

ASP Strategies and Solutions for eProcurement Processes Offered by an eMarket

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Abstract

Instead of having to buy expensive software packages, companies now have the possibility to rent these from an Application Service Provider (ASP), thus saving costs and receiving high quality services. The novelty of the ASP means there is little knowledge available to answer the questions of who should provide what service in which form, for which customer group. In order to answer some of these questions, we will look at the opportunities and requirements that ASP presents for an eMarket focused on procurement services. We will clarify the significance of the ASP in an eMarket environment and which partnership roles it necessitates. We will elaborate upon the advantages for trading partners and the Market Maker. To achieve this we have analyzed three case studies that cover different phases in the life cycle of an ASP. Our purpose is to highlight the challenges for the eMarket in enhancing its offering. To summarize, we will present the lessons learned and provide an overview of potential developments of the ASP model.

1. ASP for an eMarket

1.1. Definition, benefits, and research question

As the ASP is a relatively new option in areas other than that of the financial services industry¹, existing research in this topic is limited. The content and service coverage that is implied by the term ASP has not yet been clearly defined (see Figure 1-1).

“A company that offers software applications for „rent“ over the Internet.” [1]

An ASP “deploys, hosts and manages access to a packaged application to multiple parties from a centrally managed facility. The applications are delivered over networks on a subscription basis. This delivery model speeds implementation, minimizes the expenses, and risks incurred across the application life cycle, and overcomes the chronic shortage of qualified technical personnel available in-house.” (<http://www.aspconsortium.org/glossary.cfm>)

¹ One could consider central banking systems like SWIFT as an ASP solution

“A company that provides application functionality and associated services across a network to multiple customers using a “pay as you go” payment model. The ASP may host the application or it may contract with an application hosting provider. In either case, the ASP is responsible to the customer for all services related to the provisioning of the application functionality, including the responsibility for delivering on end-to-end service-level agreements.” (Gartner Group 05/2000)

Figure 1-1: ASP definitions

Although ASPs have not achieved the rapid market acceptance foreseen by some researchers,² some proponents argue that the attractiveness of the ASP model is currently on the increase. „Facing potential cuts in the amount of money available for IT spending, hammering out a return-on-investment model over a two-year contract can show some significant savings for an enterprise utilizing the services of an ASP“ ([2]). In this paper, we analyze ASPs and explore the impact of ASPs on eMarkets.

We define the ASP as a company or organization that offers application hosting to multiple entities (via the Internet), whilst maintaining ownership of and responsibility for deployment of software licenses and the hardware and people required for operations. The ASP often provides limited consulting, implementation and customization of services. The nature of a pure ASP offering is software that is freely obtainable on the market and thus available directly to the ASP customer for procurement and implementation.

The benefits of using an ASP are (cf. [3], [2]):

- **Costs savings:** low cost of entry with no additional IS³ costs in terms of specialists, hardware and software, and expensive upgrades
- **Time savings:** minimal set-up time eradication of the need for lengthy roll-out of complex information systems
- **Low risk:** reliable operations, fixed and/or known costs and, if necessary, alternative providers are available

² Forrester forecasted in 1999 an expected turnover of 6 Billion \$ in 2000, Yankee expected 30 Billion \$ in 2001

³ We use the term information systems (IS) to encompass information technology, communications technology and application systems.

- **Convenience:** scalable and demand driven usage including seamless, imperceptible upgrades
- **Guaranteed service levels** are promised

On the negative side, ASPs frequently attempt to offer repeatable, standard software solutions to their customers via the Internet, in order to avoid customizing each service subscription. This can result in a somewhat inflexible offering. Should the ASP wish to tailor its services for each customer offering, the entailing costs and increase in development and support staff may necessitate a customized delivery model.

Another salient point why some ASPs fail is that they are unable to provide the required service levels they promised in their contracts.

The research question is to explore how eMarkets can use ASP offerings to enhance their own competitiveness and that of their customers. The underlying rationale is that eMarkets are experienced in electronic business and have established customer relationships. Ideally, they have their own marketing and sales approach and provide additional application services to their customer. Alternatively they are established, trusted intermediaries, which could position themselves as ideal candidates for offering ASP solutions.

The research question was derived from working with an eMarket. We analyzed the ASP phenomenon using the following life cycle model from an eMarket perspective (following [4]).

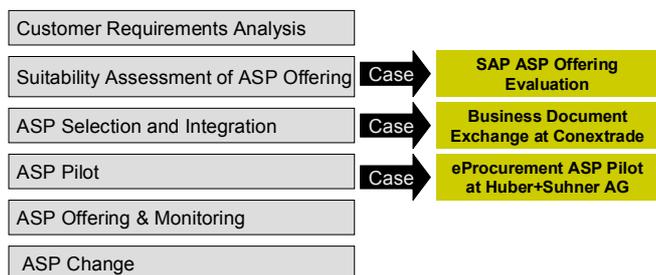


Figure 1-2: ASP evaluation procedure and corresponding case studies

Figure 1-2 shows the initial process of analyzing and using an ASP solution. Starting with customer demands, the ensuing phase is the assessment of appropriate, potential ASP offerings. The selection and integration phases of the ASP solution as well as the pilot project phase subsequently lead to a general offering and monitoring of the ASP solution. The final phase is an upgrade, substitution or termination of the ASP solution.

1.2. ASP and roles of an eMarket

eMarkets can be seen as a “logical space or media built on an infrastructure to coordinate activities via market mechanisms between buyers and sellers according to predefined rules” [5]. The evolution of eMarkets has progressed from simple price mechanisms towards multiple criteria (e.g. price, features, quality, and delivery)

as well as the whole process from information to delivery and payment. An intermediary and especially a Market Maker of an eMarket is motivated to attract more trading partners and to increase its range of services to expand the total value it adds to the transaction process [6].

