raises theoretical level, and sharpens construct definitions  
                    | Sharpens generalizability, improves construct definition, and raises theoretical level |
| Reaching Closure    | Theoretical saturation when possible | Ends process when marginal improvements become small |
**Major steps that were performed**

Some adjustments to the process had to be made, mainly due to lack of my pre-existing knowledge of the tacit knowledge influencers. Therefore, the third step "Crafting Instruments and Protocols" had to be preceded by a large exploration of previous research. Having gained the knowledge the process was rather straightforward according to Eisenhardt's process. The resulting process consisted of the following steps:

1. Initiation (Getting started and Selecting cases): Shallow literature studies, searches for previous research, discussions with teachers to produce a research question and cooperation intent from the organization used in the case study.
2. Knowledge gaining (Not present this early in Eisenhardt's process): A thorough review of previous literature in order to learn what other researchers have done in this context.
3. Produce statement (Crafting instruments and protocols, Entering the field, Analyzing data, and Shaping hypotheses): Based on the gained knowledge and primary data gathered by participant-observation a set of propositions to produce a statement was created.
4. Test statement (Analyzing data, Shaping hypotheses): In order of better understanding the phenomena, semi structured interviews were performed to test the propositions.
5. Analysis and conclusions (Analyzing data, Enfolding literature and Reaching conclusions): Lastly, the interviews were triangulated with previous literature and the statement to produce the conclusion.

![Graph over major steps performed. Authors own work, Creative Commons Attribution-Share Alike 3.0 Unported.](image)

As mentioned above, the initiation phase contained a search for previous research. Inquiries at physical libraries were rather soon discarded due to the lack of positive responses to the statement of "tacit knowledge." Instead online resources
and search engines were utilized. Searches such as "tacit knowledge outsourcing" were performed at a great many search engines, among others:

- Libris: http://libris.kb.se/
- Regina: http://www.kb.se/soka/kataloger/regina/
- Stockholms Universitetsbibliotek: http://sub.su.se/
- Elsevier: http://www.elsevier.com/
- Jstor: http://www.jstor.org/
- Google Scholar: http://scholar.google.se/
- Amazon: http://www.amazon.com/
- Academy of Management: http://journals.aom.org/

3.1.6 Reproducibility, reliability and validity in the application of the research method

In order to increase the reproducibility, care has been taken to provide a thorough background of previously established research to identify relevant concepts that another researcher can use to test the findings. The "Development of the propositions" section, in chapter 4, strives to give another researcher the tools to reproduce or falsify both the concepts, as well as the findings in this thesis.

The concept of reliability in qualitative studies should not be mixed up with its counterpart in quantitative studies, according to (Stenbacka, 2001) "the concept of reliability is even misleading in qualitative research. If a qualitative study is discussed with reliability as a criterion, the consequence is rather that the study is no good" Instead, Seale (1999) asserts "trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability." Further, Lincoln and Guba (1985) argues that a qualitative study should establish confidence in the findings, and Golafshani (2003) asserts "The idea of discovering truth through measures of reliability and validity is replaced by the idea of trustworthiness." Hence, a big effort have been taken to provide a red thread of reasoning, from previous research, via the propositions producing the framework to the interviews and then back again, in order to produce a logically sound and "trustworthy" framework.

3.2 Justifying the research methods

In his book, "Good research guide : for small-scale social research projects" Denscombe (2010) provides checklists that can be used by a novice social study researcher to evaluate whether the criteria for the chosen research strategy are fulfilled. The Chosen methodology, described above, is scrutinized by applying the checklist for a case study provided by Denscombe.
3.2.1 Denscombe’s checklist for the case study approach

"When undertaking research which involves the case study approach you should feel confident about answering yes to the following questions:“- (Denscombe, 2010)

Table 3.3. Denscombe’s checklist for the case study approach

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Fulfilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is the research based on a naturally occurring situation?</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Have the criteria for selection of the case (or cases) been described and justified?</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Has the case been identified as a particular instance of a type of social phenomenon (e.g. kind of event, type of organization)?</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Have the significant features of the case been described and have they been compared with those to be found elsewhere among the type of thing being studied?</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Is the case a fairly self-contained entity?</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>Have the boundaries to the case been described and their implications considered?</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Has careful consideration been given to the issue of generalizations stemming from research?</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>Does the research make suitable use of multiple methods and multiple sources of data?</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>Does the research give due attention to relationships and processes, and provide a holistic perspective?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Scrutinizing the thesis with the checklist

The justifications for each of the items in Denscombe (2010)’s checklist are provided in the following list:

1. The existence of ITO is considered to be "generally known." The occurrence of ITO in governmental agencies is proven in the Context of the used case section, (1.1).
2. The criteria and choice of case is described in section Gathered data in the case study, (4.2).
3. The organization chosen is one of over 200 governmental agencies in Sweden. Hence, there are plenty of other governmental agencies which have the same
boundaries/issues. The theory framework could, possibly, be used for governmental agencies outside of Sweden and any organizations considering ITO. But that is left for future research. Both the instances of the event and the organizations are identified in Context of the used case section, (1.1).

4. The features of the tacit knowledge problem are described in the Development of the propositions section (4.1), and they are compared to the specific case in the section Gathered data in the case study (4.2), and the chapter Conclusions

5. The case, chosen to test the framework, is delimitated to only the organization. Especially in the section Interviews (4.2.3), a deliberate choice of not including participants outside the organization is made.

6. Boundaries of the case are described in the section Boundaries of the case (6.1.1)

7. Generalization is discussed in the Generalizability of the case (6)

8. Several methods and source of data have been used, described in, among other places, chapter Result (4) and section Gathered data in the case study (4)

9. A lot of effort have been invested in the criteria describing the value of tacit knowledge in the section Development of the propositions (4.1). The section also provides a holistic view of the aforementioned knowledge and its relevance in ITO. Further, the holistic view is discussed in the chapter Conclusions (6)
Result

Since the social sciences are vulnerable to the researchers understanding of the reality, the choice was made to precede the open discussion with a deductive part. The deductive part is used to summarize the existing theories of relevance with regards to tacit knowledge in ITO. The propositions describe the researchers view of the previous research. The goal of this approach is to create a common base, or a layer separating the previous research from the data contributed by the thesis. The propositions, created by the deductive reasoning, are then used as a base for the later inductive theory generating discussion.

The justification for presenting both the findings from literature background, and the data collected in the case, in the same chapter is that the theoretical conclusions, leading to the propositions, is considered to be the major part of the findings. Hence, the Result chapter consists of two parts. One that is general, and not delimited to the specific case, and the second part, where the findings are tested in a specific case. This can be considered to be a weakness in the presentation, the results chapter is mixed up with conclusions. The entire section 4.1 “Development of the propositions,” consists of conclusions that preferably could be presented in the Conclusions chapter. However, doing so would obstruct the understanding of the interviews. Thus, in order to present a coherent line of reasoning, the conclusions from the literature are presented in this chapter.

4.1 Development of the propositions

There are numerous parameters to consider in an outsourcing decision. Ranging from subjective personal-to-personal assessments such as whether it is important to have a familiar face who can 'just-fix-the-problem' to harsh economic figures such as the 'total cost of ownership' or management philosophies such as 'core competencies.' This thesis, however, focuses solemnly on the perceived value of tacit knowledge.
Firstly, in order of extracting a set of propositions that distinguish the value of tacit knowledge from the overall value of knowledge the occurrences where explicit knowledge only is not feasible is identified. The transaction cost economics classification of transactions identified by Williamson (described in 2.2.1) and Argyris two levels of knowledge (described in 2.2.3) are used to create a matrix discerning the influences of transactional characteristics onto having tacit knowledge.

Secondly, the human ’limitations’ identified in transaction cost economics (described in 2.2.1) are added to capture the aspects related to the personnel possessing the tacit knowledge.

