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# Application Service Providers and SMEs: Further Research Needed

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**Abstract.** This paper reports from an pilot study about the application service provider (ASP) phenomenon. The purpose of this paper is to raise some further research questions in the subject of ASP. In the paper some empirical findings are reported and compared with literature about ASP, IT outsourcing, inter-organizational relationship, and strategic network. The IT outsourcing literature focuses primarily on large organizations and with an underlying assumption that, IT outsourcing is when a large organization outsource an internal IT-department, IT-system or IT-function. An ongoing trend is the development of a new organization referred to as ASP. With ASP collaboration in IT outsourcing gets a new dimension. These “new” IT outsourcers play a significant part as intermediaries between sub-contractors and customer by supporting external clients with information and communication technologies (ICTs) and ICT services. The focus of the paper is, what role does ASPs play in collaboration. There is a discussion on how collaboration is done, or could be done through an ASP. Within this subject there are at least two areas that are interesting: ASP in itself and the effects of using an ASP. This paper gives short descriptions of 1) ASP and IT outsourcing, 2) inter-organizational relationship, and 3) strategic networks. The ASP is described in terms of what it is, motives for small and medium sized enterprises (SMEs) joining an ASP, and which relationships there are between them. Following this, there is a description of a case organization, describing the difficulties that the organization experiences in the development and management of the relationships in an ASP situation. Finally, based on the literature review and the empirical findings some further research issues are proposed.

## 1 Introduction

Independently of the business that small and medium sized enterprises (SMEs) deploy there is a growing demand for SMEs to use information and communication technologies (ICTs). The use of ICTs affects an SME’s operational effectiveness, growth possibilities, competitive position, and

overall firm performance. An application service provider (ASP), is an enterprise which builds on a business model that supports external clients with ICT and ICT services. The ASP business model demands that there is some kind of relationship between the ASP and their customers, but what kind of relationships are there? If a relationship should be lasting, it demands that the relationship creates mutual benefits. ICTs are mainly used for cost reduction, but it is also used for strategic purposes. Does an ASP create benefits for their customer? If it does, in what way? What kind of benefits does it create? Could the role be explained by looking at the ASP concept as a strategic network? The question is then if the relationship and the work that an ASP is doing could be seen as a strategic network.

The questions that will be addressed in this paper are: what roles does an ASP play for small and medium sized enterprises (SMEs), and what roles can an ASP play in the future? The paper will give background information about the ASP concept, what it is and what they do. It will also propose *why* this is a predictable way for SMEs to get access to hardware and software without owning them. Describing an ASP organization will do this. There will be a discussion on the subject of strategic networks, in terms of what it is and if it is possible to look at the relationships between an ASP and their customer as a strategic network.

The remainder of the paper is structured in the following way: first, there is a short description of ASP and outsourcing. This is followed by a description of ASP and SMEs, describing the conditions for when an SME joins an ASP. After that a description of IT outsourcing relationships and strategic networks follows. Next, a case organization working as an ASP is described. There is a discussion on what kind of relationship they have *but also* what relationship they want to have with their customers as well as with their suppliers. Finally, based on the review and the case description, further research issues are discussed and proposed.

## 2 ASP and Outsourcing

Outsourcing was and still is a vibrant market and today it receives a great deal of attention. Current predictions are that the market is expected to boom further (Edenholm, 2002). Reports on IT-outsourcing have focused on the market for big companies such as EDS, IBM and their customers. Previous research in the IT outsourcing subject has also focused on large organizations e.g. Lacity & Hirschheim (1993), Pinnington & Woolcock (1995), Willcocks & Choi (1995). That research suggests that the relationship in IT-sourcing determines the difference between a successful, a less successful, and a failure sourcing deal (see for example, Kern & Willcocks (2000), Klepper (1998), Lee (2001). At the same time the concept of ASPs emerged. Nowadays, a lot of support organizations either start as ASPs or direct their attention to the ASP concept (e.g. Intellinet, TeleComputing, Genesis-IT, SYSteam, Kebne, IFS, IBS), and a lot of client organizations then ask themselves whether to rent the information systems.