A closer look obtained by working with eMarkets revealed an ecosystem of eMarket partners covering different roles, which are explained and highlighted in the following paragraphs. Partners can cover multiple roles and roles have varying significance in the evolution of an eMarket. The roles can be identified and delineated by considering the phases of an eMarket life cycle (see [7], [8]). We will briefly explain which roles we have identified and illustrate how ASPs fit into the eMarket ecosystem.

The life cycle consists of seven phases: Invent, design, build, pilot, run, develop, and retire (see Figure 1-3).

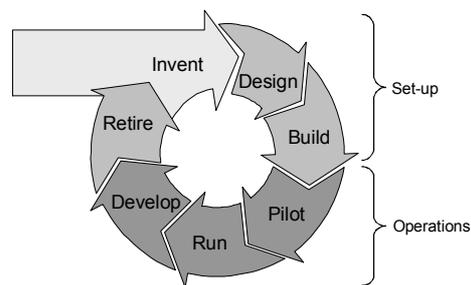


Figure 1-3: Life cycle of an eMarket

The idea to build an eMarket can originate from many causes and/or stakeholders, however the ultimate driving force is often the role of the **Market Maker**, who identifies inefficiencies between buyers and sellers in a supply chain. The Market Maker brings the different roles together by aggregating the eMarket offerings to suit buyers’ and sellers’ needs and defines the market rules.

In the design phase the Market Maker might be supported by **Professional Service Providers** to finalize the business concept [9]. Professional Services is a superset of consulting services ranging from strategy to systems integration. The outsourcing of human intensive professional services such as that of a legal advisory is also summarized in this category.

Professional services might support the building phase when infrastructure providers and others are required or take on permanent responsibilities for ongoing activities such as legal or tax advisories. To provide an attractive informational and transactional content, a Market Maker might choose a **Content Provider**. An association or a professional content aggregator for web or catalog content (e.g. requisite.com, eContent.com, contenteuropa.com) can fulfill this role. **eService Providers** can be used to enrich the offering and compose end-to-end solutions by adding modular and standardized services for payment and logistics processes or other third party eServices (e.g. electronic integration of transportation services).

In the pilot phase, **Integration Service Provider** roles are required to enable electronically integrated, end-to-end

integrated solutions. Market Makers can use **ASPs** to complete their solution and service offering, either by seamlessly integrating the ASPs' offering or by offering software in ASP mode themselves. Ideally, these solutions should be built upon software that is developed in accordance with communications and document standards if the company itself is unable to establish its own de-facto standard. Examples of **Standards Providers** could be associations like the UN, RosettaNet or even company standards such as xCBL, proposed by SAP and Commerce One. **Platform Providers** are hardware, software and security providers. Many software companies, most of them start-ups, have identified the opportunities presented by eMarket suites and have started developing solutions to offer a software basis for Market Makers. We now see software solutions for horizontal and vertical eMarkets based on standardized software competing with custom developed solutions. **Financial Partners** that provide capital are influential, however their role does not have to influence the direct service offerings by the eMarket. The roles supporting the eMarket in the operational phase of business form the Business Collaboration Platform.

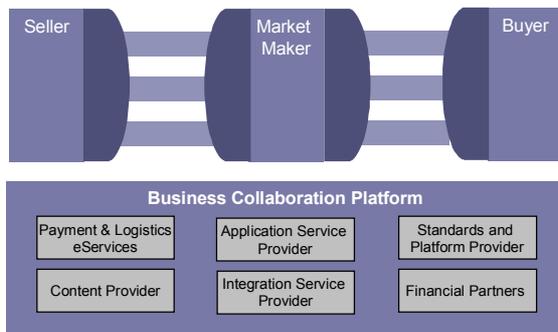


Figure 1-4: Roles of an operative eMarket architecture

Figure 1-4 shows the entire operative eMarket ecosystem that surrounds the Market Maker. Actively taking on a role in such an eMarket ecosystem can be driven by various motivations from a buyer and seller perspective:

Buyers or **Sellers** want to save procurement or selling costs respectively. They want to improve their information exchange with partners enhancing the quality of strategic decisions and enabling collaborative processes. Increasing richness and reach [10] is another major motivation for buyers and sellers. Selecting open platforms that have many trading partners connected and have interoperability agreements with other eMarkets can enable this. Additional eServices foster a higher flexibility to connect their businesses and reach potential business partners. Finally, eMarkets offer the possibility to enter a new market or a new business area since they are a relatively new challenge or an extension of their current business.

When offering an ASP solution by the Market Maker or a third party ASP to the eMarket's customers, the following questions arise: Which role to play? Which service and which service provider to choose? Which eMarket to

choose? (For more details on evaluating eMarkets see [11]).

1.3. Benefits for an eMarket

We have derived the following benefits from an in-depth single case study at Conextrade, which operates an eMarket for MRO⁴ products and services in Switzerland for primarily Swiss customers. Enriching its offering with additional ASP solutions provided by Conextrade directly or via third parties should provide the following specific benefits for each role (see Figure 1-5):

Market Maker	3 rd party ASP	Buyers and Sellers
Be able to address the SME target group	Additional sales channel	Less complex in-house IS landscape
Complete the transaction	Less marketing expenses	Less investment (IS and HR)
Increase retention of existing customers	Increased value to their customers	Access to innovative and up-to-date solutions
Be able to win new customers more easily		

Figure 1-5: Benefits for the main participants

In order to explore whether these assumptions are correct and explicate the lessons from first projects, we will present the results of these initial studies.