Finally knowledge theory of knowledge related aspects such as knowledge quality are applied (described in 2.2.3).

The propositions are used to summarize the existing theories of relevance with regards to tacit knowledge in ITO. As suggested, by among others, Kerlinger and Lee (1999) scientific reasoning should move in both the inductive as well as the deductive direction (see 3.1.1). Thus, the propositions, created by deductive reasoning, are used as a base for the later inductive theory generating discussion.

4.1.1 The transactional influencer’s on tacit knowledge

As we described above, Williamson (1975) gave three qualifications of a transaction; Uncertainty, Asset specificity and Frequency.

Out of these three, only one is fully relevant in the direct influence of a transaction considering tacit versus explicit knowledge in outsourcing deals. The uncertainty of the transaction will influence the feasibility of transforming tacit knowledge into explicit which will result in a direct impact of the tacit knowledge value. A transaction with low uncertainty will be easier to predict/routinize than transactions with high uncertainty, there will be fewer surrounding influences to pay regard to, which will lessen the need for tacit knowledge. Further, in a transaction with high uncertainty, it will be very hard to predict the important influences on beforehand, resulting in the need for a tacit knowledge assessment. And even in the case of a highly explicitly described uncertain transaction there will be a need to have the tacit knowledge required to realize that “this have not been documented”.

In comparison, the remaining two qualifications will hold less power towards the tacit versus explicit knowledge impact. Beginning with the asset specificity of a transaction; specificity itself does not influence the feasibility of transforming tacit knowledge into explicit. Instead the time required to amend any lack of explicit knowledge, such as documents, describing a highly specific transactions could affect the cost of transferring the transaction. Further, highly specific transaction that is reliant on tacit knowledge may yield a high value of the present tacit knowledge held by the personnel. But it does not give a value to the importance of having
4.1 Development of the propositions

tacit knowledge. However, given that tacit knowledge is required to realize that the explicit knowledge describing a highly specific transaction has been outdated. And, as it can be argued that a transaction with high specificity will yield fewer economy-of-scale-benefits for the provider, there is a motivation for keeping tacit knowledge in order of double loop learning for highly specific transactions.

Finally, the frequency of the transaction may have a huge impact on the total cost of a lacking in knowledge, and thus could be a motivation to preserve the knowledge in itself. In an outsourcing perspective, this should be a reason for the process containing the frequent transactions to be well mapped and documented. It can be argued that frequent transactions are easier to teach by tacit-to-tacit transfer (the blacksmiths apprentice method). They occur frequently, an 'apprentice' would have plenty of transactions that could be used for learning. And those infrequent transactions can be almost impossible to transfer with tacit-to-tacit transferral, since they occur too seldom. However, the feasibility of documenting the process is not reliant of the frequency, but of its uncertainty, and to some extent of its specificity. Therefore, frequency cannot be used to describe the influence of tacit versus explicit knowledge in the transaction, only the outcome of a lack of knowledge, and poor understanding of processes in general.

From the previous argumentation; the matrix to create relevant proposition considering the transactional qualification impact of the value of having tacit knowledge can be narrowed down to:

<table>
<thead>
<tr>
<th>(Qualification) (Extent)</th>
<th>Uncertainty</th>
<th>Specificity</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Single loop learning</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double loop learning</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.1. Table of relevant propositions**

**Transaction qualifications propositions of relevancy**

Considering the transaction characteristics influence on single loop learning in a support activity (Efficiency of an IS process).

P1a: If a transaction is unpredictable in-house tacit knowledge should be superior.
(understanding of process, no economy of scale for agent)

P1b: If a transaction is predictable in-house tacit knowledge should be inferior.
(no prevention of economy of scale)

Considering the transaction characteristics influence on double loop learning in a support activity (Effectivity of an IS process).
P2a: If a transaction is unpredictable in-house tacit knowledge should be superior. 
(understanding of process, no economy of scale for agent)
P2b: If a transaction is predictable in-house tacit knowledge should be inferior. 
(no prevention of economy of scale, knowledge of best practices)
P3a: If a transaction is specific in-house tacit knowledge should be superior. 
(no economy of scale for agent, no organizational boundary for the knowledge to traverse)
P3b: If a transaction is standardized in-house tacit knowledge should be inferior. 
(no prevention of economy of scale, knowledge of best practices)

4.1.2 Human influencer’s on tacit knowledge

There are also human considerations that can justify an organization to deviate from the transactions related placement of tacit knowledge. For instance, reliance of personnel or unwillingness to compete for a skilled workforce may result in an assessment that tacit knowledge is not cost-effective. Or on the other hand a strategic goal of continuous quality improvements may mandate focus of tacit knowledge even in a predictable environment.

Continuing with the transaction cost economics as a base, the two human aspects, bounded rationality and opportunistic behavior, are used to generate propositions. As the aspect itself consist of humans, and thereby eschew explicit knowledge per default, there is no need to distinguish explicit and tacit knowledge. All knowledge held by the personnel is considered as tacit knowledge. Further, the quality criterion is ignored at this stage. The propositions presume that the tacit knowledge is correct.

Having a dedicated IT department will introduce the risk of opportunistic behavior at both the employee level as well as the organizational level. As the dedicated IT resources are not part of the primary processes, their focus might be prone toward the information technology. Efforts to align IT goals to organizational goals might be needed. Further, both employees and their departments might act out of self-preservation instead of process optimization, resulting in suboptimal information services. At the other end, having motivated personnel, who invest time and effort in knowledge specific to the organization, can tie them to the organization and provide a workforce highly adapted to the organizational requirements.

Secondly, the bounded rationality will probably prevent the in-house workforce from becoming highly skilled at both technical and organizational matters at the same time. Staffs will become generalists, masters-of-none, with knowledge that may be outdated. The option to hire highly skilled experts in each segment, to implement known best practices (others explicit knowledge), may prove more efficient. At the other end, having personnel with an understanding of the organization and its alignment with IT, may greatly improve the efficiency of the hired experts.
4.1 Development of the propositions

Human qualifications propositions of relevancy

Considering opportunistic behavior (Dependency of personnel).

P4a: Tacit knowledge is good.
   (Growth of organizational specific knowledge.)
P4b: Tacit knowledge is dangerous.
   (Dependency of personnel, faulty prioritizing)

Considering bounded rationality (Efficiency).

P5a: Tacit knowledge is efficient.
   (Eases the implementation of best practices, or best practices not relevant due to organizational transaction characteristics. Tacit knowledge is faster then explicit.)
P5b: Tacit knowledge is inefficient.
   (Use experts and best practices.)

4.1.3 Knowledge influencer’s on tacit knowledge

Finally, the knowledge aspect of tacit knowledge, leading to the propositions whether tacit knowledge can be considered to be cost-effective or not. Depending on the organizational view of the importance in support activity improvements the quality of the knowledge may be influenced. Tacit knowledge that is not used will not be challenged and may deteriorate. Combined with other circumstances, such as the conflicting goals of ‘the double bind’ described by Argyris (see 2.2.3), tacit knowledge may be counterproductive. Instead of using the tacit knowledge the organization may opt to settle for standardized best practices for the support activities. Even though this may require the organization to adapt it’s primary activities to routines that are not optimally designed for the organization it may be less costly as it can lessen the overhead of continuously designing, implementing, teaching and learning of a never-ending flood of new routines.

At the other end, by having tacit knowledge of both the organizations primary activities as well as the secondary activities, the in-house personnel may be highly efficient in realizing the benefits provided by advancements in their field of expertise. Further, their knowledge can also be used by the organization to implement the new advancements in a seamless, and preferably less intrusive, approach.

