CMG

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ASP Market-Space Report 2001

Mastering the Customers Expectations

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CMG is a global Information & Communications Technology (ICT) group, with leading positions in the provision of business information services and wireless data solutions. Through management consultancy, systems development & integration, software applications and the outsourced management of key business processes, CMG helps organisations to generate revenues, improve competitive positioning and enhance operational efficiency. Today that process includes building secure ICT platforms that enable the adoption of electronic and mobile business models (e- and m-commerce). CMG Wireless Data Solutions has established a leading position in wireless messaging and gateway products, mobile internet and e-mail, cell broadcast and customer care & billing systems.

Established in 1964, CMG is headquartered in London and Hoofddorp (near Amsterdam) and now implements and supports applications for customers worldwide from bases in 16 countries. CMG has proven knowledge, solutions and products across a wide spectrum of markets, including finance, transport, telecommunications, media, petrochemicals, utilities, retail, manufacturing and governments. The Group also provides long term management of business processes ranging from payroll, call centres and networks to infrastructure management, application maintenance and hosting services.

Foreword

CMG is proud to present to you the 'ASP Market-Space Report 2001: Mastering the Customers Expectations'. Now that the hype is over and the dust has settled on e-Business in general and more specifically the Application Service Providing (ASP) phenomenon, this report provides valuable insight in the way actual and potential customers view ASP. For ASPs, the good news is that over 50% of potential customers are planning to evaluate the ASP option within the next three years. The challenge, however, is for ASPs to be ready to show capabilities on partnering, distribution, service and solving customer' business problems. From CMG's own experience, we feel the latter capability is possibly the single most important, as customers view ASP no longer as a goal but merely as means to flexibly source skills and capabilities, thus looking for real value-added services.

One of the conclusions of Kern, Willcocks, Lacity, and Zuiderwijk is that the ultimate challenge for the ASP market is to find ways of providing customization, variable ICT cost, virtual connections that are fast and reliable, and seamless integration of internal and external ICT-enable processes. Due to the inherent complexity, no company can do this alone. As such, we feel that Application Service Providing is the perfect example of e-business: *any network enabled initiative – tactical or strategic – that transforms business relationships for today's global organizations*.

With ASP, new or existing suppliers – be they e.g. independent software vendors, telecom operators, application/service management providers or systems integrators – develop new constellations using new business models to make applications available to new markets. In our opinion virtually any company involved in Telecommunications and/or Information Technology will be touched by the ASP concept and will have to place themselves within this emerging market space.

This report will provide you with a good insight in what drives the ASP customer. This information is not only useful to ASPs in refining and adjusting their offering to better fit customer expectations. It may also help ASP customers to compile their ASP shopping-list acting as a reference to other customers' expectations and experiences.

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Executive Summary

As of the second quarter 2001, over 1000 companies claimed to be application service providers (ASP). Firms such as Dataquest, Gartner Group, IDC and Ovum have been predicting a potential ASP market space of up to $132 billion by 2006 worldwide. With recent market developments, and notwithstanding the downturn, the market probably exceeded $3.6 billion in early 2001. The potential of the ASP model and the ongoing developments thereof raises two fundamental questions for customers: (1) how can organizations exploit the rapidly developing ASP services market to achieve significant business advantage and (2) what is the value proposition to the customer now and in the future?

Application service provision (ASP) evolved in the late 1990's, on the back of the growing demand for applications, the acceptance of ICT outsourcing as means to attain essential services, and the growing use of the Internet as a means to disseminate data and solutions. Simply speaking we define an application service provider in this study 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.*"

Hence ASP is essentially about receiving business applications as a service. Customers typically pay an installation fee and a monthly subscription fee to access software over the internet or private networks.
Our understanding of the ASP concept, its benefits and drawbacks, and general value to customers is primarily defined for client organizations by the actual ICT service firms offering ASP solutions. To date there have been several reports, but change has been constant and our understanding of customers' initial experiences with application service provision and potential customers' general expectations of such a solution has been only available in fragments. It is also important to take into account in any analysis the many varying products and services being offered to customers by ASPs. For example, one issue is how these offerings are developing, in light of the impact of the Internet and the developing ICT market during 2001. Many uncommitted information technology consumers, in turn, have been speculating: "is ASP a fad or not?" The big question in their minds has been whether the ASP industry will survive. This report offers some reassurance that application service provision is here to stay, because the value proposition to customers is compelling. However the number and focus of suppliers capable of delivering these services will significantly change in the coming future.

ASPs are potentially important to all types of customers as they may well solve a number of significant business, economic, and technical problems; in developing as well as more recessionary market climates. For example, an ASP might be a better alternative than the high up-front cost of a package software license. While packages are a cheaper alternative to in-house developed solutions, it is still the case that many small and medium enterprises (SMEs) cannot afford the packaged solution costs. Secondly, an ASP can assist with ICT skill shortages, especially in the development and software maintenance areas. SMEs may well be unable to attract, let alone retain and afford such ICT staff. Thirdly, packaged applications from e-mail to ERP and CRM require an established ICT infrastructure and connectivity to ensure optimal performance. SMEs find it difficult to retrieve the necessary human and financial resources to support and continually develop such ICT infrastructures. When you add in that organizations are increasingly under pressure to become externally connected as extended enterprises, then the advantage of an ASP-provided business internet infrastructure for at least SMEs becomes strikingly clear. For the global 2000, the emerging ASP market will become a viable option within the sourcing portfolio. Global 2000 companies are already incrementally ASP sourcing discrete activities such as document management. Early successes and experiences will likely lead to an evolution of the ASP concept from a one-to-many offering to more customization, integration and support services for this sector. Of course, these and similar opportunities need to be carefully weighed against the potential drawbacks of an ASP solution. In this report we are able to separate out genuine and emerging concerns from those that are worried about, but in practice do not seem to be experienced to any significant degree by actual customers. Together the advantage and drawback findings offer the means to develop an essential decision list for customers.

In reviewing the experiences and perspectives of existing and potential customers, this report contributes 42 specific findings, and a range of detailed insights into best and worst practices from three in-depth case

studies. From this work and additional case research one general finding of note is that potential customers are more uncertain and sceptical about ASPs than actual customer experiences warrant. This would suggest that there is a big educational task ahead for ASPs if they wish to seize significant market shares in 2001/2002. Other main survey findings include:

1 ***The Market*** – is embryonic/immature, thus customers are signing short-term contracts; most deals span less than 100 users, though more recently larger ASP deals are being signed; email and communications, followed by e-commerce are the most popular applications; customization is high on many customers' agendas; a high number of potential customers are set on evaluating the ASP option in the next 12 months.

2 ***Business issues*** – Nearly three quarters of actual customers are finding that ASPs improve the overall quality of ICT activities, offer competitive advantages, allow greater focus on the core business, provide significant cost savings, make ICT costs predictable, give business flexibility, offer access to applications not otherwise available, facilitate faster ICT roll out, and/or can offer some innovations.

3 ***Technical drivers*** – availability, reliability, quality of service, security, scalability, and ICT/data ownership are rated as critical by both potential and existing customers. Current customers rate technical performance of their ASP(s) as good, the majority rate the Internet sufficiently safe, reliable and efficient to deliver ASP solutions, but see application availability and service response as the primary technical problems experienced. There is some evidence that ASPs as a breed still have some way to go on technical issues, before the majority can score an 'excellent' customer rating.

4 ***Economic issues*** – 'number of users' is the most popular pricing approach; set-up costs tend to be lower than most expect; 85% of customers are making yearly savings between $US3,000-180,000. As a breed, ASPs are delivering on some of the touted economic advantages, including cost savings.

5 ***ICT Service Market issues*** - actual customers are much less concerned than potential customers about ASP dependency on other parties, security and ASP service and business stability; in terms of what they look to the market for, customers rate in order of importance 1) hosting services 2) helpdesk services 3) systems integration and 4) technology maintenance and services skills. Existing customers rate legacy systems management, Wireless Application Protocol (WAP) based services, and strategic management consulting as important additional services to an ASP offering

6 ***Relational drivers*** - best practice shows that customers include the following in their ASP contracts: application availability metrics, security guarantees, confidentiality clauses, customer service details, application response times. Potential customers expect to carry out daily/weekly reviews, while actual customers are more likely to review on a more monthly/quarterly basis. Relationships, increasingly based on trust, are an important dimension in getting customer objectives delivered. Customer trust in an ASP is initially about its alliances, branded partners, and industry recognition, but deeper trust is built only through ASP performance over time.

The evidence gleaned for this report from the survey and case work points to ten significant and emerging advantages from using ASPs. They highlight ten issues, in turn, that customers need to analyse carefully, and which ASPs themselves need to demonstrate capability on, if they are to win profitable market share. From this analysis, the report leaves the reader with five key issues:

– the ASP model, widely defined, is potentially a killer application and has tremendous potential for extending ICT outsourcing notions further, into applications, staffing, maintenance, upgrades and infrastructure, enabled by internet-based technologies. Expect a dramatic increase in investor and large customer interest during 2001/2002.

– expect the ASP model, on the one hand, to fragment to meet different customer needs. SMEs will likely accept more of a standard, potentially killer application, to realize cost savings. On the other hand, some suppliers, such as EDS will offer total solutions, of which ASP is a delivery option. Total solutions may be more appropriate for larger customers that require more customization, more complex contracts and relationships, and even a one-to-one version of application hosting;

– analyse the individual ASP very carefully not just in terms of robustness of pricing and service, but also in terms of financial viability, longevity, and its market strategy;

– partnering capability, distribution, service and solving customers' business problems will be key differentiators amongst ASPs;

– ultimately the challenge for the ASP market is to find ways of providing for a client: customization, variable ICT costs, virtual connections that are quick and reliable, seamless integration of internal and external ICT-enabled processes. In summary, the market is becoming attuned to demanding low cost, highly serviced (e.g. network reliability, security, SLAs help desks, application monitoring) ICT-enabled processes on a predictable regular payment base. The winners in ASP will be found amongst the companies that respond to this customer challenge.

In our forthcoming book with Prentice Hall USA on *Net Sourcing Strategies* (2001), further case research and managerial insights are presented for interested readers, and potential and existing customers and ICT suppliers.

I. Introduction: The ASP Market-Space

As of the second quarter 2001, over 1000 companies claimed to be application service providers (ASP), according to the application service provider industry consortium (ASPIC). But there are many varying products and services being offered to customers by these ASPs. Many information technology consumers, in turn, wonder if ASP is a fad, whether the ASP industry will survive, and most importantly—what is the value proposition to the customer now and in the future?

Furthermore, the late 2000 technology market downturn and the often questioning and negative media coverage of ASPs further emphasises the urgent need to discover customers' experiences (both successes and setbacks) and expectations with an ASP solution.

This report presents the findings from a 12-month field study into customers expectations, with a three-pronged focus on application service providers solutions, current customers experiences, and potential customers expectations. It is written explicitly as a vital information aid and guide for current and potential customers of application service provision (ASP), and also for ASPs and interested ICT service providers requiring an in-depth understanding of customer requirements, challenges, concerns and future demands.

We begin by mapping the current ASP terrain, and provide a brief overview of ASP solutions, before we report the results from a major survey into current customers experiences and potential customer expectations. The study is deepened by a range of in-depth customer and supplier case scenarios, together with the key lessons emerging from this survey and case research.

A. ASP Defined

Up front, it is essential to clarify the definition of ASP underpinning this study. We perceive application service providers 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-centre over the internet (or other networks) and are accessed from the customers' desktop via an internet browser."*

ASP is essentially about receiving business applications as a service. Customers typically pay an installation fee and a monthly subscription fee to access software over the internet or private networks. ASPs may offer their own proprietary software or may offer independent software vendors' (ISV) applications. ISV applications available through ASPs include standard software like personal productivity tools from Microsoft Office, e-mail/collaboration tools such as Microsoft Exchange, Eudora, Netscape Messenger, and sophisticated enterprise resource planning packages from independent software vendors such as Baan, Oracle, PeopleSoft, and SAP. As we will discuss further, there are a number of suggested benefits including innovations for the customer, lower total cost of ownership and faster implementation speeds.

But, taking a broader view, ***ASP is a delivery channel for software, data, and business intelligence.*** One way to think of ASP is to consider it as an alternative distribution channel for digital products and services. Thus, ASP is not an industry based on a single product or single service, but rather is an industry based on a new mode of digital transport.

B. ASP's Suggested Market Size

The growth in the number of ASPs has been explosive, which has entailed equally very sizeable market forecasts for the ASP market-space. Firms such as Gartner Group, IDC and Ovum are predicting potential market sizes of up to $132 billion by 2006 worldwide.[1] These figures seem very high, considering that the ICT outsourcing market in general has been estimated to be $120 billion worldwide in 2001, rising to $154 billion by 2004.[2]

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[1] Ovum (2000), *Application Service Providers* report, United Kingdom

[2] T. Kern and L.P. Willocks (2001), *The Relationship Advantage: Sourcing, Technologies and Management*, Oxford University Press
M.C. Lacity and L.P. Willocks (2000), *Global Information Technology Outsourcing: Search for Business Advantage*, John Wiley & Sons

Considering the technology market downturn in 2000/2001, the generally difficult times for internet and technology start-ups like ASPs to procure funding and additional investors, and the predicted consolidation drive in the ASP marketspace,[1] we see the more optimistic market size forecasts requiring extensive adjustment.

The market according to Dataquest's forecast had reached $3.6 billion in late 2000.[2] It would thus be possible, taking into account the current market, that by 2002 to suggest a market in the region of $10.6 billion worldwide.[3] Yet our present research suggests even this figure is overly optimistic. We rather point to a figure that will lie between $5–8 billion by 2003, and then possibly over $10 billion by 2005.

The new ASP market is still led in size by North America (US and Canada) $1.9 billion, while Western Europe (in particular the UK, Germany and France) reached an estimated $421 million in 2000 and is forecasted to reach $5.8 bn in 2006 (IDC 2001; Ovum 2000).

