Evaluation of an Application Service Provider: An SME view

Johansson, Björn; Carlsson, Sven

2003

Evaluation of an Application Service Provider: An SME view

Björn Johansson
Sven A. Carlsson
Informatics, Jönköping International Business School
Jönköping University
SE-551 11 Jönköping, Sweden
+46 36 15 75 81
{bjorn.johansson; sven.carlsson}@jibs.hj.se

It is argued that Application Service Providers (ASP) can be a means to provide small and medium-sized enterprises (SME) with appropriate information and communication technology resources. This paper reports a two-part study of ASP and SME. The study focuses three questions. Two questions address SME's satisfaction with the studied ASP and one addresses functional capabilities of the ASP. The study finds some discrepancies between the "ASP promise" and the SME's views of "ASP-in-use".

Key words: Application Service Provider, ASP, small and medium-sized enterprises, evaluation

1. Introduction

Information and communication technologies (ICT) play an increasingly important role in small and medium-sized enterprises (SME). By deploying ICT an SME can improve its operational effectiveness, increase its growth possibilities, strengthen its competitive position, and improve its overall firm performance. But, major problems for SME are to acquire appropriate software and hardware as well as gaining knowledge on how to deploy ICT effectively and efficiently. Application Service Providers (ASP) is one means to provide SME with appropriate ICT resources and services. Early ASP reports predicted strong market growth for ASP—see, for example, Kern et al. (2001) and Lacity and Willcocks (2001). The first ASP wave encountered a number of problems, for example, high up front costs and a slow increase in new customers (Hagel, 2002). Although the ASP concept can be seen as yet another "buzz word", ASP seems to be here to stay, but probably not in the "first-wave-form". Given this, it is interesting to evaluate what ASP customers think about the services provided by ASP.

This paper reports on a study conducted of a service provider firm that acts as an ASP, primarily for SME. The study consists of two parts. The first part was open-ended, semi-structured interviews with the ASP and with one of its customers. The second part was a survey study of the ASP's customers. In this study, an ASP customer is defined as an organization using at least one rented software application in its organization. The main evaluation question asked in the study was whether customers that have adopted the ASP concept were satisfied or not? The ASP examined in this study is a service provider striving to support their customers with all the software applications needed to do business, thus acting as intermediary between its customers and software vendors. The survey examines how the ASP succeeds with this and what the customers think about the ASP business model. We also describe the reasons the service provider says there are for SME to adopt the ASP concept. The findings are compared with the literature.

The studied ASP organization is a horizontal ASP (Currie & Seltsikas, 2000). Currie and Seltsikas (2000) propose a framework for making a categorization and evaluation of ASP. The framework consists of four distinct categories: delivery, integration, management, and enablement. Associated with these categories are performance criteria for evaluating ASP offerings. Our survey was developed from these criteria and from a study conducted by Susarla et al. (2003), as well as from the first part of our study.

The remainder of the paper is organized as follows: the next section gives a short introduction to ASP. Section 3 discusses reasons for SME to adopt or discard services from ASP as reported in the literature. Section 4 reports from the first part of our study. It presents the results from the interviews at the ASP organization and one of its customers. Section 5 presents the survey, which was the second part of the evaluation study. In the final section the findings are summarized and discussed.

2. The Application Service Provision Concept

As noted by several researchers (e.g., Venkatraman & Subramaniam, 2002) firms do not conduct all their business activities internally. It is well known that firms use outsourcing to lower costs, increase performance, and to get access to resources and capabilities. Many large companies have transferred their ICT assets, leases, and staff to a third part (Lacity & Hirschheim, 1993). In recent years we have in the outsourcing market seen a growing number of ASP start-ups and companies offering their products and services through the ASP concept.