Knowledge qualifications propositions of relevancy

Considering the quality of the tacit knowledge and organizational learning (Effectiveness).
P6a: Tacit knowledge is reliable.
   (Continuous flow through Nonakas knowledge spiral can verify the knowledge
    at several instances.)

P6b: Tacit knowledge is unreliable.
   (It is to exposed to shortcomings such as the double bind, resulting in faulty
    knowledge.)

P7a: Tacit knowledge is cost effective.
   (It is an enabler for double loop learning.)

P7b: Tacit knowledge is not cost effective.
   (It is hard to transfer and thus not worth the effort. Focus on competencies
    instead.)

4.1.4 The present knowledge influences of future organizational learning

Additionally to the strategic value of having tacit knowledge, the present tacit
knowledge can be considered to hold a value relevant in outsourcing deals. The present
efficiency (single loop learning) of the organization is undoubtedly affected by the
present knowledge, as the organization continuously uses it. The present effectiveness
(double loop learning) of the organization, on the other hand, is not affected
by the present knowledge, it was affected by the previous knowledge that founded
the decisions leading to the present effectiveness.

Considering an outsourcing decision, only the knowledge impact of the future
transactions are relevant. This excludes the value of the parts of the present knowl-
edge which only use is to maintain the present transactions. As the transactions are
outsourced they may be altered, rendering the maintaining knowledge useless.

In order to differentiate tacit knowledge from competency, the perceived value
of the present tacit knowledge is added as a null proposition.

P0: The current knowledge of primary activities held by IT Personnel is not a con-
sideration.

4.1.5 Maintaining the outsourced IS operations

Lastly in the case of a completed outsourcing the monitoring alternatives of agency
theory (described in 2.4.1) need to be compared to the organizational transactions.
Producing fair goals for the outcome based monitoring alternative will assumable be
cumborsome (or even impossible) for an organization with highly uncertain trans-
actions. This leads to the behavior based monitoring alternative, and as the transac-
tions are uncertain the feasibility of using explicit knowledge to judge the behavior
is as moot as in the case of organizational learning mentioned above. However, in
the remaining cases there should be no obstacles to use either the outcome based
monitoring, or the behavior based monitoring with the assistance of explicit knowledge.

4.2 Gathered data in the case study

The case consisted of a single governmental organization who were in the process of outsourcing the IT operations. The choice of organization was based on the following criteria for case studies case selection, described by (Denscombe, 2010).

- **Typical instance**: The organization is one of many Swedish governmental agencies who all have the same instructions to “scrutinize for outsourcing” directive identified in the Context of the used case.

- **Test-site for theory**: Denscombe references Yin (2009), Case studies can be used for both “theory-testing” and “theory-building”. The framework, created in the previous section, is checked against the selected case to contain “.the crucial elements that are especially significant, and that the researcher should be able to predict certain outcomes if the theory holds true” -(Denscombe, 2010). The organization chosen fulfill those criteria.

- **A matter of convenience / There are unique opportunities**: Denscombe (2010) claims that practical reasons and unique opportunities can be considered when choosing a case. This was highly relevant in choosing a case, the case chosen was, without question, the most feasible for constant insight in the process and access to primary data.

The categories of the gathered data are presented according to the six sources of evidence identified by (Yin, 2009); Direct observation, Documents, Interviews and Participant-observation. The remaining two (Archival records and Physical artifacts) were ruled out as irrelevant in the case study plan. In order to increase the construct validity, the data should be present in as many categories as possible.

An effort was made to challenge the data gathered by ending the interviews with a focused section.

4.2.1 Documents

With access to all documents concerning the outsourcing case, a thorough scanning was performed in search of matters relative to the propositions.

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1 The practical reasons were, of course, only secondary to other criteria. As recommended by (Denscombe, 2010)
Vision for the outsourced IT environment

In the vision for the outsourced IT environment (“Målbild, Ny IT-miljö.”) it is specifically mentioned that the new environment should be rebuilt from the ground (where possible). A statement that matches all propositions that lessen the value of tacit knowledge (P1b, P2b, P3b, P4b, P5b, P6b and P7b). Further, four reasons for outsourcing are identified. Of them two reference the providers economy of scale benefits, matching propositions P1b, P2b and P3b. One claims that the present environment should be replaced as it is unstructured and badly documented, matching propositions P4b, P5b and P6b.

Requirements specification

In the requirements specification document (“Kravspecifikation”) the intention to maintain first line support in-house is stated, in line with tacit knowledge superiority propositions (P1a, P2a, P3a, P4a, P5a, P6a, P7a) and not in line with the null proposition P0. This somewhat contradicts the findings in the vision for the outsourced IS environment. It is, however, not stated on what premises this decision is made, this was further elaborated in the interviews and by direct observation.

Weightening model of the tender evaluation

The weighting model (“Viktningsmodell”) doesn’t mention any knowledge transfer criterion at all. This, of course, doesn’t imply a lack of knowledge awareness. The reasons for its absence can span from an intention of preserving all knowledge in-house, to an assessment that no knowledge is of relevance. However, it hints of an assessment that knowledge transferring is not needed as the providers capability of receiving knowledge is not considered.

4.2.2 Direct observation and Participant-observation

Being present for the entire process, I had the benefit of lots of direct observations of the participants and their reasoning. However, since the organization was aware of the research, it would be unethical to observe the participants without their consent, the quality of the observations can be disputed. Ideas and reasoning could have been “filtered for correctness” by the participants. Hence, the majority of the observations are not presented.

- The personnel within the IT department had the ambition to document (convert tacit knowledge to explicit knowledge) as much as possible. Especially the knowledge gained for the organizational specific systems. They expressed concern that time would not specifically be assigned for the task. This indicates a
discrepancy between staff’s view and the managerial view. The managerial view is in line with the null proposition (P0). Whereas the staff’s view is that the present knowledge is important and reliable, this matches propositions (P4a and P6a). However, since the goal was to document as much as possible, it also implies that the knowledge doesn’t have to be tacit. As a result, the matches for P4a and P6a is with regards to the knowledge as a whole, and not specifically tacit knowledge. This occurrence has, therefore, not been counted as a pro-tacit knowledge indicator.

4.2.3 Interviews

When the organization had decided to outsource the participants of the tender evaluation group were interviewed. The entire tender evaluation group consisted of six persons. However, two of them were excluded from the interviews as they were consultants with the role of the procurement process experts. The remaining four members were the organizational representatives; One line manager (a boss in the primary activities), one general manager (a boss in the secondary activities), the IT manager and finally one person from the IT staff.

Table 4.2. Table of the participants in the evaluation group that were interviewed

<table>
<thead>
<tr>
<th>Position</th>
<th>Employed in organization</th>
<th>Experience</th>
<th>Primary contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT staff</td>
<td>&gt;20 years</td>
<td>&gt;20 years</td>
<td>Knowledge of IT operations.</td>
</tr>
<tr>
<td>IT manager</td>
<td>1 year</td>
<td>&gt;20 years</td>
<td>Functions and technical platform.</td>
</tr>
<tr>
<td>General manager</td>
<td>3 years</td>
<td>&gt;20 years</td>
<td>Responsible for the internal development.</td>
</tr>
<tr>
<td>Line manager</td>
<td>5 years</td>
<td>&gt;10 years</td>
<td>Improving organizational efficiency.</td>
</tr>
</tbody>
</table>

The semi structured interviews consisted of four sections; knowledge maintaining, the characteristics of the organizational activities, the organizational development, provider monitoring and the comparison between knowledge and competencies.

IT staff

The IT staff was represented by an IT administrator, who had been employed by the organization for more than 20 years. On that account alone, he/she can, without exaggeration, be considered to possess a great deal of knowledge of the organization and its IT processes.
• Beginning with the knowledge maintaining, he/she did not consider that there had been any discussion of knowledge maintaining within the tender evaluation group. It was neither an evaluation criteria present in their weighting model. Following this he/she did not consider that the group had identified any knowledge that may be lost, this matches the null proposition (P0).