2. Research status on ASP and research methodology

The ASP phenomenon has developed from business practice. To date little scientific research has been conducted on ASPs to our knowledge. However, we have identified research areas with similar challenges in the area of asynchronous transfer mode (ATM), telecommunications and IS outsourcing. Due to its novelty and its wide implications on organizational structure, strategy and IS, the ASP topic should not be approached from a single theory perspective, but with an explorative and eclectic approach.

Literature on contracts for ATM services, service level agreements (SLA) between multiple cooperating organizations and contracts in the telecom industry (cf. [12], [13]) cover similar inter-organizational services with multiple service customers and multiple service providers. The research covers elements of SLAs, contracts and their automated monitoring, as well as system architectures for designing and managing contracts and SLAs. It provides a basis to define solutions to these problems for in-depth research on ASP.

Another stream of insights is the IT outsourcing and strategic outsourcing literature (cf. [14], [15]). This research covers the decision process, partner relationship management, contracting, service levels and their monitoring.

⁴ MRO stands for maintenance, repair and operating

Naturally, the service industry and service contracts provide some theoretical basis for this research (cf. [16], [17]). The difference towards pure software companies is the requirements on availability and the active involvement of the external factor⁵ by potentially permanent customer interaction via electronic means.

In this paper, we discuss ASP from an activity and provider perspective on a more general level and in an explorative way in order to identify the applicability of the concept to intermediaries and eMarkets in particular. We will briefly outline how the research was conducted. The paper is part of a larger work on eServices in procurement, which is based upon an understanding of management and information systems research as applied social science [18], [19]. Since it focuses on socio-technical relationships, it declines a positivist approach and accepts the premises of a post-positivist approach [20], as business reality is too complex to be efficiently simulated or modeled and human behavior too erratic, context-sensitive and difficult to reproduce. ASP is a typical example for research in information systems that have strong linkages into business and organizational issues. We have defined the research questions in close collaboration with business practice.

By working with different Market Makers since 1998, we have helped to identify and implement new business models for them. Based on the principles of participatory action research (cf. [19], [21], [22] [23]) and an in-depth case study approach (cf. [24]), we have conducted long term research with Conextrade. Amongst the results are a running ASP offering, an offering in its establishment phase and several new potential business models. This research approach was taken due to the immaturity and complexity of the research area, and the focus of the research on the nature and the goal to identify empirically tested design recommendations.

Based on an interdisciplinary, dominantly inductive, explorative approach, we use participatory action research to actively embed the research process into real life situations with which businesses are confronted [21]. This approach aims to reach meaningful scientific insights and simultaneously improves the structures and situations experienced in business [25]. The scope covers case studies starting with shared problem identification, through project planning to implementation and monitoring. This approach helps to increase the focus on actual problem situations and the ability to improve acceptance and willingness to implement findings by business practice.

The value of the research in that tradition and its criterion for progress are assessed by the practical problem-solving capabilities and the power of its models, concepts and

⁵ The external factor is one constituting element that defines the service character. It requires input by an external party from the perspective of the service producer. Examples are living objects, material objects (e.g. transport objects), and immaterial objects (information, information systems or rights).

instructions for action [26]. To achieve that, the research process contains the following steps [27]:

Scientists and practitioners together define the problems. Scientists structure the problems and develop proposals for the configuration of business reality. They incorporate their theoretical knowledge and their own experience into this process. Scientists and practitioners together examine these proposals and refine them further. Practitioners apply the proposals; i.e. they structure the business reality in accordance with the proposals generated by their collaboration with the scientists. Practitioners and scientists together examine the results and enhance the existing or develop new proposals.

This process has been implemented in in-depth collaboration with practice and is documented in a case study based [24] research approach at the Institute of Information Management of the University of St. Gallen. It is part of a shared work effort of seven researchers at the Competence Center for inter-Business Networking (www.ccibn.unisg.ch), together with eight international companies from Europe and USA from 1998-2000. It is complemented with an in-depth case study at Conextrade (www.conextrade.com) from 2000-2001 to test the first understanding gained in the cciBN.

The research project partners with in-depth studies were:

Time span	Name	Main Content
08/2000-06/2001	Conextrade AG	In-depth case study on eService for eMarkets
02/2001-03/2001	Huber+Suhner AG	ASP eProcurement solution success story
03/2001-06/2001	Conextrade AG	Business Document eXchange Service concept and implementation
02/2001-06/2001	SAP AG / Conextrade AG	Evaluation of ASP solutions

Figure 2-1 – Overview of case input for the research presented

The research goal is the design of business reality. The research focuses on understanding practical situations, decision and action alternatives in order to generate future oriented concepts and design recommendations for meaningful practical action, which have been applied to practices in earlier versions. To summarize, the research:

- is value-bound, normative [26],
- accepts multiple constructed realities [28, 34] and is based on the epistemological assumption that researcher and researched are inseparable [20],
- uses an eclectic approach on theories that which isare best suited for inter-organizational settings [29],
- is inductive, and
- iterative (including a cyclical learning process).

The research is value-bound and normative in that it provides design recommendations and procedures. If the reader accepts the assumptions, he can perform an analytical generalization [24]. Since researcher and participants from business all have different backgrounds,

objectives and experiences, the research is based on multiple realities. The breadth of topics to be covered and the novelty of the research area allow for an eclectic approach on the underlying theory only. We follow inductive scientific approaches by deducing the research objective from practical phenomena. The successive scientific work reconstructs and consolidates the phenomena [30]. After a joint definition of the area of concern the researcher develops a framework of ideas. Based upon this, the research methodology generates new insights and ideas about the area of concern [19], whilst enhancing the knowledge thereof.

