Deciding on Using Application Service Provision in SMEs

by

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ABSTRACT

The use of external providers for the provision of information and communication technology (ICT) in small and medium-sized enterprises (SMEs) is expected to increase. At the end of the 1990s the concept of Application Service Provision (ASP) and Application Service Providers (ASPs) was introduced. This is described as one way for SMEs to provide themselves with software applications. However, it can be stated that the concept has not taken off. This study examines what reasons influence the decision-making when deciding to use or not use ASP. The research question is: How do SMEs decide on using an Application Service Provider for the provision and maintenance of ICT? In order to answer the question decision-making processes in SMEs have been investigated in an interpretive case study. This study consisted of mainly semi-structured interviews that were done with three different ASPs and customers related to them. It also consisted of a questionnaire to the customers of one of the service providers. The analysis was then made as a within-case analysis, consisting of detailed write-ups for each site. The interviews and a literature survey of the ASP concept and theories that have been used to explain the ASP decision-making process generated seven constructs. From the presented and discussed theories, models and proposed constructs seven propositions were formulated. These propositions were used for the analysis and presentation of the findings in the study. The main conclusion of the study is the disparate view of what affects the adoption or non-adoption of the ASP concept. The service providers express the decision as a wish from the prospective customer to decrease costs and increase the predictability of costs. The customers on the other hand express it as a wish to increase accessibility; the cost perspective is found to be secondary.

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Foreword

Information systems development is a discipline within the faculty of arts and sciences at Linköping University. Information systems development is a discipline studying human work with developing and changing computer-based information systems in organisational settings. It includes theories, strategies, models, methods, co-working principles and tools concerning information systems development. Different development/change situations can be studied as planning, analysis, specification, design, implementation, deployment, evaluation, maintenance and redesign of information systems and its interplay with other forms of business development. The discipline also includes the study of prerequisites for and results from information systems development, as e.g. studies of usage and consequences of information systems.

This work, Deciding on Using Application Service Provision in SMEs, is written by Björn Johansson at Jönköping International Business School. He is also a member of research group VITS. He presents this work as his licentiate thesis in information systems development, Department of Computer and Information Science, Linköping University.

Linköping, April 2004

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Professor
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29. Fredrik Ericsson (2003) Information Technology for Learning and Acquiring Work Knowledge among Production Workers


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This thesis studies why organisations let someone else do things for them. Many people have done much for me. It has been claimed that writing a thesis is a lonely endeavour; I do not agree with that. Without help and assistance from others my thesis would have been much poorer.

When writing this thesis, I was inspired by a song by Lisa Nilsson, “Det är bara ord” (“It’s only words”). The song raises three questions: What is it about? Where does it come from? And what does it mean? Among all those who have helped me answer these questions, a few have played a prominent role. My three supervisors, Professor Sven Carlsson, Professor Göran Goldkuhl and Assistant Professor Ulf Melin, have all helped me in various ways. Professor Carlson has in an excellent way guided me in research in information systems and into the research community, emphasising the importance of disseminating results from the studies. Professor Goldkuhl helped me to a good start to my doctoral studies and encouraged me to develop my own ideas. Assistant Professor Melin’s comments and the balance between “this is good” and “this can be improved” were invaluable. Lecturer Lars-Olof Nilsson has played an important role when it comes to words and word order. He has with inexhaustible energy corrected my grammar errors. Responsibility for errors and shortcomings that remain in the text is of course mine alone.

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Jönköping, March 2004

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1 Introduction

The aim of this introductory chapter is to outline the main argument for why this thesis is of interest. After a brief definition of the concept of Application Service Provision (ASP) the research question and the purpose of the study are introduced. The target and the limits of the study are followed by a short overview of the remaining chapters in the thesis. Finally a summary of the chapter is given.

1.1 Introducing the study of application service provision

At the end of the 1990s the concept of Application Service Provision (ASP) and Application Service Providers (ASP) was introduced. According to Kern et al. (2001) this kind of service provision evolved in the late 1990s. Kern et al. give the following reasons for the evolvement: First, the growing demand for software applications for conducting businesses in organisations in addition to the acceptance of outsourcing solutions in information and communication technology (ICT). Second, the increasing use of the Internet as the delivery form of data and information. Elerud et al. (2001) say that there is some disagreement as to who first formulated the concept. The American analysts IDC claim that the ASP concept originated from them in 1998, while the company TeleComputing declares that they coined the expression. Irrespective of who it was, ever since the late 1990s there has been an increasing interest both among practitioners and researchers in the ASP concept. This is manifest for instance in papers submitted to the European conference of information systems (ECIS) 2003. At the ECIS there was a track labelled *IT and outsourcing*. In that track six research papers out of nine discussed ASP. The ASP concept has also since the late 1990s generated increasing interest among practitioners in Sweden as well as globally. Isaksson & Linderoth (2003) in their survey show that among the Swedish companies studied 88 per cent are acquainted with the ASP concept. The authors state that a great number of the companies have heard about it and think they know what it is all about. The survey also shows that among small and medium-sized enterprises (SMEs) that had heard about the ASP concept, 21 per cent used it for the provision of ICT. The conclusions they draw are that there seems to be poor knowledge about what the ASP concept really stands for. They also find that the use of the ASP concept is fairly limited among SMEs, despite heavy
marketing by the ASPs. The conclusion that can be drawn from this is that the ASP concept has not taken off. Hagel (2002) claims that the evolvement of the ASP concept in many respects represents a false start for the diffusion of the concept. He describes it as the first wave for organisations to move beyond the firewall. He claims that many enterprises tried to build business using traditional technology architectures. The conclusion is that Hagel sees the ASP concept as a part of web services. He also claims that the introduction of the ASP concept was misleading, in terms of promises from the ASPs, and that it started too early.

However, it has been argued that ASPs can provide SMEs with appropriate ICT resources and capabilities. This is expressed by for instance Kern et al. (2001), Currie & Seltsikas (2000) and Lacity & Willcocks (2001). The concept of ASP, which can be likened to service bureau, outsourcing, and to some extent web services, is an organisational information system approach used by organisations that buy or rent their ICTs and services over the Internet or another dedicated network rather than owning and maintaining their own hardware, software, and computer-based information systems. The differences and similarities between service bureau, outsourcing and the ASP concept are discussed more in Chapter three, but it can be claimed here that the previous proprietary architecture in which companies built and maintained unique internal information systems (IS) will to a growing extent be substituted by an open architecture in which companies can rent data storage, processing power, specific applications and other services from different types of external service providers. The statement that the previous proprietary architecture will be substituted can be said to be valid for the service bureau concept, the outsourcing concept as well as for the ASP concept. So, what is then new with the ASP phenomenon? One of the aims of this thesis is to investigate that, answering the question: what is ASP? One thing that is often claimed by ASPs is that this approach makes it possible for SMEs to get access to hardware and software at decreased costs. Without the problems ensuing from owning them. Generally, ASPs and the outsourcing market have primarily targeted large organisations (Lacity & Willcocks, 2001), but increasingly it is seen that SMEs are targeted (Elerud et al., 2001). Most of the ASPs claim that their typical customers are of the size of SMEs (Kern et al., 2001). Despite this, investigations of the ASP market have shown that a great number of larger companies have been attracted by the ASP concept (Oakbrook, 2002). The question is then what it is that makes SMEs turn down this option. To understand why the option is turned down a thorough description of the benefits
as well as the risks with the ASP concept is necessary. This leads to the
questions, what benefits are there for SMEs using ASPs and what risks are
involved for SMEs using ASPs. It also leads to the question, why or why not use
ASP for the management and support of ICT in SMEs? At least two approaches
could be used trying to answer these questions. First, to ask SMEs that have not
adopted the concept why they have not done so. Second, to ask SMEs who have
adopted the concept why they did so. The approach I have chosen is the latter. A
discussion of these two approaches and the reasons for my decision will be
presented in Chapter two.

The phenomenon ASP will be explained in detail in Chapter three, but at this
stage a short description is necessary. ASPs are service providers that support
their customers with applications. The ASPs hire out applications and in most
cases the applications are software applications. ASP is used in many different
ways, often as the identification of enterprises acting as service providers, but
also as a concept describing the whole idea of delivering and buying ICT services
from service providers. ASP is also described as a business model, where the
service provider organisation is seen as a third-party firm which delivers software
applications from independent software vendors. In the ASP business model the
ASP enterprise acts as both supplier and client. ASP is also often seen as a
product that service providers sell to their customers. I will use ASP with these
different meanings and indicate which meaning I have attached to it in each case.
Generally ASPs is used as a term for the enterprises which deliver the services.

My working definition of ASP is this:

| **an ASP enterprise is a third-party firm that deploys, manages and remotely hosts software applications through centrally located data centres on a pay-as-you-use basis. For the client the ASP business model is a strategy to rent applications and organise maintenance of their ICT.** |

### 1.2 ASPs and SMEs

As stated earlier there is an increasing interest in the ASP concept among SMEs.
The organisations that say they do business as ASPs consider SMEs as their main
customer segment. This focus on SMEs has impacted companies such as, for
instance, SAP and IFS\textsuperscript{1} to try to broaden their customer base. Kern et al. (2002a) describe for instance how SAP in 1999 introduced mySAP.com, and in March 2002 launched a specialised subsidiary, SAPHosting. At the same time as SAP launched SAPHosting, IFS launched a subsidiary called @IFS. The aim of @IFS is to provide services and hosting of their own ERP system. What both SAP and IFS tried to do was to offer their enterprise resource planning systems (ERPs) through the ASP concept. This can be done in their own organisation or through a partner. This means that the service providers can be seen as ASP retailers, providing new distribution channels for traditional enterprise applications (Hagel, 2002). The reason for this interest in attracting SMEs is the fact that in Sweden, as well as globally, the overwhelming structure of enterprises includes a large number of SMEs. There are different definitions of what characterises SMEs. The definition I use in this thesis is the one that was presented by the European Commission in 1996 (Official Journal L 107, 30/04/1996). It states that a small enterprise is an enterprise with fewer than 50 employees and a medium-sized enterprise is an enterprise with more than 49 and fewer than 250 employees. I will discuss this definition in detail and relate it to the organisations that are part of the study in Chapter two. However, what can be stated is that the value produced by these businesses is a large part of the value produced in the entire society. In 2001, 47 per cent of employees in Sweden were employed by enterprises that had fewer than 500 employees, and 40 per cent were employees in enterprises that had fewer than 200 employees. When it comes to the number of enterprises, 89 per cent have fewer than 10 employees and 99 per cent have fewer than 200 employees (Statistics Sweden, 2002).

\subsection*{1.3 Use of ICT in SMEs}

ICTs can assist the SMEs in doing business in an effective and efficient way. Hussin et al. (2001) describe this as a positive relationship between ICT alignment and firm performance. In their study ICT alignment refers exclusively to the fit of a small firm’s ICT strategy to its business strategy. However, they did not find a significant relationship between these. They conclude that ICT use has become more sophisticated and that ICT can be used as a strategic weapon to maintain competitiveness. This is also expressed by Seyal et al. (2000), who

\textsuperscript{1} SAP and IFS are global organisations acting in the Enterprise Resource Planning (ERP) market.
declare that ICT plays a vital role as support in the growth of business organizations. They refer to a study of 530 Australian organisations where it was found that ICT usage was positively related to performance in the organisations. However, as has been claimed by, for instance, Willcocks & Lester (1996), the impact on productivity and business performance by ICT has been called into question. The debate around this has been called the “IT productivity paradox”. According to Willcocks & Lester (1996) there are three generic types of difficulties with evaluation and management of ICT investments. The first is what they call a Catch 22 situation, which means that organisations cannot afford not to invest in ICT for competitive reasons, but they cannot economically justify the investment. Second, the ICT infrastructure has become an inextricable part of the organisation, which means that it is difficult to separate the impact of ICT from that of other assets. Third, there is a widespread lack of understanding of ICT and IS as a major asset. According to Junghagen (1998) the use of ICT in SMEs is modest. The use of ICT is also reported in studies made by Statistics Denmark, Statistics Finland, Statistics Norway and Statistics Sweden. One of the findings is the use of Electronic Data Interchange (EDI). Seventeen per cent of all enterprises in Sweden used EDI in 2000. The use of EDI was less frequent in enterprises with fewer than twenty employees. However, there is a strong relative growth expected in ICT use in Sweden. The growth rate is predicted to be 60 per cent (Statistics Norway, 2001), which seems to be a strong increase, but it is calculated as the share of all enterprises using EDI, and the total rate of enterprises using EDI in Sweden was, as stated above, only 17 per cent. But ICT is far more than just EDI. As Falk (2003) expresses it, ICT can be compared to electricity. He discusses ICT as an enabling technology. Falk claims that the economic benefits come from the usage of the technology to enhance and enable working processes and manufacturing. My conclusion is that in order to receive the benefits the technology has to be used in the right way. One way to do this could probably be for SMEs to let someone else handle the hosting part of their ICT. Falk’s arguments could also be compared with the statements that ASPs made when they started marketing the ASP concept. They then compared the delivery of ICT with the delivery of electricity. This leads to the question why the ASP concept has not fully taken off. Using the analogue of electricity one can say that almost all organisations buy electricity and pay for the amount they use.

There is also an opinion that the use of ICTs is of great importance for the Swedish economy and for the ability to compete internationally. Falk (2003)
argues that organisations can very easily target a broad market, but then they also have to contend with a number of new competitors. This means that if an organisation today chooses to procure ICT from an external service provider they have the whole international arena to choose from. The rise of the Internet implies that there are no geographical limitations when choosing a specific service provider for ICT. The interesting thing is then what directs the choice. Another point one could certainly make is that the use of ICT in enterprises is expected to exert a major impact on profitability, productivity and employment levels (Statistics Norway, 2001). ICT usage is seen as a critical factor contributing to the national performance on both micro and macro economic level. It can also be stated that ICTs play an increasingly important role in SMEs. ICTs can affect an SME’s operational effectiveness, growth possibilities, competitive position and overall firm performance. However, in my view the effect of ICT in organisations is not necessarily strictly positive. It can be positive as well as negative and what it becomes is a consequence of how it is used. This implies that it is often a question of how the maintenance of ICT is handled.

To further elaborate on this it is possible to say that there are two overall problems connected with the use of ICT in SMEs. The first problem is how SMEs could acquire appropriate software and hardware as well as develop or acquire capabilities to deploy ICT in effective and efficient ways. The second overall problem is how SMEs should handle the maintenance of ICT in an effective and efficient way. The first problem concerns how SMEs provide themselves with ICT resources. The second problem concerns how they handle the resources when they have bought them. To take care of the second problem SMEs need to have skilled people employed. They also need to have an environment and resources that attract employees to stay. These two problems are very generic and could be said to be present in various settings. What is interesting in the ASP case is that this phenomenon tries to deal with both problems at the same time. This implies that ASPs deal with both selling the product, which in most cases is a software application, and at the same time selling services related to that product. The services in this case are hosting and maintenance of the software application. According to Brandt et al. (1998) as much as 52 per cent of the ICT resources are spent on maintenance. ICT resources are, in this case, resources that are directly connected with employees that work within an ICT department, and the figure is an approximation of how
many hours are spent on development and maintenance, respectively. Leffler (1987) argues that in most enterprises the cost for maintenance of ICT amounts to 50 to 80 per cent of the ICT budget. What you can certainly state about this is that if more ICTs are deployed and used in the enterprise, more resources are needed for ICT maintenance.

The conclusion that can be made at this point is that on the one hand there seems to be a very strong opinion that the provision and maintenance of ICT is a difficult task to handle. On the other hand there seems to be a low usage of the ASP concept in SMEs despite the fact that the concept seems to handle the two problems associated with ICT usage very well. As stated above the ASP concept tries to deal with these two problems at the same time, which means that approaching an ASP for an SME implies that they have decided on how to procure their software as well as how to procure the maintenance of the software. Why has the ASP concept not taken off? Or has it taken off? What in the ASP concept makes SMEs suspicious about it? Is it because it does not meet the demands of SMEs that it has not taken off? Are SMEs able to make such a decision? Does the fact that they must procure both a product and services at the same time make them hesitant? This introduction leads to the overall research question for this thesis, which is presented in the next section.

### 1.4 Research questions

This section will present and discuss the overall research question of the thesis. The question asked in the thesis is:

*How do SMEs decide on using an Application Service Provider for the provision and maintenance of ICT?*

One aim of the study is to look at the background for the decision. This means that it will describe and explain how the decision to approach an ASP for the provision of ICT was made. It will also describe and explain why the decision was made. In addition it will describe and explain the outcome of the decision-making. The overall research question can be broken down into a few subquestions. These questions were introduced and discussed in the previous section. The questions and their relation to each other are shown in Figure 1-1.
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How do SMEs decide on using ASPs?

Demands an answer to the question

What is ASP?

Which raises the question

How is the decision made?

Why or why not use ASP?

What benefits are there in the ASP concept?

Which act as input to the decision-making on

What risks are there in the ASP concept?

What reasons and factors are involved in the decision?

Deciding on why or why not use the ASP concept?

Figure 1-1 The overall research question and its relation to the subquestions.

The first subquestion to answer is, what is ASP? Currently there are uncertainties about what ASP stands for and what it is. There has to be a clarification of the different meanings that ASP can have. The literature suggests several different definitions of the concept of ASP. There also seems to be a mismatch between what the literature says about the ASP concept and the practical use of the concept. This means that in order to balance the findings in the literature the research will look into how the ASP concept is perceived by SMEs. It will also look into what meaning ASP enterprises give to the concept of ASP. By presenting some empirical studies about the ASP concept the findings in the literature will be compared with what actually goes on in the field. This will then answer the question how this phenomenon is perceived by both the provider and the customer at the moment. It will also increase the knowledge of the ASP concept. Another reason is that there is also a need for having a definition when conducting the work in a thesis like this.

The second subquestion asked is, how is the decision made? This question emphasises the context of the decision-making process as well as actors involved in the process. The first and the second subquestion raise the question why or why not use an Application Service Provider for the management and support of ICT in SMEs? This question is further broken down into the following three
subquestions, what risks are involved for SMEs using ASPs? what benefits are there for SMEs using ASPs? and what reasons and factors are involved in the decision? The reason for choosing to cooperate with an ASP is probably benefits. The question is then what benefits there are. What benefits does the literature emphasise and what benefits does the customer expect from the ASP concept? The question of benefits is directly related to the question of why to use an ASP. The reason for not choosing to cooperate with an ASP could be the risks involved. The question is then what risks there are. What risks does the literature see in ASP, and what risks does the customer fear in the ASP phenomenon? The question of risks is directly related to the question of why not to use an ASP. The aim of answering these questions is not just to list all benefits and risks that are involved in the ASP phenomenon. The aim is to further penetrate this question and determine the reasons and factors that actually induced the ASP customer to make the decision to use an ASP respectively not to use an ASP. This will be done by describing the factors and reasons crucial for the decision to use, respectively not to use an ASP.

1.5 Purpose of the study

The purpose of the research is to increase the understanding of the use of an external service provider for provision of ICT in SMEs. It will also contribute to the knowledge of the phenomenon ASP. More specifically the purpose of the thesis is to show what ASP is and what ASPs do. It will also describe and explain the reasons why SMEs have chosen to become ASP customers or not. In order to describe the decision factors involved in deciding on using an ASP have been studied. The aim of the thesis is to describe how SMEs make the decision of choosing an ASP strategy or not. The thesis explains one way for SMEs to support themselves with ICT, and it also describes one way to handle the issue of maintenance management of ICT for SMEs. The intention is also for the thesis to act as input to my forthcoming PhD thesis. In what way it will do so is discussed in Chapter seven.

1.6 Targets of the study

The targets of the research are both partners in an ASP relationship, the ASP supplier as well as the ASP customer. In the case of the ASP supplier the results would be of interest by showing how a customer made the decision to cooperate
with them. It will also be of interest for them to know why potential customers did not choose to cooperate with them. By taking part of the result the ASPs can better understand the decision-making process in SMEs, what factors influence the decision and how these factors influence the decision. This means that the provider can use the result in their marketing and negotiating with potential customers. On the customer side the results will be of interest for organisations which are deliberating on using an ASP or not. The research will also be of interest for existing ASP customers since they will be shown some benefits and risks that they probably were not aware of. Another target of the research is the research community and primarily the IS research community whose interests are not only in studying and learning more about decision-making in SMEs but also in the use and development of ASP as a fairly new concept. The thesis will also be of interest to the academic IS field where it could be used as an input into teaching about the ASP concept and what it is that makes SMEs decide on using application service provision.

1.7 Limits of the study

The scope of a thesis has to be limited for it to present well-grounded findings. One of the limitations of the thesis is that it will not say anything about the prevalence of ICT in SMEs. In the introduction some aspects of the importance of ICT in SMEs were brought up. Whether ICT is important and the degree of importance will not be discussed in the thesis. This thesis will discuss the ASP concept as one way for SMEs to provide themselves with ICT and services around ICT. Another limitation of the thesis is that it has not been possible to follow an organisation during the time from when they were first acquainted with the ASP phenomenon to the time when they decided on using or not using an ASP for the provision of ICT. This is discussed in detail in Chapter two.
1.8 Overview of the thesis

The thesis consists of seven chapters. The structure of the thesis is shown in Figure 1-2.

Figure 1-2 Overview of the thesis.

In this opening chapter an introduction to the thesis has been given. The introduction is followed by Chapter two, where the research approach as well as the research methods and the research design used are discussed. Chapter two starts with a general description of research approaches, research methods and research design. It then continues with a description of the approach, method and design on which the research in the thesis builds on. In a thesis like this the “state of the art” and the history, in the meaning of research already conducted and the background of the subject, has to be reported. Chapter three is devoted to that. Chapter three explains, defines and discusses the most basic concepts used in the thesis. The selected concepts that are defined in the chapter are those which are directly related to the research question. The main concept in the thesis is the ASP concept. The concept of ASP is defined and discussed in terms of what it is and why it has come into existence at all. The aim of Chapter three is to bring
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clarity into the sometimes confusing abbreviation ASP. It will also act as an input to the understanding of the rest of the thesis.

In Chapter four there are reports from the empirical work that has been conducted. The chapter describes the enterprises that are examined in the study. It also presents and discusses the findings of the empirical work. Another important concept in the thesis is decision-making. Decisions about sourcing strategy and the concept of decision-making will be discussed and elaborated on in Chapter five. The reason for doing this in a chapter after presenting the enterprises in the study is that I want to emphasise that the propositions presented in Chapter five did not guide the data collection. Chapter five describes and presents propositions for deciding on using an ASP strategy. The aim of the chapter is to present a set of propositions. These propositions are developed from some established propositions which are derived from a set of different theories. In Chapter five these theories are presented and the arguments and reasons why these theories were chosen are discussed. Further on in the chapter a couple of frameworks and models are presented that have their origin in those theories. The different theories and frameworks are then used as input to the development of the propositions at the end of Chapter five. The propositions are then tested against empirical findings in Chapter six.

In Chapter six the empirical findings from Chapter four and the literature findings from Chapter three are discussed and compared. This is done by using the propositions from Chapter five. In this section the answers to the research questions, both the overall research question as well as the subquestions, are presented. In the final chapter, Chapter seven, the contribution from the research is presented. In addition to the contribution there will be a discussion about further research. The chapter also presents a discussion about limitations in the research and the study, using Klein & Myers’s (1999) seven criteria for evaluating interpretive field studies.

1.9 Chapter summary

This thesis focuses on a fairly new concept, namely application service provision. It describes and explains the ASP concept. It also presents ASP as one way for SMEs to provide themselves with ICT and services and maintenance connected to the use of ICT. The main subject in the thesis is the decision-making process
taking place when SMEs decide on using an ASP enterprise for the provision of ICT. By describing the benefits and risks of ASP and how SMEs perceive the services from an ASP this thesis aims at increasing knowledge of the ASP phenomenon. The research question in the thesis is: how do SMEs decide on using an Application Service Provider for the management and support of ICT? The decision of using an ASP enterprise for the sourcing of ICT can be explained in several ways. The aim is to describe how SMEs make the decision to choose an ASP strategy. First, to explain how a decision to choose or not to choose an ASP strategy is made. Second, to explain why they come to that decision by describing what factors are involved in the decision and how they influence the decision. The aim of the study is to increase knowledge about the ASP concept, but also to increase knowledge about what makes an SME adopt or not adopt the ASP concept. Another aim is to act as input to my forthcoming PhD thesis.
2 Research approach and research design

This chapter first gives an introduction to the research approach for this study and then presents the research design and research methods used. It also describes the procedure for collecting and analysing data. Finally there is a chapter summary. The aim of the chapter is to outline how the research was done and why it was done in that way.

2.1 Introducing the research approach for this study

Fitzgerald & Howcroft (1998) state that before choosing a research approach a researcher has to examine its possible strategy. In Chapter one I mentioned two different strategies or approaches for this study. The first was to study SMEs that planned to adopt the ASP concept. The second was to study SMEs that already have adopted the ASP concept. I decided to choose the second approach. Before going into details about this decision, which are further discussed in Section 2.3.1, a more general discussion about research approaches is given. The reason for doing so is to state and elaborate on my philosophical standpoint. The philosophical point of view guides and directs what the research design should look like (Klein, 2002). According to Klein it is often possible to interpret the same theory under different philosophical assumptions, but the different philosophical assumptions give the theory different meanings. This has consequences for the choice of appropriate methods and the overall research design. It also means that the underlying assumptions impact how the presented findings and conclusions should be interpreted. The question is then what philosophical assumptions and paradigms there are, and how these impact the research approach. Easterby-Smith et al. (2002) claim that there are at least three different reasons why an understanding of philosophical issues is useful. First, it helps clarify research designs. Second, it helps the researcher recognise if a design works or not. Third, it can help the researcher create designs outside the researcher’s past experience.

Another often disputed assumption is the one distinguishing between quantitative and qualitative research. Fitzgerald & Howcroft (1998) discuss this distinction between what they call hard and soft research approaches and they describe four different strategies for handling the difficulties involved. By hard and soft
approaches they mean respectively positivism and quantitative research and interpretivism and qualitative research. The strategies they propose are labeled supremacism, isolationism, integrationism, and pluralism. Supremacism, which is most in line with positivism, holds the view that there is one paradigm that is universal and best in all situations. The opposite strategy for this is pluralism, which, according to Fitzgerald & Howcroft is most often proposed. The pluralism strategy, which is most in line with interpretivism, allows different paradigms\(^2\) to be applied in a research situation. Fitzgerald & Howcroft give the following description and discussion of these strategies:

- **Supremacism.** The supremacist strategy implies that the researcher seeks to establish one research paradigm, meaning that in the researcher’s view there is only one paradigm, and this paradigm is the best. A conclusion that Fitzgerald & Howcroft (1998) draw from this is that if this had been the case the debate around hard versus soft approaches and positivism versus interpretivism would have been resolved long ago.

- **Isolationism.** The researcher in this case treats all paradigms as incommensurable and operates strictly according to a particular paradigm. Researchers strictly ignore other alternatives.

- **Integrationism.** This strategy seeks to integrate alternative paradigms into a single coherent paradigm. The conclusion that Fitzgerald & Howcroft (1998) draw from this is that if this had been possible to realise in practice, considerable benefits could have been expected.

- **Pluralism.** This strategy allows different paradigms to be applied to a research situation. The problem with this is, according to Fitzgerald & Howcroft (1998), that there is little practical guidance on when and how to combine different methods.

The research in this study is most in line with the pluralism strategy. I see it as relevant to apply different paradigms to different problems. But it is also important to use a combination of different paradigms to produce the most fruitful explanation of what goes on. These strategies relate to what ontological

\(^2\) Fitzgerald & Howcroft use the term paradigm and approach interchangeably in their paper.
Research approach and research design

standpoint the researcher has. This is expressed by Myers & Avison (2002), who argue that all research is based on some underlying assumptions. These assumptions declare what constitutes valid research and what research methods should be used. It is important for a researcher to be acquainted with what these assumptions stand for. The assumptions are also closely related to the researchers’ epistemological standpoint. According to Myers & Avison (2002) one possible distinction is to categorise the assumptions into the following three distinct epistemological categories, positivist, interpretive, and critical. One quite common misconception is that the word qualitative is a synonym for interpretive, which is not the case. Qualitative research can be positivist, interpretive, or critical. The same is valid when it comes to a specific research method. A case study research can be positivist, interpretive or critical (Myers & Avison, 2002). This is illustrated in Figure 2-1. Myers & Avison present the three philosophical perspectives in the following way:

- Positivist research. Positivists act from a starting point, on the assumption that reality is objectively given and can be described by measurable properties which are independent of the observer and instruments. Positivist research attempts to increase the understanding of a phenomenon by theory testing.

- Interpretive research. The interpretive researcher starts from the assumption that access to reality is only given through social constructs such as language, shared meanings and consciousness. The aim of interpretive research is to produce an understanding of the phenomenon through the meanings that people assign to the phenomenon investigated.

- Critical research. The critical researcher acts on the assumption that social reality is historically constituted and is produced and reproduced by people. This means that people can act to change their social and economic circumstances, but their ability to do so is constrained by various forms of social, cultural and political domination.
The ontological and epistemological standpoint that I adopt is mostly related to social constructivism as described by Easterby-Smith et al. (2002). Easterby-Smith et al. claim that some researchers deliberately use methods which originate in different paradigms. My research is connected with both pluralism and interpretivism which means that when I designed the research I looked at different options for collecting data. The standpoint is also reflected in my choice of unit of analysis. By choosing the approach of examining organisations that already have adopted the ASP concept I believe that I can get a view of the decision-making process. But it also means that I have to question the data I obtain from my respondents and to be aware of the fact that history is always told as it is remembered at the moment. It is also important to be aware that the description can be filtered so that it describes the decision-making in a rational manner. In line with Fitzgerald & Howcroft (1998) I maintain that the world is best characterised and described by an interpretive view – thus reality is a social construct where multiple realities exist and research is both time- and context-dependent. However, I also adopt a pluralistic view. Mingers (2001) presents two main arguments for pluralism. The first is that the real world is, as Mingers expresses it, multidimensional, consisting of a plurality of structures that generate the events that occur. This means, according to Mingers, that multimethod research is necessary to deal effectively with the full richness of the real world. The second argument is that a research study is a process that goes through a number of phases. The single theoretical perspective asserts that research is a single, discrete event. This is not usually the fact and the different phases or activities demand different methods for a more comprehensive research.
outcome (Mingers, 2001). My research design builds on this view, and different methods have been used in different phases.

Klein (2002) emphasises that research on ICT outsourcing has used various theories, but there is an absence of those theories that are most commonly used in other areas of IS research. Klein also claims that it would be fruitful to analyse the data from at least two conflicting theories. In order to have a rich and deep understanding of the decision to choose to adopt the ASP concept the decision needs to be studied from several theoretical perspectives. The question is then what perspectives should be used. I have chosen to use a number of different theories to explain the decision. The theories and propositions from these theories are presented in Chapter five. Each of these perspectives could probably contribute to an understanding as well as act as guidelines, methods or prescriptions for the issue that the decision concerns. But since the ASP concept of ICT sourcing is a complex and multidimensional phenomenon, a pluralistic view of theoretical perspectives could be fruitful. This pluralistic view is also of interest in the choice of research method. According to Augustsson (1998), there is a need to study the decision of using ASP for ICT sourcing from more than one perspective in order to capture different dimensions. It also means that in order to focus on the key dimensions the research probably benefits from using different theories.

What directs the choice of research approach? The research question, existing knowledge of the studied phenomena as well as the researcher’s ontological and epistemological position should do that. But there is also a risk that the choice of research approach is influenced by the researcher’s surroundings. This is the factor that Trauth (2001) calls academic politics, Easterby-Smith et al. (2002) call politics of management research and Fitzgerald & Howcroft (1998) express in the following way:

“The essence of the problem is that researchers, rather than choosing a research approach appropriate to the research question being asked, actually tend to inherit unquestioningly their research methods from those dominant in the institution or region they happen to inhabit” (Fitzgerald & Howcroft, 1998, p. 323).

One way to avoid this problem is to have an open attitude and question the method used. To be able to do so it could be helpful to look at different
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taxonomies of research approaches as outlined by Järvinen (1999) and March & Smith (1995). According to Järvinen (1999), it is possible to classify research approaches into six classes, as shown in Figure 2-2.