• On a personal account, however, he/she did believe that there were occurrences where essential knowledge was embedded in personnel (tacit knowledge) that was about to leave the organization. He was very well aware of the areas and systems that were affected. The most obvious occurrence was a system tailor made for the organizations exercise of authority. This is in line with proposition (P3a). Further proof of proposition (P3a) was present as every system/application mentioned had the common denominator of being highly specific for the organization.

• Considering the characteristics of the organizational activities he/she believed that they had become increasingly predictable over the last ten years. Many thanks to the IT departments internal motto of “let’s standardize everything”. This matches propositions (P1a and P3a) as the tacit knowledge allowed the organization to be rather chaotic with organizational specific solutions. Secondly propositions (P2a and P3a) allow the IT department to improve upon the activities. The improvements themselves were targeted to decrease uncertainty and specificity, in order of gaining as much economy of scale as possible.

• Regarding the development of the organizational processes, both primary and secondary, he/she preferred scheduled development. This mainly in order of avoiding the sub optimization and chaotic IT environment that may occur when decisions and solutions are done on-the-fly to solve single isolated problems.
  – Firstly it could be considered as an argument against tacit knowledge; in a scenario where the staff possesses the core competency of making technology work (see Feeny & Willcocks, 2.5.1) without transferring the solutions to documents or colleagues. Creating what is perceived as a chaotic IT environment.
  – Further, it can also be considered as an argument against tacit knowledge; in a scenario where the staff possesses the core competency of making technology work and acts without insight/knowledge of the whole picture. Creating what is perceived as a sub optimized IT environment.
  – On the other hand, it can be considered to be an argument in favour of tacit knowledge in single-loop learning. The IT department was able to handle the technical problems, as long as the “quick fixes” was performed with an “insight” into the organizational processes, they worked. However, when they were being implemented on-the-fly, without the tacit knowledge of the organizational specific background, the IT environment became chaotic.
Lastly, it is, once again, an argument against tacit knowledge; as the organization was used to having personnel who could “fix it”, there was no need to scrutinize the internal processes for double-loop learning in the IT environment. Creating a situation where much of organizational efficiency was reliant on single individuals.

• In terms of monitoring the provider in an outsourced state, he/she was somewhat hesitant as to whether it was sufficient to rely on predetermined goals and SLA agreements alone. He recognized the difficulty of predicting everything (see bounded rationality, 2.2.1) and spoke of the importance of having a good relationship with the provider. Probing on the relationship between competency and knowledge in an outsourced state he/she pondered about the importance of understanding the whole picture and what is important, further by observing that one of the major benefits in favor of outsourcing is access to competency he, knowingly provocative, deemed tacit knowledge as the only viable approach of successful monitoring. Thus, he strongly argued that P4a and P5a are relevant.

IT manager

The IT manager had a thorough competency with more than 20 years in the IT industry. He was, however, relatively new to the organization as he/she had only been employed about a year. As the IT manager he/she was the convener for the outsourcing procurement. His/Her main concerns in the tender evaluation group were those of functions and technical platform (see Feeny & Willcocks; leadership, business system thinking, architectural planning and informed buying. 2.5.1).

• Beginning with the knowledge maintaining, he/she did not consider that there had been any discussion of knowledge maintaining within the tender evaluation group. It was neither an evaluation criteria present in their weighting model. Following this he/she did not consider that the group had identified any knowledge that may be lost, this matches the null proposition (P0).

• Further, he/she did not believe that there was any tacit knowledge of importance that would be lost in the outsourcing deal as follows no measures needed to maintain it were considered. This was due to the highly standardized, predictable nature of the primary activities of the organization, matching propositions (P1b, P2b and P3b).

• Considering the characteristics of the organizational activities, he/she identified the tailor made system (also mentioned by the IT staff) as the most distinguished system as it were unique. However, he/she deemed the process which it supported as being stable and predictable enough to rely upon explicit knowledge (documents) only, matching propositions (P1b, P2b). Further, the assessment that documents were enough contradicts proposition (P3a), instead he/she ar-
guessed that well documented systems, in combination with competency, could be more cost effective. Competence, capable of quickly building the required tacit knowledge can be acquired when there is a need for change. Thus, matching (P3b). This strengthen the argument of not including high specificity as relevant to single-loop learning in the matrix and weakens the argument for including it in double-loop learning.

• Concerning the development of organizational processes he/she preferred continuous improvements as the technology gave new possibilities. Relying heavily on best practices features and functions included in modern systems. He saw efficiency in constant adaptation of primary processes as new functions becomes available with new software releases. This matches proposition (P5b and P7b). He saw great opportunities of increasing organizational effectiveness by adhering to standard practices and adapting the organizational activities instead of the systems. Matching every proposition that lessens the value of tacit knowledge (P1b, P2b, P3b, P4b, P5b, P6b and P7b).

• He noted, however, a prerequisite present for the opportunity of relying heavily on best practices instead of using tacit knowledge. He/She considered the organization to be well prepared and used to adapting to standardized software. As mentioned previously by the IT staff, the IT department had a long track record of aligning the activities to standard systems and purging non-standard quick-fixes from the primary activities. This matches propositions (P5b and P7b) and also implying propositions (P1b, P2b and P3b).

• In terms of monitoring the provider in an outsourced state, he/she did not wish to distinguish between competency and tacit knowledge as he/she saw them as communicating vessels. At the high level, he/she advocated a steering committee agreeing on goals and discussing SLAs. He/she also recognized the need to understand the whole picture, and understanding the behavior of the vendor.

**General manager**

The general manager had been employed in the organization for more than three years, so he/she was well aware of the organizational processes. Further he/she had a wide experience of being a principal in IT procurements from both the current, as well as previous employments. However, in the tender evaluation group he/she mainly focused on her role as being responsible for the internal development of the organization.

• Considering the lack of knowledge maintaining discussions in the tender evaluation group, he/she confirmed the view held by the other interviewees, there had been no such discussions. Matching the null proposition (P0).
• However, he/she had experienced somewhat of a clash with the organization in her first probes of outsourcing inquiries. The initial consultant had suggested the full outsourcing alternative, where the entire IT department should be outsourced. This was not well received by the organization as the IT department personnel were highly regarded by the employees of the organization. As a less intrusive alternative, only the personnel responsible for the daily operations of the IT technology were suggested. The remainder of the IT department would focus on specific systems and first line support. Since this was a response to feedback received from the organization and not an assessment to maintain knowledge, none of the propositions can be directly considered. Arguably the organization had their reasons to dispute the full outsourcing alternative, but as the reasons cannot be confirmed as being based on the reluctance of losing the knowledge of the IS personnel, it cannot be used to authenticate knowledge based propositions.

• Regarding the characteristics of organizational processes, he/she mentioned the impact of adaptations made in standard systems, to improve the organizational processes. This made one of the main standard systems highly specific to the organization, and was to be one of the main tasks for the remaining IT personnel; this matches proposition (P3a).

• In the pre-outsourced IS department, he/she deemed that too much time was spent on the daily support of the organization, and far too little time was spent in activities that enhanced the organizational processes. This could be considered as an argument on behalf of tacit knowledge as an enabler for organizational development, in line with propositions (P3a, P4a, P5a, P6a and P7a). However, as he/she specifically mentioned the importance to free the IT resources from the daily support, in order to increase the competency of the specific system itself it is a rather weak argument.

• Considering the organizational development, he/she shared the view with the IT manager that the organization had great opportunities to enhance its activities with the usage of the standard system. This matches propositions (P5b and P7b).

• Regarding the development of the organizational processes, both primary and secondary, he/she preferred scheduled development, mainly because the he/she didn’t consider the organization ready for constant enhancements. This matches proposition (P5b) and somewhat in line with propositions (P6b and P7b).