Interviews and literature research plus the direct involvement in projects helped to shape the research question and provided salient input into the development of design recommendations. This was achieved in workshops and document reviews where the project workers of the participating companies provided feedback and revised the proposals. After the first design phase was finished, the results were validated in projects as well as discussions and academic papers. This paper addresses one specific topic of the work on eServices and its relation to ASPs.

3. Cases of ASP offerings for an eMarket in different life cycle phases

We will present ASP models and their application to customers in different life cycle phases from the perspective of Conextrade as a Market Maker. Part 3.1 will briefly describe the general outset at Conextrade. The following paragraphs with ASP cases start with a description of the business needs. It is followed by an analysis of the ASP model. The cases conclude with the lessons learned and required adaptations. To highlight the evolution we will present the cases in a reverse form, from a life cycle perspective starting with the first implemented ASP offering of Conextrade. The second case presents a currently developed solution with some ASP elements. The last case describes the chosen approach to analyze additional ASP offerings from third parties.

3.1. Research background: Conextrade AG as a Market Maker for trade enabling

The main source of insight was the case study we conduct with Conextrade (www.conextrade.com), which can be categorized as a Market Maker for Business-to-Business electronic trade for MRO products and services. It supports the information, contracting and transaction phase of the ordering process. Conextrade offers supplier adoption, content management, catalog management, and transaction processing services. It will offer Business Document eXchange and eService integration via its eMarket in the near future. Additionally, it offers ASP solutions for transaction processing, authorization workflow management, ordering and order management

for MRO products and services. As an ASP solution for suppliers, Conextrade offers an order management application. Conextrade runs and maintains the development and quality assurance systems themselves, while the productive systems are all outsourced to a hosting specialist. Complementary services, which are not fully automated, or customer individual project work are also managed by Conextrade. Additionally, Conextrade offers an online auction service in ASP mode.

Conextrade AG is a 100% subsidiary of Swisscom AG – the leading Swiss telecom service provider. Conextrade sees its role as a trade enabler that facilitates trade within Switzerland but also international trade from and to Switzerland. Currently Conextrade employs more than 70 people. The researcher works on a part-time basis as consultants and business development manager.

3.2. ASP Pilot Phase: eProcurement ASP solution for Huber+Suhner

Conextrade has implemented an eProcurement ASP solution for Huber+Suhner⁶ that is operative since April 2001. The insights were elaborated based on document reviews, interviews and a success story written about the project together with the Head of Corporate Procurement from Huber+Suhner and the Conextrade project manager. Some of the results are documented in [31].

3.2.1. Business needs

Huber+Suhner has decided to use an eProcurement software solution to increase efficiencies in procuring MRO products and services. They have chosen to start a pilot in an ASP mode in order to pursue the following goals:

- gain practical experience in the transformation process towards electronic procurement
- salient reduction of procurement costs and order-delivery time
- raise acceptance levels of decentralized, occasional users as well as suppliers

Huber+Suhner is convinced that the occasional users should be able to execute the procurement for MRO products and services themselves in order to eliminate manual administrative activities and achieve savings and efficiency gains.

Apart from offering Huber+Suhner the advantages of using an ASP, the eProcurement solution also direct business benefits gained from additional integration and information services.

⁶ The Swiss Huber+Suhner Group is an international leading provider of innovative components and systems in the communications technology sector as well as technically sophisticated polymer systems. In the fiscal year 2000, the group had a turnover of 907 Mio. SFR with about 3'900 employees (www.hubersuhner.com).

3.2.2. ASP model

Conextrade's pilot offering consists of a standard Commerce One Buy Site[®] that is hosted by an-other Swisscom entity and accessed by Huber+Suhner via a web browser over the Internet. Suppliers use another ASP solution from Commerce One called Supply Order[®] to receive orders and send confirmations via the Internet. Huber+Suhner pays an initial set-up and an annual fee for using the solution.

The Conextrade eMarket provides applications via the Internet and services like a customizable asynchronous ERP-Integration including ordering data, cost center data and the goods receipt information. Additionally, Conextrade offers supplier training, catalog and content management for Huber+Suhner, as well as consulting to facilitate the adaptation of the procurement processes in order to reap the full potential of the new software solution.

3.2.3. Lessons

In working together with the client, Conextrade learned that the initial offering would not suffice. A stand-alone ASP model would not satisfy Huber+Suhner's need to integrate the orders and invoices into their Baan ERP system. Conextrade has developed a file transfer mechanism that enables Huber+Suhner to receive the order in an electronic form and use the ERP invoice reconciliation mechanism for MRO products.

The ASP solution requires considerable bandwidth to run efficiently with adequate response times. In the first weeks of the pilot, Conextrade discovered that 256 kbit/s are not sufficient; Huber+Suhner needed an upgrade to a 512 kbit/s connection.

The main challenge has been to convince the internal departments to use the system in order to achieve the prospected benefits.

Based on the early experience with Huber+Suhner, Conextrade has extended its offering to target SMEs. However, this approach has not been as successful as with medium to large size companies. One of the reasons is that the savings and process efficiencies to be realized are far smaller within SMEs. Plus, the difficulty to convince SMEs to allocate resources to projects focused on the improvement of the MRO product procurement process is more difficult. Arguments like lower prices due to a higher buying power do not apply, therefore, they concentrate on their direct goods eProcurement.

3.3. ASP selection and implementation phase: Business document eXchange

The Business Document eXchange initiative is driven by Conextrade and its partner SAP (Switzerland) AG who both see the need to extend the business model of supporting only MRO eProcurement in order to meet customer needs. This insight has been enforced by the general loss of attractiveness of eBusiness projects and

companies' refocusing IS spending towards improvements in procurement process of direct production goods.