![Figure 2-2 Classes of research approaches (Järvinen, 1999, p. 8).](image)

This leads to a discussion about research methods. A research method is, according to Myers & Avison (2002), a strategy that moves the inquiry from the underlying philosophical assumptions to the research design and data collection. Lind (2002) says that a research method is more than just design and strategy for collecting data. He claims that method in a broader definition is also about how knowledge is produced. Yin (1994) labels what Lind calls research method as research design and states that the aim of research design is to avoid the situation in which the evidence does not address the research question. In my view the research method is part of the research design. This implies that I use research methods as tools for collecting and analysing data. Instead of using Lind’s (2002) broader definition I use research design as the overall construct for how to produce knowledge and make sure that the answers address the research questions. Research designs can be classified or categorised in several different ways. One of the most common distinctions is to classify them into quantitative and qualitative research designs. The history of this distinction in research designs is that quantitative research designs were originally developed in the natural sciences to study natural phenomena, and the qualitative research designs were developed in the social sciences to study social and cultural phenomena (Myers & Avison, 2002).
The choice of research designs is often described to be a reflection of the nature of the research problem. This means that the research question affects how to research the problem. Another important factor in the choice of research design is the theoretical lens held by the researcher. This has already been discussed above. However, to exemplify this Trauth (2001) gives the following example. She describes how the impact of her theoretical and positivistic lens and the quantitative analysis influenced both the choice of research design and the finding of the research. In her study on information exchange between individuals using group support systems technology, she could tell whether people communicated or not. But the questions “why” they communicated and “how” they communicated could not be answered. Her conclusion from this is that to be able to answer these questions there is a need for an interpretive lens and a qualitative analysis of texts and mechanics in that particular context. However, she might have set up the study differently, from her quantitative and positivistic view, and so would have been able to answer the questions.

The amount of uncertainty about the phenomenon is another important factor, according to Trauth (2001). The degree of knowledge of the phenomenon under investigation influences the researchers’ epistemology. This means that the more you know about a phenomenon, the more you are likely to measure your findings, rendering the research design more positivistic. On the other hand, the less you know about the phenomenon, the more interpretive you have to be. This would also imply that the greater the uncertainty surrounding the phenomenon, the less demanding the question of what needs to be done to make the research relevant.

According to Myers & Avison (2002) the method of collecting data is a consequence of the choice of research design. A specific research design implies different skills, assumptions and research practices. Myers & Avison discuss four different research designs, action research, case study research, ethnography and grounded theory. They describe these research designs in the following way:

- Action research. The main idea of action research is the collaborative aspect. As an action researcher you are supposed to disseminate the stock of knowledge to the social science community. Action research as a research design in information systems has just begun to make an impact.
• Case study research. A case study is an empirical inquiry that aims at investigating a contemporary phenomenon in its context when the boundaries between phenomenon and context are unclear. Case study research is the most used design in information systems, and depending on what underlying philosophical assumption the researcher has the case study can be positivist, interpretive or critical.

• Ethnographic research. This research design comes from the discipline of social and cultural anthropology. The idea is that the researcher spends significant time in the research field and becomes part of the context in which the phenomena are studied.

• Grounded theory. This design aims at developing theory. It demands a continuous interplay between data collection and analysis. The main difference between grounded theory and the other methods is the specific approach aiming at theory development.

Using the above descriptions of research designs when categorising the research design in this study I would say that this is an interpretive case study. In my view an interpretive case study is an investigation in which the researcher collects and interprets data collected from one or several cases. In the next section the interpretive case study research in this study will be described in detail, but the section starts with a description of what a case study is.

2.2 The research design in the study

The description of the research design builds on Yin’s (1989a) and Eisenhardt’s (1989a) suggestions about what constitutes case study research. According to Yin every type of empirical research has an implicit, if not an explicit, research design. He proposes (1989a, p. 29) five important components for research design in case studies that are of importance: a study’s questions; its propositions, if any; its unit(s) of analysis; the logic linking of the data to the propositions; and the criteria for interpreting the findings.

Eisenhardt (1989a) presents a roadmap for building theories from case study research. This roadmap consists of eight steps or components. She emphasises that case study is a research strategy and not just a method to collect data. Yin (1989b) and Markus (1989) are of the same opinion. Eisenhardt describes a
process of building theory from case study research that consists of the following eight components: 1) getting started, 2) selecting cases, 3) crafting instruments and protocols, 4) entering the field, 5) analysing data, 6) shaping hypotheses, 7) enfolding literature, 8) and reaching closure. Despite the fact that Eisenhardt describes a case study which aims at building theory I find the steps sufficient for a case study that aims at building as well as testing theory.

Eisenhardt’s proposal to build a research design is, in my view, more comprehensive and easier to follow than Yin’s. Both of them start with the research question. The difference is that while Eisenhardt talks about hypotheses followed by an analysis of the data, Yin puts forward propositions instead of hypotheses, and that the propositions guide the collection of data.

Before I go into detail about what constitutes the research design in this study a general discussion about the choice of design for the study will be presented. As mentioned earlier the chosen research design is a case study research. The reason for choosing case study and not another research design, such as action research, is threefold. First, the question and the phenomenon as such demand an empirical investigation. Second, the time available to do the research renders it impossible to make an ethnographic study. Third, action research was not suitable because the study was made in different settings and was not made with the kind of collaboration that action research demands. My view of action research is that an action researcher proposes something and then tests and evaluates that. In this study the collaboration between the researcher and the researched has not been done like that, nor was it planned to be like that. The choice also reflects what Avison & Myers (2002) say about different research practices, skills and assumptions affecting the choice. In my case the practice is to do case study research among my colleagues. When it comes to skills I do not think that I as a PhD student have the skills to do action research. I do not think there are any simple answers to my research questions, and the assumption is that the study will require and build on interpretation. This implies that the research design will build on an interpretive case study.

Within this interpretive case study the design is empirical as well as conceptual-analytical. An empirical design means, according to Järvinen (1999), that the researcher is interested in theoretical matters as well as reality. A conceptual-analytical study includes the following stages: “basic assumptions behind
constructs are first analyzed; theories, models and frameworks used in previous empirical studies are identified, and logical reasoning is thereafter applied” (Järvinen, 1999, p. 8). The conceptual-analytical part means that I have made a literature survey and use the findings both to guide the collection of data and to analyse the data. The research in this case is also influenced by Fitzgerald & Howcroft (1998) who argue that the world is best characterised and described by an interpretive view. The reason for choosing an empirical direction of my research is that there are several studies on the ASP concept that are conceptual-analytical. The findings or assumptions from the literature studies acted as input for the empirical study. The empirical study was then an interpretive and reflexive study of decision-making in a context where the boundaries between phenomenon and context were unclear.

Research questions and their nature are crucial for the choice of research design (Eisenhardt, 1989a; Lee, 1999; Trauth, 2001). The main research question in this study is a “how” question. The study also focuses on “what” questions and “why” questions in the subquestions. Such questions stress what reality is and related empirical phenomena. They also stress the building of guidelines, methods or prescriptions. An examination of Järvinen’s (1999) categorisation of research approaches (Figure 2-2) shows that five out of six of them may be a relevant and possible way. The final choice however, depends on what kind of outcome a researcher expects or wants to achieve. This could further be developed with the assumption put forward by March & Smith (1995). They claim that there are two kinds of scientific interest in IT, descriptive and prescriptive. Descriptive interest aims at understanding the nature of IT, which according to March & Smith is a knowledge-producing activity as in natural sciences. Prescriptive research aims at improving IT performance, and is an activity using knowledge as in design science. The research in this case is descriptive and aims at understanding the ASP phenomenon and how the decision on using ASPs was made.

When empirically studying the past and the present, the choice between theory-testing and theory-creating depends on whether there is a theory, model or framework guiding our research or if we are developing a new theory based on the collected raw data. As I see it, my ongoing research could be both a theory-testing as well as a theory-building research design. This is developed further in Chapter five and in Johansson (2003a).
The research design could also be conceptual-analytical with two different methods (Järvinen, 2000). The first starts from an assumption, premise or axiom and derives a theory, model or framework. The second asks the question whether there is any common theory to describe and explain phenomena as a starting point. The reasons for not choosing a conceptual-analytical research design is that I see the existing knowledge about deciding on using the ASP concept in SMEs as limited and my impression is that there is a lack of empirical studies on the subject. It is also possible to use research designs that stress the utility of artefacts. The outcome of that kind of research design is the development of a guideline, a method or a prescription. Neither of these will be the outcome of my research, which means that artefacts-based design is not appropriate. The different designs presented by Järvinen (1999) focus more on the outcome of the research than on the process as such. The outcomes of this research are descriptive and describe the ASP phenomenon as well as the decision-making process. To be able to do so the research uses a couple of existing theories. These theories are presented and described in Chapter five.

The final statement on this categorisation is that the research design is a theory-testing design that in a way builds on a theory-building design. This decision can be compared with the statement that Klein (2002) gives about research on the ASP concept stating that at the moment the research is often a first attempt to identify a new phenomenon. To explain what I mean by this somewhat eclectic standpoint, both building and testing theory in the same research design, the design is to identify and use a couple of different theories and sum up the theories in a set of propositions. These propositions are then used to analyse the empirical data; in that way the research could be seen as theory testing. This theory testing can then result in an expanded and improved theory. However, the ambition is not to test each theory separately. To do this theory building and theory testing an interpretive case study has been used. The case study comprised what Yin (1989a) describes as a multiple-case design with embedded, multiple units of analysis.

In the following sections I will describe what I have done and why I include a description of the research design used in this research. It also describes what steps were taken to obtain answers to the research questions asked in the thesis. Eisenhardt’s eight components are used as headings supplemented by Yin’s unit of analysis.
2.2.1 Getting started

Normally, the research question guides the investigation. When I started to do my research on the ASP concept the overall research question for my thesis had not been formulated. Instead one of the subquestions caught my interest, namely the question, what is ASP? I had some knowledge of it and the impression that the ASP concept is just another bandwagon. However, after doing some initial investigation, reading some articles and books and also talking to some people more familiar with the concept, I could formulate my research question. I started to question myself why the concept had not taken off. I had the impression that the ASP concept seems to have much to offer to SMEs and the impression that the ASP concept was just another bandwagon changed. However, I also got the impression that SMEs did not adopt the concept. I planned my research from the overall research question, wanting to know how and why the decision to use the ASP concept was made. The question then became how to understand this knowledge. As mentioned earlier there was a choice at the beginning between two different approaches. One of them was to make a broad investigation among SMEs and ask them why they had not adopted the ASP concept. This approach could have been successful if, after the broad sample, I had got access to one or more SMEs that planned and prepared to adopt the ASP concept. It could also be unsuccessful if I just came to the conclusion that SMEs do not know what the ASP concept is about. The risk of arriving at that conclusion was one reason for not choosing this approach. Another reason was in fact the surroundings and what Trauth (2001) and Fitzgerald & Howcroft (1998) call academic politics. In my research community the use of quantitative data collected by a broad survey is not a common approach.

The second approach was to investigate SMEs that had already adopted the ASP concept. This approach is more likely to describe and explain how and why the decision was made. A critical point of this is that very often the description of a decision is adjusted afterwards so that it sounds and looks better. Having decided between these two approaches the question was how to choose and get access to organisations. This leads to the next section which deals with the question of how the cases were selected.
2.2.2 Selecting cases

When selecting cases there are, according to Markus (1989), three different basic assumptions to consider. First, to decide whether the research is theoretical, descriptive, exploratory or prescriptive. Second, if the primary orientation of the case is to build or test a theory. Third, if the research is intended to confirm or disconfirm a theory. The research in this case is descriptive and it has the intention of being theory-testing. However, my intention is neither to confirm nor to disconfirm a theory. The aim of the theory-testing part is to see how different theories explain the findings. The assumptions presented by Markus emphasise that it is the theory or theories that are being tested that should guide the selection of cases. In my case the selection was not guided by theories. The reason for this is that the theories were chosen after the selection of cases had been made. In that respect my research can be said to be hermeneutic-inductive (Eriksson & Wiedersheim-Paul, 1997). Eisenhardt (1989a) emphasises that the most ideal theory-building research is to begin as close as possible from a preordained theoretical perspective. This could also be said to be relevant in my case since I use theory to set up the analysis and to help explaining the outcome of the research.

Another way to decide what cases to select is to examine the nature of the research questions. The research questions in this study entail qualitative, purposeful sampling and collection of data. Patton (1990) maintains that the logic and power in purposeful sampling lies in selecting information-rich cases. The cases then need to be studied in depth. Patton describes 15 different sampling strategies plus one approach that is mixed or is a combination of some other strategies. In my research, the following three strategies are the most appropriate: homogeneous samples, typical case sampling and purposeful random sampling. These different strategies facilitate analysing different things. As I see it, the homogeneous samples will give the possibility to describe something particular in depth, related to the question what ASP is. In the typical case sampling, I will search for cases that are typical for the ASP situation. This will enable describing the phenomenon to people not familiar with the ASP concept. The third and last strategy is purposeful random sampling. As I see it, this will increase the credibility of the results; the aim of doing this is to reduce speculations about why certain cases were selected.
These three sampling strategies pose some difficulties. Choosing a typical case has to be done in cooperation with key informants, i.e. people who can help identify what is typical. Purposeful random sampling puts forward the question of how to find and get access to the units of analysis. The homogeneous sample demands that someone decides on what homogeneous is. It is probably not possible to follow these three strategies at the same time. There has to be a trade-off between them. The homogeneous sample strategy involved choosing ASPs that all presented themselves as ASPs on their websites. I could have chosen ASPs that, in Currie & Seltsikas’s (2000) categorisation, were the same type of ASPs. However, the choice was instead three different categories of ASPs. By choosing different ASPs I did not state in advance what a typical ASP is, which makes the sample more heterogeneous. Thus the cases will more likely be able to answer the question what ASP is. The idea was also to do a random selection. This was not done in a strictly regulated way; I did not select for instance the first, the fifth and so on. How the selection was made is presented below.

The cases chosen for this study are three different ASPs and customers related to them. The ASPs differ in that they offer different products. They all state that they do business as ASPs on their websites. These three ASPs are described in Chapter four. The selection was made by using Currie & Seltsikas’s (2000, 2001a, 2001b) categorisation of different ASPs. Currie & Seltsikas categorise ASPs into five different groups, horizontal ASPs, vertical ASPs, enterprise ASPs, pure-play ASPs and ASP enablers. Currie & Seltsikas’s categorisation is described and discussed further in Chapter three. When I chose between all those companies that state they do business as ASPs, I used the Internet to identify them. I searched for ASPs on the Internet and then looked at the ones that were geographically nearest to my working place. The reason for this was to facilitate reaching them to collect data. The search on the Internet resulted in about 20 organisations that more or less clearly stated that they did business according to the ASP business model and consequently could be part of the study. From this sample three organisations were picked out that described their business as related to the ASP concept. Another reason for choosing these three was that I aimed at having one organisation in each of the categorisations that Currie & Seltsikas propose. The organisations chosen were categorised into the following three categories, horizontal ASP, vertical ASP, and enterprise ASP. The reason for not choosing a pure-play ASP was that there was none within a practical distance. The last proposed category of ASPs is the ASP enablers. These are not
really ASPs as discussed by Currie & Seltsikas, instead they are organisations that all the other ASPs use to be able to do their business. After deciding on using one organisation in each of the three ASP categories, I contacted the organisations by phone. From earlier experience I phoned the ones that I believed were well established in the region. I contacted one organisation in each category. The ASP organisations were all very interested and willing to cooperate in my research, which meant that from three phone calls there were three organisations willing to act as respondents. By choosing three different ASPs I aimed at exploring if the reasons for deciding on using the ASP concept differ if offers from ASPs differ. I also wanted to get a rich and broad base for collecting data for the answers to the question what ASP is. After selecting the ASPs that became part of my study, I selected customers. The selection of customers is strictly a result of the ease of access. My original plan was to make a more extensive interview study of ASP customers. To do so I planned to randomly select customers from each of the three ASP organisations. However, in order to do that I needed to have a list of their customers. The ASP organisations were not willing to provide me with that kind of information. I had some promises that I would receive lists but they were never fulfilled. After some time the organisations promised to provide me with the names of some customers, but the number of customers was not large enough to enable a random selection. At the end of the study I received a list of customers from one of the ASPs. This was the result of my suggestion to make a survey of customer satisfaction with the ASP concept. The consequences of the limited number of customers will be discussed further in Chapter seven.

2.2.3 Unit of analysis

The unit of analysis is, according to Yin (1989a), the subject you will say something about. This differs from the selection of cases since the aim of using cases is to provide you with the data you are going to say something about. Decisions about what unit of analysis will be used affect the sampling method (Patton, 1990). Yin maintains that the unit of analysis is fundamental for research, since it is related to the problem of defining what the “case” is. The definition of the unit of analysis in the actual case is related to the way the initial research question is defined. Patton (1990, p.168) writes: “The key issue in selecting and making decisions about the appropriate unit of analysis is to decide what it is you want to be able to say something about at the end of the study”
The unit of analysis in my research questions is the ASP phenomenon. This could be broken down into ASPs as providers and SMEs as customers. The SMEs unit could then be broken down further into decision-makers and decision-making processes. However, in the research there is no interest in saying anything about the decision-makers as such, instead it is the decisions and the decision-making processes that are of interest. Consequently, the unit of analysis is the ASP phenomenon and the decision to use ASPs.

The unit or units selected become the main analytical level for the study (Yin, 1989b). A single study can have more than one unit of analysis. It is quite common for a research design to involve embedded units of analysis. This means that there are primary and secondary units of analysis. The primary unit in my case is the decision and the decision-making. Within it, there is a secondary unit of analysis, the phenomenon ASP. The reason why the two are units of analysis is that both of them are implied in the research questions. To say something about my research topics I have used some instruments and protocols that I will describe and explain in the next section.

### 2.2.4 Crafting instruments and protocols

In this section I will describe and explain the methods used and why they were chosen. I do this under the heading, *crafting instruments and protocols*, since in my view research methods involves how to do things. As Eisenhardt (1989a) describes it, crafting instruments and protocols deals with the use of data collection methods. What should guide the choice of methods? Probably the same that should guide the research design, namely the research questions, but also the expected answers to those research questions. So once again I start with the research question. The research question, as mentioned earlier, is “how”. It is important to emphasise that it is not a question about *how many* or *how much*, but rather *how does*. This question is, according to Yin (1989a), best answered by using case studies, experiments, or histories. Besides the *how* question, my research concerns a social construct. This implies that it is not possible to have control of behavioural events. The research also focuses on contemporary events. This make the case study strategy most appropriate. The case study in this case consists of interviews, document analysis, and a survey. Eisenhardt (1989a) claims that the use of multiple data collection methods makes it possible to triangulate, which provides the findings with more substance and makes them
stronger. It is important to note that case study can involve qualitative data only, quantitative data only, or both (Yin, 1989a). This implies that my research could gain from both qualitative and quantitative data as well as result in both qualitative and quantitative findings. There could, for instance, be some quantitative findings about how much of their ICT an SME rents from an ASP. Such findings have been helpful in giving a deeper understanding of the issues.

Taking case study as a point of departure, what should determine which data collection method or technique to use? In this case the choice of using interviews as the main method has been proposed. The interviews and the documents will mainly answer the how does question. Why not only use a survey instead? By using a survey a broader sample could be used and a larger amount of data could be collected. The reason for not doing this has been explained in Section 2.3.1 above. However, the reason for choosing interviews can be elucidated further. Choosing interviews builds on the following assumption. The decision to use the ASP concept has various dimensions. These dimensions are hard to establish in a survey. If you, for instance, put the direct question to the ASP customer, “What made you decide to use the ASP concept?” you will probably receive an answer, but is that answer valid? The respondent’s answer is perhaps adapted to satisfy you or to sound good. By using a survey you could probably develop your questions in such a way that this is taken care of. But you do not have the possibility to ask follow-up questions directly. This possibility you have in an interview situation. This assumption is also emphasised by Alvesson & Deetz (2000), who claim that the context in which the interview is made is very important.

Another reason for choosing interviews as the main way of collecting data is that decisions about using the ASP concept are made by humans. Humans are part of a social reality and are influenced by their surroundings. They have their intersubjective ideas and various factors could have influenced them when they made the decision. One and probably the best way to be acquainted with what it was that influenced them to make the decision is to have them talk about the decision. You should ask open questions, so that they talk and give you information around the decision. This means that you have to make the respondent talk about when and where they made the decision, to whom they talked, and what material they had to support the decision. To deal with this, mostly semi-structured open-ended interviews have been used.
In addition to these interviews there was communication with all of the respondents to clear up misunderstandings and to ask questions to verify the information. This communication was conducted by phone and e-mail. This acted as input to the last step in the data collection, a survey consisting of a questionnaire. The questionnaire is shown in Appendix A. The survey was developed in cooperation with the horizontal ASP. Beside the interviews, the study by Susarla et al. (2003) about ASP satisfaction and the questionnaire in that study acted as input to the developed questionnaire. The input from Susarla et al.’s questionnaire was reflected in six questions out of the 21 in my questionnaire. Questions number 15 to number 20 were more or less influenced by the study by Susarla et al. The other two ASPs had the opportunity to take part in the survey. They received the questionnaire and gave some input to it but they did not use the opportunity. Most likely they did not want to reveal the identity of their customers. The survey was sent by mail and consisted of a cover letter and a questionnaire with twenty-one questions. To guarantee confidentiality a numbered envelope was sent with the questionnaire (Ejlertsson, 1996). The number on the envelope was only used as an identification of who had returned the questionnaire. After the questionnaire had been returned the respondent was ticked off on a list and the returned envelope and the questionnaire were separated.

The importance of the framing of the questions is something that has been emphasised. Among others, Kylén (1994) and Czajka & Blair (1996) emphasise this as one of the most important things to do when developing a questionnaire. A pretest consisting of several steps was conducted. The first was to have the questionnaire tested by colleagues at the Informatics department, but also at the department of Entrepreneurship, Marketing and Management (EMM) and the Economics department, all at Jönköping International Business School (JIBS). A few other people including the sales manager at the horizontal ASP also filled out the questionnaire. These steps improved the questionnaire more and made it more explicit. However, the final step in the development of the questionnaire was to hand it to one of the respondents. I asked the respondent to pay special attention to the questions and comment on how he understood the questions. There were some minor adjustments after this, but the overall impression was that the questionnaire was easy to understand and fill out. The next section will present what I did when first entering the field and what steps I have taken to be acquainted with what goes on in the field.
2.2.5 Entering the field

After the initial phone calls with the respondents it was time to collect the data. I had already decided that I should do so by conducting interviews. The interviews could be said to be what Alvesson & Deetz (2000), among others, label semi-structured interviews.

The study can broadly be said to consist of three steps. The first step included interviews with three different ASPs and interviews with three ASP customers related to them. This means that there were a total of six interviews in the first step. Each of these interviews lasted for one and a half to three and a half hours. Table 2-1 shows when and with whom these interviews were conducted. The aim of the first step was to develop and improve my research questions, but also to gain knowledge of what the ASP concept is.

Table 2-1 The interviews made in the first step of the study.

<table>
<thead>
<tr>
<th>Date</th>
<th>Organisation</th>
<th>Role of Respondent</th>
<th>Type of interview</th>
<th>Documentation</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 Nov 2001</td>
<td>The horizontal ASP</td>
<td>Sales manager</td>
<td>Unstructured</td>
<td>Tape-recorded and transcribed</td>
<td>One and a half hours</td>
</tr>
<tr>
<td>26 March 2002</td>
<td>The vertical ASP</td>
<td>Sales manager</td>
<td>Semi-structured open-ended</td>
<td>Tape-recorded and transcribed</td>
<td>Three hours</td>
</tr>
<tr>
<td>3 April 2002</td>
<td>The enterprise ASP</td>
<td>President</td>
<td>Semi-structured open-ended</td>
<td>Tape-recorded and transcribed</td>
<td>Two hours</td>
</tr>
<tr>
<td>25 April 2002</td>
<td>Customer of the vertical ASP</td>
<td>Managing director</td>
<td>Semi-structured open-ended</td>
<td>Tape-recorded and transcribed</td>
<td>Two hours</td>
</tr>
<tr>
<td>29 April 2002</td>
<td>Customer of the enterprise ASP</td>
<td>IT manager</td>
<td>Semi-structured open-ended</td>
<td>Tape-recorded and transcribed</td>
<td>Two hours</td>
</tr>
<tr>
<td>25 June 2002</td>
<td>Customer of the horizontal ASP</td>
<td>President</td>
<td>Semi-structured open-ended</td>
<td>Tape-recorded and transcribed</td>
<td>Two and a half hours</td>
</tr>
</tbody>
</table>

The second step of the study consisted of two parts. One was to compare existing literature with the initial findings in the interviews. The other thing was to deepen the information about the cases by conducting more interviews. For this purpose two more interviews with the ASPs were made, one with the horizontal ASP and one with the vertical ASP. These interviews are listed in Table 2-2.
The first interview was an unstructured interview. I did not have any questions prepared in advance for this interview. The reason for this was that I wanted to have a totally open interview and have more of an unprepared discussion with the respondent. The first interview then acted as a guide to the rest of the interviews. This is in line with the description by Easterby-Smith et al. (2002) of having more and more structure in the interviews the more interviews made, which also reflects the development of the questionnaire.

The questionnaire was sent to ASP customers of the horizontal ASP. These were selected from a list of the total number of customers. The identification of ASP customers was made in cooperation with the sales manager of the HASP. To be identified as an ASP customer the customer should rent software applications to be used in their own organisation. This selection meant that a couple of customers that only used the provider for hosting their website were not part of the study. Other customers that were not part of the study were those who bought place on a server for the hosting of software applications that were then in turn used by their customers. After this selection there was a remainder of seventeen customers. The limitations of this small sample are discussed further in Chapter seven. The survey was the final step in the data collection. This survey resulted in a report which I submitted to the horizontal ASP and their customers. From the horizontal ASP there were then some comments that will be discussed further in the analysis. After the questionnaire was sent, nine of the customers answered almost directly. Five more of the customers answered after a reminder from me by telephone. The telephone conversations gave me some insights into how the cooperation works between provider and customer. The telephone calls were made three weeks after the dispatch of the questionnaires. After calling the customers who had not returned the questionnaire I waited for two weeks and then sent out the questionnaire again. This resulted in a total of fourteen questionnaires returned out of seventeen possible. The next section will discuss how the analysis was conducted.
2.2.6 Analysing the data

As Alvesson & Deetz (2000) express it, interviews are undoubtedly the most common qualitative method. However, the interview material calls for careful critical reflection. The question is how to ensure this. My approach was to transcribe the interviews and then print them. I then read the interviews several times and tried to remember what the situation was like when the interview was conducted. To a certain extent I have written down some statements about the situation when transcribing the interview. During the interview notes were taken and keywords were written down to facilitate remembering. The first interview, which was done with a sales manager at the horizontal ASP, was coded by a grounded theory approach (Strauss & Corbin, 1998). This means that I made the initial coding steps, open coding, axial coding and selective coding, of the interview. Open coding is the process of breaking down, examining, comparing, conceptualising, and categorising data. Axial coding is a procedure that follows after open coding in which the data are put back together in new ways emphasising connections between categories. In selective coding core categories are selected and systematically related to other categories (Strauss & Corbin, 1998). The result from this coding was a couple of constructs. These constructs made it possible to develop the following interviews in a more distinct manner. However I did not find the grounded theory approach to be suitable for the rest of the interviews. One reason was that I found the grounded theory approach to be too penetrating in the interviews. Another reason is that my research does not aim at creating a new theory.

The following analysis can be said to be a within-case analysis (Eisenhardt, 1989a). This means that the analysis involves detailed write-ups for each site. These write-ups are presented in Chapter four. They aim at being detailed descriptions. From these descriptions an analysis was then made; the result is presented in Chapter six. To make the analysis the propositions presented in Chapter five were used as well as the description of what goes on in the academic field concerning service provision as presented in Chapter three. The aim of the write-ups of the different cases is to become familiar with each of them as a stand-alone entity (Eisenhardt, 1989a). By comparing these descriptions with each other a cross search for patterns was conducted. From these identified patterns some conclusions and findings were drawn. The patterns from the cross search were also compared with the findings from the questionnaire. The
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questionnaire can therefore be said to be some kind of testing or evaluating the earlier findings from the interviews, but the questionnaire also added deeper understanding of the conclusions and findings. This means that a triangulation took place between quantitative and qualitative data (Easterby-Smith et al., 2002). However, the analysis of the questionnaire resulted in descriptive statistics such as means and standard deviations. This was done by using MS Excel. To improve the analysis of the result from the questionnaire a report was generated that was presented to the service provider and its customers. This report presented responses to the questionnaire question by question and the result was shown in charts. To improve the analysis of the result from the questionnaire questions were also related to each other. This was planned from the beginning and therefore, questions 13 and 14, for instance, asked about the same thing but in different ways. The analysis of the questionnaire aimed at finding patterns and relations in the data in the questionnaire as well as in the interviews.

2.2.7 Shaping propositions, enfolding literature and reaching closure

The analysis in the thesis builds to a great extent on the propositions presented in Chapter five. These propositions were not used as guidelines for the collection of data when the interviews were conducted. They were developed to some extent during the same time as the data were collected and they have probably had some impact on the data collection. However, the main idea was to use them as a tool for analysing the data. This discussion leads over to Eisenhardt’s (1989a) two final steps in case study research, enfolding literature and reaching closure. Literature has been studied all the time. This has been a difficult task since much research has already been done and much is being done about decision-making, outsourcing and service providers. This implies that at a certain point one has to adopt a standpoint and write down what one knows. Eisenhardt claims that linking to literature is especially important if the research is done within a small number of cases. This is also connected with the step of reaching closure. My view on this is that when someone examines a decision-making process there is probably always the possibility to add another case or enfold more literature. My approach to both enfolding literature and reaching closure has been to acquaint other researchers with my research. To do that I have been to two PhD summer schools and on both occasions presented my research subject and how to do the research. I have also been at two PhD consortiums and also there presented my
subject and how to research it. In addition to that I have presented papers at seven conferences (Johansson, 2001; Johansson, 2002; Johansson & Carlsson, 2002; Johansson, 2003a; Johansson, 2003b; Johansson, 2003c; Johansson & Carlsson, 2003). All these have had the aim of giving me input and comments on my work, but also to acquaint me with where the research on ASPs stands at the moment.

Eisenhardt describes two issues important for reaching closure. The first is when to stop adding cases. The second is when to stop iterating between data and theory. Both these issues are said to be valid when saturation is reached. This means that one should stop adding cases when an additional case would improve the result only minimally. The same is valid for the iteration between data and theory. These are difficult issues to handle, involving questions of reliability, validity and the ability to generalise, which is discussed in the last chapter, Chapter seven.

2.3 Chapter summary

This chapter has presented and discussed what has been done. It has done so by presenting how the research has been conducted, and why it was done in that way. The research is an interpretive case study. There was a decision that to answer the research questions, one or more case studies had to be carried out. These studies had to cover both types of organisations involved in the ASP phenomenon, which means that there were interviews conducted in both provider organisations and in customer organisations. If the study had tackled only one organisation, it would have been extremely difficult to draw accurate conclusions about what was going on. The cases in this research consist of three different kinds of ASPs and customers related to them. The case study was what Walsham (1995) labels an interpretive case study. The research design builds on an ontological and epistemological standpoint that argues for interpretivism and pluralism. The interpretive case study consisted of interviews done with the three ASPs and customers related to them. It also consisted of a questionnaire to the customers of one of the service providers. The analysis of the data started with a grounded theory approach to the first interview. The analysis was then made as a within-case analysis, consisting of detailed write-ups for each site. These write-ups were then analysed with the propositions presented in Chapter five.
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In the next chapter the literature survey is reported. The literature survey establishes where research on application service provision stands today and what has been done in the related field of outsourcing. It also aims at defining the most basic concepts used in this thesis.
3 ICT, sourcing of ICT, and the ASP phenomenon

This chapter explains, defines and discusses the basic concepts used in the thesis. To explain the context of the research some related concepts are also discussed. The chapter starts with a discussion on the concept of information and communication technology (ICT). Concepts related to ICT are information technology (IT) and information systems (IS). This discussion aims at describing why I have chosen to use ICT and not just IT in the thesis. The three concepts are discussed and compared with each other. The main concept in the thesis is the ASP concept, which is defined and discussed in terms of what it is and why it has come into place at all. It is also related to the overall concept of sourcing and its underlying concepts of outsourcing, insourcing and netsourcing. Application service provision is discussed from five different views. The aim of the chapter is to bring clarity to the sometimes confusing abbreviation ASP.

3.1 Why use the concept ICT and not IT or IS?

In the thesis and in the research questions I use the concept of information and communication technology (ICT). This section presents the reasons for doing so. I will explain why I use ICT and why I do not use information technology (IT). The use of the concept ICT raises at least two questions. The first question is, why use ICT as a concept and not just IT? The second question is what ICT, IT and information systems (IS) are, and in what way they are related to each other. I will start with the second question by relating these three terms to each other. By doing so I will answer the question why I use ICT in the thesis.