• In terms of monitoring the provider in an outsourced state, he/she considered competencies as being the most viable option. With competencies (hired or in-house) areas of monitoring, thresholds and goals can be defined and then moni-

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2 For instance, the unwillingness to outsource the IT staff could be due to nice personalities or access to IT competence for private needs.
stored. This postulates a performance based monitoring of the agent, and totally removes the need for tacit knowledge. Matching the null proposition (P0).

**Line manager**

The line manager had been employed at the organization for more than five years and was highly involved in improving the organizational efficiency. Further he had experience of outsourcing discussions from previous employments.

- As everybody else, he did not consider that there had been any discussions of knowledge maintaining in the tender evaluation group, neither had it been an evaluation criterion in the assessment of the providers. Matching the null proposition (P0).
- Considering the characteristics of the primary processes he confirmed the view held by the other respondents. The activities were highly standardized and predictable. Further he believed that there were opportunities to standardize those even further, using well established best-practices. Matching the null proposition (P0).
- Regarding the development of primary processes he preferred constant identification of opportunities, but scheduled implementation. The most important difference compared to the other respondents was the opinion that it should be employees of the primary processes that should identify the improvements. Matching the null proposition (P0).
- Even though the primary processes consisted of highly skilled experts, he considered their usage of information system tools, such as office suites and mail programs, to be highly generic. Rendering knowledge of primary processes held by IS personnel of less value compared to generic IT competence. This matches the null proposition (P0).
- Discussing his general view regarding knowledge in comparison to competence in support personnel, a rather devastating opinion for the tacit knowledge importance of IS personnel argument was identified. The conclusion he drew from the high pace of advancements and complexity in the information systems of today is contrary to the basis for the thesis. Knowledge (as a whole) of primary processes is inferior towards competence of modern systems. In contrast to the thesis initial claim that complex activities are more dependent of tacit knowledge he voiced the opinion that areas of fundamental activities may actually have less to gain from outsourcing than activities, such as IS, which area is undergoing rapid development. This matches the null proposition (P0).
### 4.2.4 Summarization of the propositions identified

The summarization of the propositions, as they were found in primary data, is provided. Note that this is only provided to ease discussion in the Conclusions chapter, the thesis is a qualitative study and the result is only valid for the particular case.

#### Table 4.3. Summarization of the propositions identified in the primary data

<table>
<thead>
<tr>
<th>Propositions</th>
<th>(P0)</th>
<th>(P1)</th>
<th>(P2)</th>
<th>(P3)</th>
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<th>(P7)</th>
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<td></td>
<td>y n</td>
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<td>9 0</td>
<td>1 4</td>
<td>1 4</td>
<td>6 4</td>
<td>2 1</td>
<td>2 5</td>
<td>1 2</td>
<td>1 5</td>
</tr>
<tr>
<td>Total:</td>
<td>11 1</td>
<td>2 6</td>
<td>2 6</td>
<td>7 6</td>
<td>3 3</td>
<td>3 7</td>
<td>2 4</td>
<td>2 6</td>
</tr>
</tbody>
</table>
5

Analysis

This chapter presents the analysis in an open discussion form. In order to somewhat lessen the repetitiveness both “ITO” and “Outsourcing” are used to describe the phenomenon of Information Technology Outsourcing, that is to outsource the IT functions. Hence, the acronym “ITO” and the word “Outsourcing” are exchangeable in the following chapters.

5.1 Open discussion

The propositions were created from a thorough review and analysis of previous research, they were then used and compared in the interviews. This section will apply reasoning between previous theory and interviews to complete the triangulation.

5.1.1 Scrutinizing the propositions

In section Summarization of the propositions identified, the occurrences of the propositions are summarized. In order to discuss the propositions, the same table, without the rows specifying the different sources, is provided here.

Table 5.1. Summarization and categorization of the propositions identified in the primary data

<table>
<thead>
<tr>
<th>Qualification</th>
<th>n/a</th>
<th>Organizational</th>
<th>Human</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propositions</td>
<td>(P0) y n</td>
<td>(P1) a b</td>
<td>(P2) a b</td>
</tr>
<tr>
<td>Occurrences</td>
<td>11 1</td>
<td>2 6 2 6 7 6</td>
<td>3 3 3 7 2 4 2 6</td>
</tr>
</tbody>
</table>

1 The propositions were created in Development of the propositions (4.1). The occurrences are identified in Gathered data in the case study (4.2).
The occurrences matching the null proposition (P0) are presented in the (y) column, and the occurrences contradicting the null proposition are presented in the (n) column. The propositions (P1-P7) assigning value to the tacit knowledge are the (a) propositions, the (b) propositions claim that knowledge doesn't have to be tacit.

**Organizational qualifications**

The first three propositions (P1, P2, P3) consider the characteristics of the primary activities for the organization.

- **P1 and P2, Uncertainty of activities:** The organization considered itself to have very predictable activities, the framework suggests that they should downplay the value of tacit knowledge in support activity personnel. The (b) proposition were justified three times as often as the (a) proposition. The conclusion drawn from this is that the organization confirmed the frameworks view of tacit knowledge inferiority for organizations whose activities are predictable and that they could not confirm the frameworks view regarding tacit knowledge superiority for unpredictable activities.

- **P3, Specificity of activities:** According to the framework, in order to rely on tacit knowledge the organization should have very specific processes. Otherwise, the use of best practice and economies of scale outweigh the risk of depending on tacit knowledge. The responders all considered that the organizational processes were very standardized, with few organizational specific systems. As in the previous propositions, the same pattern was identified in this proposition, the organisation confirmed the tacit knowledge inferiority for support personnel. In one case, the respondent even challenged the whole idea of using inhouse employees from secondary processes, as they will not have the proper IT expertise required. The argument being; the primary process employees will provide with process requirements and the IT personnel should provide with methods and knowledge of best practice. In-house IT employees will not have the time to learn these, making their contribution obsolete.

  The ratio between pro tacit knowledge (a) and con tacit knowledge (b) was slightly in favour for pro tacit knowledge. The matches in favor for tacit knowledge were primarily from the IT staff, who could assess the time required to recreate the knowledge about to leave the organization. The majority of the identified pro tacit occurrences were with regards to systems that were adapted to the organization, or in one occurrence tailor made. Illustrating the tacit knowledge driver, identified by the framework, non-standardized systems, which are not well documented, will create a tacit knowledge reliance. The organization considered itself to be predictable and non-specific, according to the framework there should be no reason to rely on tacit knowledge. A view also confirmed by
the IT staff who wished to document as much as possible. Hence both the P3 propositions were confirmed.

Human qualifications

Propositions (P4, P5, P6 and P7) consider the human characteristics of the tacit knowledge, they are secondary to the first three propositions. The framework suggests that only an organization with the aforementioned characteristics, highly uncertain and (or) specific processes, will need to consider tacit knowledge at all. If the organization fulfills any of those criteria, the following considerations will also be needed.

- **P4, Opportunistic behavior**: One of the commonly accepted dangers when outsourcing is suggested is the reaction of the personnel whose services are, harshly put, no longer desirable. Implicitly, when the organization begins to discuss ITO the motivation from the personnel affected might be altered. Identified by the P3a proposition, the organization was reliant on tacit knowledge. Hence, there were a reason for both the provider as well as the outsourcing organization to extract the tacit knowledge from the personnel affected. In the focal case the staff expressed a wish to document as much as possible, if this were true the staff would not have seen the ITO as a threat. However, it may also have been a lie, for instance to dodge as much work as possible in order to focus on finding a new employer.