3.3.1. Business needs

Basis for further ASP offerings is a service Conextrade termed Business Document eXchange. The identified requirements are a tighter integration with backend systems, an extended ASP offering for suppliers, offering an infrastructure for a more complete process coverage (e.g. logistics) and to extend it towards a service for inter-organizational procurement of direct goods. The core of the service is to be able to extend Conextrade's existing functionality of the Commerce One MarketSite[®] software by being able to be the Integration Service Provider for buyers and sellers. This role includes the conversion of documents, their routing, different transport protocols, document standards, and the support of specific inter-organizational processes via specific applications. The service is limited to inter-organizational integration issues and does not cover enterprise internal integration and conversion requirements.

3.3.2. ASP model

The business logic is that a N:1:M eMarket model⁷ reduces the total costs and the complexity of data standards, communication protocols and inter-organizational processes to be linked and maintained by each trading partner in a 1:1 relationship. This gives Conextrade the opportunity to establish itself as an Integration Service Provider. It could leverage the investment in solid B2B middleware and share the savings of implementing and running the system with the trading partners (buyers, sellers, 3rd party service providers and partners) compared to individual 1:1 integration and maintenance projects. This leverages the existing ASP solutions for buyers and the order management tool for suppliers since their business partners have a greater choice of the processes, applications, documents, and communication protocols to connect and automate their inter-organizational business. After a marginal set-up fee for the connectivity, the trading partners pay according to their use of the Business Document eXchange service.

3.3.3. Lessons

This service represents an additional opportunity to extend the ASP offerings by Conextrade based on a B2B integration middleware. Further extensions of the ASP model towards eServices or WebServices are depicted in Figure 3-1.

The first is the process management service. It manages company specific process workflows that are triggered by business relevant content of the documents, which are routed and converted by the BDX service.

In parallel, Conextrade will integrate eServices to complement end-to-end, media mismatch free transactions

⁷ N:1:M signifies here that one eMarket as an intermediary manages the relationship to many buyers (M) and sellers (N)

via the Conextrade eMarket. We define ideal eServices as Internet-based applications and services, which are offered as individual, modular services to solve a specific business need that seamlessly integrates with the (business or private) customer's processes and systems. They require direct electronic interaction of the service consumer and contain complete and sound electronic transaction chains, which enable the coordination of partners and/or resources via electronic means. An example is the electronic integration of transportation services into the inter-organizational process flow.

In the future additional timely and relevant value chain information will be accessible to the trading partners. This forms the basis for more agile and better decisions. With that functionality in place and the critical mass of customers using it, an eMarket can further extend its role of bringing buyers and sellers together. The extension is offering coordinating activities across the value chain or value net via gathering, synthesizing, and distributing agreed on and secure information of the trading partners [6]⁸ and acting upon it.

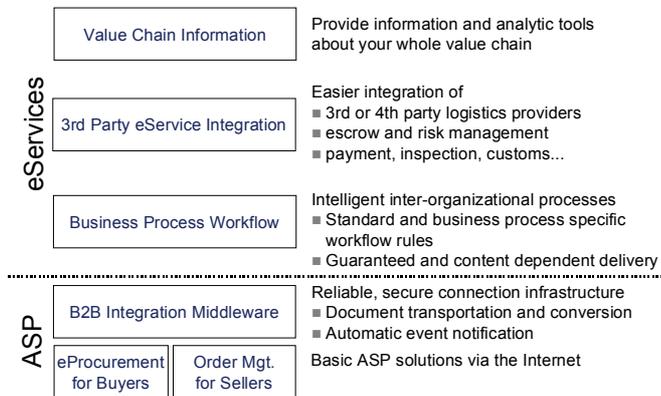


Figure 3-1: Evolution of the ASP model at Conextrade

For the higher level services there are some questions to be answered like the effective SLA management for third party eServices. The considerable investment of the new platform required in order to offer the above-described service will only pay off, if the desired critical mass and the network effect will materialize.

The higher level services do not anymore comply with the initial ASP definition. They resemble eServices for an eMarket based on a customized middleware (see chapter 4.2).

3.4. Suitability assessment phase: ERP functionality on an eMarket offered to SMEs

The motivation was to explore the potential for further offering of additional ASP or eService solutions. On behalf of Conextrade, we conducted an analysis of the suitability of SAP (Switzerland) AG's ASP offerings.

⁸ [6] P. Weill and M. R. Vitale term this role a Value Net Integrator (p. 21)

3.4.1. Business needs

SAP has realized that its software infrastructure and the expertise required to run SAP systems are not appropriate for all company sizes. In order to continue growth, SAP has targeted the SME market with a software package that allows an ASP offering. For Conextrade, there is the potential to address new customers by offering industry specific applications that complement the eProcurement process without having to run a whole ERP system. In doing so, Conextrade can enhance its process outsourcing capabilities by extending its support in further areas to target specific SME customer groups. This would imply a vertical ASP offering to create a lock-in.

3.4.2. ASP model

SAP Switzerland's role model for ASP solutions has three to four roles. It includes at the minimum the software provider (SAP), the hosting partner, and the service partner⁹. Figure 3-2 shows the three roles and in brackets the service provider for the ASP solution described below.