3.1.1 Definitions of ICT, IT and IS

Information and communication technology (ICT) can be seen and is probably the same thing as IT. The difference between them is in my view the fact that in ICT the communicative aspect of IT is emphasised. In the thesis I use the following definition of ICT: Information and Communication Technology (ICT) includes the full range of computer hardware, computer software, and telecommunication facilities (Moursund, 2003) and as such are used as a supporting tool for the activities of an organisation.
According to Lorentzon (1999) telephony and computing have converged since the 1960s. Since then the borderline between the two has vanished. Lorentzon uses ICT in his study about the use of ICT in small developing enterprises. His reason for using ICT as a term is to emphasise the communicative aspect of IT. One reason for the use of ICT in this thesis is that the delivery of services by a service provider is mainly made through network communication. Another and stronger reason for using ICT is to emphasise the products delivered, since a great deal of the services and products delivered by ASPs are tools for communication. A broader analysis of what is delivered through the ASP concept will be made in Section 3.3. However, the question remains, what is the difference between ICT and IT? A very narrow definition of IT or information technology is to see it as a technology component of an information system (Turban et al., 2001) A broader definition of IT is, according to Turban et al., to see it as the collection of an organisation’s information systems. Turban et al. define information system as a physical process that supports an organisation with information to achieve its goals. Seyal et al. (2000) define IT as technology dedicated to information storage, processing and communication. More exactly they explain it as a notion that focuses on a combination of hardware, software, telecommunications and office equipment. Based on one point of view it can be concluded that the communicative aspect is part of IT, which implies that ICT and IT can be used interchangeably. Another closely related term is information systems (IS). The definition of ICT given above raises the question, why not use IS instead? In my view IS can be seen as a collection of formalised and non-formalised information systems. It can also be seen as possible to automate and not possible to automate the information system. Andersen (1994) expresses the same view. The computer-based information system can therefore be said to be an information system that builds on ICT and is a formalised and automated information system (Melin, 2002). However, despite the similarities between these concepts I have made the choice to use ICT. After describing and motivating the use of ICT the next step is to look at different options for the provision of ICT.

### 3.2 Different options for the provision of ICT

Application Service Provision (ASP) is one option for SMEs to provide themselves with ICT. According to Sharma & Gupta (2002) the ASP concept has come to symbolise a new way of delivering ICT services. This statement leads to
the question what ASP is. To answer that question I will start by discussing how SMEs can support themselves with ICT services, and what options there are. The discussion will examine what ways of ICT provision are available for SMEs. This discussion will act as a starting point before discussing the specific ASP option. The overall term for these options is sourcing.

3.2.1 Sourcing options for ICT

Irrespective of what products or services organisations need, they have two distinct options, purchase or produce. This means that they can arrange or produce the services or products by themselves or they can buy them. This distinction is discussed in, for instance, transaction cost theory as a distinction between market and hierarchy (Williamson, 1985). The option of producing can be broken down into producing with your own resources or with external resources. The latter option is closely related to the purchase option. The option of using external production resources can be compared to buying in resources in the form of consultancy. This can be seen as own production if the buying organisations have the control of the production or the services delivered by external personnel. The alternatives are depicted in Figure 3-1. The control level in the figure emphasises and describes who has control of an asset. The make options emphasise who has control of the resources used when development takes place. The buy options emphasise who has control of the ICT after actual development has taken place. The different options can be explained in the following way. In the buy option internal control of ICT means that the organisation has bought in ICT and has complete control of it. Complete control means that they are in a position to handle the entire maintenance of the asset and do not have to rely on an external partner for doing this. ICT in this case can be an “off-the-shelf” product such as Microsoft Office. The other option on the buy side is the external control of ICT, which means that they buy in ICT and do not have complete control of it. Instead they rely on another organisation for the maintenance of the ICT. The support needed can be uncomplicated services such as, for instance, help with upgrades. They can also buy the entire handling and management of their ICTs and pay for this through a leasing agreement. Outsourcing can be seen as this kind of sourcing. The ICT can also in this case consist of Microsoft Office but it can also be an ERP system such as SAP/R3.
Figure 3-1 Describing the buy or make option for ICT.

The other option labelled “Make ICT” can also be described as producing ICT. This option can be broken down into producing with internal resources and producing with external resources. The option with internal resources means that the organisation has control of the ICT. The make option with external resources also implies that the control of the asset lies with the organisation that uses the resources. This option can be compared to the buy option, insofar as the organisation buys in resources for the development of the ICT. However, it can also be compared to the external control of bought ICT. In that case the external organisation may to some extent act as a developer and propose new ICT or improvement of the present ICT. There are at least three different sourcing options for ICT and ICT services: make, buy, or rent. To clarify and go further with the distinction between these options I will start with a description from Kern et al. (2002b). They maintain that there are four general sourcing options for organisations. They are:

- **Traditional outsourcing.** This sourcing option means that an external supplier takes ownership of the organisation’s resources and manages those resources on behalf of the customer. This is described in Section 3.2.3.

- **Insourcing.** In this case the organisation uses internal resources and manages those resources itself. Insourcing is described in more detail in Section 3.2.4.

- **Buy-in.** In this case the organisation brings in external resources and uses those resources under their own control. This sourcing option is discussed in Section 3.2.5.
• Netsourcing. The organisation rents the needed resources from a supplier. The supplier owns the resources and delivers the resources through network communication. Netsourcing is described in Sections 3.2.2 and 3.2.6.

Kern et al. give ASP as the label for this last option. However, I label it netsourcing to make the distinction that there are several other service providers that can certainly be seen as sourcing options. The overall concept of netsourcing seems to be a better concept. Netsourcing is discussed further in the last paragraph of this section. As I see it, all four options proposed by Kern et al. are interesting for SMEs. However, the options need to be more discussed and explained to see what actually differs between them. Before doing so descriptions of sourcing strategies by a few other authors will be presented in order to relate the above to others’ descriptions.

Chorafas (2003) discusses five different sourcing strategies. The strategies are shown in Figure 3-2.

![Diagram of sourcing strategies](image)

Figure 3-2 Sourcing options related to client’s control of ICT, adopted from Chorafas (2003, p. 7).

He labels them outsourcing strategies but I have chosen to call them sourcing options instead. The reason is that I see outsourcing more as a sourcing option. To me outsourcing is more or less a sourcing option at the same level as Chorafas’s five options. The strategies he proposes stretches from the internal utility to the independent party. In my view this means that the control of the asset decreases along the way. The line under the figure is not by Chorafas, but in my view his description of the different strategies builds on the idea that the client’s control of ICT decreases the further right you go. Chorafas labels the five strategies as lone wolf, joint venture, business service provider (BSP), business
process operations (BPO), and application service provider (ASP). The internal utility is labelled lone wolf and the independent party is labelled ASP.

The lone wolf sourcing strategy means that an organisation provides itself with the ICT needed and the services around it. How the provision is made depends on the size of the organisation, and if the organisation is organised into different departments or not. In some cases this means that there is cross-divisional as well as cross-border provision.

A joint venture strategy implies that the organisation provides itself with ICT from external partners. This sourcing strategy means that an independent provider takes care of the provision of the ICT. This provider can be a competitor to the organisation they provide with ICT. However, at the same time as they compete at front desk, the two organisations cooperate at back office. Banks are examples of such alliances.

The next sourcing strategy is the business service provider strategy. According to Chorafas a business service provider is usually a competitor to the organisations it provides with ICT, which means that they compete on the same market. The reason for using business service providers is that they have the technology and know-how to support a specific service. The business service provider can then do this at a lower cost than the organisation can do by internal sourcing.

The next strategy is what Chorafas labels as business process operations. This is when the organisation by negotiation hands over responsibility to another party. The providing partner then becomes a third party supplier that supports its customers with ICT services for a fixed fee.

The fifth and, according to Chorafas, the most independent sourcing strategy is the ASP option. In Chorafas’s view this is when a vendor takes care of and supports its customers with ICT services from a data centre owned by the vendor. The view of the ASP concept given by Chorafas is that it is a concept in which the vendor and its customers are two independent parties. It implies that they do not have any organisational links and that cooperation only exists as a buy and sell arrangement. The description Chorafas gives raises issues of control and dependency. Chorafas claims that ASP is the sourcing strategy in which the customer has the least control of its ICT. How the issue of control influences the decision is discussed in Chapter six.
Also Kern et al. (2002a) discuss different sourcing options. According to the authors the use of sourcing options through communication networks has increased in the last few years. Various labels for this have been proposed, and the authors state that an all-embracing label for this kind of sourcing is needed. The label which they propose for these sourcing options is netsourcing. Kern et al. define netsourcing as “the practice of renting or ‘paying as you use’ access to centrally managed business applications” (2002, p. 1). These software applications are then received as a service. What are software applications as services? According to Axelsson & Wynstra (2002) services are defined as a process consisting of activities. These activities take place in interaction between the customer of the services and the provider of the services. According to Axelsson & Wynstra there are complexities in buying a service that render decision-making regarding buying services more complicated than a goods-buying decision. I will come back to these difficulties in Chapter five. The basic idea in netsourcing is that instead of buying software from an independent software vendor, the customer has access to the software through a network. The network can be the Internet or another network. (Kern et al., 2002a). This discussion leads us to the concept of various service providers (SPs). These are a product of the ability to provide services through a network. In the next section a discussion about the widely used concept SP will be conducted.

### 3.2.2 The concept of service providers

To understand the use of SPs I will give an introduction to the concept in this section. The abbreviation SP for service provider is used in various settings, and regardless of what letter you put before SP there will be some use of just that abbreviation. The use of different abbreviations ending in SP (service provider) has rendered the understanding of different kinds of service providers very confusing. According to Kern et al. (2002a) exasperated journalists have given up the nomenclature and just use the abbreviation xSP. To understand the concept ASP some other xSPs have to be discussed. Kern et al. list the following xSPs: ASP, BSP, VSP, CSP, FSP, MSP and SSP. These xSPs will be briefly explained below and discussed as value propositions to customers. Sharma & Gupta (2002) also provide us with a list of abbreviations ending in SPs. They are BSPs, SSPs, ISPs, CSPs, MSPs, and ASPs. These xSPs will be described in Section 3.3.3. The main difference between the xSPs of Kern et al. and those of Sharpa & Gupta is that the latter are seen as service providers that are part of the
ASP concept. Kern et al. on the other hand see them as organisations and service providers at the same level. According to Kern et al. this means that the difference between these xSPs lies in what product they deliver.

![Figure 3-3](image-url)

Kern et al. describe management service providers (MSPs) and storage service providers (SSPs) as service providers that furnish their customers with technical support (see Figure 3-3). A management service provider supplies its customers with monitoring services for their networks, applications, storage and security. The equipment is usually located at the customer’s place. The customer also owns the equipment. The service on the other hand is provided from a remote network centre. This network centre is administered by the management service provider organisation. Storage service providers are also seen as an alternative of service providers that provide their customers with technical support. These providers sell storage on a demand basis to their clients. The service includes not only storage but also services around storage. This means, for instance, that a service can include extracting historical data on demand.

The rest of the xSPs identified by Kern et al. are placed in a service stack as sourcing options for business application service provision. Application service providers (ASPs) are here seen as the service providers on the lowest level in the stack. By this Kern et al. mean that ASP is the sourcing option with the least developed products. The services delivered by ASPs include management of the customer’s infrastructure and applications. The next step in the service stack is
the full-service provider (FSP). Full-service providers also manage infrastructure and applications for their customers, but they also take care of the integration of applications and offer some consulting. The third level on the service stack is the business service provider (BSP). Business service providers manage the infrastructure, applications, integration and consulting. They also handle and manage data and business processes. The final step in the service stack is what Kern et al. label exsourcers. Exsourcers supply all the earlier presented services and in addition provide their customers with business processes for inter-organisational transactions. Inter-organisational transactions are when internal data and processes are connected to external constituents. The service provider in this case delivers and supports such processes and engages necessary suppliers to be able to deliver full services over a network.

Kern et al. also introduce and explain two other service providers. These are the vertical service provider (VSP) and the commerce service provider (CSP). Vertical service providers focus on a specific industry or a specific segment with their services. The products they offer are the same as those of ASPs. Commerce service providers are also the same as ASPs, but they focus on a particular product. The services they offer include management of online commerce operations.

This discussion has shown what options there are for an organisation to provide itself with ICT. It has also shown two different angles or subjective meanings of the ASP concept. Chorafas (2003) explains ASP as a sourcing option at a level where the provider does not have much cooperation with its customer. According to Chorafas an ASP takes care of the customer’s business processes and does so without emphasising the cooperation with the customer. This is in contradiction to the view of Kern et al. of the ASP concept. To expand and deepen the discussion on what ASP is it will be fruitful to look at the closely related concept outsourcing.

3.2.3 Outsourcing

Looff (1998) points out that there are different and sometimes confusing definitions of outsourcing. According to Looff outsourcing is what Williamson (1985) labels market versus hierarchy decisions, Rands (1992) calls it the make or buy decision, and Gurbaxani & Whang (1991) as well as Porter (1980) call it vertical integration. The risks with and the result of labelling outsourcing with
different terms is that it has different meanings to different people. According to Looff this leads to non-comparable research results and also to disagreement between clients and suppliers. Looff gives the following definition of IT/ICT/IS outsourcing: “the situation in which part or all of the IS activities an organisation needs are performed by one or more external suppliers.” (1998, p. 251). To deepen and further define outsourcing it is fruitful to look at Willcocks & Lacity’s description of sourcing options. Willcocks & Lacity (1998) identify four different strategies that an organisation can have with external ICT services partners: buy-in, preferred supplier, contract out, and preferred contractor. (Figure 3.4.)

According to Willcocks & Lacity, it might just be the “contract out” and “preferred contractor” that are outsourcing. Outsourcing could then in itself be classified according to the relative grade of its use in the organisation into the following three options: selective outsourcing, transitional outsourcing and total outsourcing. Total outsourcing means that at least 80 per cent of an organisation’s ICT budget is spent on external partners (Willcocks, 1994). Selective outsourcing on the other hand is when an organisation outsources less
than 80 per cent of its ICT budget. Selective outsourcing then means that some of an organisation’s ICT is outsourced and some is managed internally. The same can appear in the case of total outsourcing. However, in the case of total outsourcing it is probably more common for the resources spent on internally handled ICTs to involve cooperating with the provider of ICT and ordering the right ICT. Transitional outsourcing is when an organisation temporarily outsources the ICT function. This is done during the time that the organisation needs to build up an effective organisation. After the build-up has taken place the idea is that the organisation should handle the ICT by itself. The question is whether the decision to use the ASP concept can be seen as an intention to do total outsourcing, selective outsourcing or transitional outsourcing. Another question related to Willcocks & Lacity’s description of sourcing strategies (Figure 3-4) is whether the decision is a “contract out” or a “preferred contractor” decision. These two questions are discussed in Chapter six.

The traditional definition of outsourcing as described by for instance Levina & Ross, “a phenomenon in which a user organisation (client) transfers property or decision rights over information technology infrastructure to an external (vendor) organisation” (2003, p. 332), raises some questions. One question is whether the required services are already used in the organisation or not. The outsourcing view states that the organisation does not need any new ICT or ICT services at the moment. The description that Kern et al. (2002a) give implies that the supplier takes care of resources that are already present in the organisation. Another question is the time horizon. The time horizon in outsourcing is often long, and the agreement between the outsourcing organisation and the providing organisation is often a long-term contract. Quelin & Duhamel (2003) defines outsourcing as “the operation of shifting a transaction previously governed internally to an external supplier through a long-term contract, and involving the transfer of staff to the vendor” (2003, p. 648).

My definition of ICT outsourcing is as follows:

| ICT outsourcing is the process of transferring ICT-related assets that are already present in the organisation to a partner outside the organisation. The transfer means in most cases that personnel are transferred. The persons that work with ICT and are transferred are after the transfer employed by a new employer. |

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3.2.4 Insourcing

Another sourcing alternative is insourcing. This can be seen as the opposite of outsourcing. There are two views of insourcing. The first is when an organisation brings in new ICTs or new services connected to ICTs. The second is when an organisation brings back earlier outsourced ICTs or services connected to ICTs. These resources are then internally controlled and the management of the resources is done in-house.

The insourcing option raises some questions about the availability of resources and specifically human resources. Hirschheim & Lacity (2000) discuss four different archetypes of insourcing which they claim define insourcing as a sourcing strategy. First, the presence of the outsourcing option forces the ICT manager to reduce costs. Second, ICT managers terminate defective outsourcing contracts. Third, senior managers confirm the value of ICT without letting an external partner bid. Fourth, ICT managers defend insourcing since the evaluation of outsourcing is often seen as biased. The insourcing option demands that the organisation can compete on the market when it comes to attracting employees and having skilled employees. Whether this is a viable option for SMEs is questionable because of the difficulties for them to attract and retain ICT-skilled employees. The viability of the insourcing option probably depends to a large extent on the size of the organisation.

My definition of ICT insourcing is as follows:

*ICT insourcing is the process of bringing back ICT-related assets that were previously outsourced to a partner outside the organisation.*

3.2.5 Buy-in

As argued earlier, organisations have two overall options for supporting themselves with services. These are to produce or to buy. The buy-in notion treated in this section should not be seen as the above stated buy option. Instead it should be seen as one way to use the buy option. Both outsourcing and insourcing as described above can be seen as buy options. The buy-in option is when the organisation buys resources that it then manages by itself. Buy-in differs from the buy option in the way control over the assets is managed. The buy-in option can then be described as insourcing. In Willcocks & Lacity’s
(1998) view of different sourcing strategies (Figure 3-4) the buy-in option is described in the following way: Buy-in means that the purchasing style is like a transaction. The products or services that are bought are resources. The organisation buys something that it will use to produce something, which is the opposite of buying a product. Buying a product should be seen as buying something that the organisation does not need to have control of for it to be useful to the organisation.

My definition of buy-in is as follows:

| **Buy-in** is when an organisation buys ICT-related resources previously not owned which it then handles and controls itself. |

### 3.2.6 Netsourcing

Netsourcing is a sourcing option that emphasises the network as a delivery method. In this sourcing option different communication links are possible. However, the most used view of this sourcing option is to see the Internet as the communication link. But the Internet is not the only way by which sourcing through a network can be done. A dedicated network connection can also be used. Such network communication was used long before the Internet became available. My definition of netsourcing is as follows:

| **Netsourcing** is a medium and a way of delivering ICT and ICT services. As such it can be seen as outsourcing as well as insourcing or buy-in. |

### 3.2.7 Summing up the four general sourcing options

To summarise sections 3.2.3 to 3.2.6 and the differences between the various options the following statements can be made:

- **Outsourcing** is when an organisation lets an external partner take care of some or all its ICT. The control of the ICT is then moved to another organisation. The ICT was used and controlled by the outsourcing organisation before the relocation took place.

- **Insourcing** is when an organisation brings back previously outsourced ICTs. Control and management is then handled internally in the organisation.
• Buy-in is one way to use the insourcing option. The buying organisation buys resources that it then controls and uses internally. However, the buy-in option does not state that ICT that is bought in was necessarily outsourced before.

• Netsourcing can be seen as all of the above. The basic idea of netsourcing is the way the products or services are delivered. Netsourcing can therefore be outsourcing, insourcing or buy-in.

The question then is which of these options the ASP concept is. The next section deals with this question.

### 3.3 Application service provision

As stated in Chapter one we have seen a growing number of ASP start-ups and companies in the outsourcing market offering their products and services through the ASP concept since the late 1990s. ASPs are often seen as a way for SMEs to have the possibility to use ICTs to increase their effectiveness and efficiency. But what exactly is ASP? And how is the ASP option related to the earlier presented options for ICT provision?

The ASP concept will here be discussed from five different perspectives or dimensions. The structure of the presentation of these is shown in Figure 3-5.

![Figure 3-5 Structure of the presentation of the five dimensions.](image)

The first view discusses it as a phenomenon. The aim of that discussion is to study the origins of ASP. This leads to the second view, which is to see ASP as a concept. The ASP concept section will discuss and explain ASPs as enterprises but also to introduce the products sold by these enterprises. The discussion about the concept ASP leads to the third view, which explains the business models used by ASPs. The business model view continues with the fourth view which emphasises ASP as a third-party deliverer. This view will discuss what role ASPs
play between subcontractors and customers. Finally the fifth view discusses ASP as a service, emphasising what products or services are delivered by ASPs.

3.3.1 The phenomenon ASP

The abbreviation ASP for application service provider was, according to themselves, first used in 1998 by the American analysts company IDC. Telecomputing, a company that works as an application service provider, claims that it was they who invented the term (Elerud et al., 2001). Irrespective of who actually first created the term it has since then been widely used. The phenomenon ASP can be compared to the older term service bureau. The service bureau rented out processing power and/or storage which was a way for its clients to handle some of their ICT assets. These services were delivered in a one-to-one model which is an important distinction when comparing with ASP. But, as Ekanayaka et al. (2002) say, this model was limited in the scale and scope and did not fit SMEs. The service bureau model has then been developed further and to some extent been replaced by the large-scale ICT outsourcing contract of the 1980s and 1990s. The outsourcing model has been and still is a model that is not well suited for SMEs. One reason for this is that the actors in this segment are large enterprises that aim for mega-contracts. At the same time there are also small actors in this outsourcing segment. The reason for introducing a new term for renting out applications can probably be argued to be a case of the willingness of the ICT sector to introduce new concepts and abbreviations. It can also be argued that it is a temporary phenomenon. Whatever it is called I believe that the basic idea of the phenomenon ASP will remain. According to Elerud et al. (2001), using an ASP for the sourcing of ICT results in increased accessibility, increased flexibility and geographical independency. As I see it these factors are an effect of the rapid development that has taken and is taking place in the ICT sector, and a new term was necessary to distinguish from the older term service bureau. However, to elaborate on what the ASP phenomenon actually is, I will start with a description presented by Currie & Seltsikas (2001a). They call the ASP phenomenon the third wave of ICT outsourcing. The first wave of ICT outsourcing was technology-centric with few additional services such as consultancy, training, systems integration, etc. The second wave of ICT outsourcing was business-centric, which mainly consisted of transferring responsibilities from technical staff to general or line managers. The aim was to control and shape ICT costs in conjunction with changing business requirements.
According to Currie & Seltsikas ICT outsourcing has now reached the third wave, which they describe as industry-centric. They claim that outsourcing has shifted from centralised computing (1960s and 1970s) through distributed computing (1980s and 1990s) to remote computing in the 21st century. The ASP phenomenon will play an important role in remote computing since it offers a utility model that consists of applications on a pay-as-you-use basis. It is also a one-to-many model, where a specific application will be shared by a number of customers across different locations. This description describes what Currie & Seltsikas mean by industry-centric, namely emphasising remote computing in a one-to-many model. An application service provider is, according to Currie & Seltsikas, an enterprise that “manages and delivers application capabilities to multiple entities from data centres across a wide area network” (2001, p.1). A slightly different definition is given by Kern et al.: an ASP is “a supplier that provides access to centrally managed applications on a rentable or pay-as-you-use basis. Applications are then delivered in a one-to-many arrangement by suppliers to (multiple) users from a shared data-center over the Internet (or other networks) and are accessed from the customer’s desktop via an Internet browser.” (2001, p. 10). This leads over to the next section that will discuss the ASP phenomenon as a concept.

3.3.2 ASP as a concept

Labelling ASP as a concept emphasises the basic idea of ASP as an option for providing ICT. The concept as such consists of a business model (ASP as a business model is described in more detail in Section 3.3.3) with the aim of delivering services of ICT. These services can be provided internally or externally. The ASP concept is to view the provision of ICTs as made by external providers. The different views reflect how the services are delivered and how the customer pays for them. TripleTree (2000) identifies and describes four major variations of the ASP concept. These variants are: domain expertise, vertical industry, infrastructure, and vertical exchange. By domain expertise is meant an ASP company that focuses on a specific area. In this area the providing company develops deep knowledge. It can then be said to become an expert in and about this specific area. According to TripleTree (2000) domain in this case refers to a specific function or a distinct area of ICT. TripleTree gives human resources, facilities management or procurement as examples of this kind of functionality. The next variant is the vertical industry concept that is sometimes called vertical
service providers (VSPs). They provide their customers with industry-specific software applications. By focusing on a specific industry these providers try to be experts on the specific applications that are used in organisations in that industry. The third variant is the infrastructure variant. The ASPs in this case deliver and provide their customers with management and services connected to infrastructure. Another label for these enterprises is management service providers (MSPs) or infrastructure management providers. These companies provide an additional layer of network and data centre management software between other service providers and their hosting partners. The fourth and last variant is the vertical exchange ASPs. Vertical exchange companies are organisations that host various types of e-procurement and supply chain solutions. They provide their customers with a data platform enabling a two-way flow of information between stakeholders in a supply chain solution. This discussion leads to the next dimension of ASP, which is to understand ASP as business models.

3.3.3 ASP as business models

According to Hedman & Kalling (2003), a business model is a term that is used for the purpose of describing what key components a given business consists of. TripleTree (2000) argues that the basic ASP model (Figure 3-6) has emerged and multiple variations have arisen.

According to TripleTree the ASP business model challenges current ICT business models. It does so by questioning our definition of ICT services and software businesses. It also questions the utilisation of software that is central for
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business operation. The reason for this is that ICT and software is usually seen as something the using organisations should own. It is also seen as important for the businesses, and therefore the using organisations feel a need to have control of their ICT assets. The ASP business model turns this upside down and therefore challenges the basic thinking about the provision of ICT. TripleTree (2000) identifies three areas as market drivers for the ASP business model:

- Macroeconomic drivers are a reflection of the “new economy” where organisations are affected by increasing global competition. They are also affected by rapidly changing ICT. And finally they are affected by the level of the competitive “playing field”. This factor can be defined as what ICT the organisation’s competitors use.

- Outsourcing drivers are, according to TripleTree (2000), affected by the cost perspective. The customer organisation has problems with shortage of its ICT staff. They also want to minimise the cost of ownership for their ICT and feel that they have a need for predictable cash flow. Another factor that drives outsourcing is the idea of improving internal efficiency.

- Value-added drivers are a combination of strategy and technology. TripleTree suggest two main reasons. The first reason is to add value by using the best applications, the second by having the possibility to change technology faster. These factors are expressed by TripleTree as faster time-to-market, no technology obsolescence, transfer application ownership as well as utilising “best-of-breed” applications and obtaining technical expertise.

According to Sharma & Gupta (2002) the ASP business model and the ASPs have progressed from traditional co-located, hosted offerings to today’s provision of plug-and-play solutions for all kinds of applications. The ASP model has developed into an application-neutral distributed model that is based on a web-user interface. It includes client/server collaboration and supports the renting organisations with solutions for their needs. According to Sharma & Gupta the ASP model consists of three layers, a backbone layer, a storage and Internet layer and a software layer. To distinguish between these three layers Sharma & Gupta use the concept of xSPs. The concept of xSPs was discussed in Section 3.2.1. The way Sharma & Gupta use the proposed xSPs differs in some way from the earlier discussion. In their ASP model Sharma & Gupta use six different
abbreviations ending in SPs: Backbone Service Providers (BSPs), which provide the ASPs with necessary technology for high capacity and long-haul connectivity; Storage Service Providers (SSPs), which provide their clients with remote data storage locations; Internet Service Providers (ISPs) giving their clients access to the Internet; Commerce Service Providers (CSPs), which provide delivery, web design and ISP service; Management Service Providers (MSPs), which provide tailored management services for their clients; and finally, Application Service Providers (ASPs). According to Sharma & Gupta the ASPs support their clients with what they call the software layer. The ASP model described by Sharma & Gupta includes services from all these service providers. According to Sharma & Gupta the role of an ASP is to coordinate services and act as a single provider for the customer. In my view the description delivered by Sharma & Gupta of what ASPs do is somewhat unclear. In one sense all these different xSPs are seen as independent organisations that deliver services to organisations that use their services. However, the model they describe demands that service providers cooperate when delivering the services. In that way Sharma & Guptas’ model can be compared to the model presented by TripleTree (Figure 3-6). One perception of ASPs is to see them as organisations that provide services that they produce and deliver themselves. On the other hand the description given by Sharma & Gupta implies that ASPs do not act themselves and do not have any service that they can deliver by themselves. The services that they deliver are instead seen as services that consist of a collection of services by other organisations. According to Sharma & Gupta (2002) there are two basic approaches for how services are delivered and how the responsibility is handled. The first approach implies that the customer pays a licence fee or a monthly subscription fee for using the application. The ASP owns the application and its related software. There are often independent arrangements with other partners for managing the entire ICT environment. In the second approach the entire ICT environment is handled by the ASP. This means that the ASP is responsible for both running the application and managing the entire ICT infrastructure. Both of these approaches build on the fact that a customer gets access to software applications without making investments in the software or the hardware. It also implies that the customer organisation does not need to hire or have its own employed internal staff for the management of services connected with its ICT. This leads to the next section, which will discuss ASP as third-party deliverer.
3.3.4 ASP as third-party deliverer

Lockett & Brown (2000) characterise the ASP business model as consisting of intermediaries enabling the digital enterprise community. The authors emphasise the third-party role for ASPs. They suggest “eClusters” as a construct reflecting the business model used by ASPs. New development of ICTs has made eClusters possible. Viewing ASPs as intermediaries transferring new business possibilities, offered by the development of new ICTs, to clients and customers explains some of the differences between the “old” service bureau concept and the ASP concept. Lacity and Willcocks (2001) also describe ASPs as intermediaries between client organisations and independent software suppliers. The use of subcontractors in the ASP business model is emphasised by Lacity and Willcocks. They refer to investigations showing that 36 to 50 per cent of outsourcing contracts involve subcontractors. The subcontractors are hired by the suppliers to deliver part of the services to the customer. The customers have limited or no interaction with the subcontractors. Quite often the customers do not even know that there are subcontractors involved (Lacity & Willcocks, 2001). The next question to discuss is what services are delivered through the ASP business model.

3.3.5 Services from ASPs

The core of the ASP concept is the managing of applications for external customers. These applications can be ICT-related, but that is not the only thing that an ASP may offer. An ASP can, for example, be an information broker. Puelz (2001) describes an ASP which benchmarks data from 16 financial institutions. However, ASPs are commonly associated with the offering of software applications (Cherry Tree, 2001; Kern et al., 2001; Currie & Seltsikas, 2000). The offering consists in managing and delivering software applications to external clients. The clients use the applications in their own business and application areas such as website hosting, payroll/billing, e-mail, e-commerce, and enterprise resource planning systems. Sourcing through ASPs is sometimes also defined as a form of application outsourcing or as selective outsourcing.

The services provided by ASPs can be classified into the following seven types: collaboration services, electronic commerce, content services, corporate systems/knowledge management, interfaces, network smart products, and infrastructure outsourcing (Sharma & Gupta, 2002). Kern et al. (2002) conducted
ICT, sourcing of ICT, and the ASP phenomenon

an online survey in 2001, which aimed at establishing for what applications clients used ASPs. The study found that the most common applications provided by ASPs were e-mail and communication. It is not clear what Kern et al. mean by communication; my interpretation is that it is, for instance, electronic data interchange (EDI). The basic idea of services from ASPs is that the customer organisation pays someone else for the hosting, running and managing of its software applications. These services can further be described as managing the environment for the applications, monitoring the use of the applications, monitoring how well the applications work, giving support for the network, providing upgrades of the applications used, but also facilitating the introduction of new applications into the customers’ organisations. ASP services to customers are services that are related to the software applications delivered. The product in this case is the use of software applications and the services that the customer pays for are services related to the use of the software applications. This means that there is a shift in the focus for the customer from buying software as a product to buying software as a service (Sharma & Gupta, 2002).

The confusion about what ASP is stems, according to TripleTree (2000), from the fact that many people think the ASP business model is a hosted enterprise resource planning system (ERP) solution. This belief comes from the fact that ASPs often act as third-party deliverers for hosted third-party applications. This was shown in Figure 3-6, which according to TripleTree is the basic ASP model. The hosted applications can be ERPs, but this is not the only application that ASPs deliver. However, the belief that ASPs just host ERP solutions can be questioned. According to TripleTree there are many analysts who state that customers will be unwilling to rent mission-critical solutions. The fact that solutions provided were not developed for the ASP business model makes a customer organisation mistrust the ASP business model as a suitable way of providing ERPs. This is also discussed by Hagel (2002) who states that one of the reasons why the ASP concept has not taken off is the fact that the products are not developed for this kind of provision. The delivery model with delivery via a hosted services methodology is mistrusted. This indicates that ASPs that offer their own developed applications or applications adjusted for the ASP business model are more likely to succeed, irrespective of how critical a given application is for the customers’ businesses (TripleTree, 2000).
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One way of describing what an ASP offers its customers is to use a categorisation of ASPs. There are various ways of categorising ASPs. One of these ways is a taxonomy developed by Currie and Seltsikas (2000, 2001a, 2001b). The purpose of the taxonomy is to help to describe, categorise, analyse and evaluate organisations that act as ASPs. The main idea is to see what services ASPs offer and how the services are delivered. I use this taxonomy for the presentation of my case companies and what products and services they deliver. According to the framework presented by Currie & Seltsikas, ASPs can be categorised into five different groups related to what product(s) they deliver. The five groups in the taxonomy are:

- **Enterprise ASPs**, which means major companies in the Enterprise Resource Planning (ERP) market. These companies have large companies as their main target. The reason for them to become ASPs is that they hope to be able to deliver their ERP systems to SMEs. This means that they will be able to broaden their marketplace.