  Depending on personal motives, the ITO might be seen as anything from a gift from above to a threat for the personal ability to support oneself. Due to the ethical issue of probing for motives, the P4 proposition was not scrutinized at length. There are relevant considerations for the outsourcing organization that needs to be carefully considered, but with regards to the opportunistic behavior they can be summarized as motivation. A highly organizational specific issue.

  From the framework view, the P4 proposition can only be used to indicate risk, the focal organization had no identified characteristics mandating reliance on tacit knowledge. There were occurrences of tacit-only knowledge, exposing the organization for the risk of unmotivated personnel without gaining any benefits.

- **P5, Bounded rationality**: The most obvious argument for the bounded rationality limitations of tacit knowledge is the view held by the line manager. If in-house IT personnel are not able to keep up with the rapid development in the IT industry, their tacit knowledge of the primary processes is to no use for the outsourcing organization. The combination of primary process personnel and IT experts are more feasible than having in-house personnel maintaining enough competence to suggest improvements. Not surprisingly, the con-tacit knowledge proposition (P5b) was most frequently identified, twice as often as the pro-tacit
knowledge proposition. Since the organization did not match the characteristics for relying on tacit knowledge, the pro-tacit knowledge (P5a) proposition could not be evaluated other than to previous research.

- **P6 and P7, Tacit knowledge quality**: Once again, the propositions downplaying the value of tacit knowledge were in the majority, more than twice as present as the pro tacit knowledge propositions. As the P4 proposition, the P6 proposition was not probed due to the ethic doubtfulness of questioning whether the staff’s view’s are “correct” or not.
  
The (P7b) proposition, favoring competencies instead of tacit knowledge, was identified five times as many by the respondents, and the only occurrence for (P7a) in the interviews was deemed to be rather weak. Hence, it can be argued that all the respondents felt more secure with competencies rather than tacit knowledge.

**Summarizing the qualifications**

Due to the organizational characteristics of the focal organization, the human qualification propositions in favor of tacit knowledge could not be scrutinized at any length. However, the propositions downplaying tacit knowledge could clearly be identified. The input to the framework, thus, is that organizations, whose primary processes are matching the studied organization, have no reason to keep the tacit knowledge in-house. Further research is needed to identify whether organizations with other characteristics have a reason to maintain the tacit knowledge.

The human qualifications are prone to arbitrariness, the framework suggested by the thesis cannot incorporate them as primary variables for the feasibility of keeping tacit knowledge when outsourcing. Hence, the framework only focuses on the organizational characteristics. The human qualifications need further research. For instance, a highly unmotivated IT department could be the sole reason to outsource, regardless of the organizational characteristics.

**5.1.2 Value of tacit knowledge**

The paramount observation, which was confirmed by all interviewees, by the majority of the documents, and the previous research is the insignificance that is attributed to tacit knowledge of support activities personnel when performing ITO. Hence, the confirmation of the null proposition.

To be coherent with the framework, created from the previous research in the field, the focal organization should have predictable primary processes, preferably with low asset specificity. Both these transaction characteristics were confirmed by all the interviewees. None of the interviewees had seen it necessary to raise the
question of losing tacit knowledge in the outsourcing process. Neither did the documents concerning the tender evaluations consider loss of tacit knowledge. Only the IT staff interviewee was aware of any specific knowledge that would be lost at all (Which is natural, the cut cake belongs to them). The overwhelming identification of occurrences justifying the null proposition is predicted, for organizations with the focal organizations characteristics, by the framework.

In the Direct observation and Participant-observation, the IT staff’s ambition to document as much as possible implies a belief that it is possible to externalise their current knowledge, and they see the value in the knowledge they possess. Comparing their belief with the framework, the activities of the organization could neither be uncertain nor highly specific. In which case the feasibility of externalizing their tacit knowledge would not be efficient (specific activities) nor effective (uncertain activities). According to all participants, the organizational activities are both predictable and common, matching the framework prediction. However, it also postulates that there is no need for the knowledge to be tacit, the framework suggests that their tacit knowledge should be used in the design and transition phases\(^2\) of the ITIL framework; where the processes still rely on the knowledge the knowledge should be externalized.

The value of the current tacit-only knowledge for the specific systems was identified by the P3a occurrences. Since the organization considered itself to be predictable and non-specific, according to the framework the current value of the tacit knowledge were due to the negligence of documenting. The assertion from the IT staff responder, that there had been continuous improvements of the IT processes, creating a standardized IT environment, hints that inhouse competence will primarily improve from their own view. Enhancing the secondary processes instead of the primary processes.

**Summarizing the value of tacit knowledge**

The requirement for tacitness of the knowledge could not be attested in the focal organization. However, there were value in the knowledge held by the IT personnel that was not externalized. The framework predicts that, in the case of poorly externalized knowledge and failure to standardize the activities, follow up studies should detect obstacles, experienced by the provider, to assign additional personnel to handle the outsourced tasks.

5.1.3 Organizational development

According to the framework, there can be occurrences where tacit knowledge, gained in support processes, could be used to enhance primary activities. In orga-

\(^2\) In other words, in the “transfer the systems to the provider” project.
nizations whose transactions are highly uncertain or highly specific, benefits of the economy of scale and knowledge of best practices are somewhat voided. Creating a theoretical advantage of tacit knowledge compared to the expertise. The theoretical advantage could not be proven in the interviews since the respondents did not consider the focal organization to match those transactional characteristics. The line manager even reckoned that the fast pace of development in IT industry could render tacit knowledge of the support personnel inferior even if the transactions were highly uncertain or highly specific. However, as the focal organization did not adhere to those characteristics; the view can only be used as speculation, and not a thorough understanding from any experience gained by the line manager. Hence, propositions claiming tacit knowledge superiority could not be verified by the empiric findings.

Regarding the focal organization, every respondent claimed that the biggest gains identified for organizational development were in standardizing their processes. They considered that tapping into the vast existence of best practices available is far more efficient than highly adapted solutions created by the support personnel. With regards to the characteristics of the organizational activities (predictable and non-specific), the framework propositions, claiming that tacit knowledge is uncalled-for, could be verified by the empiric findings.

**Summarizing the value for tacit knowledge in double-loop learning**

The feasibility to use tacit knowledge of the support personnel to enhance primary processes in organizations whose transactions are predictable and standardized should tentatively be discarded. Further, the assumption in the framework, that organizations with highly specific activities, should benefit from tacit knowledge is challenged.

**5.1.4 Monitoring the provider**

The focal organization considered its transactions to be predictable and standardized. Hence, the only identified reason (highly uncertain transactions) for tacit knowledge based monitoring, identified by the propositions, could not be tested. Neither could the claim of tacit knowledge insignificance, identified by theory, be uniformly confirmed as the IT staff responder claimed that the tacit knowledge was a prerequisite to set meaningful goals for the provider. He did not, however, claim that the tacit knowledge had to be in the secondary personnel. Further; one respondent claimed that it was impossible to distinguish between competence and tacit knowledge and one respondent claimed that competency alone was sufficient.

In hindsight, a more carefully crafted section of the interviews concerning provider monitoring should have been performed. Incorporating the availability of the tacit knowledge of the primary processes in the answers. Thereby discarding the
tacit knowledge requirement statement by the IT staff responder and the communicating vessel claim between competency and knowledge held by the IT manager. Thus, the indices point to no tacit knowledge in support personnel answer regarding monitoring of the provider. But it cannot be proven, neither by theory nor empiric findings.
Conclusions

This chapter presents the conclusions from the previous open discussion.

6.1 Conclusions about the study

In order to ease the understanding the conclusions have been divided into two parts, firstly the conclusions about the study itself. Then the conclusions about the topic.

6.1.1 Boundaries of the case

The unit of analysis in the case is the tacit knowledge held by IT personnel. The specific case, in which the framework was tested, was a governmental agency in Sweden who have outsourced their IT.