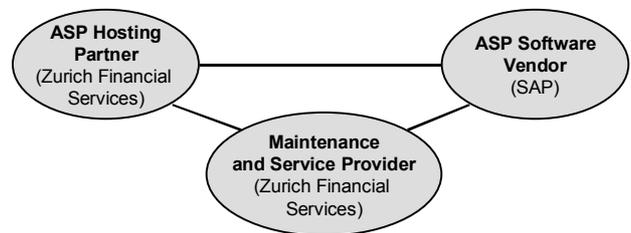


Figure 3-2: SAP ASP partner model

SAP packages the payroll software in a SAP R/3 release independent form called HR easy to go[®]. It offers it to Zurich Financial Services, which owns the customer relationship and possesses the customer knowledge. They parameterize the software to the needs of the target customers and offer this at a low price in order to increase the customer retention. In so doing, Zurich Financial Services are able to access individuals directly and open a sales channel for private customer products like car, life or household insurance. Zurich Financial Services is also the hosting partner for the ASP solution, but an outsourcing is possible, if the of volume currently 160 SMEs increases. The benefits for the SMEs are that they can use an inexpensive payroll management system. In other scenarios all three roles are fulfilled by different parties, like the financial services and controlling solution with HP as hosting partner and PwC as the service provider.

3.4.3. Lessons

In this ASP model one additional partner is added, who provides the access to the SMEs and offers the configuration know-how for the ASP solution. An extension towards a permanent service offering and professional services consulting has been realized in a

⁹ In some instances, a professional service partner role, e.g. client-side consulting, can be included

traveling service SAP ASP solution. The ASP solution moves more towards customized services that are tailored to customer needs by providing access to expert knowledge or by offering customized solutions.

This range of ASP solutions provides the eMarket with additional functionality but requires additional technical capabilities of hosting an SAP ERP system components. This requires another technical platform, trained people and knowledge than the eMarket platform of Conextrade currently uses. Although the productive system is outsourced, the development, test, and quality assurance systems are run directly by Conextrade employees.

The main reasons for not actively pursuing an implementation were, that it would require a UNIX based IT platform and know how in SAP applications. Since this was not too well distributed in the beginning of 2001 and the scarce resources were occupied with other activities, Conextrade did not see the possibility of an immediate start. Furthermore, the customer access to SMEs was not yet available, since Conextrade has positioned itself in the large to medium sized companies market. The negative outcome of its first approach to the SMEs with the pure eProcurement ASP solution was another inhibitor to an investment of offering SAP software bases ASPs directly or via a third party.

To summarize, the partnering with additional ASP software and hosting or professional service providers opens a move from the traditional ASP model towards a more service-oriented model. It offers new opportunities for eMarkets to move faster into new market segments, if the right partners and/or the internal know-how are available.

4. Lessons from the cases

4.1. Applicability of ASP solutions for eMarkets

The case studies have shown that ASP solutions do find their customers in inter-organizational settings. We have seen in the case of Huber+Suhner that the main reasons for choosing an ASP solution are a low-cost and low risk entry into a new application area. The ASP solution is attractive as a way to transform towards the information systems support of a new process solution. Huber+Suhner used an eProcurement application offered via Internet by the Conextrade eMarket. For non-SAP customers the attractiveness of a Commerce One ASP solution is still high, if it can be integrated with the backend ERP system. For Customers who already have a SAP ERP system installed, the situation is different. For them, an ASP solution of a SAP Enterprise Buyer Professional[®] can be a low-cost and low-risk entry for existing SAP customers to use the seamless integration with the ERP system. However, the depth of integration needs to be limited due to security concerns. We experienced that the motivation of this customer group is to migrate towards an in-house solution in the long term, but are hesitant to conduct their

own pilot. Reasons could be capacity constraints or risk considerations. For these customers the ASP model is a temporary solution. In these cases, the ASP also applies to multi-national enterprises, which want to learn (with little investment) how the processes should be introduced and which products and services can be procured via that channel.

For the reasons indicated in chapter 3.2.3, we could not support the thesis that eProcurement ASP solutions are specifically suited for Swiss SMEs. Therefore, Conextrade is learning from that experience and will offer solutions for their procurement of direct goods with the Business Document eXchange service.

A hurdle in inter-organizational settings is that applications offered via ASPs need integration, since isolated solutions are not attractive in eBusiness. This in turn requires a more customized offering and might risk the ASP benefits or move towards similar offering like the Business Document eXchange service, which provides more customized integration services.

Some of the inhibitors that we experienced are:

- Low bandwidth Internet access from the perspective of an ASP customer.
- Lack of platform hosting experience from the perspective of an eMarket trying to offer an additional application component.
- Need to provide direct business benefit in order to achieve a positive feedback from customers. Just focusing on MRO eProcurement has not been enough as a value proposition to Swiss SMEs.

4.2. Extension of the ASP model: eServices

Conextrade had to learn that the MRO eProcurement offering in an ASP mode is good to attract some early movers but it is not enough to amortize the investment required to build and maintain an eMarket. One lesson of the case studies is that isolated ASPs are not enough in the area of eProcurement, where the focus is on inter-organizational process improvement. Although buyers and sellers can use the Commerce One applications offered by Conextrade in ASP mode that are seamlessly integrated with the eMarket processes, they still lack “out-of-the-box” backend connectivity. One possible solution is to add services like the Business Document eXchange to enable seamless integration possibilities. A further advantage is that this infrastructure can also serve as a higher layer business infrastructure to integrate eServices¹⁰. This offers the opportunity to provide customized automated services on a business semantics level.

The nature of eServices is to contain some of the characteristics of ASP solutions and extend those. They offer a higher-level service by taking on responsibility on the semantic level of the business content or processes and are tailored to the trading partner’s requirements. A further

¹⁰ The term Webservice can be used almost interchangeably

distinguishing characteristic is the focus on inter-organizational eServices for eMarkets that coordinate or facilitate inter-organizational processes. In doing so, they perform, facilitate or enable new processes on behalf of the trading partners. Figure 4-1 shows three levels of eServices and how they differ from ASP solutions.