- **Pure-Play ASPs**, which means companies offering only solutions that are web-enabled. The main target for them is primarily dotcom and other start-up companies.

- **Vertical ASPs**, which means companies focusing on a specific market. Here, the market is a limited service or product from, for example, a car manufacturer, credit institution or insurance company.

- **Horizontal ASPs**. As opposite to the vertical ASPs the horizontal ASPs do not support a specific market. Instead they support a client with all the applications the client needs. The main products delivered by a horizontal ASP are tools supporting collaboration. The main targets for them are in the area of SMEs.

- **ASP enablers**. Companies in this group are actually not ASPs. They are companies that support other ASP companies with products and services necessary for their businesses.

Another categorisation is made by Sharma & Gupta (2002). They also describe ASPs from the services offered. In their categorisation there are four different ASPs. Enterprise ASPs offer applications that need to be customised. These
applications are in the area of enterprise resource planning (ERP), customer relationship management (CRM), supply chain management (SCM), or workflow and imaging software services. General business ASPs focus on general business applications, such as office suites, for small to mid-sized organisations. The applications they offer need little or no customisation. Specialist ASPs focus on delivering a particular type of application. So do vertical ASPs but they differ from specialist ASPs by concentrating on a specific market segment.

3.4 Chapter summary

This chapter has presented and discussed the basic concepts used in the thesis. It started by presenting why I use ICT and not IT or IS. The reason for using ICT is to emphasise the communicative aspect of the applications that are provided through the ASP concept. Another reason is to emphasise the way of delivering the services. The chapter discusses and relates the ASP concept to other options for organisations to provide themselves with ICT. It can be claimed that the ASP concept is closely related to both service bureau and outsourcing. These two concepts can be seen as the origin of the ASP concept. However, the ASP concept differs from these in at least two ways. First, compared with the service bureau the services from an ASP are more developed. Second, compared with ICT outsourcing the ASP business model is a one-to-many model, and outsourcing is a one-to-one model. It can also be claimed in accordance with Ekanayaka et al. (2002) that the ASP model, in contrast to traditional outsourcing, is a model that gives access to core business applications and does not simply hand over operational control of an enterprise’s data centre. The content of application service provision is described and discussed from five different perspectives; as a phenomenon, as a concept, as a business model, as a third-party deliverer and what services are provided from an ASP. From this it can be concluded that ASP is a fairly new phenomenon that is influenced by service bureau and outsourcing. It was labelled as a concept in the late 1990s building on a one-to-many business model that tries to be a one-point access to its customers when it comes to ICT. In that way an ASP can be seen as a third-party deliverer that provides its customers with software applications. These software applications are in areas such as website hosting, payroll/billing, e-mail, e-commerce, enterprise resource systems and office suites. The core of the ASP concept is the management of applications for external customers and for this customers pay-as-they-use. The chapter ends with a categorisation of ASPs
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proposed by Currie & Seltsikas. I will use these different categories in Chapter four, where I will present one horizontal ASP, one vertical ASP, and one enterprise ASP and for each of them one customer.

Having explained and discussed the concept ASP, the remaining questions are: How is the decision made? What factors are involved in the decision-making process? These two questions will be discussed in Chapter five.
4 Describing the organisations studied

This chapter reports the empirical work by describing the organisations that are part of the study. The organisations studied are three service providers and three customers, one customer of each service provider. In addition to the presentation of the organisations the chapter presents some thoughts which the interviewees have about the ASP concept. These thoughts are summarised at the end of the chapter. The aim of this chapter is threefold. First, to present the organisations studied. Second, to present the interviewees’ thoughts and statements about the ASP concept. Third and finally, to start the analysis of the ASP concept by presenting a summary of thoughts about the ASP concept.

4.1 Three application service providers

This section presents the three organisations that act as application service providers (ASPs). In the section these service providers are labelled according to the categorisation of ASPs by Currie and Seltsikas (2000, 2001a, 2001b). The categorisation was described in detail in Chapter three.

The descriptions made in this section will answer questions about the service providers in the following areas: First, a presentation of some numbers and facts about the organisation. Second, applications and services, describing what the organisation offers its customers. Third, who the customers are and how they are attracted to the ASP concept. Each description ends with some thoughts about the ASP concept emphasising why or why not to adopt the ASP concept.

The presentation is based on semi-structured, open-ended interviews. The interviews were described in detail in Chapter two. There were three overall questions in the interviews with the service providers. What do they deliver? How do they get hold of a potential customer? Why would an SME adopt or not adopt the ASP concept? In the following the organisations are presented and these questions are discussed.
4.1.1 The horizontal ASP

The first organisation described is a service provider that is classified as a horizontal ASP (HASP). The HASP was at the time of the first interview a consulting firm located in Denmark, Norway and Sweden. This company was the result of mergers of three different companies: an Internet service provider (ISP), an IT consultant, and an ASP firm. The history or background of the organisation can be seen as a manifestation of the consolidation that is and has been present among service provider organisations. During some time the companies conducted their business in parallel. After a while they organised themselves under one name and managed their business under that name for less than a year before they went bankrupt. Almost directly they restarted as a new organisation. At the time of the bankruptcy they had three data centres. Now they have reorganised and have kept only one data centre. According to the interviewee the organisation was at that time the leading ASP actor in Scandinavia\(^3\), when it comes to the number of users. The HASP claimed they were the company with most users working with applications located at their data centre. Now they do not emphasise this statement. However, it can be mentioned that during the time from when the first contact was made in October 2001 until August 2003, the representatives of the organisation always said that the inflow of customers had been good. At the moment the organisation has 45 employees and is located at five places. The company markets itself as offering flexible solutions for its customers. What these flexible solutions consist of is described in the next section.

4.1.1.1 Applications and services offered by the HASP

There are two different directions of services in the organisation, consultancy and hosting. The service of interest to this study is the hosting. This consists of 80 to 90 different software applications and is described as operational solutions consisting of two parts. The first part is a standard assortment of applications described as a base block that all customers need. The base block consists of Microsoft products such as Outlook, Explorer, Office, Project, and WinZip. The base block is needed for the organisation to facilitate increasing volumes and making a profit. The second part is customer specific applications that a customer

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\(^3\) A statement made in November 2001.
Describing the organisations studied

either already has or wants to have. Customer specific solutions could, for example, be payroll/billing, e-commerce and ERP applications.

In addition to the hosting service the company also offers a variant where the servers are located at the customer’s site. The services offered by the HASP can be a total service solution consisting of all necessary support and maintenance of software applications. It can also be a limited service approach where the HASP takes care of and is responsible of, for instance, backup management. In the case of just taking care of backups, the backup is executed and saved at a server situated in the HASP data centre. The sales managers at the HASP describe the ASP concept as a way of renting out software applications through a network connection. The provision is made either via the Internet or by another dedicated network connection. In November 2001 the most used connection was a dedicated network connection. This connection was used by around 90 per cent of the customers. This situation has changed and now new customers are more willing to use the Internet for communication; in October 2003 it was used by around 35 per cent of the customers. This is described and analysed further in Chapter six. According to the interviewee the common customer rents a mail system and an office packet as their basic ICT. Above that they rent a customer relationship system (CRM) and/or an accounting system and/or an enterprise planning system (ERP).

There are two ways of implementing the applications:

- **Dedicated servers.** This means that the customer’s applications are located in an own server and the applications are customised and only used by one customer.

- **One-to-many.** This option means that the application is stored in a server where other customers’ applications are also located. The application can be used by one or more customers. The basic idea is that the same application is used by many customers to achieve economies of scale.

At the moment both options are used at the HASP. They have applications that run on their own dedicated servers for one customer. It has also been the case that a dedicated solution has been transferred to a server that runs applications for many customers. The interviewee says that they concentrate on finding applications that are suitable for the one-to-many solution. But applications that
demand a dedicated solution are not directly rejected. In that case an investigation is made to see if the application is profitable or not for the HASP.

4.1.1.2 How the HASP attracts customers

The main customer segment for the HASP is SMEs. Identifying and attracting customers is done in two ways, by the HASP or by a partner. In the partner case the potential customer is identified and attracted by a partner that the HASP cooperates with. This cooperation is done in the following way: The partner identifies the customer and when they, for instance, market an ERP system they also offer provision of the system as an ASP service. The partner in this case sells and signs the agreement on the maintenance of the system. The provision of the service is made by the HASP, which supports the client with the hosting part of the system. The HASP depends on the software vendors for the engagement of customers and has no contact with the customers to make the deal. Another way of attracting customers by partners is that the software vendors propose the solution of providing the application as an ASP service, and let the service provider sign the deal with the customer. In the latter case attracting a customer is done in the same way as when the HASP itself is involved in the process.

According to the interviewee the HASP tries to market itself by advertising and arranging specific days to market the ASP concept. However, the first step when attracting new customers is to make an inventory of their ICT and ICT infrastructure in cooperation with the customers. After this the HASP comes back with a proposal for how it would be possible for the prospective customer to use the ASP concept. Sometimes the HASP also quotes a price in the proposal. If not, the price is negotiated after the customer has accepted the proposal.

The HASP tries to make the potential customer interested in making a total cost of ownership (TCO) analysis, analysing the customer’s present ICT costs. They see it as a very good starting point for the customer to do so. The reason is that the customer becomes aware of their present ICT costs, and the discussion about the fee for the ASP services becomes more fruitful. According to the interviewee the customer’s first impression is that the ASP concept is too costly. When making a TCO analysis the discussion focuses on present costs of ICT and leads to a comparison between the two options. According to the interviewee this also means that the customer becomes aware of the fact that they have extremely little knowledge of the costs of their ICT. They become alarmed when they realise
how badly they control their ICT costs. According to the interviewee many organisations work with an ICT budget with small increases each year. They are not aware of what is hidden behind the figures. A customer might say for instance, “The only costs we had were for buying five new computers”. When the cost of their ICT is analysed it may appear that they had costs for consultancy time, new software, upgrades of software as well as new hardware. The result of this is that the actual cost differs to a great extent from what customers think they know about their costs for ICTs. The interviewee emphasises that they actually look at the present costs for each customer and do not use a forecast by, for instance, the Gartner Group.

Since the start of the ASP concept, when the providers first developed software applications and tried to attracts customer the HASP has changed direction and now starts by looking at what the customer wants. According to the interviewee they ask what software applications the customer needs in the future. When they have discovered what the customer wants and needs in the future they internally address the following questions: Are we able to host these applications? Is it economical for us to host these applications? If so, they give an offer to the customer to host an application. The financial side of the business is very important today. This means that if an application is not profitable the HASP will not host it.

4.1.1.3 The ASP concept as seen by the HASP

The interviewees describe the ASP concept as “hot” on the market⁴. They claim this is shown by the inflow of new customers. Despite this it has been hard to explain the ASP concept to customers and finalise negotiations. According to the interviewees there are three reasons. First, SMEs are not ready for the ASP business model. Second, the ICT sector introduces new and strange concepts all the time, which makes the introduction of ASP more difficult than it actually is. Third, the products or services have not yet been ready, nor have they been suitable.

- Why adopt the ASP concept?

Deciding on Using Application Service Provision in SMEs

According to the interviewees there are six reasons to adopt the ASP concept. First, companies do not need to have competence in ICT in their organisation. Second, they are interested in having accessibility 24 hours seven days a week all around the year. Internally they have problems with this accessibility time. Third, the helpdesk function is emphasised and needed. Fourth, they need and want to have control of the costs of ICTs. The ASP concept means that the customer knows how much ICTs cost per user every month. Fifth, they need to have full control of ICT investments. Sixth, they need to increase security, which means that the customers have problems with, for instance, spams and viruses. They also need to increase internal security with, for instance, backups of data.

Cost is the reason emphasised most by the interviewees. This concerns both the ability to cut costs and the ability to increase cost control. The interviewees describe customers’ cost control and awareness of how much ICT costs as inadequate. Another reason for using the ASP concept is being spared problems with upgrades of software. This reason is connected with the possibility to implement new versions of software at once irrespective of whether the users are located at different places. The benefit of this is that all employees work with the same version.

- Why not adopt the ASP concept?

According to the interviewees there are three main reasons not to adopt the ASP concept. First, security concerns. Second, fear of losing control. The potential customer thinks that if they do not have the physical equipment in their own buildings they have lost control of their ICT and their data. Third, costs. The potential customer’s first impression is that the fee is too high.
4.1.2 The vertical ASP

The second organisation described is a service provider acting as a vertical ASP (VASP). It is classified as a vertical ASP because it offers applications aiming at a specific segment when it comes both to applications and to customers. The VASP is a subsidiary of a major consulting firm located in Sweden. The consulting firm has several different departments, each focused on a specific market. At the moment the VASP is divided into three different stand-alone sections. Two of these sections have one data centre each and one of the sections has two data centres. The section and the respective data centre are focused on a specific customer segment and specific applications. The different sections have the following main directions:

- Hosting applications that are used for real estate administration.
- Hosting applications focusing on the healthcare sector and administration of personnel in that sector.
- Hosting applications for manufacturing including applications with a focus on e-commerce and web-sites in manufacturing organisations.

At the moment the VASP has 50 employees and is located at five places. In the following description the three sections are treated as one organisation since they all offer the same services.

4.1.2.1 Applications and services offered by the VASP

The VASP offers three alternatives when it comes to support and maintenance of software applications:

- Outsourcing. The department provides customers with a platform for their systems. The VASP also supports and manages those systems and consequently takes full responsibility for the customers’ entire ICT. The VASP owns the systems and the equipment and customers pay a monthly fee for using them.

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- Hosting. The difference between hosting and outsourcing is that in the hosting case the customer owns the systems. The VASP department provides a customer with storage space and processor power. For this service the customer pays a monthly fee.

- Service provider. In this area there are two different offers which the VASP calls ASP: pure ASP and customer specific ASP. A pure ASP is a part of the VASP’s portfolio. If a customer wants an application not in the portfolio this will be a customer specific ASP. The VASP will make such an offer only if the department is allowed to do some tests beforehand and is allowed to manage the application on a dedicated server. For this service a customer must pay for the use of the whole server even if only a smaller part of the server is used.

The difference between these three alternatives is somewhat vague. The services delivered in all the cases are different types of support and management of software applications. These applications are website hosting, payroll/billing, e-mail, e-commerce and ERP-systems. The VASP limits its offers to in-house developed systems and systems in which it has enough competencies. Enough competencies means that the department does not have to depend on an external partner to manage the systems.

### 4.1.2.2 How the VASP attracts customers

The market segment of the VASP department is SMEs. Potential customers are targeted using two channels: own activities and partners. By own activities is meant activities by both the VASP itself and other departments in the group. The second channel used is to attract customers by the use of partners. These partners are resellers of the company’s products and the idea is that when partners sell applications they should also be able to sell system support and management. This means that sometimes the partner conducts the entire negotiation process and the VASP only fulfils promises by the partner. The customer in that case is not aware of the existence of the VASP. However, the most common way to attract customers is by own activities. The interviewee states that he gets three to five requests for proposals from interested customers each week. It should be noted that he is the only one who deals with selling the ASP concept at the VASP. To handle all requests he gives a more or less standard answer. If the customer is still interested the actual negotiation takes place. At that point it is
necessary to take into account software applications already used by the potential customer and not propose anything more advanced because if this is done without explanation the customer will think the fee is too high. The interviewee states that since 2003 the company makes an analysis of their customers present costs for its ICT. The reason for this is that after losing several deals to mostly the customers’ internal ICT department they realised that the customers had no knowledge of how much their ICT costs and compared the fee with what they believed their ICT costs to be.

4.1.2.3 The ASP concept as seen by the VASP

The interviewee states that there is a great difference between customers as regards how the decision of using an ASP is made. However, he claims that there are basically two situations that induce the customer to start thinking of using the ASP concept. These are the organisation’s business strategy and a desire to decrease its ICT costs. According to the VASP there are three main reasons for SMEs to adopt the ASP concept. First, the organisation’s overall strategy, implying that it should not handle anything that is not directly connected with its core business. According to the interviewee such an organisation is only interested in having ICT that works and is not interested in taking care of the maintenance of the ICT. Consequently the use of the ASP concept would often fit such organisations. The second reason is the organisation’s desire to have control of its ICT costs. The third reason is the organisation’s lack of possibilities to handle necessary service and support on its own. The VASP says that the main reason for not adopting the ASP concept is the client’s fear of losing control of its ICT. According to the VASP the ASP concept mainly fits organisations that have fewer than 200 employees. It is more economical for larger organisations to handle the ICT themselves. Another situation when the ASP concept becomes too expensive is when the organisation plans to use the application for more than three years. In that case the cost for renting the licence becomes higher than buying the licence from the beginning. However, if the organisation also takes into account the service around the application the total cost becomes lower. The interviewee thinks that we will see a change in the usage of the ASP concept: it will be more common to rent software applications through the Internet during the time the application is needed in the organisation.
4.1.3 The Enterprise ASP

The Enterprise ASP (EASP) is a subsidiary of a global company operating in the ERP market. The ERP company develops and markets its own ERP system. It sells, licenses, implements and supports the ERP system. This company launched a new department in 1998 which marketed itself as a service provider doing business as an ASP. However, it was not until 2000 that it actually started operating. The reason for starting this business was to become a more interesting partner for customers. The ERP company also wanted to receive part of the money that its customers spend on system support and management. When the business started it was with the intention to be a service provider offering all systems required by the customers. There are two reasons why this has not come true. One was the bankruptcy of the partner which the EASP planned to use for the offering of software applications that are not directly connected to the ERP system. The other reason was that the EASP understood that its customers did not request that kind of service provision. At the moment the EASP has 30 employees, located at one place, and has one data centre.

4.1.3.1 Applications and services offered by the EASP

Currently the department only offers its own ERP system and two systems related to the ERP system. These are an EDI system and a system for managing printouts. This means that if a customer wants to rent, for instance, an office suite the EASP encourages the customer to use another service provider. The interviewee does not see any reason why they should try to compete with hosting software applications that are not part of their core competence.

Three different alternatives for support and maintenance of software applications are offered:

- **Hosting.** A proactive supervision and management of a customer’s ERP system. The customer is connected to the company’s data centre. The equipment is normally owned by the provider, which guarantees an accessibility of 99.9 per cent or 99.5 per cent, based on customer choice. The customer has bought the licence for the ERP system.

- **Remote Control.** The same thing as hosting, but the difference is that a customer owns all equipment and that this is located at the customer’s
Describing the organisations studied

place. The EASP does the same proactive supervision and management as in the hosting case. The difference is that it is done remotely.

- RentIT. According to the interviewee this is the closest to the ASP concept the company gets. In this case a customer wants and is offered everything around the ERP system and the customer pays a monthly fee for this. In this offer the fee includes licence fee, hardware, user training, maintenance, supervision and management of the ERP system. The customer has access to the ERP system through a network communication. However, that is not included in the fee. The customer is guaranteed the same accessibility as in the hosting case.

The support offered by the EASP consists of two parts. The customer has access to complete support and immediate correction of errors between 07:00 and 22:00. For simpler errors there is a telephone support open all round the clock. The EASP reports accessibility figures every month to their customers. It also reports what errors the customers have reported and what actions the EASP has taken.

4.1.3.2 How the EASP attracts customers

The ERP company’s customer segment is medium to large-sized enterprises. By entering the service provision market it also wants to be a potential partner for SMEs. The EASP wants as many as possible of their customers to join RentIT. According to the interviewee RentIT is mainly a way for customers to finance investments. Instead of paying the licence fee in cash, customers have the possibility to pay the investment as a monthly fee over 36 months. One reason why the EASP wants customers to use RentIT is that it seems to increase customer satisfaction. Customers are attracted by the EASP and the other departments at the ERP company. The EASP does not use any external partners to attract customers. The typical customer of the EASP is a customer that has already adopted the ERP system. The issue of using the EASP is then present when it is time to change servers or versions of the system. This explains why the interviewee does not see any reasons for becoming a total service provider.

4.1.3.3 The ASP concept as seen by the EASP

The main reason put forward by the interviewee for adopting the ASP concept is cost control and there is also the possibility to spread the investment over a longer period. The primary reason for not adopting the ASP concept is based on
fear of loss of control, expressed by the interviewee in the following way, “if the servers are not placed in the client’s own building the client has the feeling that they do not have control”.

The interviewee describes the ASP concept as a concept that involves renting a product and a service at the same time. This duality is hard for customers to understand, and the interviewee states that customers often ask about how the fee is composed of costs for hardware, software and work. What the interviewee clearly states is that they try to explain to the customer that the fee is for a package of both service and product.

The EASP markets itself as an ASP, even if the interviewee states that it is not really an ASP. The reason why he does not see it as an ASP is the way the customer pays for the services. His view of an ASP implies that the users should pay as they use. The EASP is not able to offer this possibility yet but is working on finding a solution for doing this.

4.2 Three ASP customers

This section describes three SMEs that are clients of the three service providers. The presentation is based on semi-structured, open-ended interviews conducted at the companies. The interviews were described in detail in Chapter two. There were two overall questions in the interviews: What services are delivered from the ASPs? Why did they adopt this solution for their ICTs? In the following the organisations are presented and these questions are discussed.

4.2.1 Manufacturing company Alpha

The manufacturing company produces and sells equipment for laboratories. It has 47 employees, of which 30 work in production. This company has cooperated with the HASP (Section 4.1.1) since 1999. Previously it used the same provider for part of its ICTs. The provider at the time acted as a service bureau, so the choice to become an ASP customer was never really brought to the fore. Instead there was a choice at the end of the 90s, when the company discussed if it should revert to handling its ICT internally. It decided not to do so. It was satisfied with the services from the service bureau, and it would cost the company too much to re-build its own ICT competence. It would also have difficulties attracting skilled employees. As a manufacturing organisation, the company, in the words of its
CEO, is very dependent on ICT. In his view it needs to use the latest technologies to be at the forefront and to stay competitive; the ASP concept, the CEO adds, is a good way to achieve this. The difference between the ASP solution and the earlier service bureau solution is that in the case of the former the provider manages all ICT today. The organisation considers the ASP solution to be the right solution, and it does not see any problems whatsoever with this solution. Regarding the selection of a particular provider the company made some enquiries. However, it was the geographical location that finally made it choose its current provider.

4.2.1.1 Rented applications and services

The ICT applications the company uses are: an ERP system, an e-mail system, an office suite and a CAD/CAM system. At the beginning it was only the organisation’s ERP system that was managed by the service bureau. At present the provider handles all ICTs except for the CAD/CAM system. This system is used by just a few of the employees and it is not suitable to run the application over a network. Backup of the CAD/CAM system is done through the network connection and is handled by the service provider.

4.2.1.2 Thoughts about the ASP concept

The main reason for adopting the ASP concept was convenience, according to the interviewee. He expressed this in the following way, “We wanted to have the possibility to have an external partner to handle our ICT and not have all those troubles ourselves”. A reason that is related to convenience and is also emphasised by the interviewee is the possibility to have access to the organisation’s systems from various locations. It was also stated that the ease of dealing with upgrades of the ICT was a reason for choosing the ASP concept. The interviewee is concerned about trust in the communication links. A main reason for not adopting the ASP concept could be mistrust, in communication.

The CEO of the company is very satisfied with the ASP concept. He thinks that it has been the right way for the company to go. However, he emphasises that the service provider could be a little more proactive in the cooperation. He also thinks that the service provider should be more knowledgeable about the organisation’s production and be able to suggest improvements in the organisation’s ICT use. He has the feeling that the service provider is not acquainted with how the company uses ICT in its production, which prevents the
ASP from suggesting improvements. He admits that the company is very dependent on the service provider and that it would not be easy to switch back or to switch to another service provider.

4.2.2 The Travel Agency

The travel agency is a small firm selling and arranging sports and concert trips since 1997. Today the firm cooperates with the vertical ASP (Section 4.1.2) and has done so since 2000. The travel agency has five employees and is located at one geographical place. Advertising and customer relations are handled mainly through the company’s website. This means that it is very dependent on ICT for its business. When the travel agency started its business it managed its ICT by itself. When then Internet started to make an impact the agency decided to develop a website. They did so by using a service provider who developed and has managed this website ever since. A couple of years later the website is now a very large part of the business, and the travel agency depends very much on it. Later on the company discovered that its operations required more ICT, for instance to be able to store information about customers and their travels. For that purpose they invested in a system labelled TOIs, which stands for tour operator information system. The travel agency made the decision to use another service provider for the support of this system. The system is located at the VASP’s data centre and the travel agency has access to it by a network connection. The reason why this system was not located at the same provider as the website was that the provider of the website did not provide this kind of system. The travel agency had at that time the intention of moving the website to the VASP, but this has not been done because of the cost of switching providers.

4.2.2.1 Rented applications and services

In addition to TOIs the travel agency also uses and rents Microsoft Office. TOIs is, as mentioned above, a booking and reservation system for travels. This system was at first handled as a customer-specific ASP, which means that it was run on its own server at the VASP. After some time the VASP moved this system to a server where there are other enterprise systems running, and the travel agency became a pure ASP customer. This also meant that the monthly fee decreased by 20 %. The connection with the VASP is through a 10 Mbit/sec connection. The network connection is not provided by the VASP. One reason for choosing such a powerful connection is that the owner wants to have the possibility to grow.
Another reason for choosing this connection was the fear that the application would work rigidly otherwise.

The company’s employees have telephone contact with the VASP almost every day. They pay for full services with immediate correction of errors working days between 07:00 and 17:00. They do not feel it is necessary and worth the money to have support the rest of the day. They receive a report every month stating what accessibility time they have achieved. At the moment they find the accessibility time very good. They are not sure but they think that the contract states that they will have 99.5 per cent accessibility time. In addition to the measurement by the ASP they themselves also register when and how long they have been disconnected. This is according to the interviewee not actually a problem. So far they have been compensated for the time they have been disconnected.

4.2.2.2 Thoughts about the ASP concept

The main problem with the services from the ASP is, according to the interviewee, the network connection. The problem is that the VASP guarantees that the travel agency has a certain amount of accessibility time despite the fact that the network connection is not part of the deal and the VASP is not responsible for the connection. The interviewee says that there have been occasions when the VASP has blamed the supplier of the network connection for errors, and the travel agency is not able to evaluate if this is right or not.

The main reasons for adopting the ASP concept are, according to the interviewee, the focus on core competence and security concerns. “We should concentrate on our core business and ICT is not our core business, and we need and must trust that our ICT works all the time, that’s why we adopted the ASP concept,” the interviewee said.

One reason for not adopting the ASP concept could be that “it can be hard to get a new ICT system accepted by the VASP”. It takes some time before a customer’s proposal or request for new services is implemented in the business. Another reason for not adopting is the problem with the integration of different software applications. The travel agency uses three different service providers for its software applications and this clearly underlines the integration problem.
4.2.3  Manufacturing company Beta

The manufacturing company is a global company that delivers equipment to the pulp industry. It has been in business since 1899 and has 98 employees. It operates globally with its own offices in the Nordic countries and representatives beyond. All offices in the Nordic countries are connected to the head office in Sweden. The connections are 128 K ISDN, 64 K Frame Relay or 56k Dial In ISDN. Since the beginning of 2000 it cooperates as an ASP customer with the EASP (Section 4.1.3). Previously it used the same ERP system, but it performed all support and services itself. This worked very well with very few problems. Nonetheless, it decided to rent the ERP system from the EASP.

4.2.3.1  Rented applications and services

The services that the company receives from the EASP today include, beside the support and management of the ERP system, a web-hosting service. They pay a monthly fee for this; the fee is based on the number of users. They pay for at most 40 users at the same time, but there are 60 potential users at the company. The reason for this choice is that the cost for each user is quite high, and the users do not need access to the system all day. To manage this efficiently there is a function that disconnects a user after 15 minutes’ inactivity. The company is connected to the EASP with a 10Mbit connection (included in the deal). All use of the ERP system takes place in an internal network, where all the company’s offices are connected. This internal network is connected to the EASP. The manufacturing company supports and manages the internal network and all systems excluding the ERP system. The connection to the ERP system is through a Citrix server (included in the deal). The company has access to telephone support open all round the clock, to which they report errors. They have complete support and immediate corrections of errors between 07:00 and 22:00. Contacts with the EASP are always through the same person at the company. This person is also the only ICT employee at the company.

The company receives a report once a month. This report shows what errors have been reported from the customer. It also shows errors detected by the supervision of the system. For every error there is a description of the error and what action it resulted in. The report also shows the accessibility time. In spite of the fact that the ICT-employee is versed in technology, he feels the reports are quite useless and has a hard time to understand the meaning of some figures and graphs.
4.2.3.2 Thoughts about the ASP concept

Before they started to rent the ERP system they used the same system, but they performed all the support and services themselves. This worked very well and they had very few problems with the system. Despite this they decided to rent the ERP system from the EASP. There were mainly two reasons for doing so. First, the company’s system began to be inflexible. They discovered that they would have to change servers every second year if the system were to run smoothly. They had at this time worked with the system for a little more than two years. Second, it was hard to maintain enough knowledge of upgrades of the system in the company. At the same time the EASP started its business and the company decided to try it. Potential drawbacks that can be a motive for not adopting the ASP concept are, according to the interviewee, the company’s heavy reliance on the ERP system and its non-stop operation, which means that the communication link is vulnerable.

Another reason for not adopting is, according to the interviewee, the integration problem. This is described in the following way. In the system there is a function making it possible to export data from the ERP system to Microsoft Excel. But when the ERP system is located on a server at the EASP and the customer does not rent MS Excel this does not work. This function worked before and the manufacturing company saw it as part of the ERP-system. The EASP implemented Excel on the server so this now works. Still there is a problem, because the users can work with Excel as long as they are connected, but they cannot save the work made in Excel. This problem could be solved in two ways. First, the service provider could install Excel on the same server as the ERP system. This causes at least two new problems, first, who should pay the licence fee and second, if the data are stored at the service provider’s place the users must have the possibility to return to the same data. This means that they must have a profile stored on the server, which then has to be administered, and this is not what the EASP deals with and wants to deal with. The second way to solve the problem is to have the data transferred to the customer’s computers or to a server located at another service provider. Both these ways are difficult to arrange and probably costly to handle. This describes one reason why not in the first place to choose to adopt the ASP concept. However, it also describes one reason for choosing one single service provider for the provision of ICT. These difficulties were also described by the travel agency in Section 4.2.2.
4.3 Chapter summary

This chapter describes the organisations that have been studied. It also reports some thoughts that the interviewees have about the ASP concept. The services providers studied are labelled according to Currie & Seltsikas’ (2000, 2001a, 2001b) categorisation of ASPs. The three service providers differ in what they offer their customers. The first service provider is called horizontal ASP (HASP); it tries to be a service provider that supports its customers with whatever software applications they need. This is also what the second service provider tries to do. However, this service provider concentrates on specific software applications used in specific branches. For this reason this service provider is labelled a vertical ASP (VASP). The third service provider is labelled an enterprise ASP (EASP); its ambition is only to provide hosting of its own ERP system. The three service providers differ considerably in what they offer their customers. However, they do not differ in their core business, to be a partner for their customers, take care of their software applications and offer the customers access to these by a network communication. When it comes to their opinion of what makes an SME adopt or not adopt the ASP concept they do not differ very much in their opinion either. They all emphasise cost, cost-cutting and increase of cost control as important reasons for the decision to adopt. When it comes to reasons for not adopting they differ to some extent but they all emphasise the fear of losing control as an important reason.

For each of these service providers one customer has been studied. The customers differ in what they do and how they are organised. However, they have all chosen to rent some or all their software applications from a service provider. The reasons they give can be summarised into a decision to concentrate on their core competence. This reason as well as the other reasons given by both service providers and customers are discussed in more detail in Chapter six.
5 Theories, models and decision-making processes when deciding on ASP

The decision to use the ASP concept for the sourcing of information and communication technology (ICT) can be explained in several different ways. The aim of this chapter is to generate a set of propositions which are all supposed to deliver some part of the explanation of the decision to adopt or not adopt an ASP for the provision of ICT. These propositions are developed from some established propositions which were derived from a set of different theories. In this chapter these theories are presented and the arguments and reasons why the theories were chosen are discussed. Further on in the chapter six models are presented that have their origin in the theories. The different theories and models are then used as input to the development of the proposed propositions at the end of this chapter. The propositions are used in the analysis of the empirical findings in Chapter six.