C. Mapping the ASP Space by Service Solutions

Given the large number of suppliers operating as ASP, it is to no surprise that the ASP market-space is rapidly fragmenting into niche markets. New buzzwords seem to appear daily in the trade press. Five prominent 'acronymphs' (acronyms that rapidly metamorphose their meanings) are listed below, which we selected by the amount of service solutions on offer. Although there are no standard definitions for these acronyms, the following capture the essence of the providers in each category.

Managed Service Providers

Managed Service Providers help customers manage their infrastructure, primarily by monitoring devices and network traffic for their clients. Greenemeier classifies MSPs as any company that provided monitoring services for network access, infrastructure, applications, storage, and security.[4] Typically, customers house their own servers and workstations, but the entire network may be monitored and managed from the MSP's remote network operation center.

Application Service Providers.

Compared to an MSP, an ASP's primary offering is business applications, that are remotely managed. Typically, ASPs do not even own their own data centers, but instead lease servers from a third party such as Exodus. The ASP, however, serves as the central and primary interface between the customer and the application. ASPs may offer access to their own proprietary software and/or access to ISVs' software. ASPs may primarily service one application type (such as e-mail), or offer a full application portfolio including enterprise resource planning, customer relationship management, and supply chain management software.

Vertical Service Providers

Vertical Service Providers (VSP) deliver applications services and outsourcing solutions that are specific and unique to a particular industry or vertical market. The starting point may be a business to business marketplace for a particular industry that then offers particular application, infrastructure, hosting and management services that are often procured or sourced from an ICT service provider.

Full Service Providers

Full Service Providers manage infrastructure, applications, and services such as integration, consulting, implementation, and customization. Many ASPs are trying to differentiate themselves from merely hosting applications for customers by stressing further core capabilities as a basis for full service provision. In many cases, ASPs offer customer services via partnerships with consulting firms. Corio, for example, is an ASP which hosts many ISV applications such as PeopleSoft, SAP, and Siebel. Corio has a number of implementation partners such as Cap Gemini/Ernst & Young, Cambridge Technology Partners, and eForce to help customers implement solutions.

Business Service Providers

Business Service Providers deliver entire business processes as a service by managing the infrastructure, applications, data, and processes associated with an entire business process. According to a research report on 304 multinational companies sponsored by PricewaterhouseCoopers, the most commonly outsourced business functions were: payroll (37%), benefits management (33%), real estate management (32%) and applications process (21%). Input, Inc. estimates that the BSP market may assume one quarter of the overall $2 trillion global outsourcing market by 2003, though this was an extrapolation from a buoyant 2000 ICT market.

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1 *Gartner Predicts 60 Percent of ASPs to Fail by 2001*, August 9, 2000: www.gartner.com

2 *Gartner's Dataquest Forecasts Worldwide ASP Market to Surpass $25 billion in 2004*, August 9, 2000, www.gartner.com

3 Ibid 1

4 *Management Service Providers Mature* by Larry Greenemeier, November 8, 2000 on www.PlanetIT.com

D. Mapping the ASP Space by ASP Business Model

A business model is an ASP's plan for generating revenues based on adding enough value to attract customers while still earning a decent profit margin. In our research we identified four common business models in the ASP space-intermediaries, distribution channel, hosts, and portals.

ASPs as Intermediaries

Intermediaries primarily host third-party, best-of-breed ISV software. Intermediaries add value by offering a range of products/services to many customers and by serving as a retailer for the suppliers. Additional value-added of this business model includes some or all of the following:

- ***economies of scale*** because the ASP spreads fixed infrastructure costs over many customers, the customers' costs are lower than insourcing.
- ***economies of scope*** because the customer has one-stop shopping for several applications and services rather than incurring higher transaction and coordination costs if they license directly from each ISV.
- ***economies of skill*** because the ASP can spread expensive ICT expertise over many customers, customers need to retain less in-house ICT personnel.
- ***scalability*** because the customer can increase ICT costs with incremental rises in usage, customers can avoid high up-front capital investment costs when internal resources reach capacity.
- ***speed to market***. Applications are delivered in days/weeks rather than in months/years.

ASPs may be "application specialists" by focusing on one type of application. For example, Mail.com focuses on messaging applications and services. Or ASPs may be "portfolio assemblers" by offering several best-of-breed, third-party applications. Three widely-know portfolio assemblers are Agiliti, Corio, and USInternetworking.

ASP as Distribution Channel.

Many companies that write their own proprietary applications choose to deliver those applications to customers via an ASP channel. The value added to the customer is direct access to a best-of-breed application with presumably superior technical support, offered via a low-cost distribution channel. The value added to the supplier is no payments to an intermediary. The software vendor may use the ASP as the only way customers can access the software, or the software vendor may use the ASP as a complementary channel to other distribution channels. Most of the large independent software vendors (ISV) are developing multiple delivery channels, including an in-house ASP subsidiary. ISVs with in-house ASP channels include Microsoft, Oracle, PeopleSoft, and SAP (i.e. mySAP.com). The decision to use multiple channels allows an ISV to market to large, mid-sized, and small firms across disperse geographic regions and industries.

ASP as hosts

Some ASPs actually host applications for their customers, allowing the customer to avoid infrastructure investment and reduce ICT support personnel while still accessing their home-grown software. For example, FutureLink hosts a customer's software provided the application is MS Terminal Server or Citrix MetaFrame compliant. Probably one of the most widely known hosts is Exodus. Exodus offers web-hosting services to 4,000 customers and hosts over 62,000 servers world-wide. Many of Exodus' customers are actually ASPs which host their applications with Exodus to avoid building their own data centers, including Oracle Business Online.

ASPs as portals

Another ASP business model is the portal, which serves as a single point of accountability between multiple customers and multiple ASPs. The portal's added value includes one log-in and a single point of customer support. The most famous portal is JamCracker, founded in 1999 by former Exodus Communications chairman K.B. Chandrasekhar, Herald Chen and Mark Terbeek. Jamcracker serves as a portal to the following ASPs: Connected, CriticalPath, diCarta, Employease, Entex, Icarian, iPass, Managemark, myCIO.com, OpenAir.com, OutPurchase, Talisma, UnitedMessaging, UpShot.com, USA.net, and WebEx. Jamcracker's website promises the following value to the customer: "*We test all the new web-based applications and services as they become available from a variety of partners, and offer only the ones that work best.*
We help you determine which combination of services is best suited to your needs. Everything is integrated onto a single platform and deliver them to your end users through a simple, secure solutions delivery platform that's accessible with a single sign-on from anywhere in the world. Finally, you get continuous 24x7 support. Your end users get quick answers directly from us, by e-mail, phone, live online chat, or a service request placed through Jamcracker Central. Your ICT department, meanwhile, gets the time it needs to concentrate on more important things, like how to make your company even more efficient and profitable."

(Please note though that Jamcracker does not consider itself an ASP, but says: "*We work closely with ASPs to integrate their services on our platform, offering our customers a broad range of different services.*")

II. Taking the Customer Perspective

So far, we have seen the types of business models and the kinds of offerings typical of the ASP marketplace. But what is the customer's take on all these developments? The answer depends to a considerable degree as to where customers are in terms of size, the type of inherited ICT infrastructure, the immaturity and/or maturity of the ASP marketplace for specific services, and the customer's faith in the robustness of specific ASP companies' business models and delivery capability.

Most studies to date show that the ASP market has developed mainly around small to medium-sized companies. This disproportionate representation by SMEs looks set to continue, as this study will show. In the USA in mid-2001 there were some eight million businesses with fewer than 100 employees, while globally small businesses exceeded 40 million in number. Our own view, having talked with big companies and the suppliers targeting the big company market, is that the market will by no means be restricted to SMEs, and that the large organization market will pick up substantially over 2001-2002. This means that ASPs who have initially targeted SMEs may well miss out on that market, and will need to be very clear as to which market niches they need to target in the future.

The economic, technical, business and operational opportunities ASPs offer require a careful evaluation. For this purpose, we offer in this report a check-list of issues detailing both the expectations of customers and the experiences of ASP customers internationally. In this research, conducted from mid-2000 to mid-2001, we identified five key underlying 'ASP drivers' – in essence those factors that make application service provision sourcing an interesting solution for firms to consider. Taken succinctly, these drivers describe the business logic of the ASP business model and represent customers' primary selection and decision criteria when investigating an ASP offering. We classified these drivers as business, technical, economic, ICT services market and relational. Additionally, for ASP service providers, these drivers define the basis upon which they can differentiate their service solution against their direct and indirect competitors.

Research Base – International ASP Survey of Customers

To put this 'drivers' checklist into perspective, we should explain that it was developed upon the basis of an international survey spanning a total of 400 customers. All participants contributing to this study were asked at the beginning to register their name, company, country of origin and, most importantly, e-mail address. Respondents were not only encouraged to complete this information so they could receive a summary of the survey results, but were also technically hindered by the survey's online infrastructure to continue without entering their complete details. The email addresses allowed us in most cases, but only with the respondents' explicit permission, to carry out follow-up telephone interviews to clarify and extend the responses. As a result of incomplete information entered, non-traceable respondents, and for survey data coherency and reliability we filtered out over 80 responses from the actual data set. Please refer to the Appendix for more details about the research design.

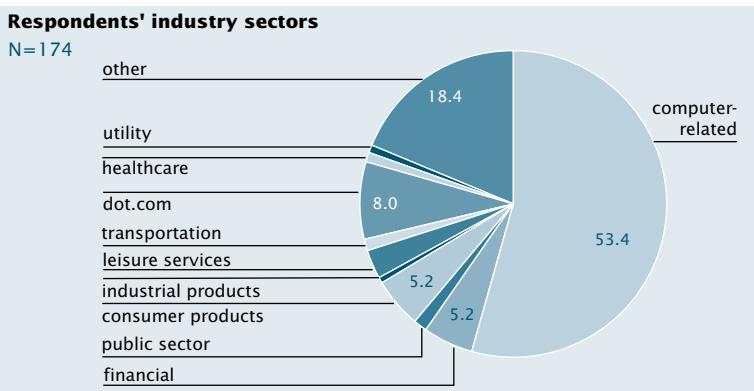

Figure 1: Respondents' industry sectors

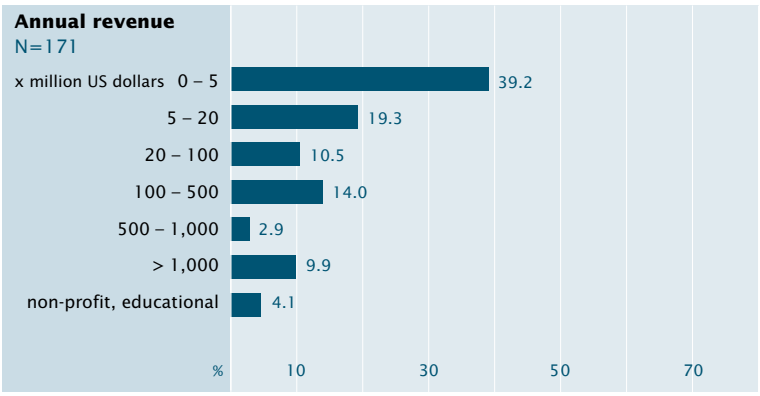

Figure 2: Respondents' company size

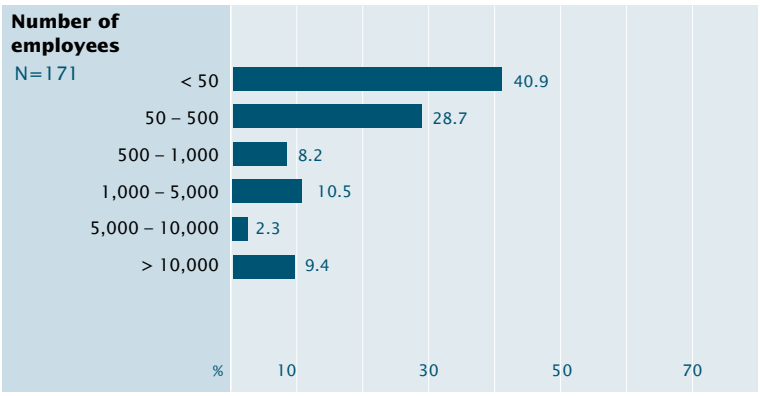

Figure 3: Respondent companies' number of employees

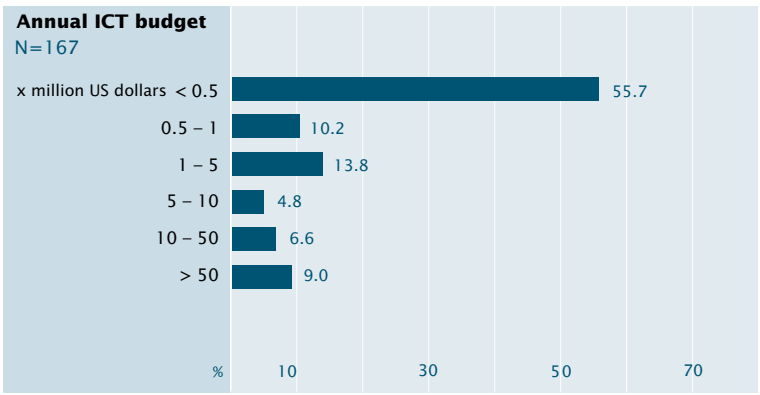

Figure 4: Respondent companies' annual ICT budget

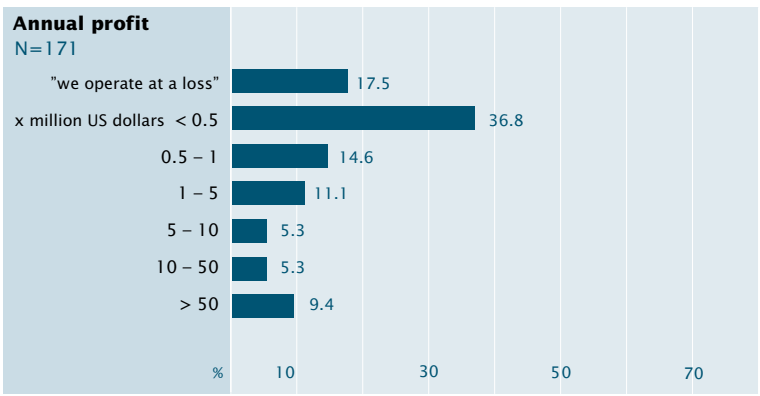

Figure 5: Respondent companies' annual profits

In all, respondents from 28 different countries completed the questionnaire. Most respondents were located in the (1) Netherlands (45%), (2) Great Britain (12.1%), (3) Germany (11.2%), (4) Belgium and France (8%), and the (5) USA (3.8%).