At the core of the ASP concept is the offering of applications and services to external customers. A common way to describe ASP is as providers offering software applications, which they manage and deliver to external clients (e.g., Cherry Tree, 2001; Kern et al., 2001; Currie & Seltsikas, 2000). The clients use the applications in their own businesses, where the types of software applications can be, for example, web site hosting, payroll/billing, e-mail, e-commerce and ERP applications. Application service provision is a one-to-many supplier to customer relationship. In this study, the ASP concept is defined as: *an ASP enterprise - a third-party firm - that deploys, manages, and remotely hosts software applications through centrally located datacentres on a pay-as-you-use basis. For the client the ASP business model is a strategy to "buy-in" applications and organize ICT maintenance.*

3. Reasons for Adopting or not Adopting the ASP Concept in SME

Kern et al. (2001) point out three reasons why SME should adopt the ASP concept. First, even though a package software licence is cheaper than an in-house developed solution, it is still the case that many SME cannot afford the packaged solution costs. Second, an SME will be unable to attract and afford the necessary ICT staff. Third, 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 SME to take advantage of the rapidly changing opportunities in ICT (e.g. Turban et al., 2001; Currie & Seltsikas, 2000). An ASP enterprise can assist SME with ICT skill, especially in the development and

software maintenance areas (Kern et al., 2001). Dewire (2001) argues that there are eight different reasons for an organization to adopt the ASP concept. The reasons are: if there is a need for flexible ICT infrastructure, if the organization cannot afford a huge ICT 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, and 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 improve long-term business performance and to facilitate strategic change. Whether an organization should outsource its ICT or not is, according to Weill & Broadbent (1998), principally a question of what strategy the organization has.

According to De Loof (1995) external suppliers of ICT-sourcing do predict large cost reduction, improvements in quality, 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 having doubts, but strategic services should never be outsourced. However, Udo refers to Lacity & Hirschheim (1993) who mention that this categorisation can lead an organization into heavy problems in the future. The reason is that commodity services at present time can be of high strategic importance for the organization in the future.

According to Udo (2000) providers purpose the following benefits:

- A predictable ICT budget is gained by tying it to actual requirements.
- A lower cost for ICT, which means cost savings compared to both the current as well as the future expenditures on ICT equipment.
- Increased access to technical resources and technical skilled personnel.
- The organization can focus on core products and services.

- The organization's fixed costs for ICT can be exchanged to variable costs.
- The risks in the development of ICT applications are spread.

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

- A lack of chemistry between the partners.
- Dependency on another party for the organization's critical information.
- Leading to a loss of capability, which in the future can be a key success factor.
- Leading to loss of control of ICT assets.
- Threat of opportunism from the supplier.
- Leading to a loss of flexibility.
- Leading to a loss of competitive advantage in information management.
- A loss of ICT expertise and as such a loss of memory in the organization.
- Causing a decline in morale and performance of the remaining employees.
- There is 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 minimise risks, maximise benefits and reduce costs. Jurison (1995) state 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. Evaluation of the ASP: The Interviews

The first part of the evaluation can be described as an exploratory study. It was conducted as open-ended, semi-structured interviews with the service provider and one customer. Two interviews with sales managers at the service provider were done (November 2001 and February 2003). In the customer organization the CEO was interviewed—he is also the IT manager. The interviews were tape-recorded and transcribed. There were two overall questions in the interview with the ASP: 1) what does it deliver, and 2) why should SME adopt the ASP concept. The customer interview focused two overall questions: 1) what services are delivered from the service provider, and 2) why did the organization adopt this solution for its ICT.

4.1 The ASP Organization's View

The ASP organization was when the first interview was conducted a consultancy firm located in Denmark, Norway, and Sweden. The company was the result of mergers of three different companies, the three companies were an Internet Service Provider (ISP), an IT-consultancy, and an ASP-firm. The history or background of the organization can be seen as the expression of the consolidation that are and have been present among service provider organizations. The organization conducts its business under one name for almost a year before it went bankrupt. Almost directly it was restarted as a new firm. According to the interviewee the company was in November 2001 a leading ASP actor in Scandinavia and it the inflow of new customers has always been good. Its data centre in combination with ISP service and IT-consultancy experiences make the company

well positioned to become a competitive player in the ASP market. Currently, the organization has 45 employees and is located at five places. This background makes according to the interviewee it possible for the company to now offer flexible solutions for their customer.