5.1 Introducing processes of decision-making

Given that an organisation should change/elaborate its ICT capability, the decision to choose the ASP concept and an ASP enterprise for the sourcing of ICT involves two different choices. The first choice is to decide whether to insource or outsource, or in other words to decide whether to produce the service in-house or to buy the service from an external partner. The second choice, following after a decision to buy the service, is to decide who is going to be the partner that delivers the ICT services. These two decisions are made at different times and sometimes in different contexts and probably in some cases by different decision-makers. The first decision can be seen as a more strategic decision and as such arguably made at a higher level in the organisation. The second decision can in some cases be seen more as an operational decision and can consequently sometimes be made at a lower level in the organisation. This is certainly dependent on the structure of the organisation and the size of the organisation. In a smaller organisation, the two steps are not so distinctly separated from each other and it is probably more common for the same person to be the decision-maker in these decisions. Irrespective of whether the decision-maker is the same or not, these two decisions are not and never were an easy task for those involved in the decision-making (Baldwin et al., 2001). There are two
reported reasons for this. First, the decision involves considerable complexity. Second, the decision also involves business risks. Baldwin et al. state that there is always a need to gain insights into how and why these decisions are made. The reason is to improve the knowledge about the decision-making and learn from reported experiences. To be able to do so it is necessary to seek explanations of the underlying motives behind the decision. According to Hedman & Kalling (2002) organisations act in a context that is socially constructed and comprises norms, values and beliefs. These three factors spur decision-makers to act and make decisions which are not always rational. These norms and values have to be explained and understood if the outcome of the decision-making is to be understood.

One way to obtain knowledge about the motives for the decision is to examine the nature of the process and the decision. The initial question can then be if the decision is a one-off or an on-going decision. Jurison (1995) states that the choice of a sourcing strategy is not a one-shot decision whether ICT should be insourced or outsourced; instead it is an on-going series of decisions regarding the governance of ICT. What does this demand from the decision-makers when it comes to decision-making on sourcing strategy? And how is this statement related to the process of decision-making in general? The most common view of a sourcing decision is probably to see it as a one-shot decision; Barthélemy (2003), for instance, states that once the decision has been made the success depends on the management of the relationship. To say something about whether it is a one-shot or an on-going decision, the first step is to describe the process of decision-making in general. Decision-making also implies the question of what kind of decision choosing a sourcing strategy is, especially the decision to choose an ASP strategy. These two questions will be further elaborated on in Section 5.1.1.

To understand a process of decision-making and what patterns there are in such processes, there are, according to Salaman (2002), four concepts or assumptions you must understand: distortion, irrationality, rationality and taken-for-granted. Firstly, sources of distortion, which means that you have to understand that you sometimes get the wrong description of how a decision was made when you ask somebody about the process of that decision. When you ask the person or persons who acted as decision-makers, you should be aware that they often modify the description of the decision process. This implies that the decision is
probably described as more rational than it actually was. The distortion of rationality leads us to the second and third assumptions, which are irrationality and rationality as each other’s opposites. Central to most understanding about decision-making is the thinking of rationality. According to Salaman (2002) we expect decision-making to be rational; we interpret the process of decision-making as a process that follows various steps in a logical, systematic and reflecting way. This discussion leads us to the fourth assumption, which is the taken-for-granted assumption. To understand and discover the rationale of decisions you must question the taken-for-granted statement. This could be compared with what Alvesson & Deetz (2000, p. 167) call de-familiarisation, which means that you turn the well-known into something exotic and arbitrary, instead of seeing it as natural or rational. A taken-for-granted assumption can, for instance, be the assumption that decision-making is always a rational process or the assumption that a decision-maker always makes decisions that aim for the organisation’s best. The question is then what the difference is between a rational decision-making process and an irrational decision-making process, which is discussed in the following section.

5.1.1 The decision-making process when choosing an ASP solution

Within and between organisations there are different ways of thinking, different cultures and assumptions. Salaman (2002) states that the norm to think about how decisions are made is a rational process. According to Salaman there are three types of rationality identified by Weber (1964), formal rationality, substantive rationality about how to do, and substantive rationality about the outcome. Formal rationality is, according to Weber, based on the use of numbers for calculation. This is related to the analytic hierarchy process model (AHP), a decision-making model that is described in Section 5.3.2. According to Hatch (1997), Weber labels this as formal authority, which is based on precise and generalised procedures and rules. The numbers that are calculated are then not about how efficient the process is, but instead a way of expressing the issue that is present during a process of decision-making (Salaman, 2002). The first of the two substantive rationalities emphasises how the decision is arrived at, which means that it can be expressed as rationality of the decision-making process. The latter type of substantive rationality refers to the choice of outcome, but not to the outcome per se. This kind of substantive rationality emphasises why the decision
is needed at all and if the predicted outcome of the decision is reasonable. The first kind of substantive rationality emphasises how to do, and as such it can be seen in a classic sense of rationality, where the method for the decision-making is chosen in a sensible and justified way for the intended outcome. The substantive rationality emphasising the outcome is often connected to personal and cultural settings, and as such it can often be seen as irrational by an outsider. This way of expressing rationality is often open to dispute. My conclusion from the dispute is that a decision that from the decision-maker’s point of view is seen as rational can often from an outsider’s point of view be seen as irrational. The difficult questions are who are able to judge this and make statements about the rationality, and what facts are necessary to have to be able to judge whether the decision and the decision-making are rational or not.

The most common way of describing decision-making is to see it as a rational, logical and linear step-by-step approach (Miller et al., 2002). This step-by-step approach is almost identical with the AHP model described in Section 5.3.2. Miller et al. describe this as a process consisting of the following five steps:

1. Identification of the problem that needs to be solved.
2. Collecting and sorting information about different solutions.
3. Comparing the different solutions with each other and against predetermined criteria.
4. Arrange the different solutions with respect to the decision-makers’ preference.
5. The decision-makers then choose the optimum solution.

This rationality has been criticised by, among others, Simon (1945), who claims that decision-makers are unable to operate under conditions of perfect rationality (Miller et al., 2002). According to Miller et al. the claim Simon makes is that decision-making does not work a very rational way. The time as well as the freedom for action available for the decision-makers is both limited and delimited to make the optional decision. Simon (1976) presents an important distinction which states that managers operate under pressure of bounded rationality and decision-makers’ intention is to show that they make rational decisions. This distinction presented by Simon can be compared with the concept
labelled distortion (Salaman, 2002) that was presented earlier. My conclusion from this is that the decision-makers’ behaviour is not wholly rational, nor is it irrational (Miller et al., 2002). According to Miller et al., Simon says that decisions can be processed in different ways and as such can be categorised into two overall kinds of decisions, programmed and non-programmed. These two differ in how frequent, familiar and routine the decisions are, but also if there is a procedure worked out for handling the decision. Programmed decisions are often made in a more straightforward fashion that can be executed in a rational, logical and linear step-by-step approach. The non-programmed decisions are instead novel and unusual and therefore challenge the decision-maker. In addition, the non-programmed decision is often more strategic for the organisation. Gorry & Scott Morton (1989) use the term structured and unstructured for programmed and non-programmed decisions instead. Linking this back to the earlier mentioned statement by Jurison (1995) would imply that the decision of using the ASP concept is a programmed decision. This statement can be questioned, and to bring some clarification on this, there is a need to look deeper into how the process of choosing an ASP solution is constructed. In my view the decision is more related to what Gorry & Scott Morton describe as strategic planning. Strategic planning is defined as “the process of deciding on objectives of the organisation, on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources” (1989, p. 50).

According to Miller et al. (2002) decisions vary in content as well as in process and importance. These variations of decisions can be formulated as questions, where each question explains the respective direction. To describe a decision the following questions were proposed by Miller et al.:

- What is the decision about? The answer to this question describes the content of the decision.

- How is the decision-making process reflected in the organisation? The answer describes the process.

- Is the character of the decision strategic or operational? The answer states the importance of the decision.
The fundamental question in a decision about sourcing strategy is why a particular function or activity should become outsourced at all (Jurison, 1995). Jurison's statement demands that the particular function or activity is already used in the organisation. However, if this is not the case, the question instead concerns whether the wished function should be handled internally or externally. As presented earlier, the decision-making process when deciding on adopting the ASP concept or not can broadly be described as a process that consists of two decisions. The first decision is to decide if the organisation should buy the product/service or make the product/service by themselves. This is discussed further in Section 5.3.1, where the transaction cost theory by Williamson (1975) is used to discuss whether activities should be handled internally or externally. In this specific case, the product is software applications and services around these applications delivered by the ASP enterprise. The second decision is then to decide who will deliver the product. This second decision follows from the first and is only made if the organisation decides to buy the services from an ASP enterprise. The aim of the second decision is to decide with whom the organisation will cooperate. This discussion answers the first question, namely the question of what the decision is about.

The second and third questions proposed by Miller et al. are definitely harder to answer. The second question, how the decision-making process is reflected in the organisation, has to be broken down into more specific questions such as who handles the decision-making, but also what effect the decision has on the organisation. The latter question is linked to the third question, namely the question whether the decision of choosing an ASP enterprise for the sourcing of ICT is a strategic question or not. These questions will be further elaborated on and discussed in Chapter six. The next section in this chapter will present some established theories used to explain the process and the outcome of the decision-making.

### 5.2 Theories used in the explanation of the decision

As introduced above, the questions why and how to decide on using the ASP concept can be explained in various ways. I present four different terms, constructs or assumptions identified in the literature and in the empirical findings that are commonly used for this purpose (Cheon et al., 1995; Kern et al., 2002c; Klein, 2002). These are 1) production costs and coordination costs, 2)
competitive advantage gained by internal and external maintenance of ICT, 3) uncertainty about the dependency on the environment and 4) uncertainty about the relation of power between supplier and customer. By using these four constructs as selection criteria for theories, the following four theories come into place. Transaction cost theory is based on the cost perspective. Resource-based theory comes from the competitive advantage perspective. Resource-dependency theory is based on the uncertainty about environmental dependency. And finally, agency-cost theory is based on uncertainty about the division of power between client and supplier. These theories will be briefly introduced and described below. The aim of the description is to use the theories and the subsequently described frameworks and models to present some propositions. These propositions are used in the analysis in Chapter six to describe how SMEs decide on using an Application Service Provider for the management and support of their ICT.

5.2.1 Transaction cost theory

Transaction cost theory (TCT) sees transactions as the basic unit of analysis when studying organisations. Jurison (1995, p. 241) refers to Williamson (1975) who defines transactions as something that occurs when goods or services are transferred across technologically separable interfaces. The primary concern in transaction cost theory is what activities should be performed internally in the organisation and what activities should be performed by an external partner. Transaction cost theory also emphasises the why question, which relates to the relationship between benefits and risks when letting an external partner handle activities. Williamson (1975) argues that an organisation has two alternatives for any given services or goods, either to produce services or goods internally or to purchase services or goods from a vendor. However, whether one or the other option is selected there are two types of costs, production costs and coordination costs. Production costs are costs related to the production and include costs for employees, capital and material. Coordination costs are costs that arise from controlling and monitoring the task. In cases where the task is performed externally the coordination costs take the form of transaction costs. These costs arise from the need to coordinate activities across the boundary between the organisations. The transaction costs are an effect of the need to define, negotiate and implement contracts, but also costs associated with the monitoring of the activities. According to Jurison (1995) the underlying assumption in transaction
cost theory is that humans are subject to bounded rationality, act in their own self-interest and are subject to opportunistic behaviour. This assumption rests on a rational model of decision-making which states that decisions are arrived at by a step-by-step process. This process is seen as both logical and linear (Miller et al., 2002). Miller et al. declare that this functionalistic approach is elaborated by Williamson (1975) in what he labels as markets and hierarchies. Jurison (1995) argues that, according to Williamson (1975), markets through economies of scale offer lower production costs than hierarchies. Hierarchies on the other hand have lower coordination costs compared with markets. This is because markets as agents behave in their own self-interest with an opportunistic behaviour. This demands an increase in the effort of monitoring the supplier’s activities, which implies that the transaction costs increase.

Based on this discussion the following can be concluded: markets increase coordination costs and decrease production costs. Hierarchies on the other side increase production costs and decrease coordination costs (see Figure 5-1). Consequently the most economic decision to make or buy should be a trade-off between on the one hand internal production costs plus internal coordination costs and on the other hand external production costs plus external coordination costs.

Transaction cost theory identifies two costs to be considered, production costs and transaction costs. By using outsourcing transaction costs increase and
production costs decrease. Transaction costs depend on the following three factors. First, asset specificity, which is to what degree the transaction will produce an asset that is dedicated to a special purpose. Second, uncertainty in the environment and how this impacts the contract and its fulfilment. Third, frequency of contracting. The decision to outsource can be explained by the transaction cost theory as the trade-off between transaction costs and production costs (Cheon et al., 1995).

Transaction cost theory has been used extensively to explain, for instance, outsourcing (Augustson, 1998; Lacity & Hirschheim, 1993a, b; Scarbrough, 1998; Willcocks & Lacity, 1998). It can be said to give some explanations of the decision to use the ASP concept. However, it can be maintained that the theory is too focused on the cost perspective, which means that it does not give a complete, rich and deep understanding of the reasons for the decision. Cost is probably only one of the constructs that influence the process of decision-making as regards using the ASP concept in an SME. Another construct is the availability of resources in the organisation and how the resources are used to give the organisation competitive advantage. This is discussed in the next section, where resource-based theory is described.

### 5.2.2 Resource-based theory

Resource-based theory (RBT) views organisations as a collection of productive resources. The central assumption in this view is that organisations gain competitive advantage by their internal resources. Resource-based theory can, according to Barney (1991), be seen as a substitute in analysing sources of competitive advantage. It is a substitute from the view that Porter (1985) presents in his five forces model. Porter describes five competitive forces that determine the profitability of organisations and industries: suppliers, potential entrants, buyers, substitutes and industry competitors. The five forces model rests on the assumption that firms have the same possibility to use and control strategically relevant resources. It also implies that if a resource is developed and becomes heterogeneous, this heterogeneity will be short-lived. The reason for this is that, according to Porter’s five forces model, resources are seen as highly mobile (Barney, 1991). According to Porter (1985) an organisation can influence these five forces through its strategy. Referring to Barney, Hedman & Kalling (2002) argue that it is very difficult to transfer, imitate or substitute resources. The
reason for this is that resources are not perfectly mobile (Hedman & Kalling, 2002).

An important distinction in resource-based theory is that a resource provides organisations with sustained competitive advantage, and to do so there are different attributes for the resources that have to be fulfilled. According to Hedman & Kalling (2002) there are numerous resource attributes described in the resource-based theory literature that give a firm its competitive advantage. Barney (1991) as well as Cheon et al. (1995) and Hedman & Kalling (2002) identify the following four attributes as relevant: valuable, rare, costly to imitate, and efficiently organised. This is described in the VRIO framework presented by Barney (1994). Barney (1991) distinguishes between three different groups of resources: physical capital resources, human capital resources and organisational capital resources.

The core issue in resource-based theory is how to identify and exploit existing resources more effectively in the organisation (Hedman & Kalling, 2002). A conclusion made from this is that if a resource is seen as necessary for the organisation’s competitive advantage it should be handled internally. However, as Barney et al. (1995) describe it, whether an organisation gains competitive advantage from ICT depends on how the organisation manages the resource. The conclusion Barney et al. give is that among the attributes of ICT; capital requirements, proprietary technology, technical skills, and managerial ICT skills, it is only the managerial ICT skills that provide sustainability of competitive advantage. Barney (1991) concludes that sources of sustained competitive advantage are and must be focused on the heterogeneity and immobility of resources. This conclusion is made from the assumption that if a resource is evenly distributed across competing organisations and the resource is highly mobile, the resource does not influence sustained competitive advantage.

A resource must be considered valuable for the organisation in order to be called resource in the resource-based view. Valuable in this setting means that the resource enables the organisation to conceive or implement strategies that improve efficiency and effectiveness in the organisation. Barney (1991) expands the description of valuable resources with three further attributes that are necessary for a resource to become a competitive advantage resource. These attributes are rareness, imperfect imitability, and substitutability. According to
Cheon et al. (1995) the four criteria mentioned earlier must be fulfilled if a resource should be able to provide sustained competitive advantage. First, the resource must have a value, expressed as being valuable for the organisation. Second, the resource must be rare, which means that it must be unique or rare among the organisation’s competitors. Third, the resource must be imperfectly imitable, which means that it is not possible for the competitor to imitate the resource. And finally, the resource must be impossible to substitute, which means that the organisation’s competitors cannot substitute the resource with another resource (Cheon et al., 1995). According to Cheon et al. ICT outsourcing can be described from the resource-based perspective as a strategic decision aiming at filling the gap between desired capabilities and actual capabilities. In the next section this discussion will be expanded by looking at the resource dependency theory.

5.2.3 Resource dependency theory

Another theory that discusses resources is resource dependency theory (RDT). It does so from a quite different angle; instead of seeing resources as assets that give organisations their competitive advantage, it emphasises an organisation’s dependency on both external and internal resources. The basic view in resource dependency theory is, according to Pfeffer & Salancik (2003), that organisations are embedded in an environment comprised of other organisations. The problem that resource dependency theory emphasises is that the environment changes and that means that resources become more or less scarce. According to Hatch (1997) resource dependency theory builds on strategic contingency theory and proposes some extensions of this. Strategic contingency theory outlines and predicts what social actors have the greatest power in an organisation. The extension in resource-dependency theory aims at explaining how the environment is linked to the organisation by political processes (Hatch, 1997). The idea is to show how environmental uncertainty can be handled and transformed into internal power in the organisation. Resource dependency theory focuses on the external environment and argues that all organisations depend on some elements in its environment. There are three critical factors when it comes to determining an organisation’s dependency on the external environment: resource importance, control and use of resource allocation, existing alternatives for the resource. According to Cheon et al. (1995) outsourcing can be described from resource dependency theory as a strategic decision composed of different degrees of
dependence on another organisation for obtaining critical resources which are not available internally. The next theory presented is agency cost theory that expands some problematic issues that can arise when letting an external partner handle resources needed in the organisation.

5.2.4 Agency cost theory

Agency theory was, according to Eisenhardt (1989b), developed by economists who described risk sharing between and among individuals and groups. These ideas have been further developed and labelled as the agency problem. An agency problem occurs when two parties that are to cooperate have different goals and division of labour (Eisenhardt, 1989b). Agency theory is concerned with solving such problems. The basic unit of analysis in agency theory is the phenomenon labelled contract. A contract can be a behaviour-based contract or an outcome-based contract. The contract reflects and controls the relationship between the agent (e.g. the ASP) and the principal (e.g. the ASP customer). According to Eisenhardt there are two directions of agency theory, positivist and principal-agent. Positivist agency theory is focused on situations where the relationship between agent and principal is a relationship between owners and managers in a certain organisation. The principal-agent direction of agency theory is according to Eisenhardt more general in its nature and can be applied in different kinds of relationships. The heart of principal-agent theory is the trade-off between costs and risks (Eisenhardt, 1989b). Costs in this case consist of costs of measuring behaviour and costs of measuring outcomes. The question of risk is how averse of taking risks the principal and the agent are. Agency theory has several links to organisation theory, and according to Eisenhardt the main difference is the observation of the inherited conflict when individuals with different goals engage in cooperative work. The metaphor for this is the contract (Eisenhardt, 1989b). There are some similarities between agency theory and transaction cost theory. They share the assumptions of self-interest and bounded rationality. They also share the cost perspective in which costs in agency theory can be compared to coordination costs in transaction cost theory.

According to Eisenhardt (1989b) there are also similarities between hierarchies and behaviour-based contracts as well as between markets and outcome-based contracts. Eisenhardt states that agency theory has two contributions to organisational thinking: first, treatment of information, and second the risk
implication of decision-making. Information in the agency theory view is seen as a commodity. As such it can be treated as a thing that can be purchased and has a cost. The risk implication expresses that organisations are assumed to have uncertain futures. According to Eisenhardt (1989b) this uncertainty is viewed in terms of risk/reward trade-offs, and not in terms of planning inability. The prediction that agency theory makes is that risk-neutral decision-makers are more likely to choose the make option. The risk-averse decision-makers on the other hand more likely choose the buy option. The make option is connected with the behaviour-based contract and the buy option is connected with the outcome-based contract.

Cheon et al. (1995) label agency theory as agency cost theory (ACT). According to Cheon et al. agency cost theory examines the agency costs, and these are used for the choice between a behaviour-based contract and an outcome-based contract. A behaviour-based contract is when the organisation has internal control of its assets, and an outcome-based contract is when the organisation lets an external part control and influence assets. Agency costs consist of monitoring costs, costs for the principal’s residual loss and the bonding costs by the agent. According to Cheon et al. (1995), there are five factors that determine agency costs: uncertainty, risk aversion, programmability, measurability and length of the relationship. The decision to outsource or not is then determined by the agency cost. Agency costs are costs that are incurred as a result of discrepancies between the agent’s objectives and the principal’s objectives. This is expressed as the sum of the principal’s monitoring costs, the agent’s bonding costs and the principal’s residual loss expressed as the loss resulting from having an agent. It can be claimed that agency cost theory makes it possible to evaluate the relative advantages of internal and external provision of ICT (Cheon et al., 1995).

### 5.2.5 Summing up the theory discussion

These four different theories all provide some input to an understanding of the process and the outcome of decision-making when deciding on adoption or non-adoption of the ASP concept. Transaction cost theory was chosen from the cost perspective emphasising that the decision is a trade-off between production costs and coordination costs. However, it can be stated that it is not fully capable to explain the decision. To expand the cost perspective with constructs that handle competitive advantage and resource dependency, resource-based and resource-
dependency theories are proposed. When two different organisations start to cooperate they become dependent on each other which is an issue that resource-depency theory focuses on. For the purpose of expanding the cost perspective agency cost theory has been suggested. Agency cost theory emphasises benefits and risks in addition to coordination costs when deciding on using the ASP concept. To describe more in detail how these theories are used, the next section presents a couple of models originating from these theories.

5.3 Sourcing decision models

Why study models for decision-making? And why study the process of decision-making in a sourcing strategy? The answer to the latter question is because decisions affect an organisation, how it functions and how it is organised (Salaman 2002). There is also, as Baldwin expresses it, “a need to gain insights into how and why organisations decide to outsource so that others can learn from their experiences” (2001, p.15).

The reason for studying models is to get some assistance in the understanding and the analysis of decision-making processes. For that purpose I describe six established models. In this section they will be introduced and presented. As stated above all these models build more or less on the theories presented above.

5.3.1 A risk and return model

Jurison’s (1995) risk and return model is supposed to be used in a decision-making outsourcing situation. The model, shown in Figure 5-2, describes the relation between benefits and risks in sourcing strategies. By describing the relation between risks and benefits the model can be used as a tool to make the decision whether ICT should be provided internally or externally. The risk and return model builds on transaction cost theory and a risk-return model from financial theory. As I see it, Jurison’s model is also influenced by agency theory and can be compared to risk aversion in agency cost theory. Risk in this setting is broadly defined as including uncertainty about the outcome of an outsourcing decision. Risk is referred to as the probability that unfavourable events or outcomes will occur (Jurison, 1995).
The expected benefits from outsourcing are calculated as the difference between internal production costs plus coordination costs, and external production costs plus coordination costs. The risks from outsourcing are represented as the estimated difference between risk levels from an outsourcing choice, and risk levels from an insourcing choice. The diagonal straight line in Figure 5-2 gives the boundary between these two different options. Jurison discusses two difficulties with the model. The first is to compute the expected benefits, and the second is to identify and measure the risks. When it comes to the expected benefits this is the easiest part according to Jurison. The expected benefits can be determined from vendor proposals and internal benchmarks. Jurison claims that it is much more difficult to identify and measure the risks. The reason for this is that risk is multidimensional and is future-oriented consisting of several different components. Some of these components are controllable while others are not. The determination of risks is also subjective, which implies that risks will not necessarily be perceived in the same way by two different decision-makers. I agree with Jurison about this, but in my view the determination of benefits is also hard to calculate, because some benefits are hard to measure, such as, for instance, benefits of the personnel’s knowledge. If an organisation’s ICT is handled internally the staff that handle ICT have knowledge about the organisation. In the course of time they become more knowledgeable about the organisation as well as about ICT, which can be seen as a benefit for internally handled ICT and a risk for externally handled ICT.
Jurison concludes his discussion about the risk and return model for outsourcing decisions by stating that an agency cost theory perspective can be promising. He concludes that it would be promising when it comes to exploring a situation where the client and vendor goals differ and are in conflict with each other. The risk and return model as such is not intended to replace management judgement and experience, which according to Jurison are essential in all decision-making that is conducted under uncertainty. Jurison’s last statement directs us to the next model for analysing decision-making in a sourcing decision, the analytic hierarchy process model.

### 5.3.2 An analytic hierarchy process model

Udo (2000) presents an analytic hierarchy process (AHP) model that is supposed to be used for analysing outsourcing decisions. According to Udo this model can handle complex decisions with many different variables. Sourcing decisions involve several qualitative variables. Udo states that existing decision analysis tools can be questioned regarding their ability to handle qualitative variables. The advantage of the AHP model is, according to Udo, that it has the ability to handle decisions that both are complex and have multiple qualitative criteria. The AHP model is a mathematics-based objective tool for decision-making, consisting of the following steps:

- Structure the problem in a model that shows the relationship between the key steps of the problem. The outcome of this is a decomposition of the problem into elements or factors.

- Make judgements which reflect knowledge, feelings and emotions of the stakeholders concerned.

- Represent these judgements by meaningful numbers on a nine-point ratio scale.

- Calculate the priority of the elements and construct a hierarchy of them by using the numbers.

- Determine an overall outcome through a synthesis of the result.

- Perform a sensitivity analysis where changes in judgement are proposed.
Udo (2000) concludes the discussion by stating that the study performed by him shows that it is possible to use a systematic approach for decisions that are conducted under a high level of uncertainty. By using a systematic approach the level of uncertainty is reduced. However, in my view the AHP model demands that decision-making is made under formal rationality as described in Section 5.1.1. The case that Udo provides has the basic assumption that ICTs which provide strategic services should not be outsourced. This assumption can be challenged and in order to do that the question what ICT provides the organisation with strategic services and what ICT does not do so, has to be answered. The next model presented can be said to be a way of determining whether outsourced ICT is strategic ICT or not. This means that the model can also be used to determine what ICT is strategic for an organisation.

5.3.3 A framework for sourcing decisions

This section presents a framework developed by Loof (1995). According to Loof it is a descriptional framework that can be used in case study research to describe sourcing decisions in a structured way. The framework can also be used as a tool to describe different options when it comes to decision-making in ICT sourcing decisions. The framework consists of four different areas where different subjects are handled. The four areas are: dimensions of the IS function, provider of ICT, relationship between provider and client, and sourcing arrangement. In each of these areas there are underlying questions. The four areas are presented in the following way:

- **Dimensions of the ICT function.** The ICT function can be described in three different dimensions. First, ICT activities, which include planning, development, implementation, maintenance and operation. Second, ICT components, which are seen as hardware, software, data, personnel and work procedures. Third, the process supported or controlled by the ICT.

- **Provider of ICT.** The provision can be internal or external. The distinction between these two is how dependent respectively how independent the client and the provider are of each other in their businesses. In the framework there is a gradation indicating the degree of ownership and dependency between client and provider.
• Relationship between provider and client. Six aspects are stressed in the framework indicating the relationship between the partners involved. These aspects stress contractual engagement as well as the partners’ engagement in non-contractual relationships. The first two of the six aspects indicate whether the supplier or the client is free to choose their business partners. The third aspect indicates whether the relationship is restricted to individual transactions or spans multiple transactions. The fourth aspect describes what the payment is based on. The fifth aspect indicates what controls the coordination. The sixth aspect discusses how disputes are resolved.

• Sourcing arrangement. The last dimension stresses the question of where the equipment is physically located. It also stresses the ownership of the equipment as well as who controls the activities. Exclusivity of the ICT as well as the employment of ICT personnel are two important aspects in this dimension.

According to Looff the framework can be used to describe a sourcing option or to evaluate existing sourcing situations. This is done by answering questions related to each of the above presented dimensions, for instance, when it comes to sourcing arrangement a question is, who owns the equipment? Loof concludes that there is a lack of systematic analysis in the early stages of sourcing decisions. He also argues that sourcing decisions have a long-term impact and consequently must be based on a long-term strategy for the organisation. To better understand the dimensions presented by Loof the next section describes two models which aim at understanding determinants of sourcing decisions.

5.3.4 Models for understanding sourcing determinants

This section presents two models. The first aims at understanding determinants of the outsourcing strategy of an enterprise and was developed by Cheon et al. (1995). The second model was developed by Kern et al. (2002c), using the model presented by Cheon et al. as a starting point. Cheon et al. present four different theories: resource-based theory (RBT), resource dependency theory (RDT), transaction cost theory (TCT) and agent cost theory (ACT). From these four different theories, four different theoretical perspectives are developed. These perspectives are put together in what Cheon et al. call a contingency model. The basic assumptions in contingency theory are that there is not one best solution
and all solutions are not equally effective/efficient. This means according to Cheon et al. that an organisation adapts to the environment by several types of economic restructuring, where outsourcing is one type of strategy. Consequently there are situations when outsourcing may or may not be appropriate. According to Cheon et al. these situations involve the following factors: discrepancies in ICT, dimensions of ICT resources and an organisation’s ICT costs as perceived by decision-makers who formulate the strategy.

There are six propositions developed from this model. These propositions aim at providing insight into the nature and structure of the proposed concepts and variables (Cheon et al., 1995, p. 216). These propositions are:

- Organisations adopt the outsourcing alternative if the transaction costs of accessing the resources are low relative to the savings from economies of scale, and when the risks of dependence are low.
- Organisations that want to increase their capability by contractual or partnership agreement prefer outsourcing.
- An organisation’s decision to outsource depends both on the organisation’s pool of ICT resources and ICT capabilities and on environmental conditions.
- An organisation’s performance is determined primarily by existing ICT resources and ICT capabilities, which means that the outsourcing strategy involves low levels of dependence on external environment.
- An organisation’s decision to outsource is a response to the demands of the environment. The decision is a result from medium levels of dependence on external environment.
- An organisation decides to outsource the ICT function because of a complex interplay between two factors, the dynamic environment and the need to fill gaps between ICT resources and ICT capabilities.

The conclusion by Cheon et al. is that the contingency model is an excellent starting point for empirical investigation. The propositions are further developed in the integrated decision model suggested by Gorla et al. (2002). This model is presented in Section 5.3.5.
Kern et al. (2002c) also use the framework presented by Cheon et al. (1995) when they further develop the model. Kern et al. propose a set of six different propositions, which suggest different reasons why or why not an organisation decides to outsource. They conclude that based on the close relationship between outsourcing and the ASP model these propositions are also relevant for the ASP option. The reasons why or why not to decide on using an ASP are summarised as follows:

- Using an ASP strategy is a strategic decision that enables an organisation to carry out its strategy.
- The ASP customer becomes highly dependent on the ASP enterprise.
- The transaction costs for working with an ASP enterprise are low.
- The agency costs will increase in the long run.
- SMEs are especially interested in ASP enterprises because they get access to strategic resources at a low cost.
- The ASP model will be accepted because internal resources are insufficient.

The next section presents the last model, which is a model that tries to integrate all the above models and does so in a model labelled the integrated decision model.

### 5.3.5 An integrated decision model for sourcing decisions

As stated above this model tries to integrate all the other models earlier presented into one model (Gorla et al., 2002). The model proposes nine constructs that are supposed to describe outcomes from sourcing decisions. My interpretation of this model is shown in Figure 5-3. The model as such consists of the following nine constructs shown in Table 5-1.
Theories, models and decision-making processes when deciding on ASP

Table 5-1 The nine constructs in Gorla et al’s model (2002).

