

Chapter 9

EXPLORING APPLICATION SERVICE PROVISION

Adoption of the ASP concept for provision of ICTs in SMEs

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Abstract: The paper provides an exploratory empirical survey of Application Service Providers (ASPs) and their clients. The research question is: what do Small and Medium-sized Enterprises (SMEs) base their decision on when adopting the ASP concept? The concept, ASP, consists of software vendors, and an ASP enterprise, which act as a third part firm in a business model. For its clients it forms a strategy to “buy-in” applications and organize maintenance for their Information and Communication Technology (ICT). The ASPs report cost control and lower cost as motives for SME’s decision to adopt the ASP concept. The clients do not emphasize these reasons. However, a closer examination of the decision shows that the cost perspective is secondary to SMEs. The study identifies three main reasons for clients to adopt the ASP concept: core competence, a lack of skilled personnel and the organizations overall strategy.

Key words: Adoption of Application Service Provision, SMEs.

1. INTRODUCTION

The use of Application Service Providers (ASPs) as a provider of Information and Communication Technology (ICT) has been expected to grow a lot. ASPs are often seen as a way for Small and Medium-sized Enterprises (SMEs) to get the possibility to use ICTs to increase their effectiveness and efficiency. At the same time the ASPs struggle with the fact that their inflow of new customers is low. Most reports about the ASP concept are predictions about the growth of the market for ASPs. Kern et al. (2001), for instance, mention that there were over 1,000 companies that

claimed to be ASPs during the second quarter of 2001. This can be compared with Lacity & Willcocks (2001) who say that only 200 firms fitted the ASP definition by mid-2000. Lacity & Willcocks (2001) predict that the ASP market will rise from US\$ 150 million in 1999 to between US\$ 11.3 billion and US\$ 21 billion by 2003. Firms such as Gartner Group, IDC and Ovum forecast potential market sizes of up to US\$132 billion by 2006 (Kern et al., 2001).

Although the ASP concept is often seen as an exhausted trend, it is commonly considered here to stay. But the question often asked is whether customers have a demand for ASPs? Our impression is that there is a lack of customers. Gartner Group in 2000 (Kern et al., 2001) predicted that 60 per cent of the ASPs will be out of business.

A few words about the abbreviation ASP might be in order. ASP can be used in different ways. And here are some of its different meanings. It is often used as identification of some enterprises acting as service providers, or as a concept. This means that ASP describes the whole idea about delivering and buying ICT services from an ASP enterprise. ASP is also described as a business model, where the service provider organization is seen as a third part firm, delivering software applications from independent software vendors. The ASP business model thus consists of suppliers and clients where the ASP enterprise acts as both supplier and client. ASP can also be seen as a product, which service providers sell to their customers'. Another way of using ASP is to label it as a strategy. As such, ASP can be viewed as a way for clients to provide themselves with services, and the action that customers take when they use a service provider for the delivery of their applications. In this paper ASP is used with these different meanings, which are indicated separately. But generally speaking, ASP is used as a term for the enterprises that deliver the services.

The aim of this paper is to present and discuss findings from a pilot study on the reasons that spur an SME to adopt the ASP concept. It also describes the reasons ASPs cite for SMEs to adopt the ASP concept. The findings are compared with the literature addressing these reasons.

The paper starts with a short introduction to the ASP concept. Section three discusses the reasons SMEs give to adopt or discard services from ASPs as reported in the literature. Section four presents three ASPs and three related clients. The final section summarizes and discusses the results.

2. THE CONCEPT OF APPLICATION SERVICE PROVISION

The ASP concept can be seen as selective ICT outsourcing. The outsourcing market is vibrant and receives a great deal of attention. Outsourcing is not a new phenomenon. As early as mid-1960s there were computer service bureaus, which ran a variety of systems for external clients (McFarlan & Nolan, 1995). These systems were mainly financial and operational applications. And ever since Kodak decided to rent its ICT resources from an external partner in 1989, there has been a trend towards ICT outsourcing (Hirschheim & Lacity, 2000). Many large companies have decided to transfer their ICT assets, leases, and staff to a third part (Lacity & Hirschheim, 1993). The degree of ICT outsourcing varies a lot. Some companies outsource just a few ICT functions while others outsource their entire ICT operations (McLellan et al., 1998). In recent years we have seen in the outsourcing market a growing number of ASPs start-ups and companies offering their products and services through the ASP concept.