4.1.1 Applications and services provided by the ASP

There are two different types of services provided—a consultancy and a hosting part. The part examined is the hosting part. It is described as an offering of flexible solutions to costumers, which consists of a base block and/or customer specified solutions. The base block is Microsoft's Outlook, Explorer, Office, Project, and WinZip. A customer specified solution can, for example, be payroll/billing, e-commerce, and ERP applications. The ASP portfolio consists of around 80 to 90 different software applications. The base block consists of Microsoft products, which according to the sales managers all customers need. The base block is needed for the service provider to increase its volumes and to make a profit. The second part is customer specific applications that a customer either already has or wants to have.

There are two ways of implementing the applications, dedicated servers or one-to-many servers. Currently, the firm focus on finding applications being suitable for the one-to-many solution. According to the interviewees the ASP concept has had some problems. One of the problems was that too much was promised. It was stated that the ASP concept should be able to take care of all ICT and all ICT service and support for their clients. This has not been possible to fulfil because of the fact that it are not possible to handle all applications as external hosted applications. The ASP-company has tackled this situation by taking a complete view of their customers and develops and manages some applications at customers' places. The aim is to move these applications to the data centres. The basic idea in the ASP-company is that they should be a provider of all necessary ICT and ICT services for their customer.

4.1.2 Why become a customer?

The customer segment is SME, where a common customer has an e-mail system and an office packet as its basic ICT. In addition, a customer often rents a customer relationship (CRM), an accounting, and/or an enterprise resource planning (ERP) system. The main reasons for adopting the ASP concept are:

- A customer does not need to have its extensive ICT-competence.
- Getting 24/7 accessibility to applications—according to the interviewees, SME have problems with providing this accessibility.
- Access to a helpdesk function.
- To gain control of the ICT-costs, leading to that a customer knows how much its ICT cost is per user every month.
- To gain full control over ICT investments.
- To increase its security—help in tackling spam and virus problems as well as internal security issues, for example, backups.
- No problems with software upgrades.

Two main reasons for not adopting the ASP concept emerged from the interviews:

- Loosing control over data by having data at the ASP's data centre.

- Cost—many presumptive customers say that, based on a calculation from the ASP, ICT and associated services will cost too much.

Both these reasons for not adopting the ASP concept are handled by the ASP-company. The fear of loosing control reason is addressed by showing how the concept works. The ASP-company uses a specific model showing how the customer is "implemented" in the data centre and the customer can see how security is handled and how the company's system is protected against intruders. The cost reason is addressed by doing a total cost of ownership (TCO) analysis. If the customer lets the ASP-company to do this analysis it will get a good picture of its current ICT-costs and this cost can be compared with the ASP-fee.

4.2 A Customer's View

The Manufacturing Company produces and sells equipments for laboratories. It has 47 employees—30 working in the production. The ICT applications it uses are: an ERP system, an e-mail system, an office suite, and a CAD/CAM system. All systems are hosted at the service providers place 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 from the CAD/CAM system is done through the network connection and are handled by the service provider. The company has cooperated with the ASP-company since 1999. Previously, it used the same provider for part of its ICT. The provider at the time acted as a service bureau, so the choice to become an ASP customer has never really been present. Instead there was a choice by the end of the 90s, when the company discussed if it should go back and handle its ICT internally. It decided not to do so. It was satisfied with the services from the service bureau and it would cost it too much re-build its own ICT-competence. It would also have difficulties in attracting skilled employees. As a manufacturing organization, 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 in the forefront and to stay competitive; the ASP concept, the CEO adds, is a good way to achieve this. The organization considers the 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 did some investigation. However, it was the geographical location that finally made it choose its current provider.

The main reason for adopting the ASP concept was convenience. Said the CEO: *"We wanted to have an external partner handling our ICT and not to have all the troubles ourselves"*. Another reason stressed was that it is easier to deal with the upgrades. The interviewee is concerned about trust of the communication links. A main reason for not adopting the ASP concept could be communication mistrust.

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 emphasizes 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 organization's production, and be able to suggest improvements in the organization's ICT use. He has the felling that the service provider is not acquainted with how it uses ICT in the production, which leads to that the ASP is not able to suggest improvements. He admits that the company

is very dependent on the service provider and that it is not an easy task to switch back or to switch to another service provider.