However, in the mid-1960s there were computer service bureaus that ran a variety of systems for external clients (McFarlan & Nolan, 1995). These systems were mainly financial and operational applications. Is this “ASP thing” anything new or is it just a new word for something old? The concept of ASP is often seen as a way for SMEs to get the opportunity to use ICT for a more effective and efficient performance of the firm. But, what exactly is ASP?

ASP could be seen as a selective information technology (IT) outsourcing. The core of ASP is that they offer applications to an external customer. This application could be an IT application but this is not the only thing that an ASP could offer. An ASP could, for example, also be some kind of information broker. An example of this can be seen in Puelz (2001) in which he describes an ASP that benchmark data from 16 financial institutions. However, the most common way to describe ASP is to say that ASP offers software applications which they manage and deliver to external clients (e.g. Cherry Tree 2001, Kern, Lacity, Willcocks, Zuiderwijk & Teunissen, 2001. Currie & Seltsikas 2000). The clients then use the application in their own business, where the types of software applications are in the areas such as, web-site hosting, payroll/billing, e-mail, e-commerce and ERP applications etc.

ASP is sometimes defined as a form of application outsourcing. Where the ASP manages and delivers application capabilities to multiple entities from data centers across a wide area network (Currie & Seltsikas, 2000). Kern et al., (2001 p. 10) define ASP as:

“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 customers’ desktop via an Internet browser.”

But what is new with this? Ever since Kodak decided to hire their IT resources from an external partner in 1989 there has been a trend towards IT outsourcing (Hirschheim & Lacity, 2000) and large companies have found it acceptable to transfer their IT assets, leases, and staff to a third part (Lacity & Hirschheim, 1993). IT outsourcing activities have grown rapidly during the last few years, and outsourcing has a very substantial influence on IT departments within organizations. The influence has been varying from just contracting a few IT functions to outsourcing the entire IT operations (McLellan, Marcolin & Baemish, 1998). According to McFarlan & Nolan (1995) IT outsourcing is a harbinger of transforming the traditional IT departments, and it provides a glimpse of the emerging organizational structures of the information economy.

Basically, an ASP gives access to applications for their customer. It also means that they execute the management of the applications. The customer do not own or have to buy the software (Dewire, 2000).

Another way of looking at the ASP phenomena could be to explain the business model that they deploy. Lockett & Brown (2000) characterize the ASPs as intermediaries. The term they are suggesting for this is, “eClusters”, which are only made possible by development in ICT. Seeing the ASPs as intermediaries in transferring the new possibilities that are present in ICTs today, could explain some of the differences between the old-fashioned service bureau and the newer phenomena of ASP. ASPs is also described by Lacity & Willcocks (2001) as intermediaries between client organizations and independent software suppliers.

The use of sub-contractors is something that Lacity & Willcocks (2001) emphasize. They refer to some investigations about the use of sub-contractors, stipulating that 36 to 50 % of the service was delivered by a sub-contractor. The sub-contractors are hired by the suppliers to deliver part of the service to the customer. The customer often have limited or no interaction with the sub-contractor. Quite often the customer does not even know that there is a sub-contractor. (Lacity & Willcocks, 2001)

Currie & Seltsikas (2001a) describe the development of ASP as a growth from the 1960s service bureau to application outsourcing in the 21<sup>st</sup> century. They call ASP the third wave of IT outsourcing. The first wave was technology-centric with few additional services. The second wave was business-centric, which mainly consisted of transferring the responsibility from technical staff to general or line

managers. At the moment IT outsourcing has reached the third wave, which Currie & Seltsikas (2001a) call industry-centric. They mean that outsourcing will shift from the centralized computing of the 1960s and 1970s to the distributed computing in the 1980s and 1990s into a remote computing in the 21<sup>st</sup> century. ASPs here will play an important part since they offer a utility model that consists of applications on a pay-as-you-go basis. It will also be a one-to-many model, where the application will be shared by numerous customers across different locations.