The following industry sectors were represented by the customers in this survey study (see Figure 1).

As Figure 1 shows, in our study computer related (i.e. information technology) firms were the primary group interested in the ASP solution. There are a number of plausible reasons why this group is so large. The ASP market appeals to start-up companies that quickly need to access business software without expending huge up-front costs. Given most start-up companies are computer related businesses, it is understandable why so many participants from this industry responded to the survey. Another reason might be that the survey was online and most managers from ICT firms probably spend more time online on average than traditional manufacturing and healthcare firms. Being aware of computer and information technology developments is their business! Additionally, the ASP solution intuitively appeals more immediately to the more ICT literate sectors, which also may well have less political problems gaining support for an ASP initiative. Furthermore, the ICT sector may well be less put off by security and privacy concerns, feeling that they understand and can control these issues. Overall, it may well be that this over-representation points also to the immaturity of the ASP marketplace, and the need for a lot more customer education.

To get an understanding of which individuals actually make the decision to go with an ASP we asked participants to indicate their position within the company, and the positions of those who are either in charge of the ASP deal, or are thinking about using such a service in the near future. In order of significance we found: (1) CIOs/ ICT managers, (2) CEOs, Owners or Partners, (3) CTOs (chief technical officers) and (4) Directors and Operational managers were those most likely to be responsible for selecting an ASP solution. This set of job titles in general indicated a high level of authority in the business.

The types of companies represented in the customer data set varied in size, although it is safe to say that SMEs were the largest contributing group. The following Figures illustrate the participants' annual revenue and profits, employee numbers, annual ICT expenditure. The picture Figures 2 to 5 paints is of customer groups with an annual revenue of up to $20 million accounting for 58.5% of the sample. Companies with annual profits of up to $1 million accounted for 51.4%. Over 17.5% of sampled companies operated at a loss. Businesses with employee numbers of up to 500 people made up 69,6%,

and those with an annual ICT expenditure of less than $500,000 composed 55.7% of the sample. These firms are currently involved and most interested in an ASP solution, although there are clear signs that larger firms are seriously evaluating and considering their ICT services market options. An additional point to note is that 88% of the respondents are currently outsourcing and procuring up to 40% of their ICT infrastructure in the ICT market-place. This means that most of the businesses attracted to considering ASP solutions already have a steady history and experience-base on using external ICT suppliers.

Of the overall customer population 27 percent of the respondents are currently in an ASP deal with at least one service provider, whereas the other 73 percent are going to evaluate the ASP solution in the coming months. We had also sought customers who had terminated their ASP deal early, but we received no response here. It is thus safe to assume that very few firms have terminated their deals due to the novelty of the market and the ASP solution in general. This is an interesting finding, given the negative publicity received in early 2001 when several such terminations were noted in the press – often mainly due to the high profile collapse of a particular ASP rather than the ASP market itself.

1. ASP Market Overview: Existing and Potential Customers

The following provides an overview of those customers currently in an ASP deal and those likely to evaluate it as an option. The number of customers in our survey currently in a venture are generally consistent with those market figures regularly quoted by ASPs and market research firms. However, insights into those customers planning to evaluate the ASP option and insights into customer expectations are far more interesting and of greater use to ASP and ICT service providers, as they describe the likelihood, detail and potential of any future ASP market. Therefore, what is of particular interest here is to elicit the differences and similarities in, and characteristics of, customers interested in ASP solutions.

A. Current ASP Customers

The majority of customers that responded as being currently in an ASP venture signed their contracts within the previous six months (i.e. after September 2000). Thus our learning about customers' perspectives and experience of ASP solutions is at best early in the life-cycle of two to five year deals.

Finding 1.1 **– The ASP market is clearly immature/ embryonic in nature as at mid-2001, as the majority of ASP deals have only been operational for less than 12 months at present.**

This becomes even more apparent when looking at the overall picture, which shows that there is a maximum of up to 3 years of experience (see Figure 6). The other issue raised by the Figures is the terminology or description customers apply to their application deals. It seems that our understanding of what we term ASP today, really only emerged in late 1998 and evolved from there. In turn, we can see some early adopters of an ASP type arrangement, emphasizing that what we know and term ASP today has been around much longer. In fact, we can safely argue that ASP practice is far more established as a sourcing option than initially anticipated and often presented by the media.

The very small set of users who have been in deals that have lasted a contract period makes a discussion about success and overall benefits of an ASP venture very difficult. At best we, and any other study, can present results that reflect only a very select group of customers. In turn, the overall experience level with advantages and disadvantages of an ASP remains limited. In part, this may also be the reason why the majority of ASP ventures only span a contract period of less than 12 months. Uncertainty about the sense and viability of longterm-ness of these arrangements may still prevent managers from signing longer deals. One can also point out that a lot of experimentation and 'test-it-and-see' trialing may

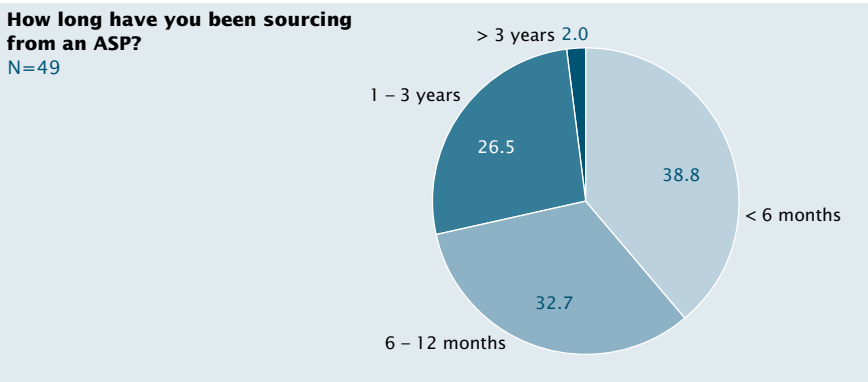

Figure 6: Operating period of current ASP deals

Figure 7: ASP contract length of current ASP customers

well be going on. Here comparisons can be drawn with the 1990s evolution of ICT outsourcing practice more generally, where only after outsourcing practice had really evolved since the sixties with time sharing and bureau service solutions, did organisations feel sufficiently confident in signing long-term mega-deals for the complete ICT infrastructure that span ten years (Kern and Willcocks, 2001).

***Finding 1.2* – The majority of ASP deals span a contract period of less than 12 months, most likely due to the rapid change of customer requirements, and application and technology developments.**

This is not to say that a short contracting period is not the more sensible approach to ASP deals, as information technology requirements in today's internet age change so fast. In fact, similar to ICT outsourcing experience and best practice findings more generally (see Lacity & Willcocks, 2001 and Kern & Willcocks, 2001) regular revisiting of contracts on a yearly basis to amend and update them, ensures that the contracts and service level agreements remain representative of the deal. In turn, short contracts for ASP solutions ensures up-to-dateness of services, but may also introduce extra negotiation and adjustment charges. They may also represent less attractive financial deals, giving less financial security to the ASP themselves.

However, the revenue model of an application service provider is not only dependent on the length of the deal, but more on how many users are actually going to use the service they offer. Looking at what the respondents revealed (see Figure 8) it is clear that the majority of customers contract ASPs for a user number of less than 100, although it seems numbers are increasing and can go far beyond 1000 users. Of course, larger user numbers will imply lower individual user costs, assuming suppliers' margins are calculated on volume numbers, and scale economies are shared with the customer.

***Finding 1.3* – In the majority of cases current ASP deal sizes span less than 100 users, although there is evidence that a number of larger ASP deals have been signed.**

Although the average user numbers may seem low at the moment (se Figure 8), this is directly related to the size of the customer companies currently using an ASP solution. As ASP services have been particularly attractive to small to medium-sized firms, especially internet startups, users numbers in current customers are low. Clearly, as the uptake by large firms increases, the market will shift towards large user numbers. There are, in fact, signs that larger companies are signing up, as the figures indicate, and we expect there to be an increasing uptake by larger organizations in the coming two years.

Figure 8: Number of users per current ASP deal

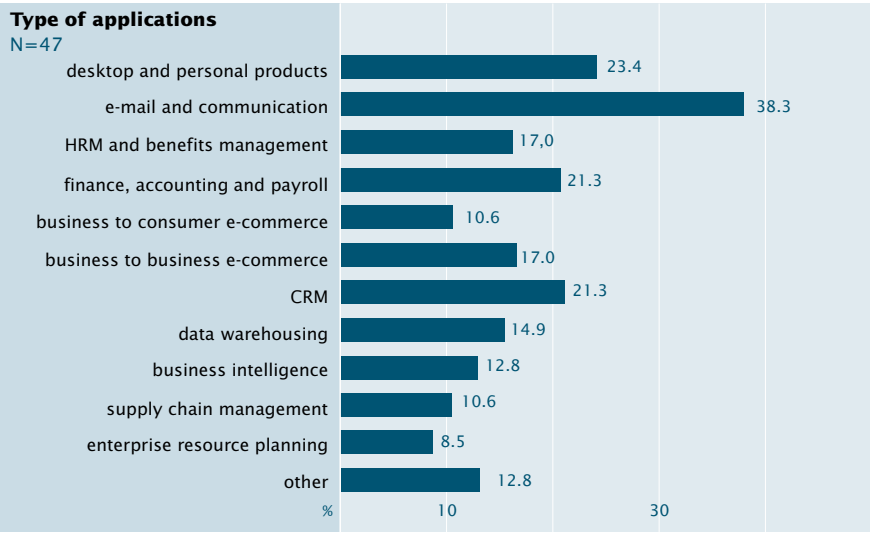

Figure 9: Applications currently sourced from ASPs

However, for an ASP revenue model these are not the only decisive factors. Another fundamental factor is the type of applications and number of applications customers are currently seeking from ASPs. Here customers reveal that they are procuring and sourcing a whole array of applications from ASPs. Of primary interest are those applications that focus on enhancing communication and collaboration (38%) and user operations through desktop, personal productivity applications (23%), CRM (21%), and finance and payroll solutions (21%). Clearly, the focus of these ASP deals is not so much on applications that were not available internally, but on accessing economies of scale, cost savings, and potential process and technical innovations.

To our surprise, those applications that are prohibitively expensive and often too complex for small firms to implement by themselves, for example enterprise resource planning (ERP) and supply chain management (SCM) solutions, were not high on the list of current ASP solutions. Perhaps we are seeing here SMEs being conservative, and going with what they understand in what ASPs provide, rather than that which changes the basic processes by which they currently operate.

***Finding 1.4* – Most common applications procured or sourced from ASPs to date are e-mail and communication solutions.**

A significant number of customers (47%) receive an applications service that is based on a template-driven solution (i.e. an application that is not changed at the source code level). In other words, most customers are happy to use a primarily standardized application solution that is often pre-configured by the independent software vendors like SAP, Peoplesoft, etc. for a particular industry. Some additional application customization will also occur to integrate the solution with a client's business. Generally we are seeing, though, few examples of changes to the application at the source code level, but rather more to the application functionality and possibly the customer's business processes. The logic for the ASP is that as soon as you alter and customize applications at the source code level it will be impossible to offer the same solution to others in a one-to-many arrangement. Clearly, this minimizes an ASP's economies of scale, and will consequently entail higher overall application costs for the customer.

***Finding 1.5* – 47% of ASP customers want customization, to the degree of template driven solutions that are specific either to their type of organizational structure or industry.**

This is an important finding, as customization becomes a necessity for ASPs. There is evidence, however, that a growing group of customers are actually using an application service as a standardized solution (40%). Here essentially no changes are made to the applications; nor is the service customized to any great degree by the ASP for the client. This is particularly the case for those applications, such as personal productivity applications e.g. MS Office, that are already being employed as off-the-shelf standard tools.

B. Potential ASP Customers – Services Expected

***Finding 1.6* – 50% of potential customers are planning to evaluate the asp option over the next 6 to 36 months, whereas 20% are evaluating the option over the next 6 months.**

The second set of customers are those planning or currently evaluating the ASP solution. As Table 1 shows, the ASP solution was revealed to be on the agenda of over 50% of the potential customers who had responded to our survey. These plan to evaluate the solution over the next 6 to 36 months, as an option to procure, outsource or amend their current application portfolio. Of equal interest is the high percentage (nearly 50%) of potential customers undecided as to when they might consider an ASP solution. Manifestly, there is still a large group needing further insights and success stories to become convinced that this solution offers benefits and opportunities. Here, we will see that ongoing concerns that are outlined later in the report need to be addressed. Particularly noteworthy in Table 1 is that, despite a period of retrenchment in the general economies in Europe and USA, over 20% of the sample are in the process of evaluating an ASP for their business over the next six months. One interpretation here is that an ASP solution might also be up for consideration from a fresh point of view, namely how it might assist a customer business in a downturn. If so, then it may well be that some ASPs might need to reexamine the basis of their service offerings to reflect a revised set of customer needs during 2001.

As noted before, Table 1 defines the future market and potential customers, so it becomes particularly important to understand these respondents' expectations about, and their knowledge of, ASPs. The next findings help us to further exemplify this point.

***Finding 1.7* – 47% (of potential customers) are somewhat familiar with the ASP concept, while 33% were very familiar with the ASP solution.**

We wished to get a feeling for the number of customers who were fully aware of what application service provision actually implies. Were potential customers knowledgeable about the business logic, general operational infrastructure and possible benefits and drawbacks? Our study showed a generally broad understanding of what an ASP solution represents, to the extent that the majority of customers had come across the 'ASP term' – 47 per cent were somewhat familiar with the ASP concept while a further 33 per cent were very familiar with ASP solutions. But we suspect a high degree of non-response bias in that many people may have ignored the survey because they were not familiar

Table 1: Potential customers evaluation period

N = 219	%	Cumulative
In the next 6 months	20.1	20.1
In the next 6 – 12 months	14.6	34.7
In the next 12 – 18 months	8.2	42.9
In the next 18 – 24 months	3.2	46.1
In the next 24 – 36 months	4.1	50.2
Undecided	49.8	100.0

Note: Question was: "If your organization does plan to consider or evaluate the usage of an ASP solution, when might this be?"