5. Evaluation of the ASP: The Survey

The second step was a survey of the ASP's customers. The questionnaire used had twenty-one questions. Here, three questions are focused: two related to satisfaction with the ASP and one related to functional capabilities of the ASP. The questionnaire was sent to all customers identified as ASP customer (As defined in Sect. 1). Using the definition, we identified seventeen ASP customers. Fourteen of these customers have returned the questionnaire. In developing the questionnaire we used results from part one as well as two other studies. Currie & Seltsikas (2000) developed a framework for evaluating ASP offerings. The framework consists of four different categories and related performance criteria. Susarla et al (2003) did an empirical analysis of ASP satisfaction. The study focused four different areas: 1) satisfaction in terms of organizational attitudes, 2) expectations about the service, 3) perceived disconfirmation and 4) perceived provider performance. The questions used in our study focus on customers' perception of the service provider's performance. We ask questions about functional capabilities and satisfaction with the service provider.

The first question asked was: on a scale from 1 (strongly disagree) to 7 (strongly agree), how much do you agree with the following statements about renting ICT hosting. The statements and the result are shown in figure 1.

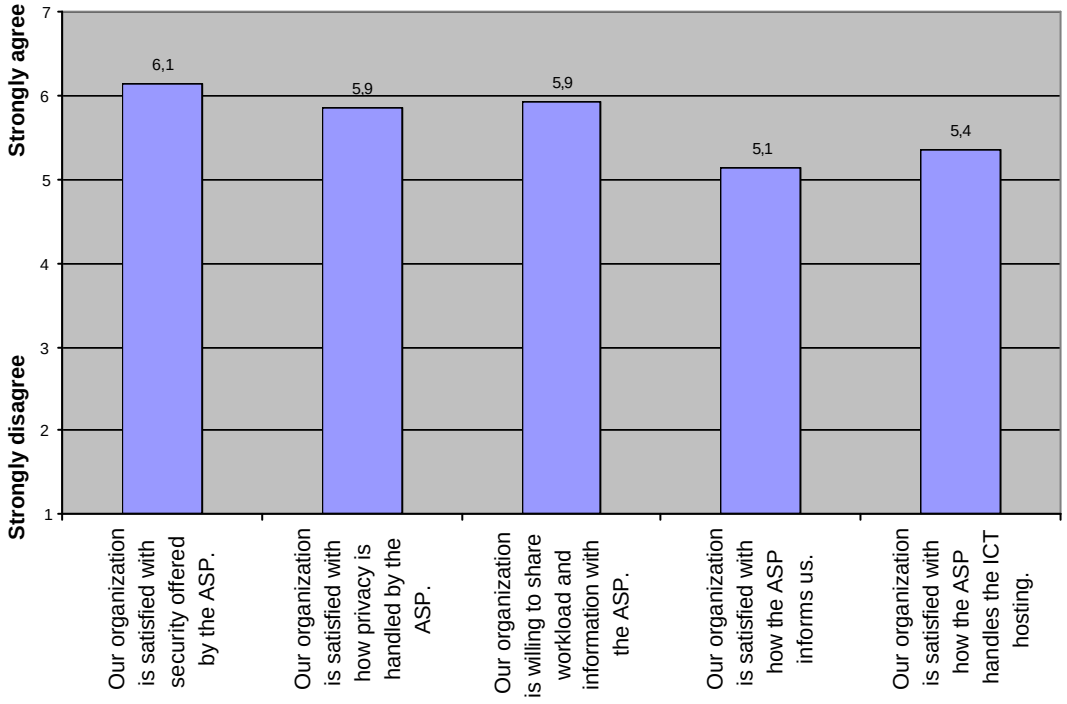

Figure 1. Results from the question about how satisfied the customers are.

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 service provider says that this is one of the main reasons for not choosing the ASP concept. This suggests that the ASP-company manages to handle this well. However, this result can depend on the customers' expectations. If they had low expectations this only means that the ASP-company is performing well in relation to low expectations. In other words, it is a relative result. The statement the customers seem to be least satisfied with is how the service provider informs them. This is also emerged from the interview with the manufacturing customer.