6.1.2 Generalizability of the case

Flyvbjerg (2006) study of case study strategy showed that "formal generalization is overvalued as a source of scientific development, whereas "the force of example" is underestimated." Additionally (Flyvbjerg, 2006) argues "...it is often more important to clarify the deeper causes behind a given problem and it consequences than to describe the symptoms of the problem and how frequently they occur.”

Governmental agencies in Sweden have equal political, financial, social and technical governance. The same agency monitors the targets, the results and the operations with equal norms. The visibility, citizen policy, procurement, just to mention some are similar for the whole group of agencies. Additionally, four interviews have been performed. Most of the interviewees have been involved, from preparation to final outsourcing. This longitudinal aspect gives a holistic view of the unit of analysis. As pointed out by Eisenhardt (1989b), the result of a case study can be replicated to similar, in our cases agencies.
(Flyvbjerg, 2006) claims "One can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods." Also stated by (Eisenhardt, 1989a; Denscombe, 2010).

6.1.3 How this study has addressed validity and reliability

As mentioned in section Reproducibility, reliability and validity in the application of the research method (3.1.6), in qualitative research the reliability and validity cannot be measured separately as in quantitative studies, instead they are summarized in an overall "trustworthiness" of the study. The validity and reliability (or trustworthiness) of the research is foremost achieved by triangulation. Comparing previous research, both internally, and with regards to the different sorts of primary data collected. As with the reproducibility, care has been taken to provide the logic reasoning, and finding evidence in as many categories of data as possible. Concerning the primary data, the findings in the interviews were later identified in the documents. The research problem regarded economic losses due to lost tacit knowledge in ITO. The conclusion, applicable to similar organizations, drawn is that it is not the lost tacit and not tacit knowledge itself that can be considered to hold a value. Instead, it is the time lost due to lacking knowledge that may generate losses. As well as any subsequent costs, such as lost customer confidence and resource drain in rebuilding the knowledge.

6.1.4 Limitations

The study was carried out in a Swedish agency, with four interviewees, three of them were present for the entire three year process of the ITO. This can be seen as a limitation. However, the research can be used to predict answers from other, similar, organizations as described by Denscombe (2010), Eisenhardt (1989b) and Flyvbjerg (2006), just to mention some research observations.

“One can often generalize on the basis of a single case, and the case study may be central to scientific development via generalization as supplement or alternative to other methods. But formal generalization is overvalued as a source of scientific development, whereas 'the force of example' is underestimated.” - (Flyvbjerg, 2006)

6.2 Organizational characteristics

The framework suggests that an organization should evaluate the characteristics of its primary processes in order to identify the feasibility for ITO. In the case pre-
sentenced, the organizational processes were predictable and generic, in which case no justification for relying on tacit knowledge could be identified.

6.2.1 Findings

The following list summarizes the holistic view that were identified, similar findings should be identified in comparable organizations. The list can also be used to presume results in other types of organizations, based on the characteristics identified in the framework. See the Generalizability of the case, 6.1.2

- The literature, documents, and interviews downplay the value of tacit knowledge in support processes of governmental agencies. Tacit knowledge is impeded by several factors. Among other; it’s volatile, dependent of the personnel, its difficult to assess the soundness, its exposed to arbitrariness of the keeper’s personal goals.
- Competencies can be used to build the tacit knowledge when needed. The standardization of the processes and the predictability of the activities which processes are to support will influence the time needed, and hence the cost, of building the necessary knowledge.
- Using the framework, which were created in Development of the propositions, some of the organizational characteristics, which influence the feasibility of keeping/recreating the tacit knowledge, can be identified.
- Considering that most governmental agencies consider IT to belong in the secondary processes, the risk, and cost of relying on tacit knowledge, cannot be justified from a theoretical view; unless the governmental activities are highly specific or unpredictable. This conclusion confirms the Transaction Cost Theory. In this case, the asset specificity is low, outsourcing is recommended and the risks are limited.

6.3 Answering the research question

Most often, the outsourcing organization should not focus on the risk of losing tacit knowledge. Instead, it should focus on understanding its activities and making sure that it keeps, or acquires, the competencies needed. The framework presented in this thesis suggests that an organization should assess its primary activities according to Oliver Williamson’s transaction cost theory qualifications for transactions.

- **Processes are certain**: Evaluate the processes for reliance of tacit knowledge.
- **Processes are uncertain**: Evaluate the impact of lost tacit knowledge.
- **Processes are not specific**: Evaluate the processes for reliance of tacit knowledge.
• **Processes are highly specific**: Evaluate the impact of lost tacit knowledge.

The framework indicates that an organization whose primary processes are predictable and generic should not rely on tacit knowledge of the support personnel. The current IT systems, primary and secondary processes should be scrutinized in order to remove any reliance for the tacit knowledge. In compliance with what Transaction Cost Theory recommends, primary processes are the core, competitive advantage (also applicable for public agencies.) Those should not be outsourced!

### 6.3.1 Considerations regarding tacit knowledge

To summarize the pros and cons of tacit knowledge at a very high level.

• An organization that is dependent of tacit knowledge have extradited itself to the benevolence of the personnel, as well as human “limitations” such as bounded rationality, the double blind and opportunistic behavior.

• However, new knowledge most often starts as tacit knowledge, as an employee “realizes something”. If an organization assesses that it is unique and no other organization has the same needs, organizational development cannot rely on using knowledge established by others.

### 6.4 Ethical considerations about the findings

The ethical considerations adhered to in the research itself is presented in the chapter Ethical issues of the research, 3.1.4. For the findings, that the tacit knowledge itself should be of little value in an outsourced state, the assessment have been made that the findings identified in this study has no ethical and societal consequences. It is in the interest for both citizens and politicians to have a successful ITO.

The findings do not downplay the current value of existing employees, neither do the findings claim that the competence of the future IT workers is irrelevant. However, the findings claim that processes that rely on tacit knowledge should be avoided unless there are identified circumstances mandating the risks attached to the use of tacit knowledge only. Sound handling of knowledge requires the use of explicit knowledge. Well crafted documents, routines and descriptions of the valuable knowledge should exist. Hence the assessment that the study have neither ethical nor societal consequences. Nothing is claimed that downplays the importance of people, only the view of why they are important.

As shown in the study, there are directives for outsourcing, which in most cases mean head-count reductions from the outsourcing organization. Well-known by the politicians who have to protect their decisions. However, in the case of governmental agency ITO in Sweden, the personnel who performed the tasks being outsourced are
often given the choice to be hired by the provider. Furthermore, the thesis claim that the tacit knowledge, held by the existing employees, is valuable in the design and transition phases of the outsourcing process. Hence, the thesis is an argument for treating the affected personnel with respect and against ignoring their input.

**Summarizing how I have followed the ethical principles in scientific research**

As stated in this thesis, the participation has been voluntary. Anonymity and confidentiality have been respected. No respondent names have been mentioned. The result of the thesis is objective, I do not have any interest about the outcome. All my used data has scientific or industrial references and I have not fabricated or falsified data, research procedures or data analysis.

**6.5 Reflections**

There are few justifications, for the majority of governmental agencies, to rely on tacit knowledge in their support processes. Hence the initial reason for writing a thesis, a belief that keeping tacit knowledge is important, has not been able to be proven.

The absence of value for knowledge in the personnel, about to be outsourced, could be considered to have some social consequences as it downplay the importance of the existing employees. However, one must remember; the thesis only considers whether the tacit knowledge is of value for the organizations performing the ITO. The provider, the organization that will provide services, on the other hand, may attribute a very high value of the tacit knowledge. In ITO, the tacit knowledge of the support process employees will be shifted to tacit knowledge in the primary process. When an employee is transferred to the provider, the time pros of tacit knowledge vs. explicit knowledge become relevant. The value of the tacit knowledge, or even more evident the cost of lacking knowledge, become easier to measure. Further; knowledge of the customer's processes, opportunities to increase efficiency and identifying new areas to sell additional services can be relevant. However, from the provider's view, an assessment whether the knowledge ought to be explicit or tacit is relevant. Hence, in primary processes, the tacit knowledge can be valued as an asset and not merely considered as a risk.