Figure 10: Potential customers application shopping list

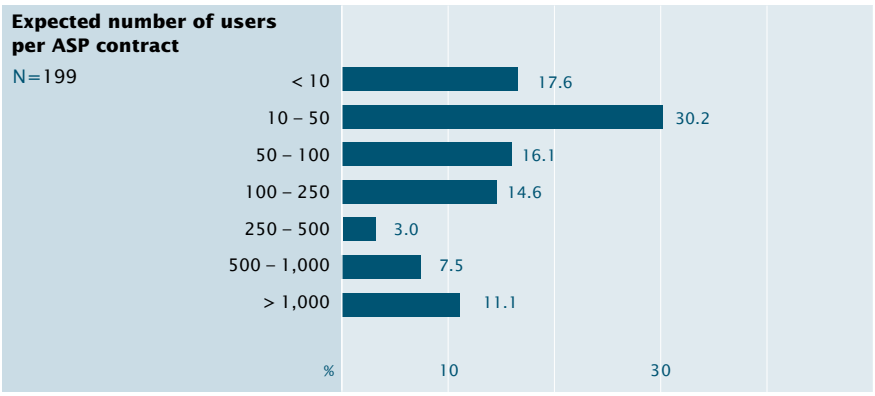

Figure 11: Potential size of deals in user numbers

with ASP or had no interest in ASP. This is certainly a positive development to the degree that it reflects that the marketing undertaken by ASPs around the world is actually reaching customers. However, we identify a large customer group that is not completely sure what ASP could imply for their specific business, let alone how an ASP solution would actually work for them. This low level of awareness is likely to remain for the near future, as the current down turn in the technology stock market, the decrease in available funding and the push for early profitability in ASP startups inherently implies cost cutting where possible. As a result marketing and customer education expenditure in many ASPs has been significantly cut. However, this points to a "Catch 22" for ASPs. Business is dependent on wider customer education, but ASP expenditure on customer education cannot be funded except from more business. This needs to be resolved perhaps not so much by large-scale expenditure, as by ASPs getting much closer to specific market segments and their customers.

***Finding 1.8* – Potential customers seek as their 1st choice e-mail and communication applications, 2nd choice business to business e-commerce solutions and 3rd choice desktop and personal productivity applications.**

The main applications customers are likely to seek are portrayed in Figure 10. The results conform to what *existing* customers are currently sourcing. Once again communications and collaboration are on top of the shopping lists of potential customers. However, unlike existing ASP users (who place them fourth), potential customers are attaching more importance to business to business e-commerce solutions, placing them as their second-choice set of applications. This may well reflect the rise in interest in such applications towards the end of 2000. The third most preferred options cited by potential customers are ASP-sourced desktop and personal productivity solutions. This overlaps with the priorities stated by existing ASP users. A general trend that we picked up on here seems to be that potential customers are at this stage seeking the less complex, more commodity-type applications, and thus hope to benefit from economies of scale.

Similar to existing customers, interested firms at this stage would not select or request a fully customized solution or even proprietary application. Instead it seems that they seek primarily template driven or standardized application solutions. The split here seemed relatively even – 'template driven' appealed to some 36% while a standardized solution seemed the most likely solution to nearly 38%, while only 26% would consider a fully customized solution. This implies that customers are looking to source their standard applications via an ASP type solution. So 'application hosting' is likely to be of considerable importance to customers. This again may be reflecting customers' careful approach to ASPs in an immature market. Finding 1.9 corroborates this to a further degree.

***Finding 1.9* – Potential customers are adopting a careful approach by looking for smaller size deals. But some larger deals are likely to evolve.**

Potential customers seem to be focusing on a small, select number of users for any ASP solution. Indeed the potential size of the deals seem to be initially smaller than existing ASP contracts. One would imagine over time that, once in an actual deal and with the customer growing and/or perceiving the existing service as being efficient, a customer is most likely to actually expand the number of users. At present, however, potential customers are seeking a service size primarily in the region of 10 to 50 users. We assume here that a number of customers are adopting an incremental approach, giving ASP solutions generally the benefit of the doubt, but planning to test the solution before sourcing services for a larger number of users. Nevertheless, we found a number of firms looking at possible sourcing for much larger user numbers (see Figure 11).

C. Summary

The overall interest in ASP offerings that we identify corresponds closely with the market predictions made by several market research firms. The ASP market-space is still set in growth mode, although, based on our evidence, it will grow at a slower rate and to smaller peaks than widely forecasted elsewhere. Clearly, there are many potential customers who still need further proof of the potential advantages and opportunities of an ASP solution for their organizations. Also, standard applications and template-driven solutions are what customers who answered our survey are seeking at this stage, which is reflected in the number one ASP application group for both existing and potential customers – e-mail and communications solutions.

This said, we find a great deal of potential in the ASP offering once existing and potential customers feel convinced about specific ASPs in terms of the cost models, reliability, security, and service levels being offered. Customer caution about an immature, but growing market, is understandable, especially in a phase of economic downturn. But our research suggests that a small shake-out of the less viable ASPs, together with changing economic conditions will lead to a re-think by many organizations as to how ASP can be utilised effectively, for example for cost containment purposes if the downturn deepens and to support rapid business expansion in the event of an economic revival.

Finding 1.1 **– The ASP market is clearly immature/ embryonic in nature as at mid-2001, as the majority of asp deals have only been operational for less than 12 months at present.**

Finding 1.2 **– The majority of ASP deals span a contract period of less than 12 months, most likely due to the rapid change of customer requirements, and application and technology developments.**

Finding 1.3 **– In the majority of cases current ASP deal sizes span less than 100 users, although there is evidence that a number of larger ASP deals have been signed.**

Finding 1.4 **– Most common applications procured or sourced from ASPs to date are e-mail and communication solutions.**

Finding 1.5 **– 47% of ASP customers want customization, to the degree of template driven solutions that are specific either to their type of organizational structure or industry.**

Finding 1.6 **– 50% of potential customers are planning to evaluate the ASP option over the next 6 to 36 months, whereas 20% are evaluating it over the next 6 months.**

Finding 1.7 **– 47% are somewhat familiar with the ASP concept, while 33% were very familiar with the ASP solution.**

Finding 1.8 **– Potential customers seek as their 1st choice e-mail and communication applications, 2nd choice business to business e-commerce solutions and 3rd choice desktop and personal productivity applications.**

Finding 1.9 **– Potential customers are adopting a careful approach by looking for smaller size deals. But some larger deals are likely to evolve.**

2. Business Drivers

ASP business drivers in this study define the potential strategic, organizational and operational advantages and drawbacks of sourcing application services from an ASP. To determine any advantages or disadvantages, a comparison is made between sourcing or not sourcing from an ASP. For this, we used four performance indicators to evaluate the expected and experienced impact of the ASP solution on the customers' business processes:

- Effectiveness
- Efficiency
- Flexibility and Speed
- Innovation

To identify whether customers rate ASP solutions as offering an advantage or disadvantage, we assumed that, if the ASP solution is expected or has been experienced to have had a positive impact on one of the dimensions above, this would indicate a strategic, organizational and/or operational advantage. In contrast, a negative impact would imply a disadvantage had been incurred as a result of using an ASP solution. To analyse and visualize, the core findings, we cross-compared the *expectations* and **experiences** of an ASP solution for each of the above factors. Table 2 presents the findings for the business drivers.

A. Effectiveness

For simplicity, we determined effectiveness in an ASP situation to define the degree to which a certain input generates the desired output. Whether an ASP solution is effective is thus determined by the resulting output. The assumption here is that an output that is better than expected or hoped for points towards a higher degree of effectiveness.

***Finding 2.1* – 50% of current asp customers and 47% of potential customers find that ASPs improve and are likely to improve the overall quality of ICT activities in their business.**

Table 2. Business drivers – cross-compared findings for expectations and experiences of customers

Expectation, N=184 **Experience, N= 42**	1 Strongly disagree %	2 Disagree %	3 Neutral %	4 Agree %	5 Strongly agree %	Average degree of argument (1–5)
ASPs will lead to a loss of control of the company's application services *(**Finding 2.9**)*	*5.4* **11.9**	*27.2* **45.2**	*32.1* **28.6**	*27.2* **11.9**	*8.2* **2.4**	*3.05* **2.48**
ASPs are likely to lead to contract lock-in situation *(**Finding 2.9**)*	*3.3* **2.4**	*10.3* **26.2**	*45.1* **50.0**	*33.7* **19.0**	*7.6* **2.4**	*3.32* **2.93**
ASPs give our company access to high-end applications, we normally could not afford *(**Finding 2.7**)*	7.6 **14.3**	13.0 **26.2**	24.5 **19.0**	38.0 **26.2**	16.8 **14.3**	3.43 **3.00**
ASPs improve the overall quality of our ICT activities and services *(**Finding 2.1**)*	*4.9* **2.4**	*9.8* **14.3**	*38.0* **33.3**	*39.1* **38.1**	*8.2* **11.9**	*3.36* **3.43**
ASPs enhance our business' innovativeness by giving access to applications, skill sets and management and technology services *(**Finding 2.10**)*	*2.3* **0.0**	*12.7* **7.3**	*34.7* **36.6**	*42.2* **46.3**	*8.1* **9.8**	*3.41* **3.59**
ASPs make our ICT expenditures more predictable *(**Finding 2.5**)*	*3.8* **2.4**	*7.6* **4.8**	*23.4* **14.3**	*50.0* **64.3**	*15.2* **14.3**	*3.65* **3.83**
ASPs offer a competitive advantage to our company by giving access to applications, skill sets and management and technology services *(**Finding 2.2**)*	*5.2* **0.0**	*12.7* **7.3**	*30.1* **17.1**	*39.9* **58.5**	*12.1* **17.1**	*3.41* **3.85**
ASPs enhance our business' flexibility by offering scalable access to applications that support essential operational processes when demands and volumes for products and services change *(**Finding 2.6**)*	*2.9* **0.0**	*9.8* **7.3**	*30.6* **17.1**	*46.2* **56.1**	*10.4* **19.5**	*3.51* **3.88**
ASPs enable our company to increase the roll out speed of applications across the business *(**Finding 2.8**)*	*4.3* **0.0**	*7.6* **4.8**	*26.6* **28.6**	*40.2* **40.5**	*21.2* **26.2**	*3.66* **3.88**
ASPs provide significant cost savings for our company on the total cost of owning our present application(s) *(**Finding 2.4**)*	*4.9* **2.4**	*14.1* **4.8**	*38.0* **21.4**	*31.0* **42.9**	*12.0* **28.6**	*3.31* **3.90**
ASPs enable our company to focus on our core activities *(**Finding 2.3**)*	*2.9* **0.0**	*5.8* **4.9**	*31.2* **22.0**	*34.7* **39.0**	*25.4* **34.1**	*3.74* **4.02**

Note: Rating of agreement on the business driver statements concerning the impact of an ASP solution on the clients business on a Likert scale (Strongly disagree – Strongly agree): Experience (gray) vs. Expectation (dark). The statements are sorted (ascending) on the average degree of agreement drawn from the response of those respondents that come from companies currently sourcing from an ASP.

To measure the effectiveness of an ASP solution respondents were asked to what extent an ASP solution would improve the overall quality of their ICT activities. Of interest here was to identify how ASPs contribute to the overarching ICT infrastructure and services in the firm. As Table 2 above shows, the response in percentages was perceived and experienced as very positive in terms of effectiveness benefits. In fact, for both types of customers the combined response affirms that ASP solutions are likely to, and do improve, customers operations. At least to the extent that it generally does not have an adverse impact on the customer's operational, organizational and technical effectiveness. In fact, 50% of the respondents using an ASP and 47% of the respondents not yet using an ASP either agreed or strongly agreed to the quality improvements ASPs can achieve.

***Finding* 2.2 – 76% of customers in ASP deals, and 52% considering such a solution, find that ASP offers a clear competitive advantage.**

A second effectiveness impact on customers was that the ASP solution offers a competitive advantage in ICT above insourcing. To what extent are ASPs perceived to provide such an advantage through access to applications, skill sets and additional management and technology services? Here, an underlying issue was the degree to which an ASP solution was seen as competitively strategic in nature, remembering that a competitive advantage can be achieved essentially by contributing to differentiating the company's offerings, services and products. Therefore, arguably, if ASPs can provide a competitive advantage through access to applications, skill sets and management and technology services, this would clearly imply a positive impact on a company's effectiveness in terms of achieving its business objectives and overarching strategy.

Table 2 shows that the majority of all respondents agree or strongly agree to the statement that ASPs offer a competitive advantage through their technical offering. 76% of the respondents that currently source applications from an ASP found this to be the case, and 52% of the respondents considering an ASP solution see a possibility for a competitive advantage in application sourcing. Although there is a disparity between expectations and experiences, we clearly can see that experiences with ASPs positively verifies expectations of resulting competitive advantage. This is a particularly interesting finding, given that often an outsourcing rationale has been associated with non-core ICT that does not affect competitive advantage. For an SME, however, competing against other SMEs, the cost savings and technical capability offered by an ASP may be significant enough to translate into a relative competitive advantage.

***Finding* 2.3 – ASPs were indeed found to facilitate customers to focus on their core business.**

The third effectiveness indicator we identified was that ASPs are likely to enable a customer to focus on its core business. The underlying core focus notion is that companies should focus on those activities in which they excel and can distinguish themselves from their competitors, while ridding themselves of those that are readily available in the market. Any solution that enables a company to do what they are best at can be assumed to improve a businesses' overall effectiveness. Our findings clearly confirmed that customers perceived and indeed experienced the ASP solution as a means to focus on their core competencies. In fact, the experience curve emphasises very positive impacts on customer businesses. These findings are further supported by our case research, two exemplars of which are discussed in later sections. Clearly, it emerges from this research that, in many cases, adopting an ASP solution gives client organizations the advantage of focusing on their core operations and what they do best, while leaving the application management and maintenance concerns to a provider.