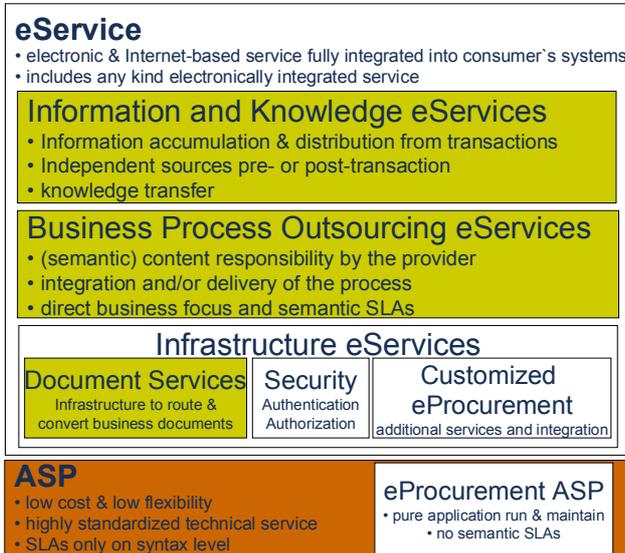


Figure 4-1: Characteristics of ASP versus eServices

The ideal partner to offer a 3rd party eService has a deep process and industry knowledge and is able to offer customized solutions that enable end-to-end business processes by integrating additional partners. An example could be the integration of an eService for transportation with real transportation orders and physical delivery integrated and invoked via an eService. eServices might include an ASP-level solution but must develop a more complete and business oriented offering.

4.3. Integrated assessment model

Based on the experience gained from the cases we propose the following refined procedure model. It should be used as an innovation and assessment model to analyze the potential to embed existing ASPs or own ASP services into an eMarket (see Figure 4-2).



Figure 4-2: Assessment model for eMarkets

To facilitate the suitability assessment and to visualize the positioning of ASP, eServices, and a strategic cooperation or business partnership the following diagram may be used. With the two dimensions of set-up and maintenance cost and the flexibility within a chosen partnership, the three inter-organizational scenarios are positioned (see Figure 4-3). Additional criteria are the closeness to business process outsourcing and semantically correct interpretation of the eService output, and a high degree of business process integration into in-house processes.

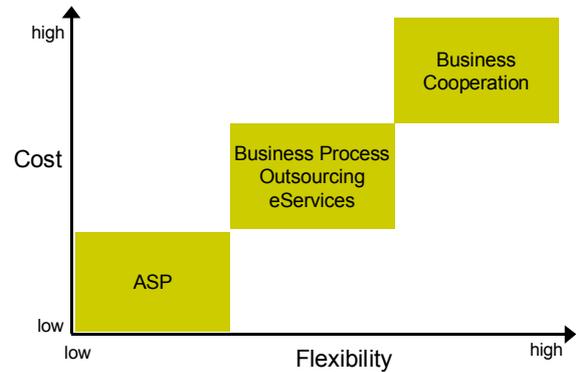


Figure 4-3: Positioning of ASP model

We highlighted that ASPs can provide areas of benefit for eMarkets. We have explored success factors as well as potential hurdles. We were not able to validate the assumption that ASP will be the preferred solution for SMEs. A further finding from Conextrade within the Swiss market segment for Business-to-Business trade is that an eMarket must offer higher level services than pure ASP solutions to justify its existence and position as intermediary. The Swiss market demands more business oriented services for online trading which produce semantically correct outputs. Therefore, we have introduced Infrastructure eServices like the Business Document eXchange and Business Process Outsourcing eServices to complement ASP offerings. Future research will have to show if this finding can be applied to other business process areas and to other countries.

4.4. Outlook

The separation of ASP and eServices has helped to analyze the actors and implications of an ASP model in the inter-organizational setting of eMarkets. We believe that the clear role concept and the proposed procedures derived from one in-depth case helps to analyze the value an ASP or an eService provider brings to an eMarket. Figure 4-4 highlights that the outsourcing trend of IS-related activities is moving towards semantic and more business oriented services. The brief overview of literature on ASP related areas in chapter 2 has shown that there are still open questions. Since first concepts and proposals exist (e.g. SLAs for federated environments [12]) and well-established rules and procedures do exist for ATM networks, we will most likely have to wait a few more

years before we can expect automated contracts and SLAs on the Business Process Outsourcing level. First results in that direction are planned within the ebXML initiative.

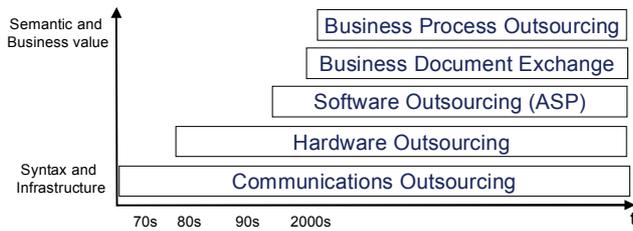


Figure 4-4: Evolution path of outsourcing

If the reader can transfer the findings to a direct ASP user (e.g. buyer or supplier who is not using an intermediary), it should be possible to obtain some insights and take some actions arising from the cases presented above. We see a tendency of pure ASP models being developed towards Business Process Outsourcing eServices. This requires an additional set of capabilities and requires much business knowledge and a closer collaboration with the customers. With new technical standards evolving (e.g. ebXML, UDDI, SOAP, WSDL)¹¹, the use and manageability of eServices should be facilitated.

Future research will show if the proposed models will help to clarify and categorize the ASP and eService/WebService approaches that are currently available or will be available in the future. We will see if a new role of eServices is established or ASPs will increase their capabilities and the need for a second category will vanish. For the time being, we believe the delineation helps to clarify the current situation.