The core of the ASP concept is for the ASPs to offer applications to external customers. The applications can be IT-related, but they are not the only thing that ASPs can offer. An ASP enterprise can, for example, also be some kind of information broker. Puelz (2001) describes an ASP enterprise that benchmarks data from 16 financial institutions. However, the most common way to describe ASPs is as providers that offer software applications, which they manage and deliver to external clients (e.g., Cherry Tree, 2001; Kern et al., 2001; Currie & Seltsikas, 2000). The clients then use the application in their own businesses, where the types of software applications are in areas such as web site hosting, payroll/billing, e-mail, e-commerce and ERP applications.

Kern et al. (2002a) describe the difference between an ASP option and other ICT sourcing options. They mention four general ICT sourcing models: insourcing, buy-in, traditional outsourcing and the ASP option. The difference between an ASP option and the other ICT sourcing models is that the resource ownership is on the supplier side. The ASP option is also a one-to-many supplier to customer relationship. Kern et al. (2002b) select the term *netsourcing* as the overarching name, because the common element in the ASP option is the delivery of a product or service over a network. The primary product an ASP enterprise delivers is remotely managed business applications.

The ASP concept here is defined as *an ASP enterprise – 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 “buy-in” applications and organizing ICT maintenance.

Having defined ASPs and the ASP concept, the remaining question is: what reasons are there for SMEs to adopt or drop the ASP concept?

3. REASONS FOR ADOPTING OR IGNORING THE ASP CONCEPT IN SMEs

Kern et al. (2001) point out three reasons why an SME should adopt the ASP concept. First, even though a package software license 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. Lastly, the 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. The ASP concept can also be seen as a way for SMEs to take advantage of the rapidly changing opportunities in ICT (e.g. Turban et al., 2001; Currie & Seltsikas, 2000). An ASP enterprise can assist SMEs with ICT skill, especially in the development and software maintenance areas (Kern et al., 2001). Dewire (2001) argues that there are eight different conditions for an organization to adopt the ASP concept. They are: if there is a need for flexible ICT infrastructure; if the organization cannot afford a huge IT capital outlay; if it does not have the necessary capital resources; if it needs to scale its ICT infrastructure quickly; if it needs to switch to another environment in the near future; if it needs to deploy applications rapidly; if the organization finds it difficult to attract and retain ICT staff; and finally, if ICT is not a core competency.

The close connection between ICT outsourcing and the ASP concept makes it possible to increase the knowledge about reasons for adopting the ASP concept by comparing it with reasons for ICT outsourcing. One commonly quoted reason for ICT outsourcing is the provision of 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). One of the ideas with the ASP concept is to make it possible to have a short-term agreement. According to Lee (2001), outsourcing is motivated by strategic, economic and technological benefits. Shepherd (1999) argues that for the majority of organizations the motives for ICT outsourcing could be summarized as a combination of financial restructuring, reducing or stabilizing costs, overcoming cultural and

organizational problems, concentrating on core competencies and accessing world-class expertise.

McLellan et al. (1998) give five groups of reasons for ICT outsourcing: financial motivations, the internal IT department does not respond to organizational needs, strategic motivations, to improving long-term business performance and to facilitating strategic change. Whether an organization should outsource its ICT or not is principally a question of what strategy the organization has (Weill & Broadbent, 1998).

According to De Loof (1995), external suppliers of ICT sourcing do predict large cost reduction, improvements in quality and higher responsiveness if customers hand over their ICT function to them. He also states that reports from outsourcing are often overly optimistic. The result is that many organizations are in doubt if there are any benefits for them with outsourcing. Udo (2000) says that there is a trend among organizations today to classify ICT functions into two categories according to the kind of services they deliver, commodity services and strategic services. Udo (2000) maintains that commodity services can be outsourced without any qualms, but strategic services should never be outsourced. However, Udo reports Lacity & Hirschheim (1993) as mentioning that this categorization can lead an organization to acute problems in the future. The reason is that commodity services at present can be of high strategic importance for the organization in the future. According to Udo (2000), the outsourcing providers state that outsourcing has the following benefits:

- A predictable ICT budget is gained by tying it to actual requirements. This budget is then not dependent on which hardware and software that are present in the organization.
- A lower cost for ICT, which means cost savings compared to both the current as well as the future expenditures of ICT equipment.
- Access to technical resources and technical skilled personnel are increased
- The organization can focus on core products and services, and does not have to handle operational issues.
- The organization's fixed costs for ICT can be exchanged to variable costs, which means that it is possible to invest this capital in core business.
- By outsource the risks in development applications are spread with the technology partner.

But as stated above, Udo (2000) also claims that some observers believe that outsourcing has more disadvantage than advantages. The following potential disadvantages are reported:

- There is a lack of chemistry between the partners
- Reliance on another party for the organization's critical information.