B. Efficiency

We termed efficiency as a measure of the needed scarce input to generate a certain output. Hence, a decrease in the needed input to generate the same output would mean an increase in efficiency. To identify efficiency perception of customers, we thus asked respondents, firstly, to comment on whether "ASPs provide/would provide significant cost savings to their company above the total cost of owning their present application(s). The responses revealed that 72% of existing customers experienced significant cost savings, while only 43% of potential customers expect to be able to achieve savings (see Table 2).

***Finding* 2.4 – 72% of existing customers experienced significant cost savings, while only 43% of potential customers expect to be able to achieve savings.**

The Total Cost of Ownership (TCO) of applications includes not only the license or subscription fees but also the cost of maintenance and hardware. The potential cost advantage of the ASP solution results from the one-to-many model, which leads to economies of scale beyond what customers can achieve in-house. The findings show a strong agreement to the proposed cost savings on the TCO of applications. Of the respondents which are in an ASP venture, 72% agreed to having achieved cost savings on the total cost of ownership. In contrast, potential customers believe it less likely that they will achieve cost savings on their TCO (43% agreed and 57% were unsure or disagreed). Thus, cost savings resulting from sourcing applications from an ASP seems

more likely than is expected by potential ASP customers. Again this may well reflect on the general need for greater education of potential customers, especially in respect to the economics of ASP arrangements or that early-adopters had more opportunities to reduce costs than potential customers.

The second efficiency factor to consider is whether ASP arrangements make ICT expenditures more predictable. The assumption here is that unpredictable ICT expenditures in general are likely to lead to higher expenditures than expected due to decreased cost control and overview. In terms of ICT management in general, predictability of costs is an ongoing concern. So it comes as no surprise to find that, even given the option to improve the transparency of costs, a monthly fixed fee arrangement that an ASP solution offers is of great interest to customers.

***Finding 2.5* – 79% of existing customers and 65% of potential customers accept that ASP ventures will make ICT costs more predictable.**

As Table 2 illustrates, the majority of respondents agreed that an ASP deal leads to greater predictability of ICT expenditure. In fact, 79% of the respondents currently using an ASP emphasized this to be case, while 65% of the respondents expected to achieve more predictable ICT expenditures from an ASP venture.

C. Flexibility and Speed

Organizational flexibility refers to the degree that an organization can adapt to changes, while maintaining balance and strategic direction. The ASP solution promises to enhance such flexibility. The subscription model frees companies from much needed up-front investments in expensive applications. Applications are made accessible without high asset-specific investments. This decreases an organization's dependency, rendering it more flexible. In addition, ASP can allow organizations to adapt the capacity of their applications to fluctuations in capacity required. Due to the large scalable platforms most ASPs use, increases in needed capacity are not a problem. Moreover, the subscription model allows ASP clients to pay for their actual usage. If the client wants to make use of, for example, more server processing power, storage capacity, or application usage numbers they simply pay more. This makes the ASP model potentially very flexible.

To determine whether ASP offers greater flexibility and improves an organisations speed to respond to internal and external changes, we evaluated responses on three issues. Firstly, participants were asked to rate whether ASP solutions actually enhance their business' flexibility by offering scalable access to applications that support essential operational processes when demands and volumes for products and services change.

***Finding 2.6* – 76% of customers experienced significant business flexibility through access to scalable application solutions, while 57% expect to achieve greater flexibility through an ASP solution.**

Customers gain at cost an easy access point to increased services, which is often only a telephone call away. Since application service providers can increase the number of users on a server without a lot of trouble, ASP solutions have often been compared to 'applications on tap'. The second fundamental flexibility factor on offer from an ASP is access to applications that are normally prohibitively expensive for SME's. In particular those applications that not only require high investment costs for attaining the licenses, but further require substantial investment to implement and integrate them into customer companies. Here, both potential and existing customers were asked to what extent they could access those applications they would have always liked to employ, but really couldn't afford to buy. Potential customers in particular agreed that that is what they believed the ASP solution could offer to them, while existing customers corroborated this to be the case.

***Finding 2.7* – Both potential and existing customers agreed that ASPs offer access to applications that customers could normally not have afforded – particularly true for SMEs.**

The second fundamental component of flexibility we identified was the 'speed' with which an organisation can respond to both internal and external changes. Often organisations not only have to be able to adapt to changes, but they have to do so in a timely manner. Here, ASPs can add to an organisation's flexibility by speeding up the implementation and roll out speed of ICT projects within the organisation. Customers were thus asked to determine the impact of having access to an ASP solution that would increase the roll out speed of applications across the organisation.

***Finding 2.8* – 67% of experienced and 61% of potential customers noted the improved application roll out speed of an ASP solution.**

This agreement of customers to the increased roll out speed of applications through an ASP model comes at little surprise, as customers generally expect this to be the case through the resources, expertise and specialist application capabilities an ASP can supply. Remembering here that application integration, implementation and management is an ASP's core business. In fact, looking at the case studies in the report, this is a common sales point and customer argument for selecting such a solution.

In contrast, an often noted drawback of an ASP offering is the potential loss of control and the resulting increased dependency on ASPs. Once a firm signs up with an ASP, it will automatically enter into a degree of lock-in, at least for the length of the contract. Most companies will not opt to terminate a contract early, due to the costs and the disruption this is likely to cause to operations – remembering applications will touch most, if not all organisational processes. Both existing and potential customers were asked to evaluate whether ASPs will indeed lead to a loss of control over the company's application services and result in a contract lock-in situation.

***Finding 2.9* – 57% of current ASP customers do not experience nor expect a loss of control, while 21% experience or expect a lock-in situation. Of potential customers, 35% do expect a loss of control, and 41% expect a lock-in situation.**

Less than half of the customers worry about loss of control. This seemed in line with the fact that only 41% of customers expect they are likely to become locked-in, and dependent on their ASP as a result. For ASPs themselves, one clear implication is that they need to consider marketing clear switching policies, or ways in which such lock-in possibilities would not be perceived as a disadvantage to customers.

D. Innovation

The focus here was on adaptation to changes and access to new technologies, processes and services. Innovation refers in this context to the ability to come up with new ways to respond to changes, be it new products or services, new markets, new processes, or new ways to manage a company's resources. In order to assess the impact of the ASP solution on a client's innovativeness, respondents were asked to rate whether ASPs enhance their business' innovativeness by giving access to applications, skill sets and additional management and technology services

***Finding 2.10* – On average both existing (56%) and potential customers (50%) expect to receive innovations from an ASP deal.**

As Table 2 shows, the majority of the respondents agreed that access to application solutions provides innovations, both in experience (56%) and in expectation (50%). Only a very low percentage disagreed, pointing to the neutral or negative impact of the ASP solution on a client's innovativeness. As Table 2 shows, 15% of those not yet using an ASP and only 7% percent of the respondents using an ASP (strongly) disagree about there being a positive impact of an ASP on their business' innovativeness.

Respondents were also asked to rate the *degree* of innovation they experienced or expected to result from using an ASP. Figure 12 below shows that respondents from companies already sourcing from an ASP experience a significant degree of innovation as a result of using an ASP: 70% chose one of these options. The respondents not yet using an ASP responded in a more reserved way: 79% expect moderate to more than moderate innovation, and only 8% expect extensive innovation.

***Finding 2.11* – The expected and experienced degree of innovation is at a moderate to significant level, which implies some innovations.**

Clearly, the findings in figure 12 emphasize that customers are only expecting and encountering some improvements for technical and operational services. Still the improvements received are probably those aspects that customers most likely rate as innovations.

E. Summary

Overall, both expectations and experiences of ASPs in terms of business impact are very positive. The survey shows that ASPs can have an impact on customer effectiveness in terms of operational and strategic benefits, offers efficiency advantages in terms of savings and predictability, improves organizational flexibility and speed to respond to changes, and offers a number of

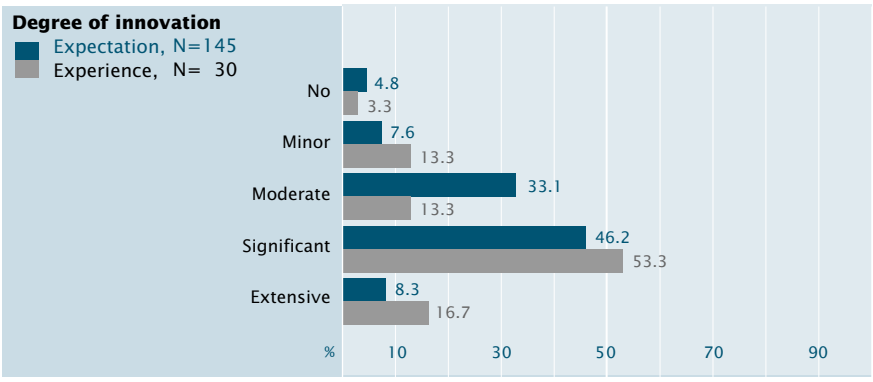

Figure 12: Degree of innovation – expectations compared to experiences

innovations to enhance processes and operations. These benefits need to be weighed clearly, though, against a set of potential drawbacks (see ICT services market drivers section below for an extensive list). Here in particular customer concerns focused on potential lock-in and dependency scenarios.

ASPs are shown to perform better than expected, based on experiences from those who use an ASP relative to expectations from those who do not use an ASP. It would seem that potential customers are favourably surprised to find that ASPs do in many cases achieve their expectations. Again, ASPs need to convey the message about their service achievements and successes to create and increase customer confidence.

***Finding 2.1* – 50% of current ASP customers and 47% of potential customers find that ASPs improve and are likely to improve the overall quality of ICT activities in their business.**

***Finding 2.2* – 76% of customers in ASP deals, and 52% considering such a solution, find that ASP offers a clear competitive advantage.**

***Finding 2.3* – ASPs were indeed found to facilitate customers to focus on their core business.**

***Finding 2.4* – 72% of existing customers experienced significant cost savings, while only 43% of potential customers expect to be able to achieve savings.**

***Finding 2.5* – 79% of existing customers and 65% of potential customers accept that ASP ventures will make ICT costs more predictable.**

***Finding 2.6* – 76% of customers experienced significant business flexibility through access to scalable application solutions, while 57% expect to achieve greater flexibility through an ASP solution.**

***Finding 2.7* – Both potential and existing customers agreed that ASPs offer access to applications that customers could normally not have afforded – particularly true for SMEs.**

***Finding 2.8* – 67% of experienced and 61% of potential customers noted the improved application rollout speed of an ASP solution.**

***Finding 2.9* – 57% of current ASP customers do not experience nor expect a loss of control, while 21% experience or expect a lock-in situation. Of potential customers, 35% do expect a loss of control, and 41% expect a lock-in situation.**

***Finding 2.10* – On average both existing (56%) and potential customers (50%) expect to receive innovations from an ASP deal.**

***Finding 2.11* – The expected and experienced degree of innovation is at a moderate to significant level, which implies some innovations.**

3. Technology drivers

The technology drivers describe the technical characteristics of an ASP solution, that is the technical features by which the ASP solution will be operationalised. For customers, therefore, an ASP's performance on these features determines its technical capabilities, and whether it can truly deliver services and business benefits. The challenge here for an ASP is to ensure the highest technological standards, as these determine the basis of their operations, and hence business.

A. Technical Capabilities – Expectations and Performance

An ASP's technical capabilities are chiefly evaluated and assessed according to the service the customers perceive they are receiving. In particular customers look towards an ASP and its track record to determine:

- whether applications have been continuously available (which is perceived not only in terms of network uptime, but also in terms of functionality);
- reliability of services in terms of 24x7 performance and service demand increases and fluctuations;
- security of application data between up and downloads from remote server farms;
- general skill sets and technical capabilities to handle their application and ICT service needs; and
- the general quality of services and the technical infrastructure.

Table 3 and Figure 13 summarise the findings of both customer expectations and current customers' performance experiences. We will focus in the next sections on those findings with key disparities in the results.

Table 3. Technical Capabilities – importance and performance on technical and management issues

Importance, N=150	**Importance**						**Performance**					
Performance, N= 35	1	2	3	4	5		1	2	3	4	5	
	Not important			Very important		Average	Poor			Excellent		Average
Issue	%	%	%	%	%	(1-5)	%	%	%	%	%	(1-5)
Underlying ICT infrastructure (Sun, HP, IBM)	14.8	22.8	34.2	21.5	6.7	**2.83**	0.0	20.0	22.9	48.6	8.6	**3.46**
Ownership of complete ICT, data warehouse and network infrastructure	10.7	19.5	35.6	23.5	10.7	**3.04**	2.9	20.0	34.3	31.4	11.4	**3.29**
Strategic ICT advisory services	8.7	18.8	38.3	26.2	8.1	**3.06**	2.9	22.9	28.6	42.9	2.9	**3.20**
Range of services/product	1.3	14.0	40.7	34.0	10.0	**3.37**	0.0	11.4	45.7	40.0	2.9	**3.34**
New technologies and innovations	2.0	11.4	35.6	40.9	10.1	**3.46**	0.0	8.6	37.1	37.1	17.1	**3.63**
Degree of application customisation available	1.3	5.4	34.2	46.3	12.8	**3.64**	0.0	14.3	31.4	42.9	11.4	**3.51**
Scalability of services	0.7	6.7	26.7	44.0	22.0	**3.80**	0.0	8.6	37.1	48.6	5.7	**3.51**
Skills and technical capabilities	0.7	4.0	20.8	42.3	32.2	**4.01**	0.0	8.6	45.7	28.6	17.1	**3.54**
Service level and contract management	0.7	2.0	21.5	40.9	34.9	**4.07**	0.0	5.7	40.0	42.9	11.4	**3.60**
Responsiveness to service demands	0.7	2.7	17.3	36.7	42.7	**4.18**	8.6	8.6	34.3	28.6	20.0	**3.43**
Reliability of services	0.7	4.0	15.4	28.2	51.7	**4.26**	2.9	8.6	34.3	42.9	11.4	**3.51**
Application availability	0.7	2.0	14.0	26.7	56.7	**4.37**	5.7	11.4	31.4	42.9	8.6	**3.37**
Quality of services	0.7	1.3	12.8	30.9	54.4	**4.37**	2.9	5.7	31.4	42.9	17.1	**3.66**
Security	0.7	2.7	13.3	20.0	63.3	**4.43**	2.9	2.9	42.9	25.7	25.7	**3.69**

Note: Rating of the importance of different technical and management issues of an ASP option and rating of the performance of ASPs on these same subjects on a Likert scale (Not important – Very important) / (Poor – Excellent). Issues are sorted (ascending) on the average importance attributed according to the response.