<table>
<thead>
<tr>
<th>Construct</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmability and measurability</td>
<td>The result from an outsourcing decision depends heavily on how the service is customer-adjusted and how the result of the services can be measured. Programmability should be seen as to what degree providers’ behaviour can be specified in advance, and measurability how exactly the outcome can be measured.</td>
</tr>
<tr>
<td>Agency factors</td>
<td>Deals with all factors that appear in the relationship. It can be claimed that the length of the relationship will determine the agency costs. A longer relationship will decrease the costs because of a decrease in uncertainty. On the other hand a long-term relationship can increase the opportunity costs caused by not using another service provider with more competitive services.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>This is caused by the fact that the organisation is unable to internally generate the resources or functions that are required. Situations of uncertainty are caused mainly by rapid ICT changes, an unpredictable ICT market and competitors’ actions.</td>
</tr>
<tr>
<td>External rareness</td>
<td>It is assumed that the environment contains scarce and valued resources, such as skilled ICT labour, ICT software, ICT hardware and ICT services.</td>
</tr>
<tr>
<td>Internal rareness</td>
<td>It is assumed that ICT resources have to be unique and rare among the organisation’s competitors. The resources are the same as the ones described above.</td>
</tr>
<tr>
<td>ICT outsourcing costs</td>
<td>States that ICT costs are determined by transaction costs and agency costs. These two costs are influenced by the five constructs presented above.</td>
</tr>
<tr>
<td>ICT value</td>
<td>Identifies the outsourcing decision as a way to provide the organisation with competitive advantages. Internal or external resources offer the advantage.</td>
</tr>
<tr>
<td>Market structure</td>
<td>Describes the decision as a way for the organisation to alter its structure and behaviour to acquire and maintain resources needed.</td>
</tr>
<tr>
<td>Outsourcing decision</td>
<td>The final construct argues that an organisation will be guided in the outsourcing decision by considering whether ICT is part of the core competency or offers a competitive advantage.</td>
</tr>
</tbody>
</table>

From these constructs the model presented in Figure 5-3 was developed.
The model was tested in a study at a university in Hong Kong. The result from this is shown as correlation between the constructs in the model. Notable is that only four of the twelve relationships are statistically significant (** correlation is significant at the 0.05 level two-tailed, * correlation is significant at the 0.01 level two-tailed). The five constructs on the top level in Figure 5-3 are more or less strongly correlated with the three constructs on the middle level. Interestingly, in the model by Gorla et al. the construct of programmability and measurability only influences costs. The same is valid for agency factors. In my view ICT value is something that is certainly influenced by customer adjustment of applications and services, which according to Gorla et al. is part of the construct programmability. When it comes to agency factors, I identify a close connection between these and market structure, and if the market structure describes how the organisation alters its structure this would imply that it depends on what costs there are for the coordination of the relationship. Another conclusion made from Figure 5-3 is that external rareness is correlated with all three constructs on the middle level. However, it is negatively correlated with ICT value. This can be related to resource-based theory and competitive
advantage. However, it can also be related to resource-dependency theory and uncertainty about environmental dependency. The conclusion that Gorla et al. (2002) draw is that the decision of outsourcing is based on ICT outsourcing costs and market structure. The influence from ICT value is, according to Gorla et al., not a significant determinant in the decision. The next section sums up the theory discussion and the discussion on models by presenting propositions aiming at describing decisions on the ASP concept.

5.4 Suggested propositions for describing the decision

The aim of this chapter is to generate a set of propositions developed from a literature review. The propositions suggested below were developed from presented theories and models. They are also developed from arguments for deciding on using the ASP concept as well as arguments against deciding on using the ASP concept. The following seven constructs, shown in Figure 5-4, are identified: strategy, core competence, capability, benefits, costs, risks, and trust. These constructs can be used to explain why or why not SMEs choose to adopt or not to adopt the ASP concept for the provision of their ICT. The following discussion describes how the theories and models presented in Sections 5.2 and 5.3 have identified and generated the constructs.

Based on the discussion about resource-based theory (RBT), two constructs influencing the decision to choose an external partner for ICT can be proposed. These are core competence and capability. This implies that if ICT is the organisation’s core competence the organisation should not outsource its ICT. It also implies that if the organisation does not have the possibility or the necessary capability internally it can increase its capability by using an external partner for the provision of ICT. External sourcing of ICT can also be described from resource-based theory as a strategic decision where the outsourced production is not seen as strategic for the outsourcing organisation. This means that if an organisation sees ICT as strategic it will not outsource its ICT according to the resource-based theory.

From the discussion about transaction cost theory and agency cost theory the construct cost is proposed. According to transaction cost theory the decision to use an ASP can be seen as the trade-off between internal costs for producing by oneself and external costs when buying the same ICT from an external provider.
Agency cost theory expands this view stating that the decision is a trade-off between costs described as above expanded with expected risks of letting an external provider take care of the ICT. Agency cost theory proposes the construct risks but also introduces benefits as a construct that can influence the decision. The risk and return model described in Section 5.3.1 exemplifies this.

Resource dependence theory suggests trust as a construct that can influence the decision of using an ASP. Resource dependence theory deals with how to handle the dependence on another organisation for obtaining critical resources which are not available internally. In that way resource dependence theory also acts as input to the constructs strategy and capability.

From the presented and discussed theories, models and proposed constructs the following propositions are formulated for why adoption or non-adoption of ASP takes place in an SME:
- **Strategy.** The overall business strategy of an SME acts as the basic input for the decision.

Whether an organisation should outsource ICT or not is, according to Weill & Broadbent (1998), principally a question of what strategy the organisation has. For organisations that demand increased flexibility in their contacts with the market and are in an area of higher growth, internal delivery of ICT is to be preferred. According to McLellan et al. (1998), there is a belief that ICT outsourcing is only appropriate when ICT is not a core function. This has not been found appropriate. One motive for outsourcing ICT in spite of its role as core activity is the belief that it offers an opportunity to increase competitive capabilities and improve business performance. The nature of business performance is long term and would consequently only be detected after a period of time. It can be claimed that the strategic initiative to outsource ICT is taken with the aim of improving long-term business performance. Udo (2000) claims that there is a trend among organisations today to classify ICT functions into two categories according to what services they deliver, commodity services or strategic services. Udo claims that commodity services can be outsourced without doubts, but strategic services should never be outsourced. However, Udo refers to Lacity & Hirschheim (1993a) who declare that this categorisation can cause an organisation serious problems in the future. The reason for this is that present commodity services can be strategically very important for the organisation in the future. The construct strategy is closely related to the construct core competence that is discussed next.

- **Core competence.** The organisation’s view of ICT as part or not part of the organisation’s core competence influences the decision.

This proposition suggests that if ICT is seen as part of the organisation’s core competence it should not be outsourced and if ICT is not seen as part of the organisation’s core competence it should be outsourced. But what is core competence? Axelsson & Wynstra define core competence as: “the most critical and most distinctive resources a company controls and which are the hardest for others to copy when they are in a number of processes connected to the relevant strategic goals which the company pursues” (Axelsson & Wynstra, 2002, p. 72). The proposition can be compared with a commonly quoted reason for ICT outsourcing claiming that ICT outsourcing provides increased flexibility to cope
with changes in technology and in the business environment. Paradoxically the traditional ICT outsourcing agreement is based on long-term contracts that rather tend to inhibit than facilitate change (Shepherd, 1999). Kakabadse & Kakabadse (2002) claim that one key driver for using ASPs is a desire to focus on core competences. Dewire (2001) argues that an organisation should adopt the ASP concept if ICT is not a core competence. Aalders (2001, p. 219) proposes twelve reasons why an organisation should outsource. These can be summarised as follows. ICT outsourcing makes it possible to focus on core competence. It also makes it possible to increase control of the cost and quality of ICT. Besides that it gives the buying organisation access to skilled personnel and ICT competence. This latest statement can be compared with another commonly quoted reason for ICT outsourcing, which is that ICT outsourcing increases flexibility in handling personnel and offers increased competence in ICT in the organisation. This discussion leads over to the next construct, capability.

- **Capability.** The decision is impacted by a need to change ICT capability in the organisation. The ASP concept is seen as a way of improving ICT capability.

According to McLellan et al. (1998) unresponsive ICT departments are described in the literature as a reason why organisations outsource their ICT. They claim this is because the organisation’s internal ICT department does not response to organisational needs. The organisation wants a more flexible ICT organisation and sees outsourcing as a way of reaching this. The ASP concept is also reported as a way for SMEs to take advantage of the rapidly changing opportunities in ICT (see e.g. Turban et al., 2001; Currie & Seltsikas, 2000), and it can assist SMEs with ICT skills, especially in the development and software maintenance areas (Kern et al., 2001). Dewire (2001) argues that an organisation should adopt the ASP concept if there is a need for flexible ICT infrastructure, if it needs to scale its ICT infrastructure quickly, if the organisation needs to switch to another environment in the near future, if it needs to deploy applications rapidly or if the organisation finds it difficult to attract and retain ICT staff. This leads to the next construct to discuss, benefits.

- **Benefits.** Expected benefits from adoption of the ASP concept affect the outcome of the decision.
According to Udo the following six benefits are intended by outsourcing providers. 1) A predictable ICT budget is achieved by tying it to actual requirements. This budget is not dependent on what hardware and software is present in the organisation. 2) A lower cost of ICT, which means cost savings compared with current as well as future expenditures on ICT equipment. 3) Increased access to technical resources and technically skilled personnel. 4) The organisation can focus on its core products and services and does not have to handle operational issues. 5) The organisation’s fixed costs of ICT can be changed into variable costs, making it possible to invest the capital in core business. 6) By outsourcing the risks in systems development are shared with the technology partner.

Lee (2001) states that there are three motivations for outsourcing: strategic, economic and technological benefits. Shepherd (1999) summarises the ICT outsourcing motives of the majority of organisations as a combination of the following factors: financial restructuring, reducing or stabilising costs, overcoming cultural and organisational problems, concentrating on core competencies, accessing world-class expertise. According to Loof (1995) external suppliers of ICT predict large cost reductions, improvements in quality and higher responsiveness if the customers hand over their ICT functions to them. He also states that reports from outsourcing are often overly optimistic. Consequently many organisations doubt whether they will derive any benefits from outsourcing. Cost-cutting and cost control is an often proposed benefit, which leads to a discussion of the cost construct.

- Costs. The cost perspective expressed as cost efficiency acts as input for the decision. The decision is seen as a trade-off between costs of different options.

Jurison (1995) summarises the motives for outsourcing or not outsourcing ICT in the following statement. The primary reason for ICT outsourcing is an economic one, which means that economic consideration in different forms is the primary driver for an ICT outsourcing decision. Kern et al. (2001) point out three reasons why an SME should use the services of an ASP enterprise. First, even though a package software licence is cheaper than an in-house developed solution, it is still the case that many SMEs cannot afford the packaged solution costs. Second, an SME will be unable to attract and afford the necessary ICT staff. Last,
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packaged applications require an established ICT infrastructure and connectivity to ensure optimal performance. For an SME it is difficult to retrieve the necessary human and financial resources to support and continually develop such ICT infrastructures. McLellan et al. (1998) state that financial motivations are expressed strongly by providers as reasons for using an external service provider for ICT. They claim that cost-cutting is one very highly expected outcome of ICT outsourcing. Kakabadse & Kakabadse (2002) claim that one key driver for using ASPs is a wish to reduce the costs of ICT. Dewire (2001) argues that an organisation should adopt the ASP concept if it cannot afford a huge ICT capital outlay, if it does not have the necessary capital resources. However, it can be claimed that costs as a reason for adopting ASP should be seen in relation to internal costs, but also in relation to risks of letting an external provider take care of ICT. The next construct that will be discussed is risks.

- **Risks.** Expected risks of adoption of the ASP concept affect the outcome of the decision.

Jurison (1995) states that the primary reason for not choosing an ICT outsourcing option is risks, where the irreversibility of the decision is seen as the dominant risk. Baldwin et al. (2001) argue that a selective sourcing approach with the opportunity to use several different suppliers is an increasingly popular strategy to minimise risks. This can be seen as one motive for deciding on adoption of the ASP concept if the ASP concept is used as a selective sourcing approach. However, it can also be seen as one motive for non-adoption since the use of different providers demands coordination between them. Udo (2000) claims that there are several observations that outsourcing has more disadvantages than advantages. The following potential disadvantages have been reported: lack of chemistry between the partners, dependency on another party for the organisation’s critical information, loss of capability, loss of control of ICT assets, threat of opportunism from the supplier, loss of flexibility, loss of competitive advantage in information management, loss of ICT expertise and consequently a loss of memory in the organisation, decline in morale and performance of the remaining employees and no guarantee for long-term cost savings. The decision on using an ASP can be described as a trade-off between risks and benefits. However, risks could be said to be judged from and dependent on potential customers’ trust in the concept.
Trust. The question of trust in the ASP concept is an important factor in the decision-making.

Trust is likely to be an important factor when it comes to thinking about using the ASP concept as well as judging the outcome of the decision-making process. McLellan et al. state that decisions on using an external provider for ICT are centered on facilitating strategic change. The reasons include changing the organisational boundaries, restructuring the organisation, accessing new technology, mitigating technological risk and uncertainty, and improving the management of ICT operations. These reasons can be expressed as trust in another organisation which means that if the client organisation does not trust a partner they will not outsource. Trust can also be described as an important factor when choosing a specific provider.

The model presented in Figure 5-4 should be seen as a contingency model where each construct influences the decision. The model does not claim that any specific construct has a specific effect. What can be stated is that motives for and against deciding on using application service provision differ fundamentally; one view is, for instance, that outsourcing increases control, another that it decreases control. How and in what way these constructs affect the decision-making process and the decision is analysed in Chapter six.

### 5.5 Chapter summary

This chapter presents some propositions that are used in Chapter six in order to explain and describe the ASP decision-making process in SMEs. The chapter started by discussing decision-making on a general level and continued with a discussion of decision-making in SMEs. In addition to that it presented four different theories and six different models that have been presented in the literature as a way of understanding sourcing decisions. This presentation and discussion generated seven constructs. These are: strategy, core competence, capability, benefits, costs, risks and trust. These constructs are used in the analysis in Chapter six. From the presented and discussed theories, models and proposed constructs the following propositions were formulated: 1) the overall business strategy of an SME acts as the basic input for the decision, 2) the organisation’s view of ICT as part or not part of the organisation’s core competence influences the decision, 3) the decision is impacted by a need to
change ICT capability in the organisation and the ASP concept is seen as a way of improving ICT capability, 4) expected benefits from adoption of the ASP concept affect the outcome of the decision, 5) the cost perspective expressed as cost efficiency acts as input for the decision and the decision is seen as a trade-off between costs of different options, 6) expected risks of adoption of the ASP concept affect the outcome of the decision, 7) the question of trust in the ASP concept is an important factor in the decision-making.

These propositions are used for the analysis and presentation of the findings in the literature and in my empirical work in Chapter six. The propositions presented are used to answer the overall research question, How do SMEs decide on using an Application Service Provider for the management and support of ICT?, as well as the subquestions presented in Chapter one.
6 Analysing how SMEs decide on using application service provision

This chapter presents answers to the thesis research questions, the overall research question as well as the underlying subquestions. It does so by using findings from the literature study, the interviews and the questionnaire. The structure of the section is shown in Figure 6.1, building on research questions presented in Chapter one. Answers to each of these subquestions are given under the corresponding headings. Answers to the overall research question should be seen as the entire chapter, which is summarised in Section 6.4. The constructs and propositions presented in Chapter five have been used as a guide to indicate what has been studied in the analysis.

6.1 What is ASP?

The first subquestion to discuss is what ASP is. There are several definitions of ASP. The question is whether there is one definition that is more correct than others. It can also be questioned whether there is a need to have just one definition, and if so, a new one. It is neither necessary nor indeed possible to have just one definition. The reason for this is that any definition is dependent on
its context and in that way one definition can be the best in a specific context but maybe not the best in another. However, in a specific context one clear definition would be desirable.

There is a risk in using various definitions of the ASP concept, especially if you do not state exactly what you mean by ASP and if you are not aware of what your interlocutor means. Service providers emphasise the risk of calling everything they do ASP. At the same time they market themselves heavily as ASPs without a clear definition of the concept. When service providers talk of doing backups for organisations as an ASP service, I would classify the service as storage provision.

The different views of what ASP is and what ASP is not make it difficult for SMEs to decide on adopting the ASP concept. If they interpret the ASP concept in one way and ask, for instance, two different service providers for a proposal of services they can have proposals that are not comparable. However, this is not a problem as long as they are aware of the difference. The problem with different definitions of the ASP concept is also emphasised by service providers who claim that they spend a great deal of their time on explaining and relating their definition of ASP to the definitions by others.

The question is if SMEs know what ASP is. The study shows that despite the fact that customers of service providers (ASPs) were investigated, various interpretations of the ASP concept were made. This is also indicated in a study by Isaksson & Linderoth (2003) who claim that 88 per cent of SMEs studied say they know what ASP is, but at the same time their study shows that there is a lack of knowledge among SMEs about what the ASP concept actually means. However, answering the question if they are familiar with the ASP concept, all customers said they are, which is not surprising since the question was put to ASP customers. More interesting are the different explanations of what the concept means to them. To some customers the ASP concept means that they just rent storage. To other customers the ASP concept means that the service provider reengineers the organisation’s business processes. The most common statement is that the ASP concept means that an external provider takes care of the management of software applications and makes sure they work. It can be concluded from this that the ASP concept from the customers’ view is seen as something operational and not something strategic. This conclusion is based on
the fact that customers do not describe the ASP concept as a way of improving their business over a longer period. This is discussed further in Section 6.3.3. The customers also emphasise the ASP concept as something simple and effective.

6.1.1 Who are ASP customers?

To deepen the discussion of what ASP is and how the decision-making process is made, it is fruitful to describe and analyse who the customers are. The survey of the horizontal ASP customers showed that 77 per cent (ten customers out of thirteen) are organisations that have other organisations as their customers. The study also shows that 62 per cent (eight customers) see themselves as service organisations. From this it can be concluded that the customers are used to cooperating with other organisations, but also that they are dependent on other organisations for doing business.

A statement made by the service providers interviewed concerning who the ASP concept fits, is that ASP demands a network connection and if the organisation does not already have this, the ASP concept is not suitable. That it demands a network connection is so self-evident that it does not have to be questioned. According to the service providers the adoption of the ASP concept becomes too expensive if the potential customer does not already have a network connection. However, the interviewees at the service provider organisations state that ASP only fits organisations that are located at different places. This statement was tested by asking the customers if they are located at more than one place. The result shows that 62 per cent (eight customers out of thirteen) of the customers are located at more than one place, and 38 per cent (five customers) of the customers are located at only one place. This contradicts the statement made by the service providers. In order to explain this finding it is fruitful to look at who the users are and what functions they have in the organisation. The result is shown in Table 6-1.
Forty-six per cent of the organisations have “other employees” that use applications from the service provider. The majority of employees in this group are salesmen and consultants. Five organisations out of six describe “other employees” as salesmen and consultants. It can be assumed that these employees need to have access to the organisation’s system when they are outside the organisation’s premises. The possibility to have access from anywhere is something that service providers emphasise as one benefit of the ASP concept. If an organisation decides on using the ASP concept the organisation also obtains increased accessibility. The only thing needed according to the service providers is a connection to the Internet. Accessibility as a reason for adoption or non-adoption is discussed further in Section 6.3.7.

The service providers claim that there are two basic characteristics of the SMEs, at least one of which has to be fulfilled if the ASP concept should be interesting for SMEs. One characteristic is that the SMEs are located at several places. The other characteristic is that they have employees that need to have access to applications from various locations. The survey showed that five (38 per cent) of the customers are located at only one geographical place. The first interpretation of why organisations located at one single place have adopted the ASP concept is that they probably have sales personnel that need to have access to the organisation’s applications from various places. However, this statement is not supported when the data are examined in detail. Instead there are four customer organisations that are located at one place without having staff that need to have access from various places. Only one customer organisation is located at one place and has sales staff.

In order to clarify what the customers use the ASP concept for, I start with the question of how many employees there are in the customer organisation. The aim is to give a background for the coming discussion on what the ASP concept is used for, which is presented in Section 6.1.2, and also to present the customer
Analysing how SMEs decide on using application service provision

segment for the horizontal ASP investigated. The distribution of employees in the customer organisations is shown in Figure 6-2.

![Figure 6-2 Distribution of employees in the horizontal ASP customer organisations.](image)

The figure shows that the horizontal ASP does not focus on a specific size of customer organisations. However, most customers have fewer than 100 employees. One of the customers has more than 250 employees and so does not meet the criterion for the size of an SME. However, the number includes employees in a subsidiary in Denmark who do not use ASP from Sweden and consequently were not included in the study. Counting only employees in Sweden, the company qualifies as an SME.

The number of employees in the customer organisations becomes interesting when compared with the use of software applications delivered by the horizontal ASP. This is shown in Figure 6-3.
Figure 6-3 Distribution of employees using applications provided by the horizontal ASP

The result in Figure 6-3 builds on the question of how many employees use rented software applications. The answer is that in total 31 per cent of the employees use rented software applications. This does not say anything about how much of the total amount of ICT used is rented ICT. The only thing shown is the distribution of the use of rented software applications among employees. One conclusion from the distribution of the use of rented ICT is that the percentage of employees that use rented ICT decreases when the size of the organisation increases.

One explanation is that in the sample the largest organisation is a manufacturing organisation. They use and rent almost all of the categorised applications described in Table 6-2. However, the percentage of employees that use ICT is fairly small in this organisation. The customers that are manufacturing organisations in the sample are firm 7, firm 9 and firm 13 in Figure 6-3. The conclusion that manufacturing organisations use fewer rented software applications is not fully supported.

Another explanation can be that larger organisations more likely choose to rent certain kinds of applications and have other applications in-house. This was shown in the study by Kern et al. (2002). Certain kinds of applications are also not suitable for the ASP concept. The next section discusses what software applications are rented by the ASP customers.
6.1.2 What applications are rented?

To get an understanding of what applications are rented from the ASP the study investigated what applications the customers rent, what applications they do not rent and what applications they do not use. The study included twelve different categories of software applications generated from the interviews with the ASPs and from the report by Kern et al. (2001). The result is shown in Table 6-2.

Table 6-2 Applications used in the ASP customer organisations.

<table>
<thead>
<tr>
<th>Software application</th>
<th>Rented</th>
<th>Not rented</th>
<th>Not used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office suites (e.g. MS Office)</td>
<td>11</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>e-mail systems</td>
<td>11</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ERP systems</td>
<td>9</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Website</td>
<td>9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Finance systems</td>
<td>9</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Accounting systems</td>
<td>8</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Payroll systems</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>MPS systems</td>
<td>4</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>CRM systems</td>
<td>3</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>CAD/CAM systems</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>e-commerce</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Video conferencing systems</td>
<td>1</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Table 6-2 shows how many organisations use and rent, use but do not rent respectively do not use categorised software applications. The sum of each row in the table should be thirteen. However, some of the respondents did not give answers in all categories. In all likelihood respondents who did not mention some applications do not use those applications in the organisation. The result shows that the most commonly used and rented applications are office suites (MS Office) and e-mail systems. These are software applications that are very common in organisations today. These two applications are also seen by ASPs as the basic option and it is more or less mandatory to rent them. In this study the enterprise ASP differs in this opinion, claiming that they are not interested in providing that kind of applications. They think that they can not compete with such applications. Since the applications are not part of their core competence they have difficulties in offering enough services around them. Neither can they achieve economies of scale delivering that kind of software applications.
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Two of the organisations have chosen not to rent an office suite, despite the fact that they use one. One of the organisations only rents an ERP system including accounting and payroll. The other organisation has its website located at the service provider and rents a payroll and an accounting system from the service provider. It can be concluded from this that they do not really utilise all the advantages the ASP concept can offer, for instance the advantages of easily upgraded versions. Advantages of the ASP concept will be discussed further in Section 6.3.1.

One explanation why the two organisations do not rent the office suite can be that they already have paid for the licence and do not see any reason for transferring the application to an ASP. This explanation is supported in the interviews when the ASPs claim that one of the difficulties in the ASP concept is how to handle the licence fee.

More advanced applications such as customer relationship management (CRM) and e-commerce are not so widely used among the customers. One reason for this is perhaps the fact that these applications have not yet been discovered by SMEs or maybe they have been discovered but are not needed in SMEs. Another explanation is that SMEs first rent basic applications and when they have more experience from the provider and the concept as such they expand their use of ASP. This latest explanation is supported by the ASPs, who claim that often a customer starts by renting, for instance, Microsoft Office and later on, when they are familiar with the concept and the service provider is familiar with the customer, more customer-adjusted applications are rented. If this is the case there should be a correlation between when the customer adopted the ASP concept and what applications they use. When searching the data for this correlation it was found that among organisations that use software applications that are not rented, non-rented applications were equally distributed among the customers. This means that the explanation given by the ASPs, stating that customers after a while expand the use of the ASP concept, is not supported in the data.

The discussion about who the customers are and for what the ASP concept is used is in various ways associated with how and why the decision to be an ASP customer comes in place. In Section 5.1.2 three questions about sourcing decisions by Miller et al. (2002) were described. The first question they proposed was “What is the decision about?” This section has given an answer to that
question by stating that the decision is about deciding on using an external partner for the provision of software applications. From the questions about who the customers are and for what the ASP concept is used, it can be concluded that the ASP concept does not fit a specific customer, nor is one specific type of software application provided by an ASP. In order to sort out more precisely how the decision is made, the next section deals with the other two questions concerning how the decision is made and what character the decision has.

6.2 How is the decision made?

In Chapter five decision-making on adopting the ASP concept was described as having two steps. The first step is to decide if the organisation should handle its ICT internally or externally. The second step is to decide on whom to cooperate with. This section will present the process of decision-making and analyse the process. The first step is described and analysed in Section 6.2.1 and the second step in Section 6.2.2.

6.2.1 Deciding on whether to adopt the ASP concept or not

The first step in the decision-making process is to decide whether to adopt or not to adopt the ASP concept. A couple of different reasons and factors are involved in the decision. How and in what way these impact the decision will be analysed in Section 6.3. However, before that this section will give some background to how the decision is made and the character of the decision. The first issue to discuss is whether the decision is a strategic, a tactical or an operational decision. In my view it is a strategic decision. It impacts the organisation over a longer time period; the outcome of the decision influences the organisation for at least two or three years. However, it can be stated that it is not possible to say that the decision is a strategic, tactical or operational decision in all cases. But, if the organisation aims at outsourcing its entire ICT which is the basic idea of the ASP concept I claim that it is a strategic decision. The question is then if the SMEs see it in the same way. Using transaction cost theory to discuss if the decision is strategic or operational, it can be implied that the cost perspective is an important factor in the first step. This is supported in the interviews with the service providers where they claim that a customer’s first contact often is an issue about costs. The first contact according to the ASPs is often a question on the telephone or by e-mail, which is formulated something like “we are an organisation that
has X employees and we would like to rent an application as an ASP service, how much would that cost?” This question can be interpreted as a trade-off between transaction costs and production costs (Williamson, 1975), which was defined in Chapter five. According to the ASPs this initial questioning has one of the following two reasons. The first reason is that the person who asks is just interested in having a cost to compare with the internal cost for their ICT. This can be compared to the discussion in Section 3.2.4. about different archetypes of decision-makers presented by Hirschheim & Lacity (2000). They claim that ICT managers sometimes defend internal ICT sourcing just by letting an external partner give a cost proposal which the managers use claiming that internal ICT is less expensive. The other reason is that they are really interested in the ASP concept as an alternative to internally handled ICT. This second reason can be seen as a way of filling the gap between desired capabilities and actual capabilities (Cheon et al., 1995). This indicates that the decision can be seen as a decision that aims at expanding the organisation’s competitiveness.

The above described is one way for the ASPs to get in touch with potential new customers. The other way of attracting customers is, according to the ASPs, to establish the first contact by themselves. However, all three ASPs state that they do not have the time for doing this. At the moment they have so many enquiries that it takes all their time to handle those.

However, irrespective of how the first contact was made the next step for the ASPs is to discuss in more detail with the potential customer. All three ASPs interviewed claim that if they had a choice they would not choose an ICT manager to discuss with. They explain this by stating that an ICT manager who has been told to outsource the company’s ICT is very seldom interested in doing so. This leads to a discussion of the start of the process of decision-making. According to the ASPs it starts in one of the following two ways. First, as a result of the organisation’s strategy, which states that they should concentrate on their core competence. Management of ICT is not seen as their core competence. Second, they have difficulties with the management of their ICT. This means that they have difficulties in providing enough accessibility and services for their ICT. Both these reasons for how the decision-making process of adopting the ASP concept starts can be related to the seven constructs discussed in Section 6.3.
During the negotiation phase the ASPs try to look into the customer’s present costs for ICT. To do this the ASPs use different tools, for instance total cost of ownership (TCO) analysis. The aim is to describe and relate the present ICT costs of the SMEs to the fee that the ASPs ask for their offer. At this stage the outcome almost in every case depends on whether the potential customer lets the ASP analyse their present costs. According to the ASPs this is crucial for the outcome of the negotiation. If the customer does not analyse their present costs either themselves or lets the service provider do so, the service provider has a hard time finalising the negotiation. The vertical ASP exemplified this, stating that they have started to more or less require the customer to present their ICT costs for them to give an offer. This is the result after several negotiations lost to the customers’ internal ICT departments. A difficult task at this point for the ASPs is to present a fee for ICT that is at the same level as for the present ICT. Relatively often the SMEs want to have a more extensive ICT, and if the ASPs just quote a price for this the customer reaction is that the price is too high.

At this phase in the decision-making process the customer makes the decision whether to handle their ICT by themselves or whether to use an external partner or partners for doing that. In many negotiations the outcome is that organisations choose to handle their ICT by themselves. The ASPs declare that the internal ICT department is their main competitor. The reason for this is control on different levels, which is further discussed in Section 6.3. However, if the organisation chooses to use an external partner the question then becomes who to choose, the second step in the decision-making process.

### 6.2.2 Deciding on which partner to choose

The next decision that is made concerns who to use as a partner for the ASP concept. The discussion is based on the answers to two questions in the questionnaire. The first question discusses the overall impression of the ASPs and focuses on decision criteria for choosing a specific ASP. The statements and results are shown in Table 6-3. The question was formulated in the following way: how much do you agree that the following statements are important for the decision of choosing a specific provider? The respondents, HASP customers, were asked to indicate this on a scale from 1 (strongly disagree) to 7 (strongly agree).
Deciding on Using Application Service Provision in SMEs

Table 6-3 How statements on overall impression impact the decision of choosing a specific provider.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The provider should support all our ICT needs</td>
<td>5.4</td>
<td>1</td>
<td>7</td>
<td>1.76</td>
</tr>
<tr>
<td>The provider should be a profitable and stable company</td>
<td>6.6</td>
<td>6</td>
<td>7</td>
<td>0.51</td>
</tr>
<tr>
<td>The provider should have experience in our business area</td>
<td>4.5</td>
<td>2</td>
<td>7</td>
<td>1.51</td>
</tr>
</tbody>
</table>

The results show that the demands on the service providers are high. They are expected to be a profitable and stable company with a good reputation and also to be able to support their customers with whatever they need when it comes to ICT. This statement is especially interesting when compared with the opinion expressed in the interviews with the ASP customers. They all express that the service provider they have chosen has too little experience of what they do in their organisations. Despite this statement the customers who answered the questionnaire did not emphasise that the ASP should have experience in the customer’s business area. On the other hand, the interviewed customers state that the ASPs should have more experience of their businesses. The reason for this is that they want the ASPs to act in a more proactive manner. To be able to do that and provide them with all the ICT the customer requires they need to have knowledge of the specific customer. This means that to be able to meet the requirement “support all our needs” the service provider needs to have a great deal of experience of the customer’s specific business. The survey suggests that the customers do not consider this to be very important. One explanation for this is that the customers do not see any relation between the service provider’s experience of their business area and the ability to support them with all ICT needed. If this were the case there would be a pattern between the organisation that has rated the experience statement low and the organisation that has rated the support statement low. There is a pattern between the customers’ answers to these statements; they have rated the two statements in the same way. Two customers have not done so; they have rated the support statement a six and a seven and the experience statement a two.

However, these two customers emphasise the statement that the service provider should support all their needs of ICT to a higher degree. This is contradictory to statements made by the interviewed ASPs which all had different opinions about this. The vertical ASP claims that it is important to be able to support the customer with all ICT, but at the same time they declare that it is more important to be knowledgeable about ICT provided. The enterprise ASP claims that customers are not interested in having all their ICT from one service provider.
The horizontal ASP claims that it is necessary to have the ability to deliver all required ICT. When looking at the numbers in Table 6-3 it is important to remember that the result builds on the questionnaire submitted to the horizontal ASP’s customers, and this ASP’s goal is to provide its customers with all necessary ICT.

Another statement that is emphasised about the ASP concept is that it gives the possibility to use several service providers for the provision of different applications. The horizontal ASP in this study aims at supporting all their customers with all the software applications they need. The enterprise ASP does not emphasise this, instead they recommend their customer to seek other providers when it comes to services that are outside of their ERP system. The president at the enterprise ASP states “at the beginning we planned to be a full service provider but we found that the customers did not want to have it in that way”.

An interesting part of the results in Table 6-3 is that the customers emphasise that the chosen service provider should be a profitable and stable company. In spite of that they have chosen to use an ASP that was quite recently re-established after being declared bankrupt. One explanation for that can be found in the statement made by the CEO of the manufacturing company Alpha: “It is not an easy task to switch back or to switch to another service provider”. The same is emphasised by both Udo (2000) in his proposed disadvantages and by Jurison (1995), who claims that the irreversibility of the decision is seen as a dominant risk. This can be seen as path dependency, where the ASP customer hangs on to the same provider even if they would like to change. This can be related to transaction cost theory and switching costs. If an SME wants to change providers it will cost more than simply continuing with the same provider. Despite this the customers of the service provider examined say that they do not regret their decisions. The overall results from the questionnaire are that the customers are satisfied with the services provided by the ASP.