- Loss of capability, which in the future can be a key success factor.
- 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 as a consequence loss of memory in the organization.
- Decline in morale and performance of the remaining employees.
- No guarantee for long-term cost savings.

Baldwin et al. (2001) argue that a selective sourcing approach with the opportunity to use several different suppliers is an increasingly popular strategy to minimize risks, maximize benefits and reduce costs. The question is if an SME, after deciding to use an ASP strategy for its sourcing of ICT, would choose to cooperate with different suppliers or it would minimize the risks, maximize benefits and reduce costs in another way.

Jurison (1995) summarizes the motives for outsourcing or not outsourcing of ICT. He states that the primary reason for ICT outsourcing is indicated by economic reasons, i.e. economic consideration in different forms is the primary driver for an ICT outsourcing decision. He mentions risks as the primary reason for not choosing an ICT outsourcing option, where the irreversibility of the decision is seen as the dominant risk.

4. THREE ASPs AND THREE RELATED CUSTOMERS

This section presents the empirical survey and the organizations that are part of it. Each ASP is labelled according to Currie & Seltsikas, (2000, 2001) categorization of Asps. The authors classify ASPs into five different groups in the light of the product(s) they deliver: Enterprise ASPs, Pure-Play ASPs, Vertical ASPs, Horizontal ASPs and ASP enablers. This section also describes three SMEs that are clients to the three ASPs. It is based on semi-structured, open-ended interviews done at the companies. The interviews lasted between one and a half to two and a half hours each. The persons interviewed have the following functions: in two of the ASPs they are sales manager, in the third ASP enterprise the interviewee is president of the ASP department in the organization. The interviewee in the customer organization has the following functions: president at the manufacturing company A, president at the travel agency, and IT manager at manufacturing company B. The interviews were tape-recorded and then transcribed. The interviews with the ASPs were based on two overall questions: what is it that they deliver? And why should an SME adopt the ASP concept? In the interview with the customer there were also two questions: what are the services ASPs deliver?

And why did they adopt this solution for their ICTs? The following sections present the organizations and discuss the two overall questions.

4.1 The Horizontal ASP

The horizontal ASP-company (HASP) is a consultancy firm located in Denmark, Norway and Sweden. It is the product of mergers of three different companies: an Internet Service Provider (ISP), an IT-consultancy and an ASP-firm. The HASP-company offers flexible solutions to its costumers, which is a base block and/or customer-specific. The company's data center, in combination with ISP service and IT-consultancy experience, makes it a competitive player in the ASP market. SMEs are the company's market segment. According to Currie & Seltsikas (2000) is an ASP categorized as a horizontal ASP if it offers collaboration tools and other applications to a broad base of customers'. Their focus is on business processes. The examined ASP fits this description in that they do not focus a specific industry. Instead they try to support their customers with all ICT applications they need, which means that they have a portfolio of around eighty to ninety applications.

For the HASP-company, the main reason for adopting the ASP concept is cost control. The interviewee described customers' ICT cost control and awareness as very low. The HASP-company uses a total cost of ownership (TCO) analysis to describe to customers its present ICT cost. The figures can be compared with what an ASP solution will cost.

The HASP-company sees two main reasons for a customer not to choose an ASP solution: 1) security concerns and 2) data control concerns.

4.2 The Vertical ASP

The vertical ASP-company (VASP) is a subsidiary of a larger consultancy firm located in Sweden. The consultancy firm consists of many different departments, where each department focuses on a specific market. The role of the VASP-department is twofold. First, to be a supplier to other departments in the company. When other departments sell a system or a system-license, they can also propose to the customer system support and management. This service will be done by the VASP-department. Second, the VASP-department markets and sells products using internal sellers and external partners. The VASP-department's market segment is SMEs. According to Currie & Seltsikas (2000) is an ASP categorized as a vertical ASP if it offers targets a specific market sector. Their focus is to support the customer in that specific area with ICT applications they need to do business in that area. The ASP in this section does not exactly fit this description.

However, they do not focus on providing all kinds of ICT applications. They have in their portfolio around ten applications. They state that they will not provide any application, which they do not have knowledge about, and they rely on an external company to handle it.

According to the VASP-company, there are three main reasons for SMEs to adopt the ASP concept. First, the organization has an overall strategy, implying that it should not handle anything that is not directly connected to its main businesses. Second, the organization's desire to have control over its ICT costs. And finally, the lack of possibilities to handle necessary service and support on its own. The VASP-company says that the main reason for not adopting the ASP concept is the client's fear of losing control over its ICT.