Service availability, reliability, quality and scalability - customers look towards ASPs for a reliable, readily available and scalable service that can either replace or amend their current application service portfolio. Customer's expectations clearly reflected the degree of importance they assign to service availability and reliability. 83% of potential customers rated availability as (very) important, while reliability was noted by 80% as (very) important. These in essence high expectations compared with the current performance ratings of existing ASP customers prove there is an area of potential concern. Here experience proved that on average ASPs were only performing mediocre (3.4 of 5) on availability and slightly better on reliability (3.5 of 5) of services. The result of this gap is likely to cause dissatisfaction among customers as expectations in many ways are not sufficiently achieved by ASPs. As a result it can be expected that customers experience an expectation mismatch.

Finding 3.1 **– 83% rated availability and 80% rated reliability as (very) important, which is likely to lead to an expectation mismatch, especially as customers' experience of ASPs revealed rather mediocre performance on service availability (3.4 out of 5) and reliability (3.5 out of 5).**

Considering that an ASP is expected to establish a technical infrastructure that can guarantee similar, if not better, availability and reliability of services than a customer's previous internal arrangements. Reliability implies that a service remains constant and consistent, and is comparable as such to operating applications in-house. Remembering that this part of an ASP is its 'bread and butter' and 'calling card' to attract new potential customers. It thus came as a surprise to find that customers rated the application availability and reliability performance of their services as mediocre on average (see Table 3 above). Customers have been experiencing some difficulties here, which we assume are mostly related to the underlying network infrastructure part of the ASP service. Comparisons customers drew here were with their own previous internal services. One needs to add that in many cases customers had high expectations of the external ICT service provider, expecting it to provide a better service than that available internally, previously. We also note that many ASPs claim the bottlenecks occur at the customer end.

Quality of services remains critical of course to both potential and existing customers, as Table 3 and Figure 13 reveals. The expectation from first contact is that an ASP can provide and offer superior application services to what a customer could achieve internally. It thus comes as no surprise to learn from the participants that they rated the importance as 4.4 out of 5. This reflected also their likely level of concern for achieving the highest levels of service quality. In other words, potential customers perceive the quality of service issue as very important. It will be up to the ASP, thus, to ensure they perform to that level. However, looking at the current performance evaluation, it showed ASPs are doing primarily a mediocre to good (average 3.7 out of 5) job at delivering a high quality of service. They are not rated anywhere near as performing excellent on services. It would thus seem that ASPs still have some way to go before they achieve customer expectations

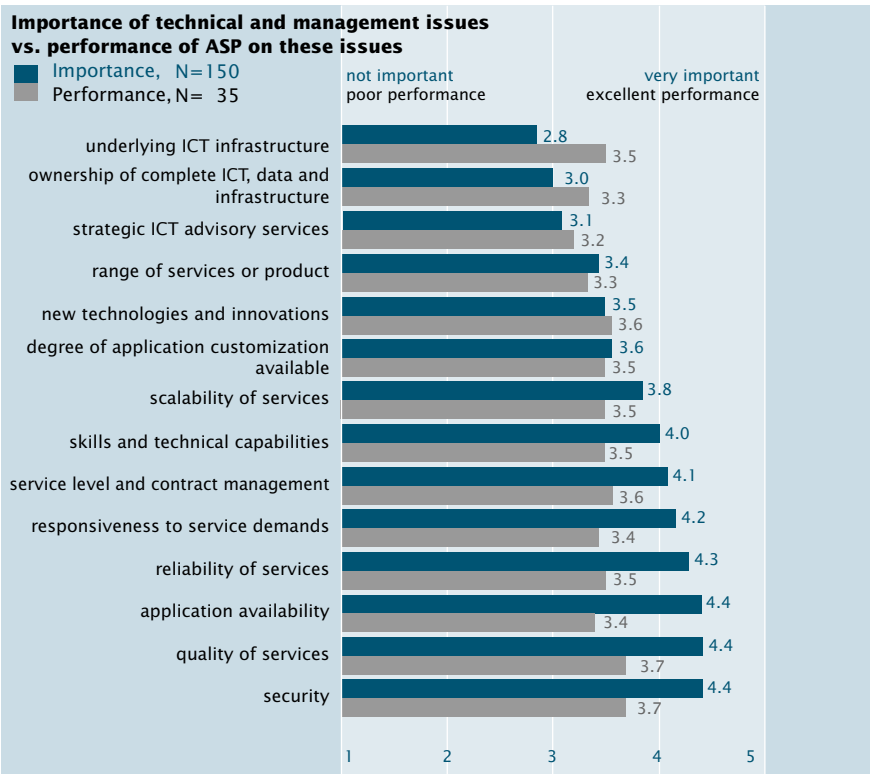

Figure 13: Technical capabilities – importance and performance

in terms of service quality. It could also indicate that customers need to understand their responsibilities in realizing service excellence. All ASPs report that the number of help desk calls peak during the months of implementations as users learn new processes, procedures and skills.

***Finding 3.2* – 54% of potential customers rate quality of ASP services as very important, while actual ASP performance on the quality of services rates mediocre to good (3.7 out of 5).**

Scalability of services, on the other hand, often plays a crucial role for fast growing businesses, but also for firms where service volume increases are likely to occur periodically, for example, during end-of-year accounting periods. Customers expect to have the technical possibilities to easily increase terminal and processing volumes. In part, an ASP's flexibility in responding to these scalability requirements of solutions facilitates a greater operational flexibility for customers. 66% of potential customers in our survey indicated that they rate this aspect as important. Clearly potential customers look towards ASPs to offer these services.

***Finding 3.3* – 66% of potential customers rate scalability as important or very important. Actual ASP performance on scalability, however, rates only mediocre to good (3.5 out of 5).**

ASPs do not seem to be making a lot of effort to match these expectations. According to existing customer ratings, few ASPs are being rated as 'excellent' in scalability services to date. Instead on average ASPs achieve a slightly better rating than mediocre on scalability of services (3.5 out of 5). Here a number of issues in respect to the degree of dynamism ASPs can cater for may play a part. Substantial scale increase by customers may require time to be responded to and implemented by ASPs, especially if they themselves are ASP startups where technical resources are calculated according to existing demands and needs, and few slack resources are generally available – due, for example, to cost economies.

Security of services - similar assumptions apply to the security of application services, especially in respect to data that ASPs might be storing for customers on their server farms. Our study corroborates what is widely acknowledged and accepted as being a key concern and hence of grave importance for customers – security of services, data and operations. Customers clearly rate reassurance on these issues as critical to an ASP's service offering - 63% rate it as very important. In particular they seek clear evidence that their operations, application and data will be as secure as if operated internally.

***Finding 3.4* – Compared to the above (3.7 out of 5) performance on security, 63% of potential customers rate security as outright important and hence a key concern.**

ASPs naturally have been aware of this concern for some time. However, to our surprise, while customers noted that in terms of their ASP's performance they were

generally satisfied, they did not perceive the service security angle of their ASP solution as being anywhere near excellent in performance. Instead it was rated as above mediocre (3.7 out of 5) in terms of security. Why is this the case? There may be many reasons. For example, from our research we know of examples where, once customers were actually reassured at the outset by ASP service providers of the integrity and security of the solution, this became a minor control issue and concern in their minds. As a result, subsequently some customers were taken aback to find out that some glitches that could have affected business performance had occurred.

Nevertheless, ASPs have made the security agenda a core part of their technical infrastructure and have sought external auditing firms to validate and verify their service and security integrity. However, security of service, applications and data continue to have a key role to play in forming customers expectations, and it seems from our work that customers and would-be customers are still not sufficiently reassured that ASP performance on security is at the highest standards (see Table 3 and Figure 13 above).

An influencing factor here might be the ownership issue of the ICT, data warehouse and network infrastructure. Customers looking to an ASP solution will be concerned about the security and confidentiality of data as the ownership of the overall solution is often unclear. This was revealed by the fact that most potential customers considered the ownership issue to be very important to have clearly specified, while existing customers experience of how ASPs deal with this issue is at best moderate to mediocre in performance. In turn, another disparity is evident that shapes part of the underlying security concerns.

***Finding 3.5* – Customers rate it important to clarify the ownership of ICT, data warehouse and network infrastructure, yet performance in clarifying these issues for customers is moderate.**

A solution to resolving some of the discrepancy between the importance of security and perceived performance on security, may well be applying 'best practice' service level and contract management.

Contracts in particular assist in clarifying the ownership of data issue and outlines the process to mitigate such risks, while good service level management often helps in uncovering any possible security risks. The resulting openness about importance and performance will likely assist both parties in eliminating most of the disparity between the former.

ASPs still have some way to go before customers feel completely comfortable with underlying security arrangements of an ASP solution.

B. ASP infrastructure

The underpinning infrastructure, as Table 3 and Figure 13 above reveal, is generally rated as important, but performance is noted much higher than mediocre. Potential customers seem ambivalent about infrastructure, although it defines a core component of the ASP solution. Moreover, the low importance rating might be reflective of what customers noted in Figure 14 below, that currently customers involved in an ASP deal are primarily accessing their service via the all pervasive internet. In fact, 55% of customers operate a technical infrastructure that is based on a secure socket layer (SSL) running a 128 bit data encryption, which seemingly provides sufficient security for the majority of users. Of particular interest is the small number of customers (9% in total) that use a virtual private network, which ensures point-to-point network security. Unlike the expectations of many would-be customers who plan to access the ASP service via a virtual private network. In contrast, 40% would expect to access their service via a virtual private network, while 34% would be sufficiently happy with the security an internet connection offers.

***Finding 3.6* - For 55% of actual customers the internet was found to be sufficiently safe, reliable and efficient to deliver the required application services, while the largest group of potential customers (40%) would seek to access their service via a virtual private network .**

However, our findings above on availability and reliability may well be prompted by some of the problems arising through internet usage. As most have experienced in the past, the internet can undergo glitches and may, for example, slow down transfer rates to a point where data transfer almost ceases. Naturally such occurrences can have an adverse affect on the perceived technical performance of an ASP.

Thus it is interesting that potential ASP customers have greater concerns over security, and generally downgrade the role of the internet, preferring a relatively greater role in their own plans for intranets and VPNs. The message for ASPs? Provide these infrastructure services, or work harder on convincing future customers that the internet can be made as safe a technical platform as the alternatives.

C. General Technical Performance Problems with ASPs

Customers of ASPs were asked to provide an understanding of how they perceive and rate the current services and solutions they are receiving from their ASP service supplier.

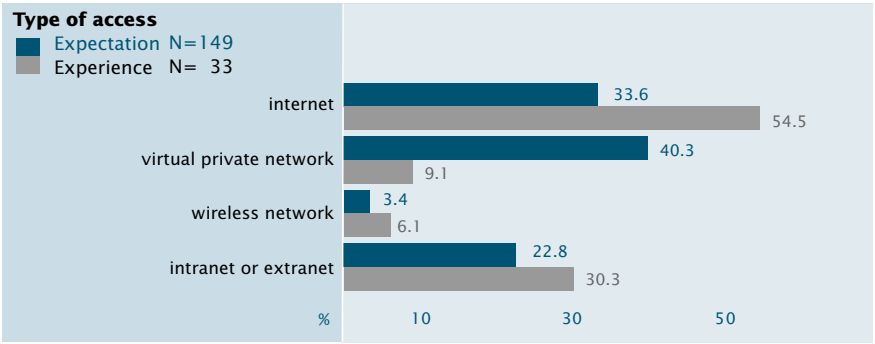

Figure 14: ASP infrastructures and customers preferred access points

According to their overall response, it is clear that ASPs are achieving and performing up to and above customers general expectations in terms of their technical performance. However there still are a number of problems, especially in terms of response and uptimes of services.

***Finding 3.7* – Current ASP customers rate the technical performance of their ASP on average as 7, on a scale of 10, indicating a good performance rating overall.**

As Figure 15 shows customers rated their ASPs service as quite good. 53% of existing customers rate their ASP between 7 and 8 on a scale of 10. This was further corroborated by the high performance ratings of their ASP's responsiveness to service demands in Table 3 and Figure 13 above. Still, approximately 13% of customers rated their existing ASP service as poor. This would suggest that previous in-house services were seen as much better. Yet on the other hand there are 18.5 % of customers who rate their service as excellent (9 to 10)! This shows that ASPs are in many cases able to deliver services beyond customers expectations and delivering services very likely not achievable or attainable in-house.

In light of the regular concerns raised by the media surrounding the technical infrastructure of ASPs, it is clear from these findings that ASPs have taken on board a lot of learning to ensure that their infrastructure is of the highest standards. In part, this could be expected as their business is ensuring the highest technical performance above that of what customers can obtain internally and could potentially achieve themselves.

Another point to mention in favour of ASPs generally, is their growing professionalism regarding their technical infrastructure, possibly one direct result of the regular concerns that are frequently raised by the Media.

***Finding 3.8* – Customers noted application availability and service response or uptime as the primary technical problem areas in their ASP service.**

As evident from the above, the general indication from customers was a high degree of satisfaction with the technical infrastructure and processes used to deliver the ASP solution. However, as can be expected in any arrangement that involves complex application arrangements, problems are likely to emerge. Here problems may result from entering into an ASP deal, rather than a problem with the ASP arrangement. As a natural consequence of any problem that does evolve or involve the ASP deal, customers will find that their expectations are not completely achieved. So it is prudent to be aware of where existing customers are currently encountering some concerns and real problems with their ASP arrangements. Figure 16 illustrates the main technical areas that continue to be customers' chief concerns.