The second question asked the customers to evaluate in what degrees a number of statements have been fulfilled with the external provision of ICT. This question is constructed in the same way as the first question—for statements and results, see figure 2.

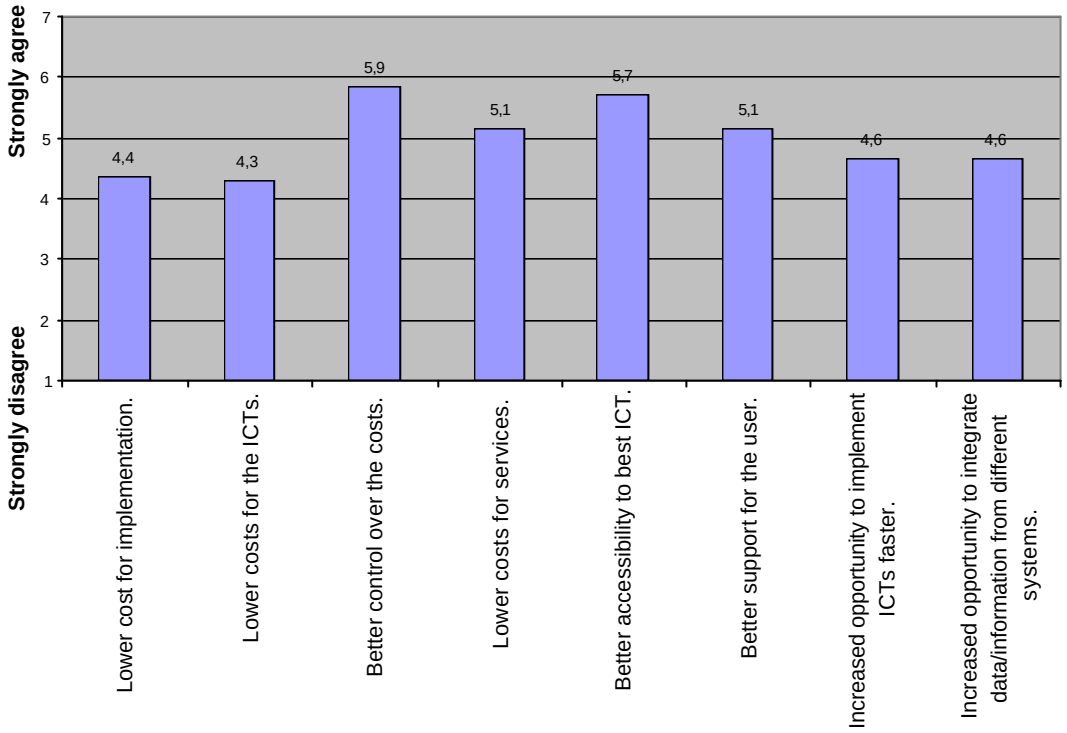

Figure 2 Results from the question about perceived results of ASP.

Compared to the first question, the overall impression is that the customers are not all that satisfied. One of the factors that the service provider stressed heavily is that ASP will lead 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 it actually became. Second, it can also be that the costs are higher than the service provider promised it. Some customers stated in the survey that despite the fact that they have outsourced their ICT they needed to have expensive on-site support. Another interesting finding is related to cost control. The result shows that the control over ICT costs is improved. These two findings about costs of ICT can be compared to each other. When the customers get better cost control they are able to see more clearly how much the actual costs are. This means that they can compare the actual costs with earlier

wrong cost statements. This discussion can be compared to what the ASP-company stated about customers' low awareness of ICT costs.

The third question focused on decision criteria for choosing a specific ASP. The statements and results are shown in figure 3.