4.3 The Enterprise ASP

The enterprise ASP (EASP) is a global company operating in the ERP market. The company develops and markets its own ERP-system. It sells, licenses, implements and supports the ERP-system. The company initiated a new department in 1998 in which it marketed itself as an ASP-company. However, it was not until 2000 when it actually started to do business. The reason for starting an ASP business was to become a more interesting partner for its customers'. The EASP-department also wanted to take part of the expenses that its customers put on system support and management. When the business started it was intended to be a horizontal service provider, offering all the systems the customers needed. There are two reasons why this has not been fulfilled. The EASP-department planned to use a partner operating as a horizontal ASP-company, but the partner went bankrupt. The department also found out that its customers did not appreciate the horizontal service provider offering. The customer segment ranges from medium to big-size enterprises. By doing business as an ASP-company it also wants to become a possible partner for SMEs. An enterprise ASP is, according to Currie & Seltsikas (2000), an ASP that offers customers an end-to-end enterprise solution. These companies can both be ERP vendors as well as their partners. The focus of enterprise ASPs is to provide their customers with a company-wide solution. The EASP in this case is an ERP vendor that provides its own ERP-system.

The main reason the interviewee gives for adopting the ASP concept is cost control. But there is also the possibility to spread out the investment on a longer time-period. The primary reason for not adopting the ASP concept is based on some thoughts about loss of control, expressed by the interviewee in the following way, *"If the servers are not placed in the clients own building the clients will have the feeling that they are losing control"*.

4.4 Manufacturing Company A

This company has cooperated with the horizontal ASP-company (Sect 4.1) 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 has never really been there. The choice was there by the end of the 1990's when the company discussed if it should go back and handle its ICT by itself. It decided not to do so as it was satisfied with the services from the service bureau. It took this decision because it would have cost it too much to build up its own competence again. The company realized it would have difficulties attracting skilled employees. As a manufacturing organization, the company, in the words of its owner, is basically very dependent on ICT. In his opinion, it needs to use the latest technologies to be in the forefront. The ASP concept, the owner 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 latter the provider manages all ICT today. At the beginning it was only the organization's ERP system that was managed by the service bureau. At present, and except for some CAD/CAM systems, the provider handles all ICTs. The organization considers ASP solution to be the right solution, and it does not see any problem whatsoever with this solution. Regarding the selection of a particular provider the company undertakes an investigation. However, it was the geographical location that finally made it choose this current provider.

The main reason for adopting the ASP concept is convenience, according to the interviewee. He expresses this in the following way, "*We wanted to have the possibility to have an external partner to handle our ICT and not deal with all those troubles by ourselves*". Another reason the interviewee mentions is that it is easy to deal with the upgrades of the ICTs. The interviewee is concerned about trust of the communication links and sees them as a main reason for not adopting the ASP concept.

4.5 The Travel Agency

The travel agency is a small firm selling and arranging sports and concert trips. It has been in business since 1997. Since 2000, it has been cooperating as an ASP customer with the vertical ASP-company (Sect 4.2). The systems that the agency uses and rents are Microsoft Office and TOIs. The latter is a booking system for travels. This system was at first handled as a customer-specific ASP, i.e. the data was executed on an own server at the ASP-company. After a while the ASP-company transferred this system to a server

where another enterprise system was running, turning the agency into a pure ASP customer. This slashed the monthly fee by 20 per cent.

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 ASP-firm,” the interviewee asserted. It takes some time before a customer’s proposal or request for new services can be used in the business.

4.6 Manufacturing Company B

The manufacturing company is a global company that delivers equipment to the pulp industry. It has been in business since 1899. It operates globally with its own offices in the Nordic countries and representatives beyond. Today it cooperates as an ASP customer with the enterprise ASP (Sect 4.3). It has done this since the beginning of 2000. Earlier it used the same ERP-system, but it did all the support and services itself. This was working very well but it developed some problems with the system. Nonetheless, it decided to rent the ERP-system from the enterprise ASP. There were mainly two reasons for doing so. First, the company’s system was a bit rough. It discovered that it had to change server every second year if the system was to run smoothly. It had hitherto worked with this system for a little more than two years. Second, it was hard to update the system and keep enough knowledge about it in the company. At the same time the enterprise ASP 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.

5. FINDINGS OF THE STUDY

The findings of the empirical study are summarized in two tables. Table 1 shows the main reasons reported for adopting the ASP concept, and table 2 shows the main reasons reported for non-adoption of the ASP concept. All providers emphasize the cost control as one of the main factors for adopting the ASP concept. This finding concurs with one of the reasons, Udo (2000) provides and labels it as a predictable ICT budget. The customers on the other side do not emphasize the cost control as a main factor.

Table 1. Reported Reasons for Adoption of the ASP Concept.