### 3 ASP and SMEs

What reasons are there for an SME to join an ASP? Kern et al., (2001) point out three aspects of why an SME should join an ASP. 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. Third and last, 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. ASP could also be seen as a way for SMEs to take advantage of the rapidly changing opportunities in ICT (e.g. Turban, McLean, & Wetherbe, 2001, Currie & Seltsikas, 2000). ASP 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 reasons for an organization using ASPs. These reasons are that:

- The organization is a start-up and does not have the capital resources to make significant IT investments.
- The organization is undergoing rapid growth and needs to scale its IT infrastructure quickly.
- The organization is undergoing mergers and acquisitions and needs a flexible IT infrastructure.
- The organization cannot afford a huge IT capital outlay at the time.
- The organization needs to be able to switch to another environment in the near future.
- The organization needs to deploy applications rapidly.
- The organization is finding it difficult to attract and retain IT staff.
- IT is not a core competency.

The first and third point can be compared to what Willcocks & Lacity (1998) call transitional outsourcing. Transitional outsourcing is when an organization temporarily outsource, or a better word is probably insource, something. This is done during a major transition to a new technology and the idea is that after the transition, the clients will manage the service by themselves.

However all service an ASP supports their clients with, demands a relationship between them. The question is then what kind of relationship this requires and finally how should that relationship be developed and managed?

### 4 The Pilot Study

This section reports from an pilot study conducted at three different ASP organizations and customer related to them. One of these ASP organizations is described. In a section later on, about findings and proposed further research questions, builds on interviews done at all three ASP-organizations and on

interviews conducted with customer connected to them. The reason for not reporting from all interviews in this section is that they more or less say the same thing, and the restriction of the length in this paper.

The description of the case organization builds on an open-ended interview conducted with the sales manager at the organization. The interview was tape-recorded and transcribed. An open and axial coding was done using Strauss & Corbins (1998) technique and procedure for developing theory.

The case company is a consultancy firm situated in Denmark, Norway and Sweden. The company is 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 ASP-firm started their business quite recently before they merged with the two others. With this as a background the company now offers flexible solutions for their customer. These solutions could consist of a base block and/or a customer specified solutions. The base block that the company offer is Microsoft's; Outlook, Explorer, Office, Project and WinZip. The customer specified solutions are e.g. payroll/billing, e-commerce and ERP applications.

At the heart of the company is the company's data center. This data center in combination with the services as an ISP and the experience as an IT-consultancy, according to their company's own word, make the company well suited to becoming a good player in the ASP game.

The interviewee frequently refers to the concept of ASP. In his opinion it is implicit that ASP is about leasing out information systems in the form of applications. The system is remotely situated to the customer and ASP is a one-to-many solution. This means that many different customers can use the one and same application. It is also a centrally coordinated solution, centrally in the meaning that the server is placed at the ASP supplier and that all data-processing takes place there. The ASP company is then in charge of the systems and maintenance, both the daily maintenance as well as more irregularly maintenance as update of versions.

At this ASP company, there is a variant of the ASP concept where the server is placed at the site of the customer. Daily maintenance takes place there. This could be done either by the ASP company or by the customer. In this case for instance it could be the management of the backup that the ASP company is doing. This backup is then done as an ASP service. The backup is executed and saved at a server situated at the ASP company.

The ASP company wants to leave the label ASP behind them, mainly because of the negative image the customer has about the ASP concept. At the same time the definition of ASP is too narrow to describe this organization. The organization wishes instead to call themselves an "operational-solutions" provider, which according to the interviewee is a better description for what they are offering. These operational solutions consist of two parts. The first part is a standard range of applications, a base block that all customers need. This base block consists of Microsoft Office, an e-mail solution, and an Internet access. The base block is also a need for the ASP organization, to increase the volume and to make it possible to get profitability. The other part is a customer specific range that the customer either has already or wants to have.

The customer segment is in the SME. The identification and acquisition of the customer is made through two channels. The first channel is through its own activities. The second channel is through the use of partners. This cooperation is done in the following way: The partner identifies the customer and when they, as an example, market an ERP system they also offer the operational management of the system. The partners in this case do the selling and make the agreement about the maintenance of the system.

The reason why a customer should use the ASP is, according to the respondent, cost control. The interviewee describes customers' cost control and awareness of how much IT costs as very low. The ASP organization uses a total cost of ownership (TCO) analysis to describe for the customer, how much their IT costs at present. It is then possible to compare this figure with the monthly fee the ASP organization will charge for the same solution.