**6.5.1 Standardize, standardize, standardize..**

In-house developed systems, adapted systems, quick-fixes and so forth entail a need to be cautious. The statement in this thesis suggests that only organizations with highly uncertain or highly specialized activities are beneficiary of in-house tacit
knowledge. However, that do not imply that other organizations are not dependent on tacit knowledge, only that there are no theoretical reasons suggesting that such an organization should deliberately choose to accept the increased risk of relying on tacit knowledge. In other words, if you do not need the tacit knowledge, do your homework and purge it from your processes.

**Tacit knowledge in the phases of ITIL**

In the design and transition phases, the value of the current tacit knowledge, held by the IT staff, could be vital. But if the transition is successful, the dependency of tacit knowledge should be removed. The Agent should use standardized and documented solutions, removing the need for tacitness in operations. Both in order to provide as many economies of scale as possible and, from the buyer's perspective, to mitigate the risk of vendor lock-in.

**6.5.2 Comparing the research with previous studies**

The comparison proved cumbersome, the aim of the study is to provide new insights in an area that have been somewhat neglected by previous researchers. Most of the previous research focuses on organizational competitiveness, gaining competitive advantage by outsourcing. Comparisons are on an organizational to an organizational level. Knowledge and employees are seen as resources, a mean to diversify against competitors.

Many researchers use the same building blocks, the transaction cost economics (TCE) and resource based view of the firm (RBV). For instance, McIvor (2008) identifies the same concepts, such as opportunistic behavior, asset specificity and so forth. But the target with the tools is to decide which processes an organization should outsource and which processes to keep inhouse. The base for deciding is whether it is possible to gain competitive advantage or not.

In comparison, the framework presented in this thesis is targeting the organizational characteristics of the organizational processes. Comparisons with other organizations are not within the framework. The difference in views was identified in numerous occurrences in the research for the study background.

Yang and Farn (2009) discuss the drivers among employees for sharing tacit knowledge. They base their work on “the social capital” and the human strive for friendship. Their work is at the intra-personal relations among the workforce and target the tacit knowledge sharing within an organization, regardless of outsourcing. They share the thesis framework view that tacit knowledge holds value, is hard to transfer and is very hard to measure. The findings in their study reveal the risks inherited with relying on tacit knowledge as they claim “The results reveal that social
capital may be a double-edged sword for tacit knowledge sharing intention” -(Yang and Farn, 2009).

Ellram et al. (2008) use the TCE to “...develop an understanding of how firms manage the costs and risks of offshore outsourcing”. Since they base their research on the TCE it have alot of similarities with the thesis framework. They identify the same concepts and as with the other comparisions the reasoning is not primarily towards tacit knowledge. One very interesting thing which relates to the thesis framework is however noted, many of their respondents claimed “...they did outsource services where high levels of human asset specificity were developed. Perhaps knowledge specificity was discounted because the human knowledge and expertise were being developed as workers gained knowledge of the outsourced work. Firms did not seem to view this learning as critical.” -(Ellram et al., 2008). From the thesis framework view this is highly relevant, it somewhat contradicts the thesis view that specific knowledge of the existing systems holds a value.

Aubert et al. (2004) use the TCE to create a model for ITO behavior. Their concepts and findings are very close to the conclusions based on the thesis framework, their results.. “...indicate that uncertainty is the major deterrent to outsourcing” -(Aubert et al., 2004). Further, they find that asset specificity “showed inconsistent effects”. They have divided the framework’s tacit knowledge into “business skills” and “technical skills”. From the thesis framework view the “business skills” would be the major tacit knowledge that gets lost by outsourcing. The “technical skills” are supposed to be superior in the specialized provider personnel. With this translation of concepts, parts of Aubert et al. (2004) findings contradict the thesis framework since they claim that the processes that require “business skills” should be kept inhouse. Whereas the thesis framework suggests that there are savings to be made by standardizing the business processes instead of relying on tacit knowledge (or “business skills”). The discrepancy might depend on different environments, the thesis use governmental agencies and not firms. In firms the “business skills” might be used to gain a competitive advantage, something that is not as necessary for a governmental agency.

6.5.3 Future research

For further research, I recommend exploration of the following areas:

- The framework should be tested in similar organizations, to scrutinize the findings from this case.
- Follow up studies of governmental organizations which have performed ITO could be performed to identify whether any lost tacit knowledge occurrences can be identified, and if the framework can be used to predict what the findings ought to be.
The impact of human qualifications could also be researched further, for instance, a highly unmotivated IT department could be the sole reason to outsource, regardless of the organizational characteristics. However, initially I recommend on scrutinizing the organizational qualifications of the framework. The human qualifications are far less developed and prone to individual differences than their organizational counterparts.
References


References


A

Semistructured interview schedule
Semistrukturerad intervjuguide

Förberedelse

Syftet med intervjun
Uppsatsen behandlar beslutsfattares syn på kunskapsöverföring vid IT-Outsourcing. Givet samma informationsmängd kan två individer komma till olika beslut/prioriteringar. Beroende på skillnader i bakgrundsinformation, värderingar, förståelse etc..

Sekretess
Intervjun kommer att bli inspelad och möjligtvis transkriberas. För möjliggöra så hög anonymitet som möjligt kommer namn som kan identifiera personer, avdelningar eller organisationer endast att vara tillgängliga för mig. Vid diskussion med andra (som handledare) och före publikation kommer alla namn att tas bort. Resultatet kommer att återges på engelska så eventuella citat kommer först att översättas.

Hur kommer svaren att användas?
Informationen som inhämtas i intervjun kommer primärt att användas i min magisteruppsats, men möjligtvis även i framtida akademiska publikationer.

Intervjutyp
Semistrukturerad intervju.

Helst ska intervjun vara klar på 25-35 min

Kontaktinformation
e-postadress: danijoh@fc.dsv.su.se
telefon:070-7131781

Frågor innan vi börjar?
Inledning/Bakgrundsinformation

Kontext:
- Datum:
- Tid:
- Lokal:
- Inspelad fil:

Deltagare:
- Namn:
- Position:
- Roll i Outsourcingprojekt/Beslut:

<table>
<thead>
<tr>
<th>1. Kunskapsbevaring</th>
<th>A. Diskuterade ni kunskapsöverföring i utvärderingsgruppen?</th>
<th>Var det ett utvärderingskriterium?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B. Har ni identifierat någon kunskap som ni är rädda att förlopa?</td>
<td>Har ni vidtagit några åtgärder för att behålla den?</td>
</tr>
<tr>
<td></td>
<td>C. Vad är det som gör att ni vill/inte behöver behålla den?</td>
<td>Spelade karaktären på organisationens aktiviteter in?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Best practices? Standardisering?</td>
</tr>
</tbody>
</table>

2. Organisationens aktiviteter
A. Karakteristik på arbetets aktiviteter.
   - Förutsägbara
   - Specifika

3. Organisationens utveckling
A. Hur ser du på organisationens utveckling?
B. Kontinuerliga förbättringar eller schemalagda?
   - Fördefinerade mål/SLA (performance)
   - Bedöma dem kontinuerligt (behaviour)
   - Nackdelar? Kunskap kontinuerliga, kompetens schemalagda.

4. Hantering av leverantör
A. Hur avser ni följa upp deras leverans/leverantörskontroll
   - Kunskap att veta vad som behöver göras/välja rätt, snabbhet
   - Kompetens att ta reda på vad som behöver göras.