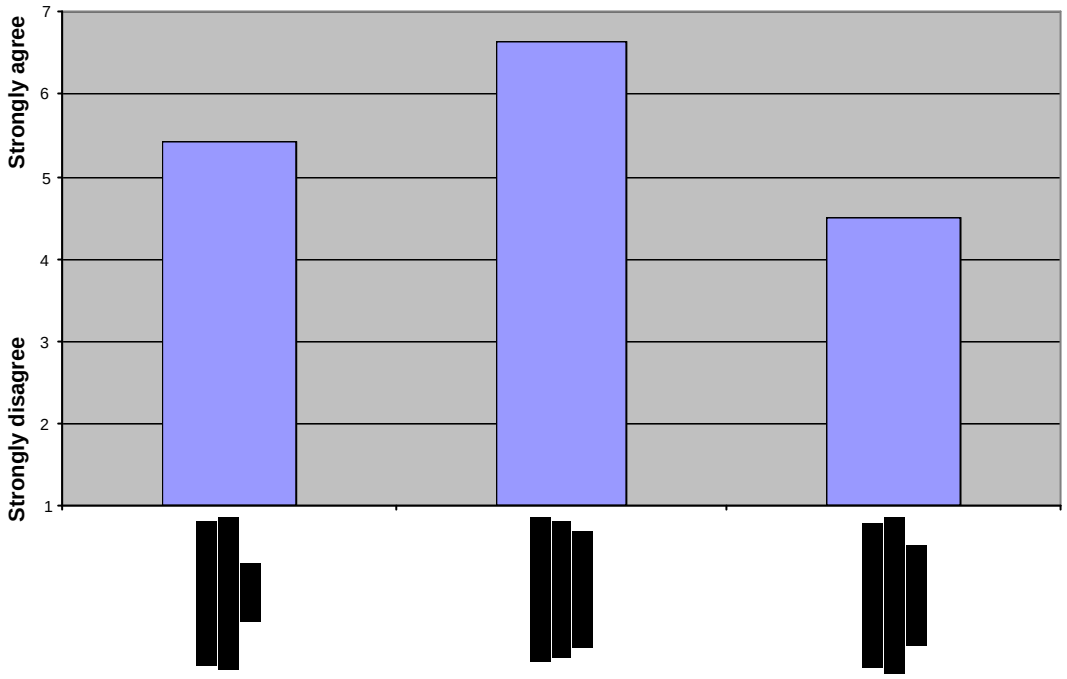

Figure 3 Result from the question about functional capabilities.

The results show that there are high expectations on the service provider. They are supposed to have a good reputation and also to be able to support their customers whatever they like when it comes to ICT. This statement is especially interesting when it is compared to the opinion expressed in the interview with the manufacturing company. The CEO of the manufacturing company expressed that he thinks the service provider has too little experience about his company's business. The reason he sees for why the ASP should have more experience is to be so knowledgeable that it can provide them with all the ICT they need and in a proactive manner. This means that to be able to fulfill the statement "support all our needs" the service provider probably needs to have a lot of experience about customers' specific business. The survey suggests that the customers do not see view this to be important.

6. Findings and Conclusion

One interesting part of the result from the survey is that the customer emphasizes that the chosen service provider should be a profitable and stable company. Despite that they have chosen to cooperate with an ASP company that has quite recently been re-established after being declared bankrupt. The explanation to that can probably be found in the statement done by the CEO of the manufacturing company: "It is not an easy task to switch back or to switch to another service provider". The same is emphasized by both Udo (2000), in his proposed disadvantages as by Jurison (1995) that claims that the

irreversibility of the decision is seen as the dominant risk. Despite this the customers to the examined service provider say that they do not regret their decisions. The overall results from the questionnaire are that they are satisfied with the services provided by the service provider.

However, from the above it can be stated that the ASP-concept promises have not been completely fulfilled. As a reaction to that there have been some negative perceptions of the ASP concept. This is the reason for why the service provider wants to get ride of the ASP label. At the same time as the customers seem to be very satisfied with the ASP concept and the services provided from the service provider, they claim that it has not really fulfilled their expectations. The expectations that are not really fulfilled are those related to costs. As one interviewee in the ASP-company said: "The ASP-concept promised too much in the beginning". The promises were mainly related to cost reduction. This can be one reason for why the satisfaction of lower costs for ICT is not satisfied. A more reasonable promise of lower costs for ICT and more focussing on other benefits with the ASP concept can probably make it take off.