Another question in my questionnaire focused more on technical aspects and service level agreement (SLA) and how these can be seen as criteria for the decision to choose a specific ASP. There were three statements formulated in this question. The question was formulated in the following way: how much do you agree that the following statements are important for the decision of choosing a
specific provider? The respondents were asked to indicate how much they agree or disagree with these statements on a scale from 1 (strongly disagree) to 7 (strongly agree). The result is shown in Table 6-4.

Table 6-4 How technical aspects and SLAs impact the decision of choosing a specific provider.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The provider should have systems for tracking and controlling</td>
<td>6.5</td>
<td>6</td>
<td>7</td>
<td>0.51</td>
</tr>
<tr>
<td>that promised functionality is delivered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The provider should have SLAs that control reliability and</td>
<td>6.6</td>
<td>4</td>
<td>7</td>
<td>0.84</td>
</tr>
<tr>
<td>security in the network.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The provider should have SLAs that define the maximum response time for</td>
<td>6.3</td>
<td>4</td>
<td>7</td>
<td>0.91</td>
</tr>
<tr>
<td>an application.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result does not show any large difference in the means between the different statements. However, it is clear that the customers emphasise simple and well formulated service level agreements. This conclusion can be questioned when comparing with findings from the interviews. The interviewed ASP customers are not aware of the contents of the service level agreements (SLAs) they have signed. None of them could, for instance, clearly state what accessibility time they had in their agreements. However, they may have been aware of what the SLA stated when they signed the agreement. What the interviewed customers see as a problem is that they do not think they have the accessibility time they were promised. This is an issue about trust. According to the ASPs, trust in their organisation impacts the decision more than a written agreement. To handle this issue of trust the ASPs want to show their data centre for the potential customer and in that way describe how they work. The opinion that trust has more impact than a written agreement is one reason why ASPs are not willing to show their SLAs to the potential customer at the beginning of the decision-making process. They do not want the potential customer to focus on, for instance, a certain degree of accessibility. Instead they want to have the focus on how they deliver their services. The ASPs also state that at the beginning of the negotiation the customer has not enough knowledge of the ASP concept to judge whether the SLA is on the right level or not.

This section has showed how the decision-making process is handled. The process is described as consisting of two separate decisions. First, a decision whether the organisation should have internal or external maintenance of its ICT. Second, a decision on which service provider or providers to choose. It can be concluded that the first decision is influenced by either the organisation’s
strategy, a wish to decrease the organisation’s ICT costs or a need to increase the organisation’s capability. The second decision is influenced mainly by trust in the service provider. The service provider’s reputation is an important factor in the decision. The service provider’s tender seems to play a secondary role. The same can be said about the cost perspective. These different constructs are discussed in the subsequent section using the constructs proposed in Chapter five.

6.3 Why adopt the ASP concept?

This section uses the constructs suggested in Chapter five to discuss and analyse the question: why adopt the ASP concept? The following seven constructs are reasons and factors identified as constructs influencing the decision to adopt the ASP concept. The seven constructs are: benefits, risks, strategy, trust, costs, core competence and capability. Each of these constructs are discussed in Sections 6.3.1 to 6.3.7.

6.3.1 How perceived benefits influence the decision

In the study the service providers report cost control, overall strategy and a way of financing as the main reasons for adoption. The main reasons that the interviewed service providers reported are shown in Table 6-5. One reason that they mention but do not state as a main reason is flexibility. Flexibility is described as the background to the cost reason. The service providers claim that the customer wants to have increased flexibility. By this they mean that the customer wants to have the possibility to use a software application for a specific time without being forced to have capital tied up. Flexibility of the ASP concept is described by the service provider as a possibility to pay for the actual use of the applications. This means that, in addition, the ICT costs are changed into variable costs and the fee is adjustable, varying with the numbers of users. However, the ASPs have had problems with the implementation of this flexibility because of difficulties with how to charge the fee. Another view of flexibility is, according to the service providers, that a project organisation can earn from using the ASP concept. A project organisation benefits from not having to make investments in ICT resources, and when the project ends they have no capital tied up and no unnecessary resources. The customers of the service providers do not emphasise the same reasons as the ASPs. The benefits of the ASP concept as
seen by the interviewed ASP customers are presented in Table 6-5, which shows
the main reasons reported for adopting the ASP concept. All providers emphasise
cost control as one of the main factors for adopting the ASP concept. This
finding concurs with the reason Udo (2000) provides which he labels a
predictable ICT budget. The customers on the other hand do not emphasise cost
control as a main factor. The customers instead emphasise reasons related to core
competence. This is discussed further in Section 6.3.6. However, one customer
states that ease of upgrading of applications is a benefit of the ASP concept.

Table 6-5 Reported reasons for adoption of the ASP concept.

<table>
<thead>
<tr>
<th>Company</th>
<th>ASPs’ reported reasons for adoption</th>
<th>ASP customers’ reported reasons for adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>The HASP company</td>
<td>Cost control</td>
<td>Convenience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ease of upgrading</td>
</tr>
<tr>
<td>The VASP company</td>
<td>The overall strategy</td>
<td>Focusing on core competence</td>
</tr>
<tr>
<td></td>
<td>Cost control</td>
<td>Increased security</td>
</tr>
<tr>
<td>The EASP company</td>
<td>Cost control, A way of financing</td>
<td>Resource constraints</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hard to be knowledgeable</td>
</tr>
</tbody>
</table>

The findings in Table 6-5 can be compared with the conclusion by Gorla et al.
(2002): ICT outsourcing is mainly influenced by market structure and ICT
outsourcing costs. This study does not support their conclusion. The main
findings instead demonstrate that costs are not a determining factor in the
decision of adopting the ASP concept. The primary reasons given by the ASPs
are: first, customers choose to adopt the ASP concept because they will know
what costs they have to pay for ICT each month; second, customers adopt the
ASP concept because they cannot themselves obtain the same ICT at the same
cost. This is quite contrary to the reasons reported by the customers. SMEs in this
study emphasise costs, but when it comes to the final decision, costs are not the
primary reason. The interviewed SMEs give the following reasons: difficulties
with obtaining and handling resources, a lack of internal resources, ICT is not
their core competence, and a wish to increase security. The customers of course
say that they would like to have their ICT as inexpensive as possible. However,
this is not reported as the key reason for adopting the ASP concept. The reported
reasons in Table 6-5 from the interviewed SMEs can be compared with data from
the questionnaire. Findings from the questionnaire about what reasons impact the
decision to adopt the ASP concept are shown in Table 6-6.

There are at least two possible explanations why SMEs do not emphasise the cost
factor. First, once they have reached an agreement with a service provider and
pay a fixed fee each month, they do not see this as the main factor any longer. The second explanation is that they do not see this as a problem until they outsource. The second explanation is based on the fact that ICT costs are not a major issue in this kind of companies. SMEs do not see ICT costs as the main problem. Instead, the main problem is how to maintain and handle ICT so that it works properly. It can also be explained by the statements by the service provider that customers’ cost control and awareness of how much ICT costs are inadequate. The statements explain the findings shown in Table 6-10, (p. 137), that the customers rate “better control of the costs” high, and rate “lower costs of the ICT” low. However, having better control of the costs could be seen as a way to reduce uncertainty.

In the questionnaire two questions dealt with reasons why SMEs adopt the ASP concept. The first question was formulated as follows: what reasons made your organisation adopt the ASP concept? The respondents were supposed to rank the proposed reasons in order of importance with 3 as the highest score. Table 6-6 shows how many organisations rated a reason as the most important, the second most important and the third most important.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of organisations ranking reasons</th>
<th>Total score</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved accessibility</td>
<td></td>
<td>14</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Improved ICT systems</td>
<td></td>
<td>14</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>The organisation’s overall strategy</td>
<td></td>
<td>13</td>
<td>4</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Better support</td>
<td></td>
<td>11</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Decreased ICT costs</td>
<td></td>
<td>8</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Access to better knowledge of ICT</td>
<td></td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lack of ICT-skilled personnel</td>
<td></td>
<td>5</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Predictable ICT costs</td>
<td></td>
<td>3</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other reasons (no need for investment in ICT, security aspects)</td>
<td></td>
<td>3</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Difficulties to employ ICT-skilled personnel</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The reasons that got the highest score are improved accessibility and improved ICT systems. Improved accessibility is also something that the interviewed customers emphasise as a reason for adopting the ASP concept. To improve the result a second question was asked. This question broadly asked about the same...
thing, but did so from another angle. The question was formulated as follows: which of the following reasons motivated the decision to adopt the ASP concept? There were ten different reasons presented and the respondent was asked to state the importance of the reasons on a 7-point scale. A seven implied that it was very important and a one that it was not important at all. The result from this question is shown in Table 6-7. However, it is important to remember that the findings in Table 6-6 as well as in Table 6-7 build on answers from SMEs that are ASP customers. This implies that the answers could have been affected by perceived results from the ASP concept.

Table 6-7 To what degree does a reason impact the decision to adopt the ASP concept?

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Mean score</th>
<th>Min</th>
<th>Max</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved accessibility</td>
<td>6.4</td>
<td>6</td>
<td>7</td>
<td>0.51</td>
</tr>
<tr>
<td>Better support</td>
<td>5.9</td>
<td>4</td>
<td>7</td>
<td>1.12</td>
</tr>
<tr>
<td>Improved ICT systems</td>
<td>5.6</td>
<td>2</td>
<td>7</td>
<td>1.66</td>
</tr>
<tr>
<td>The organisation’s overall strategy</td>
<td>5.4</td>
<td>4</td>
<td>7</td>
<td>1.12</td>
</tr>
<tr>
<td>Access to better knowledge of ICT</td>
<td>5.2</td>
<td>2</td>
<td>7</td>
<td>1.77</td>
</tr>
<tr>
<td>Predictable ICT costs</td>
<td>4.9</td>
<td>3</td>
<td>7</td>
<td>1.19</td>
</tr>
<tr>
<td>Decreased ICT costs</td>
<td>4.8</td>
<td>2</td>
<td>7</td>
<td>1.76</td>
</tr>
<tr>
<td>Lack of ICT-skilled personnel</td>
<td>3.5</td>
<td>1</td>
<td>7</td>
<td>2.20</td>
</tr>
<tr>
<td>Difficulties to employ ICT-skilled personnel</td>
<td>2.8</td>
<td>1</td>
<td>7</td>
<td>1.90</td>
</tr>
<tr>
<td>Ability to increase the employees’ ICT knowledge</td>
<td>2.5</td>
<td>1</td>
<td>5</td>
<td>1.39</td>
</tr>
</tbody>
</table>

Also in the answer to the second question about reasons, improved accessibility received the highest score. The overall strategy for the organisation was rated fourth in this question. One finding is that the difficulties in having and attracting ICT-skilled employees get so low scores. Lack of ICT-skilled personnel shows a high standard deviation which is a result from two customer organisations (firm 8 and firm 12 in Figure 6-3, p. 116) rate this reason a 7 and three customer organisations (firm 1, firm 3 and firm 13 in Figure 6-3, p. 116) rate it a 1. The question is if this can be related to what applications they use or the ICT dependency of the firm. When examining what applications they use and rent there is no pattern between a certain rate and applications used. Neither is there a pattern between ICT dependency and the rate of lack of ICT-skilled personnel. This is interesting, since the ASPs describe this as one of the benefits and a reason for adopting the ASP concept. The literature often suggests the possibility to have increased access to personnel as a reason for adopting the ASP concept (Kern et al., 2001; Udo, 1995, Dewire, 2001). One of the organisations studied,
the manufacturing company Beta, gave this as a reason for its adoption of the ASP concept. The ASPs claim that an organisation that adopts the ASP concept hardly needs to have any employee dealing with ICT-related tasks. In order to clarify this statement it was asked whether there are employees that work with ICT-related tasks or not. ICT-related tasks were defined as working with development of ICT, procurement of ICT, maintenance of ICT or support of ICT. The study showed that 62 per cent of the organisations have employees working with ICT-related tasks. What can be concluded from this is that there are different interpretations of ICT-related tasks. One organisation that deals with the development and sales of administrative services gave the answer that all employees have ICT-related tasks. What they do is sell a software application developed by another organisation. They make some adjustments to this application, but they do not develop the ICT they use in their own business. In my view this does not meet the above definition of ICT-related tasks. A more accurate picture is obtained when looking at how many employees work with this kind of tasks. I then excluded the customer that said all employees work with ICT-related tasks. The result shows that there are only thirteen employees out of 1142 employees that have ICT-related tasks. This is in line with what the ASPs say about the lack of demand for employees working with ICT-related tasks. However, the ASPs also emphasise that customers need to have some employees with knowledge of and interest in ICT. The interviewed ASPs claim that customers have to handle some strategic work related to ICT, and there is a need for the ASPs to have someone with whom to discuss strategic questions about ICT.

The customers on the other hand claim that lack of personnel or lack of knowledge of ICT among employees are not reasons for adopting the ASP concept. Neither do they see the fact that they do not need to have employees working with ICT as the main benefit of the ASP concept. Instead they express that despite the fact that they are an ASP customer they need to have some expensive additional consultancy help at an increased cost.

The main finding from the questionnaire and the interviews with ASP customers is that accessibility plays a very important role when deciding on using the ASP concept. This is not in line with what the ASPs give as a main reason. Instead they talk much about costs and cost control. However, they indicate accessibility when they point out cost level as the main reason. The reason for this is that if
the customers need and want increased accessibility they could do this by themselves but it would cost money. So the reason why SMEs are not able to provide themselves with the accessibility required could be said to be the issue of cost. The cost perspective is discussed further in Section 6.3.6. It can be concluded that there are several benefits reported of the ASP concept. From this discussion it can be concluded that the benefit which, according to the ASPs, influences the decision most is the possibility to decrease and have control of ICT costs. The ASP customers, on the other hand, argue that increased accessibility to their ICT is what influences the decision most. So if these are reasons for adopting the ASP concept, what reasons are there not to adopt the ASP concept? The next section (6.3.2) will deal with that question.

6.3.2 How perceived risks influence the decision

One of the main reported risks of the ASP concept is irreversibility of the decision (Jurison, 1995). However, in this study this was not suggested as a risk either by the ASPs or by the customers. When asking the customers about the irreversibility of the decision, the answer was that they had not thought about it. This implies that it can not be seen as a perceived risk in the decision-making process. The reasons for non-adoption that were put forward in the interviews with the ASPs and the ASP customers are shown in Table 6-8.

<table>
<thead>
<tr>
<th>ASPs’ reported reasons for non-adoption</th>
<th>ASP customers’ reported reasons for non-adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>The HASP company</td>
<td>Security concerns</td>
</tr>
<tr>
<td></td>
<td>Data control concerns</td>
</tr>
<tr>
<td></td>
<td>Lack of trust in the communication link</td>
</tr>
<tr>
<td>The VASP company</td>
<td>Fear of losing control</td>
</tr>
<tr>
<td></td>
<td>Considerable time for implementing</td>
</tr>
<tr>
<td></td>
<td>Concerns about the communication link</td>
</tr>
<tr>
<td>The EASP company</td>
<td>Fear of losing control</td>
</tr>
<tr>
<td></td>
<td>Concerns about the communication link</td>
</tr>
</tbody>
</table>

One of the customers states that the long time for implementing can be seen as a reason for non-adopting. However, this customer also discusses the communication link and describes it as the most critical part of its solution for provision of ICT at the moment.

The primary reason the ASPs give for non-adoption concerns losing control. This concern is expressed in two ways: first, the fear of losing control of ICT assets, and second, the fear of losing control of data. According to the ASPs, customers are worried about, for instance, control of their data. They are also said to be
Analysing how SMEs decide on using application service provision

worried about moving the physical equipment and relate security to the physical location of servers. This worry is also related to questions about privacy. The ASPs claim that customers are worried that the ASPs might sell or let another customer see their data. The providers’ statements can be compared with Udo’s (2000) reported disadvantages, one of which is that outsourcing leads to loss of control of ICT. All three providers emphasise that the customers’ fear of losing control of ICT is a reason for non-adoption of the ASP concept. The customers on the other hand do not state this as the reason for non-adoption. Instead they put forward their concern about the communication link. This is probably because they have already adopted the solution. In order to have some input into the explanation of this a question was asked in the questionnaire about satisfaction.

These concerns about control are related to expectations of the ASP concept. According to the ASPs, customers are concerned because they do not know how the ASP concept works. Control can be seen in two ways. One way is to see it as an issue of security and privacy. In order to have some input into that I asked the ASP customers the following question: to what extent do you agree with the following statements about renting ICT hosting? The respondents were asked to indicate on a scale from 1 (strongly disagree) to 7 (strongly agree) what they thought about the statements presented. The statements and the result are shown in Table 6-9.

Table 6-9 How satisfied are the customers with security and privacy?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our organisation is satisfied with security offered by the ASP.</td>
<td>6.2</td>
<td>5</td>
<td>7</td>
<td>0.73</td>
</tr>
<tr>
<td>Our organisation is satisfied with how privacy is handled by the ASP.</td>
<td>5.9</td>
<td>3</td>
<td>7</td>
<td>1.12</td>
</tr>
<tr>
<td>Our organisation is satisfied with how the ASP handles the ICT hosting.</td>
<td>5.5</td>
<td>3</td>
<td>7</td>
<td>1.13</td>
</tr>
<tr>
<td>Our organisation is satisfied with how the ASP informs us.</td>
<td>5.1</td>
<td>3</td>
<td>7</td>
<td>1.03</td>
</tr>
</tbody>
</table>

The result indicates that the customers seem to be very satisfied with the services provided. They are most satisfied with how the ASP company handles the security issues. This is notable since the ASPs state this as one of the main reasons for not choosing the ASP concept. This suggests that the ASP company manages to handle security issues in a good way. However, the result is reported after the decision was made and depends on the customers’ expectations. If they had low expectations this only means that the service provider is performing well.
in relation to low expectations. In other words, it is a relative result. But the customers clearly had high expectations of the service provider. This was indicated by comments customers gave to the answers on the question about security and privacy. One customer stated that it was hard to give a high score on the question since they had high expectations at the beginning. The statement the customers seem to be least satisfied with is how the service provider informs them. This statement gives another explanation of the security reason put forward by the ASPs. If they inform the present customers badly it can be argued that they would also inform potential customers badly about how they handle security concerns. However, from the data set it can not be concluded that security or privacy is an important reason for non-adopting. The only thing that can be stated is that all three ASPs claim that this is a reason and they have examples where SMEs did not sign the deal because they did not want the server to be located outside their buildings. This is one reason why the ASPs deliver ASP services with servers located at the customers’ buildings.

However, irrespective of this the next question is whether the decision is a strategic decision or not and how the potential customer’s business strategy impacts the outcome of the decision.

6.3.3 How business strategy influences the decision

From the interviews with the ASPs it can be stated that the customer organisation’s business strategy influences the decision-making to a great extent. The ASPs state that there are two different starting points of the decision-making process, the business strategy of the organisation and the cost of ICT. The latter will be discussed in Section 6.3.6. Organisations with a strategy to focus on core competence are more likely to start thinking of the ASP concept. Strategy as the starting point makes the negotiation much easier, since the customer has already in a way decided on using an external provider for its ICT.

However, the question is if this decision is a strategic, a tactical or an operational decision. When analysing the described benefits of the ASP concept, they can be seen as benefits in the long term. The risks on the other hand can be seen as more direct, affecting the organisation in the short term. Does this have anything to do with the decision-making in SMEs on using the ASP concept? It can be concluded that it has, if the SMEs are seen as more operational in their decision-making. This conclusion is supported in a study by Ghosh & Chan (1994). It can
also be concluded that managers in SMEs often need to solve the organisation’s problems at once and do not have enough time or energy to make strategic decisions (Gilmore et al., 2001; Epstein & Roy, 2000). Strategy is defined by Quinn as “the pattern or plan that integrates an organisation’s major goals, policies, and action sequences into a cohesive whole” (1991, p. 5). Strategic decisions are in my view decisions that are, as Mardsen & Forbes (2003) express it, guided by a vision of direction and characterised by bold decisions. The reasons given by the ASPs as well as the customers for the decision fit into the above description of strategy, irrespective of whether the reason is to increase cost control, cut costs or aim at fulfilling the organisation’s strategy. Stating that SMEs are more operational in their decision-making implies that risks have a stronger impact on the decision-making among SMEs when deciding on using the ASP concept. The SMEs need to solve the problems at hand and if an adoption of the ASP concept does not solve an existing problem, they will probably not even think of adopting something that could imply new problems even if it would solve the problem in a longer term.

In my view one difference between SMEs and larger enterprises is that the latter are more strategic in their decision-making than SMEs are (Epstein & Roy, 2000; Ghosh & Chan, 1994; Gilmore et al., 2001). The decision-makers in SMEs are more engaged in solving short-term problems than in long-term strategic decisions. If this is the case this can be one explanation why the ASP concept has been more widely used and plays a more important role in larger organisations.

It can be claimed that deciding on using the ASP concept is a strategic decision. The reason for this is that the decision to adopt the ASP concept is a decision that impacts the organisation for a longer period. The decision is also a decision that is about renting products and services at the same time. This duality in the decision can be seen as one reason why the ASP concept has difficulties in taking off among SMEs. It also explains why more larger organisations have adopted the ASP concept than smaller organisations have. In SMEs there is often no separate department or function that deals with buying services and products. This means that for an SME purchasing often has the objective of solving a direct problem. That a larger organisation is more strategic in its decision-making is confirmed by the interviewed ASPs. By a larger organisation the ASPs mean a company with more than 100 employees. The ASPs argue that in organisations of that size the reason for adopting the ASP concept is more likely to be the
organisation’s strategy. However, this statement was not supported in the questionnaire. When comparing the results shown in Table 6-6 with the size of organisations shown in Figure 6-2, the following conclusions can be drawn. The organisations that say that the organisation’s strategy was the number one reason for adopting are all smaller than 100 employees. The organisations that have more than 100 employees instead put forward increased accessibility and better ICT system as the number one reason.

An SME can have different strategies. These can, for instance, build on the resource-based view indicating that the company should compete with internal resources, or build on the resource-dependence view indicating that their ability to compete is dependent on the environment. Independent of which direction the strategy has it can be concluded that an SME’s strategy influences the first step in the decision-making process to a great extent. This is described by the ASPs as one reason for an SME to start thinking of the ASP concept. The ASPs argue that larger organisations are more strategic in their decision-making. It can be concluded that the decision on using the ASP concept is a strategic decision. And decision-makers who decide on using the ASP concept are more strategic than non-adopters, and according to agency theory they are risk-averse. This is supported by statements made by the ASPs, who argue that these organisations decide on using the ASP concept because they are proactive and they want to focus on their core competence. Core competence is discussed further in the next section.

### 6.3.4 How core competence influences the decision

One statement presented by the interviewed ASP customers as well as by the interviewed ASPs is that an organisation decides on using the ASP concept because it wants to focus on its core competence. In Section 5.4 the following proposition was presented: the organisation’s view of ICT as part or not part of the organisation’s core competence influences the decision. Axelsson & Wynstra (2002) defines core competence as the resources that are most critical and distinctive for an organisation and hard for others to copy. Relating to this definition it can be claimed that if an SME does not have enough skills in ICT it should outsource its ICT. The reasons that the SMEs give for adopting the ASP concept (Table 6-5, p. 126) can be grouped together under the label core competence. Despite the fact that only one of the SMEs directly expresses it, all
customers indirectly refer to core competence when they describe why they adopted the ASP concept. The reported reasons convenience, ease of upgrading, increased security, resource constraints and hard to be knowledgeable, are reasons that all indicate that ICT is not part of the customer’s core competence; they indicate that the organisation does not have enough knowledge to manage its ICT so that it becomes critical and distinctive and hard for others to copy. However, this can be related to Barney et al. (1995), who argue that whether an organisation gains competitive advantage from ICT depends on how the organisation manages the resource. The conclusion drawn by Barney et al. is that among the attributes of ICT it is only the managerial ICT skills that provide sustainability of the competitive advantage. Barney (1991) concludes that sources of sustained competitive advantage are and must be focused on the heterogeneity and immobility of resources. This conclusion is drawn from the assumption that if a resource is evenly distributed across competing organisations and the resource is highly mobile, the resource does not influence sustained competitive advantage. If ICT is seen as a resource of which the organisation has enough knowledge and which it can handle in an efficient and effective way, it should not been outsourced. However, whether the organisation’s ICT is handled internally or externally does not alone give the organisation competitive advantage. This indicates that even if ICT is seen as part of the organisation’s core competence it can be outsourced and provide competitive advantage if it is managed and used in a professional way. According to Gorla et al. (2002) external provision is chosen because the enterprise wants to focus on its core business. Lee (2001) states that the motivations for using an external partner for ICT are strategic, economic and technological benefits. In the interviews with the ASPs the customers’ intention to focus on core competence was expressed as an important reason for adoption of the ASP concept. It can be concluded that judging what is core competence and what not is core competence is a difficult task, which means that core competence is not a useful construct when analysing the decision-making process.

If an organisation stresses the fact that it should only deal with tasks that are part of its core competence the organisation becomes dependent on other organisations. This dependency on external partners raises the issue of trust. Both the ASPs and the customers maintain that trust impacts the decision to a great extent. This is discussed in the next section, 6.3.5.
6.3.5 How trust influences the decision

The study shows that trust is a very important factor in decision-making. Trust in the ASP concept impacts the decision very much. Trust can be trust in the technology as such as well as trust in the partner to cooperate with.

Trust in the technology concerns how the provision is made. There is an opinion that the most common way to receive services from ASPs is through the Internet. In this study it was found that the Internet was used, but the main part of provisioning is made through dedicated network connections. The ASPs as well as the customers found it inappropriate to use the Internet for the following three reasons: trust, Citrix applications\(^6\) and accessibility. Trust can be related to the use of the Internet at large. The study shows that the use of the Internet for ASP has increased. This implies that when trust in the Internet increases, adoption of the ASP concept also increases.

Trust can be compared to the question of security, which is one of the most dominant reasons not to adopt the ASP concept reported by the service providers. They claim that the organisations that decide not to use the ASP concept make this decision because of fear of two things. The first is fear of losing control. The second is fear of becoming more insecure. The latter is not confirmed by the questionnaire. The customers of the horizontal ASP found that security had increased and did not emphasise security as something that needed attention. The reason for this can be that the provider has succeeded in dealing with the security concern. One proof of this is that the customer of the service provider in August 2003 did not have any breakdowns caused by viruses or spam.

However, this is only one view of trust. The other view is trust in the concept as such and trust in the provider. This view has a stronger impact on the decision. This was discussed in Section 6.2. What can be concluded is that trust in this context is expressed as an organisation trusting another organisation to have access to its data. It is also about trusting another organisation to be able to deliver the ICT needed and service related to that ICT. This means that the

\(^6\) The reason why Citrix applications impact the use of the Internet is, according to the ASPs, that they demand a more stable connection. However, this has nothing to do with the adoption of the ASP concept.
Analysing how SMEs decide on using application service provision
decision can be seen as a trade-off between trust and cost. It also means that the
decision can be explained by agency cost theory and the outcome depends on
how risk averse the decision-makers are (Cheon et al., 1995; Eisenhardt, 1989b).
Agency cost theory was described in Section 5.2.4. However, it is not easy to
relate trust to cost, but arguably an organisation never adopts the ASP concept if
it does not trust another organisation. The next section discusses costs as a reason
for adoption or non-adoption of the ASP concept.

6.3.6 How cost influences the decision

The most heavily stressed reason by ASPs for adopting the ASP concept is the
possibility to reduce ICT costs compared with what the ICT costs would have
been if the customer had handled the ICT itself. Another cost-related reason
given by the ASPs is that the customer adopts the ASP concept because the
customer wants to be able to predict costs. None of these reasons are supported
as shown in Tables 6-6 (p. 127) and 6-7 (p. 128).

The following question was asked: to what extent do you agree that the following
criteria were fulfilled by the ASP concept? Eight criteria were presented and the
respondents were asked to state how each of them was fulfilled on a 7-point
scale. A seven implied that they totally agreed and a one that they totally
disagreed. The criteria and the result from this question are shown in Table 6-10.

Table 6-10 Results from the question about perceived results of ASP.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Stdev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better control of the costs</td>
<td>5.9</td>
<td>4</td>
<td>7</td>
<td>1.12</td>
</tr>
<tr>
<td>Better accessibility to the best ICT</td>
<td>5.7</td>
<td>3</td>
<td>7</td>
<td>1.25</td>
</tr>
<tr>
<td>Better support for the user</td>
<td>5.4</td>
<td>3</td>
<td>7</td>
<td>1.26</td>
</tr>
<tr>
<td>Lower service costs</td>
<td>5.2</td>
<td>2</td>
<td>7</td>
<td>1.57</td>
</tr>
<tr>
<td>Increased opportunity to implement ICT faster</td>
<td>4.7</td>
<td>2</td>
<td>7</td>
<td>1.97</td>
</tr>
<tr>
<td>Increased opportunity to integrate data/information from different systems</td>
<td>4.7</td>
<td>1</td>
<td>7</td>
<td>1.84</td>
</tr>
<tr>
<td>Lower cost of implementation</td>
<td>4.4</td>
<td>1</td>
<td>7</td>
<td>1.66</td>
</tr>
<tr>
<td>Lower costs of ICT</td>
<td>4.2</td>
<td>3</td>
<td>7</td>
<td>1.21</td>
</tr>
</tbody>
</table>

One of the factors that the service providers stressed heavily is that ASP will lead
to lower ICT costs. This statement got the lowest score. At least two alternative
explanations are possible. First, the customers expected that the costs would be
lower than they actually were. Second, the costs could also be higher than the
service provider promised them to be. Some customers stated in the survey that despite the fact that they had outsourced their ICT they needed to have expensive on-site support. Another finding related to cost control is that the control of ICT costs is improved. These two findings about costs of ICT can be compared with each other. When the customers have got better cost control they are able to see more clearly how high the actual costs are. This means that they can compare the actual costs with earlier erroneous cost estimates. This discussion can be compared with what both the horizontal and the vertical ASP stated about customers’ low awareness of ICT costs. This supports the statements from the ASPs that the customers are not aware of how much their ICT costs when they start thinking about the ASP concept. When they later on in the decision-making become aware of their ICT costs, a promise of lower costs probably becomes more important for the outcome of the decision. However, this can also be compared with the statement from the ASPs that despite the fact that the offer they give means up to 30 per cent lower cost for the same ICT the potential customer rejects the offer. The ASPs claim that potential customers have inadequate cost control and awareness of how much ICT costs, which makes the negotiation hard to finalise. According to the ASPs it is crucial for the outcome of negotiations that the customers analyse their present costs either themselves or let the service providers do that.

Gorla et al. (2002) claim that cutting costs is a main reason for external sourcing of ICT. This statement is not supported in the findings from the interviews and the questionnaire with the ASP customers. Costs and reduced costs are reasons that are not so dominant according to the ASP customers. This can be compared with a statement made by the vertical ASP, which says that the ASP concept does not fit organisations with more than 200 employees. The reason for this is that the fee runs too high and it is more profitable for those organisations to buy the software. This statement is contradictory to the basic idea of ASP providing services around the software application and not just the application. When comparing this statement with the findings in Table 6-6 and 6-7, it can be concluded that cost is not a reason that impacts the decision strongly. Instead the need for increased accessibility seems to be the reason. The primary reasons given by the ASPs are: first, customers choose to adopt the ASP concept because they will know what costs they have to pay for ICT each month; second, customers adopt the ASP concept because they cannot provide themselves with the same ICT at the same cost. This is quite contrary to the reasons reported by
the customers. SMEs in this study emphasise costs, but when it comes to the final decision, costs are not the primary reason.

What makes the customer decide to adopt the ASP concept? The reason that gets the highest score in Tables 6-6 and 6-7 is the need for an increase in accessibility. This is discussed in more detail in the next section, 6.3.7.

6.3.7 How the need for increased capability influences the decision

One of the propositions in Section 5.4 stated that the decision is impacted by a need to change ICT capability in the organisation. The ASP concept is seen as a way of improving ICT capability. This section discusses the organisations’ desire to increase their ICT capability and how this influences the decision on using the ASP concept.