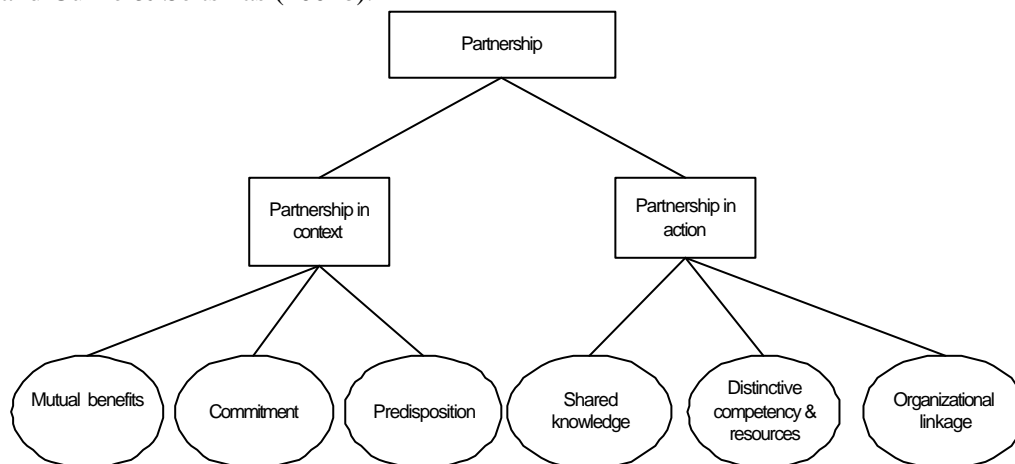
According to the interviewee there are two main reasons for the customer not to choose an ASP solution for their applications. The first is questions concerning security. The second is that they are afraid of losing control over their data.

## 5 Inter-organizational Relationship

One assumption that is expressed in Willcocks & Choi (1995) is that all IT outsourcing contains elements of cooperation, and if critical areas and processes are outsourced, a long-term relationship of trust has to be developed. Grönroos (1997) argues that a latent relationship always exists between a customer and a supplier. The question is then if either, or both, of the involved parties want to further activate the relationship or not. The activating of the relationship depends on the involved parties' strategies, expectations, needs or wishes linked to the relationship. The choice the parties have, is to decide if the relationship is a relational strategy or a transactional strategy.

Henderson (1990) declares that regardless of how decentralized or centralized the IT function is, it is critical to build an effective working relationship between users and providers. This relationship is referred to as 'strategic alliance' or 'strategic partnership'.

Henderson describes a model for building partnership as a management strategy, which focuses both on external as well as on internal partnerships. The model is shown in figure 1. The Henderson (1990) model seems to be a good starting point for understanding the basis by which IT outsourcing relationships can be formed and developed. The same is expressed by Willcocks (1994) and Currie & Seltsikas (2001b).



**Figure 1. Henderson's model of determinants for successful partnership (Henderson 1990).**

Henderson points out that if to build and sustain a successful partnership, all of the conditions in his model as shown above in figure 1 must be considered. The model builds upon two dimensions of partnership: 1) partnership in context and 2) partnership in action, where:

- Partnership in context – propose key factors necessary for a long-term relationship.



- Partnership in action – propose key factors that create an effective day-to-day working relationship.

The basic assumption that Henderson makes is one, that both partners have a need to influence key decisions and policies and two, a belief that the partnership is a long-term relationship. Henderson points out that the concept partnership is easily invoked, but actually it is very difficult to make it work.

Another pertinent question concerning outsourcing as a partnership is the common situation that an organization thinks that a partnership exists, when in fact the relationship is “only” a transaction. This is interesting in the light of the distinction between a “transactional style of relationship” and a “partnership style of relationship”, where the former takes it for granted that the rules of the game are well specified and the failure to deliver on commitments by either party demands a resorting to litigation (Henderson, 1990). If one part in the relationship thinks that it is a partnership and the other part thinks that it is a transactional relationship, it will probably get quite problematic.

Grönroos (2002) identifies three different treatments of a relationship that a customer expects, or wants to have:

- Active relationship, good service with active contacts.
- Passive relationship, good service with stand-by contacts.
- Transactional relationship, good service with no extra frills.