References

Baldwin, LP., Irani, Z., & Love, PED. (2001) "Outsourcing information systems: drawing lessons from a banking case study", *European Journal of Information Systems* Vol 10, pp 15 – 24.

Cherry Tree & Co. (2001) *Trends in Outsourcing: Strong, Sustainable and Growing*. Spotlight Report, July.

Currie, W.L. & Seltsikas, P. (2000) *Evaluating the Application Service Provider (ASP) Business Model*. Executive Publication Series CSIS2000/004, Center for Strategic Information Systems, Department of Information Systems & Computing, Brunel University, Uxbridge, UK.

De Looff, L.A. (1995) "Information systems outsourcing decision making: a framework, organizational theories and case studies", *Journal of Information Technology*, Vol 10, pp 281-297.

Dewire, D.T. (2000) "Application service providers", *Information Systems Management*, Vol 17, No 4, pp14-19.

Hagel, J. (2002) *Out of the Box*. Harvard Business School Press, Boston, MA.

Hirschheim, R. & Lacity M. (2000) "The myths and realities of information technology insourcing", *Communications of the ACM*, Vol 43, No 2, pp 99-107.

Jurison, J. (1995) "The role of risk and return in information technology outsourcing decisions", *Journal of Information Technology*, Vol 10, pp 239-247

Kern, T., Lacity, M., Willcocks. L., Zuiderwijk, R. & Teunissen, W. (2001) *ASP Market Space Report 2001: Mastering the Customers Expectations*. GMG report.

Kern, T., Willcocks, L. & Lacity, M. (2002a) "Application service provision: risk assessment and mitigation", *MIS Quartely Executive*, Vol 1, No 2, pp 113-126.
Kern, T., Lacity, M., Willcocks. L. (2002b) *Netsourcing: Renting Business Applications and Services Over a Network*. Prentice Hall, Upper Saddle River, NJ.

Lacity, M. & Hirschheim, R. (1993) *Information Systems Outsourcing: Myths, Metaphors and Reality.* John Wiley & Sons, Chicester, UK.

Lacity, M. & Willcocks, L. (2001) *Global Information Technology Outsourcing: In Search of Business Advantage*. John Wiley & Sons, Chichester.

Lee, J-N. (2001) "The impact of knowledge sharing, organizational capability and partnership quality on IS outsourcing success", *Information & Management*, Vol 38, pp 323-335.

McFarlan, F.W. & Nolan, R.L. (1995) "How to manage an IT outsourcing alliance", *Sloan Management Review*, Winter, pp9-23.

McLellan, K., Marcolin, B.L. & Baemish, P.W. (1998) "Financial and strategic motivations behind IS outsourcing", in *Strategic Sourcing of Information Systems*, L.P. Willcocks & M.C. Lacity (Eds), John Wiley & Sons, Chicester, UK, pp 207-248.

Puelz, R. (2001) "Entrepreneurship and an ASP in financial services", *Journal of Business & Entrepreneurship*, Vol 13, Special Issue, October, pp 33-55.

Shepherd, A. (1999) "Outsourcing IT in a changing world", *European Management Journal*, Vol 17, No 1, pp 64-80.

Susarla, A., Barua, A. & Whinston, A.B. (2003) "Understanding the service component of application service provision: an empirical analysis of satisfaction with ASP services", *MIS Quarterly*, Vol 27, No1, pp 91-123.

Turban, E. McLean, E. & Wetherbe, J. (2001) *Information Technology for Management*, second edition. John Wiley & Sons Ltd, Chicester, UK.

Udo, G.G. (2000) "Using analytic hierarchy process to analyze the information technology outsourcing decision", *Industrial Management & Data Systems*, Vol 100, No 9, pp 421 – 429.

Venkatraman N, Subramaniam M. (2002) "Theorizing the future of strategy: questions for shaping strategy research in the knowledge economy" in *Handbook of Strategy and Management*, Pettigrew A. & T.H. Whittington R (Eds), Sage, London, pp 461-474.

Weill, P. & Broadbent, M. (1998) *Leveraging the New Infrastructure.* Harvard Business School Press, Boston.