	ASPs reported reasons for adoption	ASP customers reported reasons for adoption
The HASP-company	Cost control	Convenience Easiness to upgrade
The VASP-company	The overall strategy Cost control	Focusing core competence Increase security
The EASP-company	Cost control A way of financing	Resource constraints Hard to be knowledgeable

The reasons in table 1 that the SMEs put forward for adopting the ASP concept can be grouped together under the label core competence. Despite the fact that it is only one of them that directly expresses it, all customers use the words core competence when they asked why they adopted the ASP concept. Core competence should then be seen as the organization's core business, of which it has enough knowledge about, and available resources to handle in an efficient and effective way. One of the service providers also give this as one reason, label it as the organizations overall strategy. This can be compared to Gorla et al's (2002) statement, saying that there are many articles trying to explain the determinants of outsourcing. These articles focus on the following four explanations. First, outsourcing is chosen because the enterprise wants to focus on its core business. Second, cutting costs is the main reason for outsourcing. Third, a lack of expertise and qualified personnel forces the enterprise on outsource. Fourth, outsourcing is the first step to a business process re-engineering. The first and third explanations are supported by this study. These are also two out of three reasons that Lee (2001) expresses. The third explanation economic benefits that Lee gives as a reason are not supported by the findings.

Gorla et al. (2002) arrive drive at the following conclusion: ICT outsourcing is mainly influenced by market structure and ICT outsourcing costs. However, the study does not fully support this conclusion. The main findings instead demonstrate that costs are not a determining factor in the decision of adopting the ASP concept. SMEs in this study emphasize costs, but when it comes to the final decision, costs are not the primary reason. The reasons the SMEs cite are: difficulties with handling and acquiring resources, a lack of internal resources, ICT is not their core competence, and a wish to increase security.

When it comes to reasons reported for non-adoption, the providers' statements can be compared to Udo's reported disadvantages. One of the disadvantages reported by Udo is that outsourcing leads to loss of control over ICT. All three providers emphasize customers' fear of losing control over ICT as a reason for the non-adoption of the ASP concept. The customers' on the other hand do not state this as the reason for non-adoption.

The reason they instead put forward is concern about the communication link.

Table 2. Reported Reasons for Non-adoption of the ASP Concept

	ASPs reported reasons for non-adoption	ASP customers reported reasons for non-adoption
The HASP-company	Security concerns	Trust of the communication link
The VASP-company	Data control concerns Fear of losing control	Considerable time for implementing
The EASP-company	Fear of losing control	Concerns about the communication link

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

6. CONCLUSIONS

The primary reasons the ASPs give are: first, customers choose to adopt the ASP concept because they know what costs they have to pay for ICT each month. Second, the customers adopt the ASP concept because they cannot provide themselves with the same ICT for the same cost. This is quite contrary to the reasons the customers report. The customers of course say that they would like to have their ICT as cheap as possible. However, this is not reported as the key reason for adopting the ASP concept. The customers also shows this when they decide on which ASP to choose. When it comes to the final decision of the specific ASP, all three SMEs choose the ASP because of the close localization.

There are at least two possible explanations for why the SMEs do not emphasize the cost factor. First, it can be explained by the fact that once they have reach an agreement with a service provider and pay a fix 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 before they outsource. The second explanation can be explained by the fact that ICT costs are not a big deal in these kinds of companies. These SMEs do not see these costs as the problem. Instead, the problem is how to maintain and handle the ICT so that it works properly.

The primary reason the ASPs give for non-adoption is concerns of losing control. This concern is expressed in two ways: first, the fear of losing

control over ICT assets, and second, the fear of losing control over the data. The customers do not emphasize this as a reason for not adopting the ASP concept. This is perhaps because they have already adopted the solution.

The main conclusion of the study is the disparate view of what affects the adoption or non-adoption. These perspectives can be summarized as follows. The ASPs cite cost control and the ability to decrease the cost as motives for SME's decisions. The clients report mentions three main reasons for adopting the ASP concept. First, maintenance of ICT is not the core competence, and they want a convenient solution for their ICT. Second, SMEs lack skilled personnel and necessary resources for the support of ICT. Third, the adoption is an effect of the organization's overall strategy. These findings contradict the primary reason that cost control and lower cost spur an organization to become an ASP client. In the first place this seems to be the reason but when we examine the decision in-depth, we get a profound understanding of SMEs decision-making, and find the cost perspective secondary. By showing the stakeholders' different ideas of what influences the decision, both parties gain considerable knowledge, which could influence how the service providers should handle marketing, as well as how the SMEs should handle decision-making on adopting or non-adopting the ASP concept.

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