As can be seen, the dominant complaints relate to slow response times, and unavailability of applications. ASPs need to ensure their offering addresses these concerns for both existing and future customers. ASPs also need to ensure that unanticipated costs, inability to integrate and lack of qualified staff do not become a customers problem. It is interesting to note that customers rate

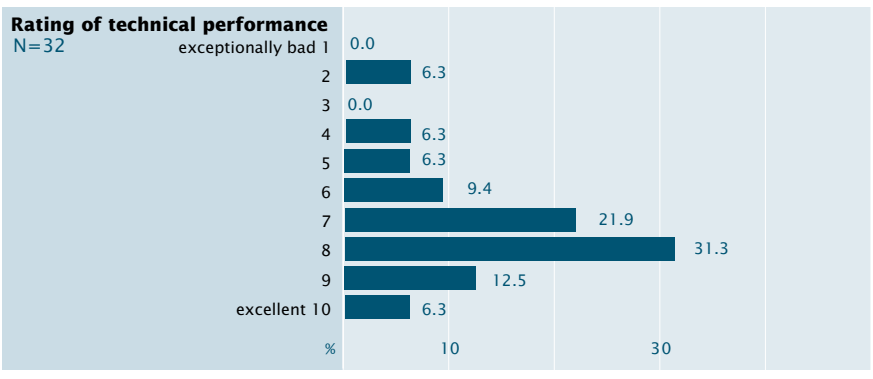

Figure 15: ASPs' general technical performance

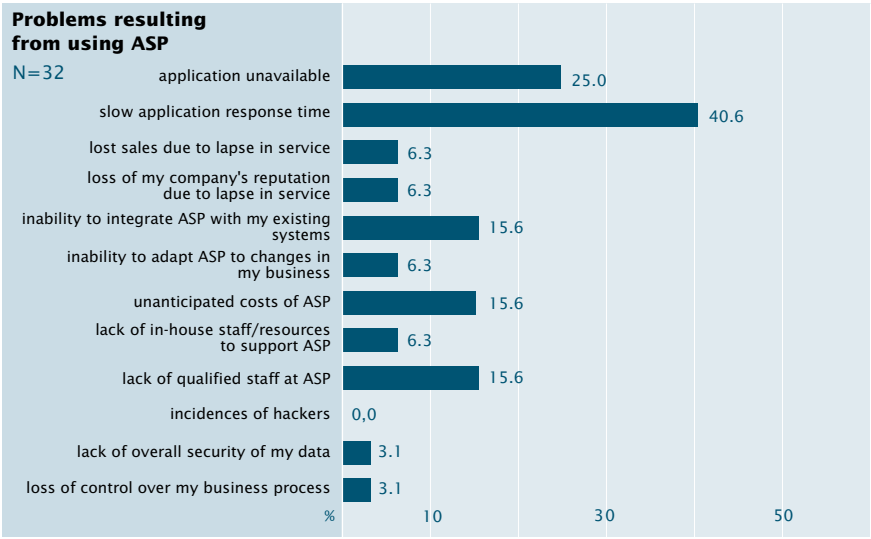

Figure 16: Main technical problem areas

security as of no great concern, against the high profile the issue tends to have in the media, and amongst potential customers.

Again in light of the regular concerns raised regarding the technical infrastructure of ASPs, it is clear from Figure 16 that the majority of ASPs have taken on board the messages on concerns, not least from their customers, and ensure that their infrastructure is of a high standard. Nevertheless, just over a quarter of customers are still experiencing less than satisfactory technical performance. In part, the satisfaction of the majority could be expected amongst SMEs – it would be surprising if a dedicated ASP could not ensure a technical performance above that which customers could potentially achieve themselves. In support of ASPs generally, our research in the cases as well as the survey point to a high and growing professionalism regarding their technical infrastructure. Partly the result, no doubt, of both customer expectations and as a response to fears on the subject raised in the general media.

D. Summary

As evident from the technology drivers, customers look towards an ASP and its technical solution as a replacement and amendment of their existing internal ICT services and infrastructures. It is thus no surprise that customers here are particularly critical as the technology defines the core part of the ASP solution and the service. The findings reveal that technical performance is generally at a good level, but not to the level of achieving completely what customers expect. Here a clear disparity is evident between expectations and perceived technical performance.

Application service providers, therefore, need to spend further time on strengthening their technical infrastructure of their solution and to offer higher levels of availability, reliability, quality, scalability and security. As these areas improve, so will the general perception of ASP. The goal in terms of technology driver has to lead to a solution that can be easily slotted into any existing internal ICT service and infrastructure, either as an outsourcing or insourcing solution.

One final point to raise is the learning on the customer side about diminishing possible bottlenecks in terms of technical infrastructures. Networking, in particular, is often complex in an ASP deal and cannot be completely controlled by the ASP. Yet what often happens is, that the ASP will be blamed for the difficulties.

Clarity and openness resulting from possible improved service level and contract management may well be a solution to the discrepancies mentioned above between the importance and perceived performance.

Finding 3.1 **– 83% rated availability and 80% rated reliability as very important, which is likely to lead to an expectation mismatch, especially as customers' experience of ASPs revealed rather mediocre performance on service availability (3.4 out of 5) and reliability (3.5 out of 5).**

Finding 3.2 **– 54% of potential customers rate quality of ASP services as very important, while actual ASP performance on the quality of services rates mediocre to good (3.7 out of 5).**

Finding 3.3 **– 66% of potential customers rate scalability as important or very important. Actual ASP performance on scalability, however, rates only mediocre to good (3.5 out of 5).**

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Finding 3.5 – **Customers rate it important to clarify the ownership of ICT, data warehouse and network infrastructure, yet performance in clarifying these issues for customers is moderate.**

Finding 3.6 - **For 55% of actual customers the internet was found to be sufficiently safe, reliable and efficient to deliver the required application services, while the largest group of potential customers (40%) would seek to access their service via a virtual private network .**

Finding 3.7 – **Current ASP customers rate the technical performance of their ASP on average as 7, on a scale of 10, indicating a good performance rating overall.**

Finding 3.8 – **Customers noted application availability and service response or uptime as the primary technical problem areas in their ASP service.**

4. Economic Drivers

From a customer perspective, one supposed great strength of ASPs has been the potential economic advantages. The main possibilities regularly cited include: gaining cost savings through application service providers' economies of scale, achieving cost flexibility, and transparency - for example being able to predetermine monthly costs. Such arguments have made ASP solutions a market-testable option. The comparison here is commonly performed on the basis of 'total cost of ownership' versus sourcing applications directly from an ASP. Essential components for a comparison are:

- pricing models – outline the matrices for calculating the monthly ASP fees;
- monthly ASP fee – the expected costs compared to the current monthly ASP fees being paid;
- set-up costs for an ASP solution – the anticipated and actual set-up costs for an ASP solution; and
- monthly cost savings – the potential ASP savings expected and realised.

Important here is to understand what customers would commonly expect to achieve and how they would like to pay for their solutions, compared to how ASPs are performing on their proposed economic advantages. Before looking in detail at the above four areas, a qualitative finding across the study is that ASPs do deliver on some of the touted economic advantages. This is further corroborated by the findings in sections below and more specifically visualized by the Figure 20 below.

Remember here that for an ASP to achieve the economic benefits touted, they actually need to achieve and maintain 'economies of scale' that sufficiently ensure they can retrieve often slim profit margins. The low profit margins are a result of ASPs pushing to attain customers and then hoping that either through long-term deals and/or increases in volume numbers of users that they can increase their profit margins. Moreover, their operational best practices become essential to not only achieve profits, but more importantly to recover the initial investments in a customer. Therefore contracts by nature often have to be more long-term focused, to allow the ASP to make sufficient returns and achieve a profit.

A. Pricing models

Finding 4.1 – **The 'number of users' is the most popular ASP pricing approach for both current and potential ASP customers.**

A customer is particularly interested in understanding the kind of pricing models ASPs offer and commonly operate; not least to see whether the pricing expectations/ requirements are delivered in practice. ASPs offer a range of possibilities for pricing their services, although some of the models for determining a monthly fee are still over-complex in nature. The more straightforward pricing models are flat rental fee, number of desktops, number of users, and number of applications. On the other hand, pricing models based on degree of customization, complexity of application, and needed support are difficult to price due partly to the subjectivity of judgment required to determine costs/prices.

In our survey, the kind of pricing arrangements customers expect to access more or less conform to what ASPs deliver (see Figure 17). Differences are primarily in the weighting of what customers prefer as pricing arrangements to what ASPs are currently delivering. In addition we identified two pricing arrangements as outliers which are worthy of further investigation.

What is evident from the top five differences in expectations and experiences of pricing arrangements is the common agreement that 'number of users' is the preferred and accepted primary pricing model. After that, preferences of potential customers and experiences of actual customers differ a little though both select 'flat rental fees' and 'based on number of applications' as the next most popular, with 'variable fee based on volume of data' being the third most popular amongst current

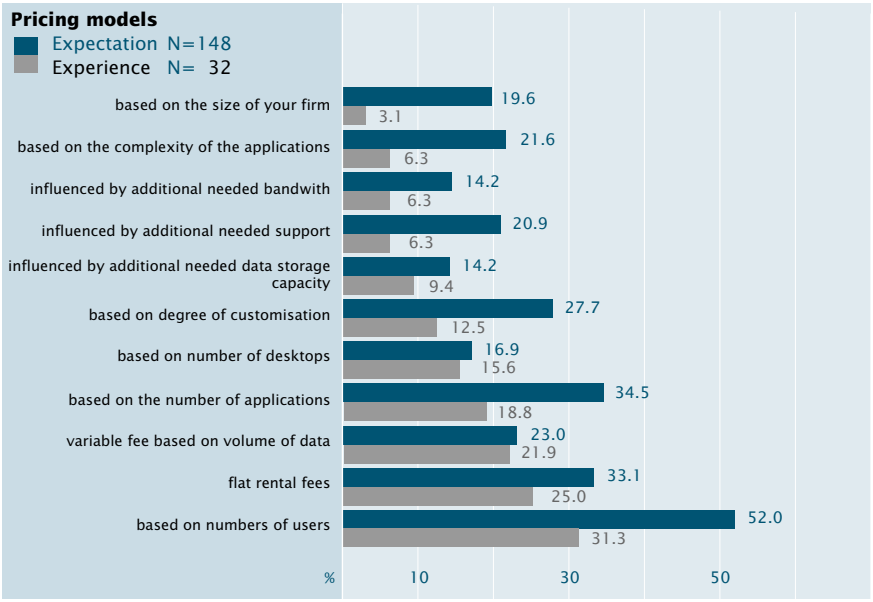

Figure 17: ASP Pricing Models - expectations and experience

customers. Of particular interest is the fact that potential customers are looking to use a pricing model that focuses on the 'degree of customization' of applications. This is surprising given that this would entail a particularly difficult set of measurements for pricing. It would imply a standard fee for an application as a base measurement, upon which an additional charge might be levied according to the extent to which the application has been rewritten to fit the customers needs. The amount of consulting, alteration, integration and programming work needed up-front would then be charged back over the contract period. In general, an interesting approach, but likely to cause considerable discussion among clients and suppliers on the overall 'degree of customization' and resulting costs. It also poses particular problems in terms of scalability and ability of the ASP to offer it as a one-to-many solution to other customers.

In contrast, current ASP customers are using as their fifth most popular pricing model the 'number of desktops' for which ASP solutions are currently sourced. This is a more straightforward approach, with the price determined according to the number of desktop machines that have access to the ASP solution. The overall number may include incremental steps, as more users log on to the system, and as a company grows in active user numbers. This seems to offer substantial flexibility in terms of desktop growth, and for determining the costs of each machine. Yet we believe this option a less likely pricing model for the long-term, as the internet offers the possibility to log on to services from anywhere, and customers are showing interest in WAP services.

Clearly many pricing models are already available, though there is a continuing debate about the most effective approach, from both customer and ASP perspectives. The decision to opt for a particular model has to be informed not only by the customer's particular requirements, and its financial viability for the ASP solution, but also by the degree of mutual willingness to use complex matrices to determine the resulting monthly fee.

B. Monthly ASP fee

***Finding 4.2* – Nearly 45% of customers expect to pay, and are paying, less than 2500 US dollars per month for their ASP service.**

Our evidence shows that customers looking towards an ASP solution see it in light of a selective sourcing strategy of clearly definable services. These will be and are anticipated by potential customers to be primarily for user numbers between 10 and 50 (as outlined above in the ASP market overview section). This alone already points to a relatively low expected and current monthly fee. Indeed, Figure 18 below highlights that more than 70% of customers expect and are sourcing applications for fees up to $10,000 per month. These figures reflect the relatively small size of ASP deals, but also the fact that most customers are looking to source and procure primarily standard commodity – type applications, rather than the expensive ERP or SCM application solutions.

These figures clearly show that the expected amount of monies to be spent on an ASP solution is still relatively low on average, but we found 7% of potential customers looking to source applications that may span $50,000 and more a month. Looking at the average contract length of two to three years, this would imply some deals with an average contract value of approximately $1.2 to 1.8 million. Some 13% of potential customers indicate they may sign deals worth an average of $300,000 annually. Moreover, nearly 16% of existing

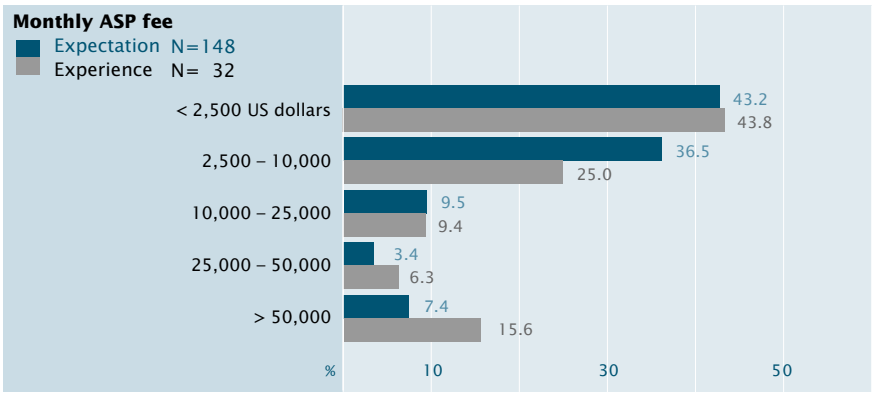

Figure 18: Monthly ASP fee - expectations and experience

customers are already spending between 10,000 and 50,000 US dollars per month. These may well expand their ASP exposure incrementally in future deals. What this clearly signifies is a growing size in the market. However, with nearly 80% of future customers looking to initially sign deals worth up to $10,000 a month, the overall ASP market in terms of revenue per customer remains small.