References

- [1] PricewaterhouseCoopers and SAP, *The E-Business Workplace - Discovering the Power of Enterprise Portals*. New York: John Wiley & Sons, 2001.
- [2] J. Bolding, "ASP adoption malaise," in *Network World*, vol. 02/21/2001, 2001.
- [3] B. Marschall, "How ASPs (Application Service Providers) Work," vol. 2001: Howstuffworks.com, 2001.
- [4] B. Ives and G. P. Learmonth, "The Information System as a Competitive Weapon," *Communications of the AMC*, vol. 27, pp. 1193-1201, 1984.
- [5] B. Schmid, "Elektronische Märkte," in *Handbuch Electronic Business*, R. Weiber, Ed. Wiesbaden: Gabler, 2000, pp. 1-23.
- [6] P. Weill and M. R. Vitale, *Place to Space*. Boston: Harvard Business School Press, 2001.
- [7] A. Durante, D. Bell, L. Goldstein, J. Gustafson, and H. Kuno, "A Model for the E-Service Marketplace," HP Laboratories, Palo Alto HPL-2000-17, February, 2000 2000.
- [8] R. Wise and D. Morrison, "Beyond the Exchange - The Future of B2B," *Harvard Business Review*, vol. 2000, pp. 86-96, 2000.
- [9] G. Hamel, *Leading the Revolution*. Boston: Harvard Business School Press, 2000.
- [10] P. Evans and T. S. Wurster, *Blown to Bits - How the New Economics of Information transform Strategy*. Boston: Harvard Business School Press, 1999.
- [11] R. Klueber, F. Leser, and N. Kaltenmorgen, "Concept and Procedure for Evaluating eMarkets," presented at Americas Conference on Information Systems (AMCIS'01), Boston, Massachusetts, 2001.
- [12] P. Bhoj, S. Singhal, and S. Chutani, "SLA management in federated environments," *Computer Networks*, vol. 35, pp. 5-24, 2001.
- [13] J. McGibney, D. Morris, and T. Curran, "Contracts for ATM Services: A Structured Analysis," *IEEE*, 1996.
- [14] L. P. Willcocks and M. C. Lacity, "I.T. Sourcing at Polaris: Risk, Creative Contracting, Business Advantage," presented at 7th European Conference on Information Systems, Copenhagen, 1999.
- [15] J. B. Quinn, "Core-Competency-with-Outsourcing Strategies for Innovative Companies," in *Handbuch Industrielles Beschaffungsmanagement - Internationale Konzepte - Innovative Instrumente - Aktuelle Praxisbeispiele*, D. Hahn and L. Kaufmann, Eds. Wiesbaden: Gabler, 1999, pp. 33-52.
- [16] B. A. Gutek, *The dynamics of service: reflections on the changing nature of customer/provider interactions*. San Francisco: Jossey-Bass, 1995.
- [17] H. Corsten, *Dienstleistungsmangement*, 3rd ed. München: Oldenbourg, 1997.
- [18] H. Ulrich, "Die Betriebswirtschaftslehre als anwendungsorientierte Sozialwissenschaft," in *Die Führung des Betriebes*, M. Geist and R. Köhler, Eds. Stuttgart: Pöschel, 1981, pp. 1-25.
- [19] P. Checkland and S. Holwell, *Information, Systems and Information Systems - Making Sense of the Field*. Chichester: John Wiley & Sons, 1998.
- [20] Y. S. Lincoln and E. G. Guba, *Naturalistic Inquiry*. Beverly Hills: Sage, 1985.
- [21] W. F. Whyte, D. J. Greenwood, and P. Lazes, "Participatory Action Research: Throug Practice to Social Science in Social Research," *American Behavioral Scientist*, vol. 32, pp. 513-551, 1989.
- [22] P. Checkland and S. Holwell, "Action Research: Its Nature and Validity," *Systemic Practice and Action Research*, vol. 11, pp. 9-21, 1998.
- [23] G. Probst and S. Raub, "Action Research - Ein Konzept angewandter Managementforschung," *Die Unternehmung*, pp. 3-19, 1995.
- [24] R. K. Yin, *Case study research - design and methods*, 2nd ed. London: Sage, 1994.
- [25] N. Kock, Baker, M., McQueen, R., Rouse, A., "Negotiation in Information System Action Research," presented at 1 st Information Systems Conference of New Zealand, Los Alamitos, CA, 1996.
- [26] H. Ulrich, *Management - Gesammelte Beiträge*. Bern: Haupt, 1984.
- [27] H. Österle, W. Brenner, and Hilbers, *Total Information Systems Management - An European Perspective*. Chichester: John Wiley & Sons, 1993.
- [28] P. L. Berger and T. Luckmann, *The Social Construction of Reality - A Tratise in the Sociology of Knowledge*. New York: Viking Penguin, 1966.
- [29] J. Sydow, *Strategische Netzwerke - Evolution und Organisation*. Wiesbaden: Gabler, 1992.
- [30] E. Stroeker, *Einführung in die Wissenschaftstheorie*. Darmstadt: Wissenschaftliche Buchgesellschaft, 1973.
- [31] R. Klueber, G. Rabel, and S. Hofstetter, "Kommunikationstechnik - Effizienzpotenziale durch eProcurement Outsourcing: Fallstudie einer ASP eProcurement-Lösung bei Huber+Suhner über den conextrade eMarktplatz," in *B2B-Erfolg durch eMarkets*, M. Nenninger and O. Lawrenz, Eds. Wiesbaden: Vieweg Gabler, 2001.

¹¹ www.webservices.org provides an overview on applications and evolving standards