Capability can be increased through integration of different software applications. A need for integration of different systems could therefore be seen as a reason for using the ASP concept. However, integration of systems is not seen as something the ASPs are good at according to their customers. Instead the interviewed ASP customers mention the problem of integration as a result of adopting the ASP concept. The description given in Chapter four by the manufacturing company Beta and the travel agency highlighted this problem. The conclusion is that the customers, when not using one and the same provider for their applications, have more problems with integration of their applications. Better possibility to integrate different applications is not put forward as a reason for adopting the ASP concept by ASP customers interviewed. Neither is it something that the ASP customers of the horizontal ASP rate high in the questionnaire. This indicates that the ASP concept is not adopted in order to increase an organisation’s ICT capability by integration of different software applications. This conclusion can be connected with the ongoing discussion about web-services and in that way act as a direction for how service providers should act in the future.

The question is if SMEs choose to adopt the ASP concept because they want and need to have better ICT and better support. The ASPs state that the customers choose them because they need to have access to better applications and better support. How customers judge if they have got better systems and better support is shown in Table 6-10. In the study of reasons it was asked if better ICT and
better support impacted the decision. The results are shown in Tables 6-6 and 6-7. It can be concluded that these two reasons got high scores. The only reason with a higher score in Table 6-7 is accessibility.

The reason for adopting the ASP concept that ASP customers declare as having the highest influence for the decision is accessibility. This is shown in Tables 6-6 and 6-7, (p. 128). An increase in accessibility can be related to two characteristics of organisations that the service providers claim make the ASP concept fit. First, the organisation needs to have accessibility to its ICT all around the clock. Second, the organisation’s business is conducted in a project manner, which means that they need to have access to certain kinds of applications during the time of the project. The accessibility reason reflects the view the ASP customers have of the ASP concept. They claim that the ASP concept should deliver the applications they need whenever they need them without the customer having to bother about how the applications work. They just want their ICT to work when they need it. This statement describes very well what accessibility is about and how the need to increase the organisation’s ICT capability influences the decision on using the ASP concept.

6.4 Chapter summary

This chapter had the aim of presenting answers to the research questions in the thesis. For that purpose the propositions presented in Chapter five have been used. The analyses that have been done are summarised in this section, where I present the key findings from the study in relation to the model presented in Figure 5-4. Before that I give a summary of what ASP is and how the decision is made.

6.4.1 Concluding what ASP is

Definitions of the ASP concept are vague and the abbreviation ASP is used in various ways. Customers of an ASP interpret ASP in different ways. Consequently providers who say they act as ASPs have problems with making all customers satisfied. SMEs can easily be confused when deciding on using the ASP concept. Arguably it is not an easy decision to make if the definition of the concept is unclear. The ASP concept differs from service bureau and ICT outsourcing in the way the provision is made, since application service provision
is made through a network connection and the Internet is emphasised as the way of delivering software applications.

Most definitions of ASP mention the providers. It would be more fruitful to talk about the products they deliver. Instead of discussing different kinds of ASP organisations the discussion should be on different kinds of products. Instead of giving definitions of providers the definition should be of provision. The difference is that the definition would emphasise products, services and distribution in one package, which is the main idea of the ASP concept.

The definition I gave as a working definition of ASP in Chapter one has not changed very much. However, in the final definition provision instead of provider is emphasised. The final definition is:

```
Application service provision is a way of having access to software applications through a network connection. The fee for the usage is based on pay as you use. It is a server-based architecture where the servers are maintained by an external partner.
```

6.4.2 Concluding how the decision is made

The study shows that the decision-making process deciding on using ASP involves high complexity. It has been found that the beginning of the decision-making process has two different angles. The first describes it as a decision that aims at fulfilling the SME strategy to concentrate on core competencies. The second is a desire to decrease the organisation’s ICT costs.

Irrespective of which of these two reasons started the decision-making process the next step in the process is to decide whether the provision of software applications needed should be handled internally or externally. The SMEs decide whether to buy, produce or rent software applications needed. One thing that increases the complexity of deciding on the ASP concept is that the decision involves renting a product and services at the same time. According to the service providers a typical negotiation takes at least half a year and often longer. All three providers emphasise the importance of investigating the present costs for the provision of ICT. They also emphasise the importance of discussing what kind of software applications the customer has and needs. The study shows that
the final choice of a partner as an ASP is mostly based on the reputation of that firm.

6.4.3 Concluding why to adopt the ASP concept

This section uses the propositions presented in Chapter five to structure the key findings from Section 6.3.

- **Benefits.** *Expected benefits from adoption of the ASP concept affect the outcome of the decision.*

The main benefit of the ASP concept which, according to the ASPs, influences the decision most is the possibility to decrease and have control of ICT costs. The ASP customers, on the other hand, argue that increased accessibility to their ICT is what influences the decision most.

- **Risks.** *Expected risks of adoption of the ASP concept affect the outcome of the decision.*

The risks that both the ASPs and the ASP customers emphasise as influential are related to concerns about control. The primary reason given by the ASPs for non-adoption concerns losing control and the fear of losing control. This kind of control is not put forward by the ASP customers. Instead they mention concerns about the communication link as a reason for non-adoption.

- **Strategy.** *The overall business strategy of an SME acts as the basic input for the decision.*

It is found that an SME’s business strategy influences the first step in the decision-making process to a great extent. This is described by the ASPs as one of two reasons for an SME to start thinking of the ASP concept. It can be concluded that the decision on using the ASP concept is a strategic decision. Decision-makers who decide on using the ASP concept are more strategic than non-adopters and are more risk-averse.

- **Core competence.** *The organisation’s view of ICT as part or not part of the organisation’s core competence influences the decision.*
The intention of customers to focus on core competence was expressed as an important reason for adoption of the ASP concept by the ASPs. However, if an organisation’s ICT is handled internally or externally does not alone offer the organisation competitive advantage. This indicates that even if ICT is seen as part of the organisation’s core competence it can be outsourced and offer competitive advantage if the ICT is managed and used in a professional way. Arguably judging what is core competence and what is not is a difficult task, which means that core competence is not a useful construct when analysing the decision-making process.

- **Trust.** The question of trust in the ASP concept is an important factor in the decision-making.

It can be concluded that trust in this context is expressed as an organisation trusting another organisation to have access to its data. It is also about trusting another organisation to be able to deliver the ICT needed and service related to that ICT. This means that the decision can be seen as a trade-off between trust and cost. It also means that the decision can be explained by agency cost theory and the outcome depends on how risk averse the decision-makers are.

- **Costs.** The cost perspective expressed as cost efficiency acts as input for the decision. The decision is seen as a trade-off between costs of different options.

The primary reasons given by the ASPs are: first, customers choose to adopt the ASP concept because they will know what costs they will have to pay for ICT each month; second, customers adopt the ASP concept because they cannot provide themselves with the same ICT at the same cost. This is quite contrary to the reasons reported by the customers. SMEs in this study emphasise costs, but when it comes to the final decision, costs are not the primary reason.

- **Capability.** The decision is impacted by a need to change ICT capability in the organisation. The ASP concept is seen as a way of improving ICT capability.

The finding from the questionnaire and the interviews with ASP customers is that a wish to increase ICT capability plays a very important role when deciding on using the ASP concept. The ASP customers express this as the need of having
increased accessibility to its software applications. They claim that the ASP concept should deliver the applications they need whenever they need them without the customer having to bother about how the applications work.

The study reveals the disparate views of what influences the prospective customer to adopt the ASP concept. The service providers express it as a wish from the customer to decrease costs and increase the predictability of costs. This statement can be related to the two constructs strategy and capability. The customers on the other hand express it as a wish to increase accessibility. This can be related to the two constructs core competence and capability. Despite the fact that the two parties in this cooperation have different views on why to use ASP, it can be assumed that this is a question of semantics. The constructs strategy and core competence can be said to be closely related to each other. The cost perspective and accessibility are also closely related to each other. This is shown in the statement made by the service providers, who claim that if the customers could handle the costs they could provide themselves with the accessibility they need.

The next chapter, Chapter seven discusses the contributions of the study to ASP research.
7 Contributions and further research

The aim of this final chapter is to discuss if and how the objectives of the research have been achieved. It does so by presenting contributions of the research. The objectives of the research were to bring answers to the question how small and medium-sized enterprises (SMEs) decide on using an application service provider (ASP) for the management and support of ICT. This question was broken down into the following subquestions: 1) what is ASP? 2) how is the decision made? and 3) why or why not use the ASP concept? For each of these subquestions answers were discussed and presented in Chapter six. This chapter will present the research contribution giving some practical as well as some academic implications developed from Chapter six. It also discusses limitations of the study as well as validity, reliability and the possibility to generalise from the findings. An evaluation is presented using the seven principles proposed by Klein & Myers (1999). Finally some thoughts about future research are introduced.

7.1 Theoretical contributions

Much of the research on the ASP concept focuses on the provider as such. This research instead emphasises provision. It does so by taking the perspective of customers when describing the decision-making process. The research shows how decisions are made in SMEs when it comes to deciding on using the ASP concept. This research is connected to research about decision-making. There is much research about decision-making on sourcing decisions. However, more research about decision-making is needed. The reason for this is expressed by Baldwin et al. (2001), who claim that research on decision-making is important so that others can learn from it. It can also be stated that research on decision-making in SMEs related to sourcing decisions are sparse. This thesis has given new knowledge in this area. In that way this research can be seen as exploratory, acting as a starting point for further research of the ASP concept and decision-making processes when SMEs decide on using ASP.

Another statement that has been made about research of the ASP concept is that it would benefit from being studied from several perspectives. This thesis uses several theories and models and as such it can be seen as theory-testing. The
result was a model shown in Figure 5-4 and a set of propositions described in Section 5.4. These were tested in Chapter six, and arguably it was fruitful to combine the theories. It would probably not have been possible to come to the main conclusion in this study without a multiple perspective.

The main conclusion of the study is the disparate views of what affects the adoption or non-adoption of the ASP concept. This can be summarised as follows. The ASPs cite cost control and the ability to decrease the cost as motives for decisions by SMEs. The clients mention three main reasons for adopting the ASP concept:

- First, a wish to increase ICT capability plays a very important role when deciding on using the ASP concept. The ASP customers express this as a need to have increased accessibility to their software applications.

- Second, maintenance of ICT is not their core competence, and they want a convenient solution for their ICT.

- Third, the adoption is an effect of the organisation’s overall business strategy.

These findings contradict the primary reason that cost control and lower cost induce an organisation to become an ASP client. In the first place this seems to be the reason but an in-depth study of the decision gives a profound understanding of decision-making by SMEs, and the cost perspective is found to be secondary. These contributions could be said to be both theoretical contributions as well as practical contributions. The next section discusses practical implications in more detail.

7.2 Practical implications

By noting the disparate views of what influences the decision, both provider and client can gain considerable knowledge. The result of the study indicates how service providers should handle their marketing as well as how they should handle the inter-organisational relationship with their customers. It also indicates how SMEs should handle their decision-making on adopting or not adopting the ASP concept and what factors are important to emphasise in the decision-making
Contributions and further research

process. The finding also gives input into how ASP customers should handle the relationship with ASRs.

It can be suggested that providers should focus more on the operational level when having contacts with their customers. This means that they would benefit from being more active in the customers’ business and in that way suggest improvements in the use of software applications in customer organisations. However, service providers also need to be more proactive in the relationship with their customers. In contradiction to this the customers should benefit from seeing the ASP concept more as an important strategic option. This means that they should emphasise the relationship with the service provider and not just have contact with the service provider when there are problems with, for instance, the software application. By treating the relationship as a strategic partnership ASP customers would benefit more from the ASP concept.

Accessibility is heavily emphasised by customers as a reason for adopting the ASP concept. Increased accessibility is also seen as one of the main benefits of the ASP concept. However, among customers there is an opinion that they do not have the accessibility they were promised. They doubt that accessibility is measured in the right way. They think the figures on accessibility presented by the service providers are not reliable. A reason for this is that service providers investigated do not manage the network connection by themselves. This is something that service providers have to deal with. This can be done either by adopting a more active role in the network connection or by being clearer about how they measure and control the network connection. In order to have a stable and lasting relationship with customers it is not enough to measure the time the servers are available without at the same time controlling the network connection. Finding methods for how to measure accessibility and explain how it is measured should be an ambition for service providers.

From the discussion about definitions of the ASP concept two conclusions can be drawn when it comes to descriptions of application service provision and application service providers:

- First, descriptions should be expanded by a clearer discussion about the products that are delivered.
• Second, descriptions should be clearer concerning whether the software applications are developed by the service provider or not.

This would make it easier for a potential customer to make a choice between different service providers. For customers this means that after the decision on using an ASP they know if they are also dependent on a third party or not.

The ASP concept has had a low uptake among SMEs. One reason could be that it was too promising at first and there were applications that did not function as promised in the ASP concept. The result from this was that the ASPs started to deliver ASP services as services hosted at the customer’s place, which means that the original ASP concept became blurred. Another reason for the low diffusion of ASP could be the dotcom collapse and the impact this had on investments in ICT. If this is the reason one can suspect that things will change and that we will see an increase in the use of the ASP concept in the future, but this will only happen if the ASPs show profit and if the applications they offer are needed by SMEs. However, it also demands that the new ways of providing ICT at a distance over a network are trusted.

The promises of the ASP concept have not been completely fulfilled. As a reaction there have been some negative perceptions of the ASP concept, which is why some ASPs want to get rid of the ASP label. At the same time as customers of service providers seem to be very satisfied with the ASP concept and the services, they claim that the ASP concept has not really met their expectations. One expectation that has not really been met is the one related to costs and cost reduction. A more realistic promise of lower costs for ICT and a focus on other benefits of the ASP concept can probably help it take off.

7.3 Limitations of the research

The low number of respondents when it comes to customers can be seen as a limitation of the study. In Chapter two I discuss the use of an approach that would have involved using a broader customer survey. The reason for not doing so was twofold. First, this is not a common approach in the community I am part of. Second, I had not at that time the necessary knowledge to conduct a survey. However, these two reasons were not the main reason for the choice. Instead, the decision to use interviews was mainly based on the assumption that if I had carried out a broad survey asking SMEs why or why not use the ASP concept, I
would probably have got many answers stating that they did not know what the
ASP concept is about. I have since then developed more skills in doing surveys. I
have also gained more knowledge about what is possible in a survey. This
implies that if I had the possibility to do the research once again the survey
approach would perhaps have been the way I planned it. However, the
development of the questionnaire was dependent on the initial interviews, which
indicates that it would not have been possible to develop the questionnaire
without doing the interviews first.

The initial plan for the research was to make more interviews with customers.
However, the difficulties with having access to customers resulted in a survey.
This could be seen as a major weakness of the study. But it can also be seen as a
major strength of the study. If I had not been more or less forced to do the survey
I would not have gained the knowledge about doing surveys. The result from the
survey also made it possible to triangulate the findings and deepen the findings
more than a couple of interviews might have done. The survey was developed
from the initial data collection and the literature survey which facilitated well
developed questions, formulated so that it was possible to have information-
richness from the questionnaire. One of Patton’s (1990) statements about
choosing cases is that they should be information-rich. The conclusion I draw
from doing the survey and evaluating the findings is that it would have been
difficult to obtain so much information from interviews. In order to have the
same amount and the same richness of information I would have had to do
interviews with all customers and that would not have been possible to do with
the same time limit.

Another limitation deals with the question of saying something about the
decision not to adopt the ASP concept. To do that it would have been fruitful to
study an organisation that made that decision. In order to say something about
non-adoption I use information from the service providers as well as notions
from the customers. At the beginning I planned to follow a specific SME in its
decision-making process. The reason for not doing so relates to the problem with
access to customers. It was of value to the ASPs that I did the research but when
it came to providing with names and addresses of customers it was more
difficult. However, with the knowledge I now have it would have been easier to
have access to customers, but when the research started I did not have enough
knowledge to conduct such a study. Instead of following an on-going decision-
making process I have looked back on the process. The risk with this is possible lack of accuracy in reported data from decision-makers, since interviewees spoke from memory. However, by being aware of this risk it can be avoided.

The last limitation of the research that has to be discussed is my use of several theories and models. I wanted to have a broad base for the analysis. This means that the research is broader than it would have been if I had chosen one single theory. However, if my choice had been one theory I would have acquired deeper knowledge, but that knowledge would have been more restricted in that specific theory’s domain; for instance, if I had chosen to use only transaction cost theory the conclusion would probably have been that the cost perspective is dominant in the decision-making process.

7.4 Evaluating the thesis

This section uses Klein & Myers’ (1999) seven principles for evaluating interpretive field studies; the principle of the hermeneutic circle, the principle of contextualisation, the principle of interaction between the researcher and the subject, the principle of abstraction and generalisation, the principle of dialogical reasoning, the principle of multiple interpretations and the principle of suspicion, to discuss and evaluate the research.

The first and, according to Klein & Myers, overarching principle that guides the rest of the principles is the principle of the hermeneutic circle. In my work the principle of going from the whole to the part and from the part to the whole has been an important principle. An example of this is, for instance, the relation between outsourcing and the ASP concept. I started to study outsourcing and then found that the ASP concept can be seen as a part of outsourcing, so in order to understand the ASP concept I have studied outsourcing, but to understand outsourcing I have studied the ASP concept. This can also be exemplified by the empirical studies made; in the first interview, for instance I started with the question “What is ASP?” In the following interview with the same provider I returned to the same question. This indicates that I have changed between “the parts and the whole” in my work.

The second principle is the principle of contextualisation. This means that the subject that is under study is set into its social and historical context. The objective of this is according to Klein & Myers to give the intended audience a
description of how the current situation under investigation emerged. In the thesis I have done this by presenting the roots of the ASP concept in Chapter one and Chapter three. I also provide the context of the subject by describing the examined service providers and customers in Chapter four. The difficulty that Klein & Myers highlight with this contextualisation is that an interpretive researcher seeks to understand a moving target. In this research the subject has been the “ASP decision-making process”, that can clearly be seen as a moving target.

The third principle, which is the principle of interaction between the researcher and the subject, indicates that the researcher must be aware that the data are not just waiting to be collected. This implies that the researcher partly creates the data in cooperation with the respondents. In this study it has been the case to a smaller degree. One example of how data were created in interaction with the respondents was when I asked one ASP customer if irreversibility of the decision could not be seen as a reason for not adopting the ASP concept. The answer he gave first was that he had not thought about the risk of adopting the ASP concept in that way. He then constructed an answer from this question where he stated irreversibility as a reason for non-adoption. However, by being aware that the respondent just as much as the researcher is an interpreter and analyst the interaction between me and the subject has been controlled.

Principle four is the principle of abstraction and generalisation. Klein & Myers (1999) relate this to questions of validity, reliability and generalisability.

- Validity.

Yin (1994) discusses three different kinds of validity, construct validity, internal validity and external validity. Validity should be seen as when the “thing” that is supposed to be measured is measured (Lundahl & Skärvad, 1999). The interviews were validated by follow-up questions to the respondents. The survey resulted in a report that was presented to the customer and the service provider. This can also be seen as a way of increasing validity. According to Yin internal validity concerns only studies that have an ambition of explaining a causal relationship which is not the case in this study. External validity deals with the problem of knowing whether the findings are generalisable or not. This is discussed under generalisability.
• Reliability.
Reliability has to do with showing whether a study such as this can be repeated with the same conclusions. To warrant that I have presented in Chapter two, in my view, a rich description of how the study was conducted. The use of three different service providers and related customers can also be seen as a way of increasing reliability. It is, however, important to remember when discussing reliability that the conclusions build on interpretation, which means that the same data and the same findings could be interpreted in another way by someone else.

• Generalisability.
Yin (1994) discusses two different kinds of generalisation, analytical generalisation and statistical generalisation. What can be said about generalisation in this study is that it can hardly be claimed to be able to provide statistical generalisation. There are two reasons. First, the sample in the survey is much too small. Second, the decisions as such in an organisation are influenced so much by various factors that a decision in one organisation differs much from a decision in another organisation, even if the decisions are about the same thing. This leads to the second type of generalisation, analytical generalisation. Analytical generalisation means that the researcher strives to generalise a specific set of results into a theory. I do that by relating my conclusion in Chapter six to theories presented in Chapter five, which means that the result can be said to be analytically generalisable.

The next principle is the principle of dialogical reasoning. This means, according to Klein & Myers, that the researcher should report the philosophical direction of the research. For that purpose I give a fairly rich description of fundamental philosophical assumptions in Chapter two.

Principle six is the principle of multiple interpretations. Results from an interpretive case study such as this can certainly be interpreted in various ways. This principle was one reason why I made the choice to use several theories and models in my investigation and analysis of the data. The different theories have acted as input to different interpretations of the data. This principle is related to the question of reliability which has been discussed above. However, it can be stated that it is natural in this kind of studies, interpretive case studies, that there
can always be more interpretations. This discussion is also related to the next principle.

The final principle is the principle of suspicion. This principle states that this kind of study should be influenced and encouraged by some form of critical thinking. In my case I have tried to be critical of what the respondents have told me as well as of my own interpretations and asked myself if I or they are biased in any way. It could also be seen as being critical of and question theory. This has also influenced my choice of using several theories.

7.5 Future research

Further research in this subject can be directed in at least three ways:

- Replication of the study.

First, a replication of this study, where the researcher follows the entire process in SMEs from the first thought of deciding on using the ASP concept to the start of using it (or deciding not to use it) could be fruitful. In this case the construct and the model presented in Chapter five could be an excellent guide for the researcher to conduct the investigation. This could deepen the knowledge of what factors influence and how they influence the decision of adoption or non-adoption of the ASP concept. It would also be interesting to do this kind of survey in SMEs that have used the ASP concept but have decided to bring back their ICT resources and handle them by themselves.

- A broader survey among SMEs.

Second, a broader survey among ASP customers could also be fruitful with the aim of understanding why they have chosen to become ASP customers. This would also be a replication of this study, and the survey used in this study could be used again. In that case the questionnaire could to some extent be developed and improved by the findings in this thesis. A replication could also benefit from studying larger samples as well as from longitudinal in-depth case studies. Such studies could answer questions such as whether perceived experience of services from an ASP changes over time.
• A study of inter-organisational relationships.

Third, the result from this study shows that there are disparate views among the suppliers and the clients of what made SMEs decide to use the ASP concept. These disparate views indicate that there may be disparate views of how the relationship between the different parties should be handled. The research could in that case be guided in at least two different directions. The first can be to look at what kind of relationship there exists at the moment and from that draw conclusions concerning how to maintain the inter-organisational relationship. This means that the research will focus on the ASP business model and as such also emphasise the use of third-party firms in the model.

The other direction is to create some kind of guidelines from the findings in this study for how to maintain the inter-organisational relationship and then test these guidelines in practice. It can be claimed that the inter-organisational relationship should be developed and managed in a certain way. This means that the findings in this thesis give input to the development of a framework that can guide both partners in the inter-organisational relationship on how to develop and manage the relationship. In that case the research should be some kind of action research and the guidelines should be created in cooperation with the service provider. The researcher then takes part in the implementation of the guidelines. In that case it would be interesting to study service provision of software applications that are of great strategic importance in the customer organisation such as, for instance, enterprise resource planning (ERP) systems.
References


Deciding on Using Application Service Provision in SMEs


Johansson, B. (2003c) Exploring Application Service Provision: Adoption of the ASP concept for provision of ICTs in SMEs. In the proceedings of the IFIP WG.8.6 conference. Copenhagen, Denmark, 6-8 October 2003.


Deciding on Using Application Service Provision in SMEs


Deciding on Using Application Service Provision in SMEs


Aspindustry.org. 20030510.


20020821.


Appendix A: Questionnaire to customers of the HASP

Survey of experiences and thoughts about renting ICT and software applications from an external provider

Question 1.
Which of the following categories best describes of your organisation?

☐ Public sector

☐ Service organisation

☐ Manufacturing

Question 2.
Which of the following categories best describes your customers?

☐ Almost only private persons

☐ A mix of private persons and enterprises

☐ Mainly enterprises

Question 3.
Do you do business in different geographical locations?

☐ Yes

☐ No

If yes, how many locations? .
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**Question 4.**

Do you rent ICT from several providers?

- [ ] Yes
- [ ] No

If yes, would you like to answer a questionnaire for those? In that case please contact me (Björn Johansson, 036-15 75 81) so that I can send you a copy of the questionnaire. The rest of this questionnaire should be answered with regard to your cooperation with the HASP company.

**Question 5.**

Do you rent operation of ICT developed by other suppliers (excluding the HASP)?

- [ ] Yes
- [ ] No

If yes, please state what or how many (excluding the HASP)?

__________________________________________________________

**Question 6.**

Are you familiar with the ASP concept (Application Service Provider)?

- [ ] Yes
- [ ] No

If yes, what does ASP mean to you?

__________________________________________________________
Question 7.

How many employees are there in your organisation?

________________________________________________________________________

Question 8.

How many employees use rented ICT?

________________________________________________________________________

Question 9.

Which of the following categories of employees use rented ICT?

☐ Administrative personnel

☐ Factory workers

☐ Service staff

☐ Other employees, please specify below

________________________________________________________________________

Question 10.

Are there any employees in your organisation that work with ICT-related issues such as, for instance, development of ICT, maintenance of ICT, support of ICT or administration of ICT?

☐ Yes

☐ No

If your answer is yes, could you please specify how many and what they work with?

________________________________________________________________________
**Question 11.**

What year did your organisation start to rent ICT operations?

---

**Question 12.**

Which software applications do you rent, do you not rent, or not use?

<table>
<thead>
<tr>
<th>Rent</th>
<th>Do not rent</th>
<th>Do not use</th>
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<tbody>
<tr>
<td>☐</td>
<td>☐</td>
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</tbody>
</table>

Office suites (MS Office)
e-mail systems
ERP systems
e-commerce
Web-site
Payroll systems
Accounting systems
Finance systems
MPS systems
CRM systems
CAD/CAM systems
Video conferencing systems

Do you rent any other software applications (please specify below)
Question 13.

Which were the main reasons that made your organisation adopt the ASP concept? Please rank the three most important.

1. Decreased ICT costs  Most important  ——
2. Predictable ICT costs  Second most important  ——
3. Improved accessibility  Third most important  ——
4. Improved ICT systems
5. Better support
6. Access to more knowledge of ICT
7. Difficulties to employ ICT-skilled personnel
8. Lack of ICT-skilled personnel
9. The organisation’s overall strategy
10. Other reasons (specify below)

Question 14.

Which of the following reasons motivated the decision to adopt the ASP concept? Please state the importance of each reason.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Not important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3  4  5  6  7</td>
<td></td>
</tr>
</tbody>
</table>

A. Decreased ICT costs.  1  2  3  4  5  6  7
B. Predictable ICT costs.  1  2  3  4  5  6  7
C. Improved accessibility.  1  2  3  4  5  6  7
Deciding on Using Application Service Provision in SMEs

D. Improved ICT systems. 1 2 3 4 5 6 7
E. Better support. 1 2 3 4 5 6 7
F. Access to more knowledge of ICT. 1 2 3 4 5 6 7
G. Difficulties to employ ICT-skilled personnel. 1 2 3 4 5 6 7
H. Ability to increase the employees ICT knowledge. 1 2 3 4 5 6 7
I. Lack of ICT-skilled personnel. 1 2 3 4 5 6 7
J. The organisation’s overall strategy. 1 2 3 4 5 6 7
K. Other reasons (please specify below).

Question 15.

Do you agree with the following statements about internal ICT development as opposed to external ICT development done by an ASP?

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
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<td>Strongly agree</td>
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<tr>
<td>A. Internal ICT development offers a better way to get needed ICT</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>functionality.</td>
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<tr>
<td>B. Internal ICT development is a better way to avoid being dependent on</td>
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<td>7</td>
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<tr>
<td>network failures.</td>
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</tbody>
</table>

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Appendix A: Questionnaire to customers of the HASP

C. Internal ICT development offers less of a threat of ICT becoming obsolete. 1 2 3 4 5 6 7

**Question 16.**

How does outcome of using the ASP concept agree with your expectations? What is better than expected and worse than expected for the following statements?

<table>
<thead>
<tr>
<th>Argument</th>
<th>Better than expected</th>
<th>Worse than expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Long implementation period.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>B. Integration between applications.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>C. The applications follow the ICT development.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>D. Problems with the network connection.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>E. Security in external ICT operations.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>F. Control of data and information.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
**Question 17.**

Do you agree that the following statements are important for the decision to choose a specific application service provider?

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The provider should attend to all our ICT needs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. The provider should be a profitable and stable company.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>C. The provider should have experience in our business area.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Question 18.**

Do you agree that the following statements are important for the decision to choose a specific provider?

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. The provider should have systems for tracking and ensuring that the promised functionality is delivered.</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>B. The provider should have SLAs that regulate reliability and security in the network.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>C. The provider should have SLAs that stipulate response time for the applications.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
Question 19.

Do you agree that the following criteria have been fulfilled with the external provision of ICT?

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Lower costs for implementation.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>B. Lower costs for ICT.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>C. Better control of costs.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>D. Lower costs for services.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>E. Better accessibility to the best ICT.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>F. Better support to users.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>G. Increased opportunity to implement ICTs faster.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>H. Increased opportunity to integrate data/information from different systems.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

Question 20.

Do you agree with the following statements about renting ICT hosting?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
Deciding on Using Application Service Provision in SMEs

A. Our organisation is satisfied with the security offered by the ASP. 1 2 3 4 5 6 7

B. Our organisation is satisfied with how privacy is handled by the ASP. 1 2 3 4 5 6 7

C. Our organisation is willing to share workload and information with the ASP. 1 2 3 4 5 6 7

D. Our organisation is satisfied with how the ASP informs us. 1 2 3 4 5 6 7

E. Our organisation is satisfied with how the ASP handles the ICT hosting. 1 2 3 4 5 6 7

Question 21.

Are the ICT that you rent of strategic importance for your organisation?

☐ Yes

☐ To a certain degree

☐ No

Other comments or viewpoints.

All answers will be kept in strict confidence. Your anonymity is guaranteed.
Deciding on Using Application Service Provision in SMEs

Björn Johansson

The use of external providers for the provision of information and communication technology (ICT) in small and medium-sized enterprises (SMEs) is expected to increase. At the end of the 1990s the concept of Application Service Provision (ASP) and Application Service Providers (ASPs) was introduced. This is described as one way for SMEs to provide themselves with software applications. However, it can be stated that the concept has not taken off. This study examines what reasons influence the decision-making when deciding to use or not use ASP. The research question is: How do SMEs decide on using an Application Service Provider for the provision and maintenance of ICT? In order to answer the question decision-making processes in SMEs have been investigated in an interpretive case study. This study consisted of mainly semi-structured interviews that were done with three different ASPs and customers related to them. It also consisted of a questionnaire to the customers of one of the service providers. The analysis was then made as a within-case analysis, consisting of detailed write-ups for each site. The interviews and a literature survey of the ASP concept and theories that have been used to explain the ASP decision-making process generated seven constructs. From the presented and discussed theories, models and proposed constructs seven propositions were formulated. These propositions were used for the analysis and presentation of the findings in the study. The main conclusion of the study is the disparate view of what affects the adoption or non-adoption of the ASP concept. The service providers express the decision as a wish from the prospective customer to decrease costs and increase the predictability of costs. The customers on the other hand express it as a wish to increase accessibility; the cost perspective is found to be secondary.
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Towards Unanticipated Runtime Software Evolution.

Visualization of Dynamic Multibody Simulation With Special Reference to Contacts, 2003.


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<th>No</th>
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<tr>
<td>1034</td>
<td>Arja Vainio-Larsson</td>
<td>Designing for Use in a Future Context - Five Case Studies in Retrospect</td>
<td>2003</td>
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<tr>
<td>1033</td>
<td>Peter Nilsson</td>
<td>Svenska bankers redovisningsval vid reservering för befarade kreditförluster - En studie vid införandet av nya redovisningsregler</td>
<td>2003</td>
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<td>69</td>
<td>Fredrik Ericsson</td>
<td>Information Technology for Learning and Acquiring of Work Knowledge</td>
<td>2003</td>
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<tr>
<td>1049</td>
<td>Marcus Comstedt</td>
<td>Towards Fine-Grained Binary Composition through Link Time Weaving</td>
<td>2003</td>
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<td>1052</td>
<td>Åsa Hedenskog</td>
<td>Increasing the Automation of Radio Network Control</td>
<td>2003</td>
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<td>Claudiu Duma</td>
<td>Security and Efficiency Tradeoffs in Multicast Group Key Management</td>
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<td>1055</td>
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<td>2003</td>
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<td>Towards Formal Verification in a Component-based Reuse Methodology</td>
<td>2003</td>
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<td>73</td>
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<td>2004</td>
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<td>1079</td>
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<td>Design and Development of Recommender Dialogue Systems</td>
<td>2004</td>
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<td>1084</td>
<td>Charlotte Stoltz</td>
<td>Calling for Call Centres - A Study of Call Centre Locations in a Swedish Rural Region</td>
<td>2004</td>
</tr>
<tr>
<td>74</td>
<td>Björn Johansson</td>
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<td>2004</td>
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