Lacity & Willcocks (2001) declare that the relationship in an outsourcing arrangement is quite dynamic. They have identified four different types of relationships that seem relevant, tentative, collaborative, cooperative, and adversarial. The tentative relationship is present when the customer and supplier have no shared history, so they might not know if their goals were shared, complementary, or conflicting. The collaborative relationships were present when their goals were shared. This happens most often when they were fostered in the same organization. The cooperative relationship was manifested when the goals were complementary. This was the fact when each party needed something from the other party in order to succeed. The adversarial relationship occurred when the goals were in conflict.

The questions then raised are: what kind of relationship is there in a strategic network? Is there just one kind of relationship in a strategic network or are there different kinds of relationships? Could the four different types of relationship that Lacity & Willcocks (2001) present, perhaps explain what a strategic network is?

## 6 Strategic Networks

A strategic network according to Gulati, Nohria & Zaheer (2000), is composed of a set of interorganizational ties. These ties are enduring, and of strategic significance for the firms that entering them. The ties could be called strategic alliance, joint venture, strategic partnership or something similar. The idea of strategic networks that Gulati et al., (2000), put forward, is potentially to provide a firm with access to information, resources, markets, and technologies. Further, strategic network also supposes that the firms engaged in the network are achieving their strategic objectives, such as sharing risks, outsourcing value-chain stages and organizational functions.

Lockett & Brown (2000) argue that the concept of business community is well understood and contains a lot of different forms of relationship. They describe such communities as being built on

inter-organizational networks (ION). These networks are developed either to reduce costs or to increase revenue or to mitigate risks. The label for this type of network is strategic network according to Lockett & Brown (2000).

Inter-organizational information systems (IOS) are evolved both as a consequence and as a support to the ION. Lockett & Brown (2000) identify three main types of IOS, pooled information resources, value/supply chain and networked. Lockett & Brown (2000) classify these IOS in the following way:

- Pooled information resources, consisting of shared databases and applications.
- Value/supply chain, consisting of EDI, order tracking and payment systems.
- Networked, consisting of video-conferencing and extranets.

They then suggest a fourth type of IOS which they label eClustered. This type of IOS has emerged from the changes in ICT functionality resulting in a new form of cooperation and collaboration between organizations and individuals. The eCluster is characterized as being a system that consists of interactions via one or more intermediaries.

Lockett & Brown (2000) suggest Internet business community (IBC) concept as a term for this phenomenon. The IBC service provider supports business interaction by providing technology, business and trust management. The difference between an ASP and an IBC service provider is that the IBC service provider manages the community. An ASP only provides hosted applications on a one-to-many basis.

Grönroos (2000) argues that an on-going relationship demands the two parties to share information and keep each other informed about their requirements and intents in order to build shared meanings. This is according to Grönroos (2000), done through a dialogue. Involvement in this dialogue means that the parties use the existing knowledge and also create new knowledge. In this knowledge sharing perspective Alavi (2000) identifies two factors that are of interest. The first factor is about motivation and the lack of individual motivation to share, contribute, or use knowledge. This is a barrier to organizational knowledge transfer. Organizational knowledge consists of parts such as operational routines, skills, and know-how (Lee, 2000). The second factor is about lack of contact, relationship, and common perspectives when people do not work side by side.

An organization's competitive advantage depends on the organization's ability to acquire and use valuable resources. These resources are, according to Lee (2000), inimitable, unsubstitutable, and durable. Knowledge-based theories argue that organizational knowledge is one of the most valuable resources and a key factor in a dynamic and rapidly changing environment.

One way of building up customer loyalty is to provide the customer with special software and user interface that require investments in training time for the customer. Customer loyalty is also possible to build up through an information base that is held and managed by the supplier (Timmers, 1999). This way of building loyalty could also be described as a way of making the customer dependent on the supplier.

Timmers (1999) refers to Porter and his three generic competitive strategies, which if they are followed could make firms achieve commercial success. These three strategies are; cost leadership, differentiation and focus or niche. These strategies are also of interest to think about for ASPs. Currie & Seltsikas (2001b) declare that it is extremely important for an ASP to have a market segmentation strategy.

## 7 Findings and Further Research

The findings and the proposed further research build on a literature review as well as the case description. It also builds on interviews done at two more ASP-organizations and on interviews conducted with customers related to them. As already mentioned, the reason for not reporting from these interviews is that they more or less say the same thing, and the restriction of the length in this paper.

In the case description above there are at least two different types of relationships. First there are relationships between the ASP organization and their clients. This relationship could be categorized as a cooperative relationship. This relationship builds, according to Lacity & Willcocks (2001), on the assumption that the partners do not share the same goal rather that they need something from the other partner to succeed. In the case of ASP, it is quite clear that an ASP will not be doing business for very long without having any customers. The effects of not having enough customers has been apparent for the ASP over the past years. On the customer side it is not so clear that they depend upon the service that the ASP is offers. In the beginning of the relationship they certainly are not. But, after a while, they will probably be more and more dependent on the ASP organization and their service.

The second relationship the ASP organization is involved in, is the relationship to their supplier or sub-contractors. At the case organization this is very strongly expressed. According to the respondent, this relationship is the most difficult and hardest to manage. The relationship could be categorized as a collaborative relationship. A collaborative relationship means that the parties according to Lacity & Willcocks (2001), have a common and shared goal. In this case the shared goal is to deliver and receive receipts from the external customer. These two different relationships could be compared with Grönroos, (2002) categorization of relationship treatment. The customer in this case, wants a transactional relationship, with good service without extra frills. They just want the application to work and do not want or expect any other activities. The ASP organization on the other side wants an active relationship, with active contacts from the customer.

The kind of relationship and how this inter-organizational relationship is developed and managed is most important for the ASP organization. Both the customer as well as the sub-contractor are not dependent on the existence of the ASP organization. For the ASP organization to succeed it is probably necessary to have a market segmentation strategy. It is also necessary to develop and manage the relationship between both customer as well as sub-contractors in the right way.

The discussions about intermediaries and eCluster that Lockett & Brown (2000) put forward is both challenging and confusing. It is confusing because the concept of an IBC service provider that they suggest is, in my opinion, already what the ASPs are trying to do. But their ideas of intermediaries, which they put forward, are also a challenge. It could be very fruitful to look at the ASP concept as a strategic network where the ASP is the intermediary that “moves the paradigm for businesses from *‘do it yourself’* to *‘do it for me’*” (Lockett & Brown, 2000, p. 199).

One of the main ideas of ASP is that this supplier should be a coordinator or a one-point access for the customer. This means that the ASPs should provide the customer with access to the partner or the partners’ products that the customer needs. To do this, the Internet and the use of Internet is one possible way. This is quite contradictory to ideas about the Internet that suppose the Internet to enable customers to increase the amount of suppliers and to do that in an ad hoc manner (Timmer, 1999).

The literature suggests some answers to the question: what is ASP? There are some predictions drawn from the literature that are possible to say about the ASP concept:

- it consists of offering applications.
- the delivery is done in a one-to-many model.
- the charge for this is based on a pay-as-you-use model.
- the delivery and maintenance of the applications is done by an external partner to the user.

These predictions are not fully supported by the findings in the case. The company does deliver applications, but the delivery is not done in a one-to-many model. Another finding is that the pricing-model the ASP is conducting is not a pay-as-you-use model.

The questions raised in the beginning at this paper were: what roles does an ASP play for small and medium sized enterprises (SMEs), and what roles can an ASP play in the future? Despite that this reports from an ongoing and recently new started research project. The findings maintain that the ASPs do not work as a mediator in the middle of a strategic network. What role they play is quite unsure. They do act as a mediator between the customer and the sub-contractor, but what role do they play? The ASPs role has to be more explicitly developed and explained, for both the customers as well as for themselves.

The findings so far raise some reflections. First, there is a disagreement between the literature about ASP and the empirical findings. Second, studying ASP literature, the ASP concept appears to be a fruitful way for SMEs to support themselves with ICT. Still they don't do that.

These conclusions raise a couple of possible further research questions.

- Why don't SMEs use ASPs more than they do today?
- How should the ASP marketing be done?
- Could the strategic network be helpful to explain ASP?
- And could strategic network be the "thing" that gets ASP in to business?

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