Drawing a comparison to the ICT outsourcing market generally, these deals do seem rather small overall. Yet this was expected in part, as they focus clearly on specifiable application services, and not complete infrastructure solutions as is often the case in ICT outsourcing ventures.

C. ASP Set-up Costs

***Finding 4.3* – Smaller customers tend to expect ASP set-up costs to be higher – typically between $5-25, 000 - than experience actually proves. 45% of customers actually pay less than $5000 in set-up costs.**

A noticeable disparity exists between what many customers expect the set-up costs to be and what customers actually experienced in their ASP deals. Following our point made elsewhere about the need to educate potential customers, it would seem that all too many customers evaluating the ASP option for themselves, are not yet completely clear on what potential costs may arise if they were to decide for an ASP deal. As Figure 19 shows, some 73% of potential customers estimated the costs for setting up the service to be anything between $5,000 and plus $100,000. In reality 45% of existing customers are paying less than $5,000, another 16% between $5-25,000, nearly 20% between $25-50,000 and 19% over $50,000. It should be remembered that one of the strong arguments made for adopting an ASP solution is, in fact, its low or even no up-front investment and set-up costs. Our survey bears out that this is actually being experienced by the majority of customers. Another point to note is that early adopters of an ASP service may have had a lower need for customised services. So the potential customers or late adopters may indeed spend more than $5-25,000, now that they understand and know what is possible through an ASP model.

Although the set-up cost for those customers currently in an ASP deal were relatively low, it can be expected that an ASP will have integrated the up-front costs, such as setting-up the network infrastructure and the consulting and application integration process, into the actual monthly ASP fee. So whether all customers who are currently in an ASP deal are fully aware of the total set-up costs is not clear. It may also be that customers are actually indicating in their responses only the overall costs to themselves, minus the cost of buying or receiving the service in-house.

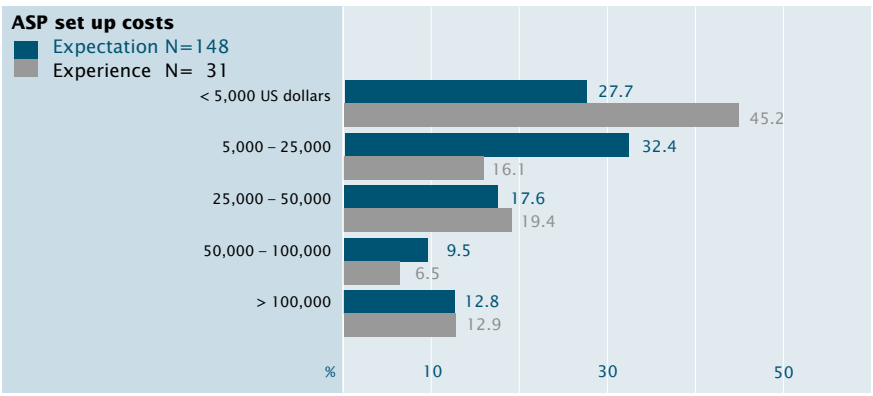

Figure 19: ASP setup cost - expectations and experience

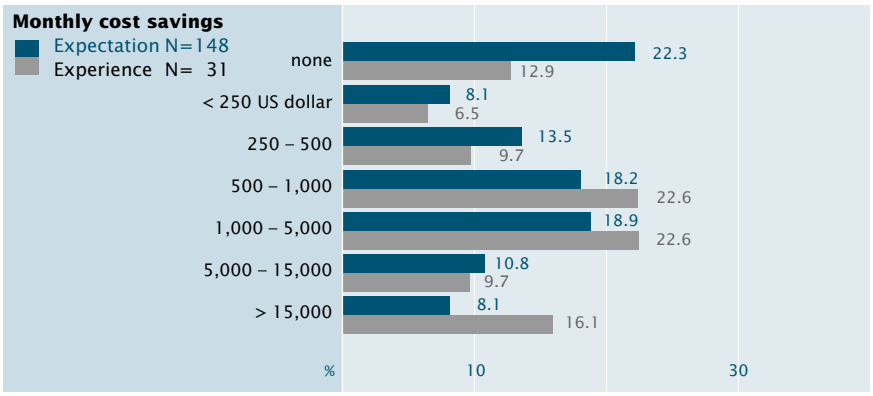

Figure 20: Monthly ASP cost savings

D. Monthly cost savings

***Finding 4.4* – Some 81% of ASP customers are making yearly savings of between $3,000 and $180,000 or more, yet 30 % of potential customers expect to achieve no savings at all, or at most $3,000 annually. There is a noticeable discrepancy between results anticipated by potential customers, and actual cost savings achieved.**

An ASP solution is often touted as a cost saving approach to ICT. On cost savings, we once again found considerable disparity between what potential customers expected and what actual customers were experiencing (see Figure 20). In practice some 45% of customers are saving between $500-5,000 a month. Another 26% actually save over $5,000 and in some cases over $15,000 a month. Only 13% are making no cost savings, though they are not experiencing high set-up and capital investment costs either. Compare this with the views of potential customers. Some 22% assume no cost savings at all from monthly fees, while another 20% assume cost savings will be under $500 a month. Generally, potential customers are more pessimistic about cost savings than Figure 20 suggests they need be.

The reasoning for this response might evolve from the fact that many of the respondents considering an ASP solution do not have a particular application or a fixed total cost of ownership (TCO) sum against which they can compare an ASP solution. At the same time, in interviewing potential customers, many seem to prefer to take a pessimistic view of the cost savings at an early stage, waiting to be convinced by the ASP about how the cost savings would come through.

In any case, it is evident that potential customers see less savings available in an ASP solution than experience is proving. In many ways, this might be a reaction against the often overly high savings that have been touted in sales and marketing material. A decade of experiences from more general ICT outsourcing may also play a part here, where suggested savings have not always been achieved to the levels anticipated (see Kern and Willcocks, 2001).

E. Summary

Clearly, customer experience and expectations show that they generally look towards the ASP model as a means to decrease costs, improve cost control by changing the variable costs to fixed and achieve potential cost savings. To our surprise there are, however, a number of customers who do not expect to be making any savings at all on an ASP solution. Clearly they have not yet bought into the savings arguments and are possibly not aware where the savings are to come from. Here ASPs need to spend more time on outlining the potential saving benefits achieved through the increased 'economies of scale' available to an ASP.

Nevertheless, the economic argument for comparing or market testing in-house costs against those of what it costs to source the services from an application service provider are wholly justifiable on the basis of the findings. Evidence strongly suggests significant savings can be achieved on the 'total cost of ownership'. In addition, there are savings on the relatively high up-front investment costs in the applications and underlying server technology, but not the anticipated cost degree. In part it results from the fact that a set-up cost will in all cases arise.

Finally, cost control is significantly improved through the ASP model. Pricing models can not only assist in clearly stating the individual's user or desktop costs, but also help in determining the monthly costs if more users or desktops are added. These payment arrangements thus give the customer increased flexibility. In any case, the determination of the costs will be fixed and clear to the customer, giving him greater control over the overall ICT/application expenditures.

***Finding 4.1* – The 'number of users' is the most popular ASP pricing approach for both current and potential ASP customers.**

Finding 4.2 – **Nearly 45% of customers expect to pay, and are paying, less than 2500 US dollars per month for their ASP service.**

Finding 4.3 – **Smaller customers tend to expect ASP set-up costs to be higher – typically between $5-25, 000 – than experience actually proves. 45% of customers actually pay less than $5000 in set-up costs.**

Finding 4.4 – **Some 81% of ASP customers are making yearly savings of between $3,000 and $180,000 or more, yet 30 % of potential customers expect to achieve no savings at all, or at most $3,000 annually. There is a noticeable discrepancy between results anticipated by potential customers, and actual cost savings achieved.**

5. ICT Services Market Drivers

The ICT services market drivers focus on market testing in-house ICT services against external ICT offerings. The primary focus here is on accessing business, economic, technical and operational advantages, and minimizing the drawbacks and risks. The key to market testing is to weight the concerns or potential disadvantages against the benefits and opportunities of an ASP solution. Many of the benefits or opportunities have already been outlined and discussed in the above sections, whereas in this section we will describe the most often noted concerns.

In looking at the ICT service market drivers customers will also focus on those services and skill sets that are not readily available in-house. These are additional services that customers will seek from an ASP. From an ASP perspective, these additional ICT services describe how an ASP can differentiate its service solutions and assert its offering as leading edge. Of fundamental importance here is to cater for and internalize those capabilities that would allow an ASP to satisfy the service and skill set expectations of the customer segment targeted.

A. Ongoing Issues of Concern

Finding 5.1 - **The biggest concerns of potential customers are in order of impact: (1) an ASP's service and business stability, (2) security, (3) reliability, (4) ASP's longevity and existence, and (5) ASP's dependency on other parties.**

Looking at Table 4, it is evident that customers considering the ASP option do have very similar concerns to customers who are actually in an ASP deal. Of course, there are variations among the level of concerns. On average one can see in the table and chart that potential customers rate the drawbacks more severe than existing customers. But this can be expected due to the lack of experience with ASP solutions and hence 'modus operandi'.

Of drawbacks that might come into play when looking at an ASP solution, potential customers have grave concerns on all the issues rated 3 to 4 in Table 4. The biggest concerns here are: (1) an ASP's service and business stability, (2) security, (3) reliability, (4) ASP's longevity and existence, and (5) ASP's dependency on other parties. This is quite a considerable worry-list. How do we explain this? Customers with no experience of an ASP solution are likely to be more concerned, due to the surrounding uncertainty and perceived immaturity of the market. Thus it is noticeable that those customers actually in an ASP deal rate the issues of concern by up to 30 % lower (see for example ASP dependency on other parties).

Finding 5.2 - The most important concerns for existing customers, which are largely comparable to potential customers' lists, were in order of concern: (1) ASP's longevity and existence, (2) reliability, (3) ASP's service and business stability, (4) security, and (5) integrating ASP with existing applications.

On the other hand we must point out that, although experienced ASP customers suggest that many of the issues cited are less problematic than envisaged, they still on average, across the issues, are regularly rated between 2 to 3. Moreover, none of the drawbacks we investigated was actually rated by the existing customers as of little concern at all i.e. 1 to 2. So it is still apparent that even when in an ASP deal, the amount of uncertainty in respect to many of the issues ranging from the technical factors such as security, reliability, and scalability to the managerial issues of lock-in, unproven business model, and dependency on others is considerable – all these remain in fact as attendant risks. The gravest concerns for existing customers were: (1) ASP's longevity and existence, (2) reliability, (3) ASP's service and business stability, (4) security, and (5) integrating the ASP solution with existing applications. All of these will also inform and often shape customer's ongoing management issues in any ASP deal. For example, many of the technical issues

Table 4: ASP drawbacks - expectation and experience

Expectation, N=168 **Experience, N= 38**	1 No concern %	2 %	3 %	4 %	5 Major concern %	Average rating (1-5)
Higher initial capital outlay	*4.2* **10.5**	*19.0* **26.3**	*53.6* **47.4**	*17.9* **15.8**	*5.4* **0.0**	*3.01* **2.68**
Unproven business model	*6.0* **18.4**	*16.1* **26.3**	*38.1* **28.9**	*28.6* **21.1**	*11.3* **5.3**	*3.23* **2.68**
Company size too small or large for ASP use	*16.7* **26.3**	*21.4* **13.2**	*41.1* **36.8**	*11.3* **10.5**	*9.5* **13.2**	*2.76* **2.71**
Loss of control	*9.5* **10.5**	*19.0* **31.6**	*28.0* **39.5**	*29.8* **10.5**	*13.7* **7.9**	*3.19* **2.74**
Unclear on ASP concept and practice	*16.1* **26.3**	*16.1* **15.8**	*38.7* **28.9**	*19.6* **15.8**	*9.5* **13.2**	*2.90* **2.74**
Not enough service and application choices	*4.8* **5.3**	*20.2* **31.6**	*41.1* **39.5**	*22.6* **21.1**	*11.3* **2.6**	*3.15* **2.84**
Reduced flexibility	*8.9* **13.2**	*28.6* **28.9**	*31.5* **26.3**	*23.2* **18.4**	*7.7* **13.2**	*2.92* **2.89**
Contract lock-in	*2.4* **10.5**	*14.3* **18.4**	*40.5* **42.1**	*29.8* **23.7**	*13.1* **5.3**	*3.37* **2.95**
Higher ICT costs over time	*5.4* **15.8**	*19.6* **15.8**	*42.9* **31.6**	*23.8* **31.6**	*8.3* **5.3**	*3.10* **2.95**
ASP's dependency on other parties	*4.8* **5.3**	*7.1* **26.3**	*26.2* **42.1**	*37.5* **13.2**	*24.4* **13.2**	*3.70* **3.03**
Scalability	*7.7* **7.9**	*22.6* **13.2**	*35.1* **44.7**	*25.6* **31.6**	*8.9* **2.6**	*3.05* **3.08**
Integrating ASP with existing applications	*3.6* **13.2**	*11.3* **13.2**	*30.4* **34.2**	*33.3* **26.3**	*21.4* **13.2**	*3.58* **3.13**
Security	*1.8* **0.0**	*9.5* **28.9**	*22.0* **23.7**	*26.2* **26.3**	*40.5* **21.1**	*3.94* **3.39**
ASP's service and business stability	*2.4* **2.6**	*5.4* **21.1**	*20.8* **23.7**	*35.1* **34.2**	*36.3* **18.4**	*3.98* **3.45**
Reliability	*2.4* **0.0**	*6.0* **21.1**	*24.4* **26.3**	*36.3* **28.9**	*31.0* **23.7**	*3.88* **3.55**
ASP's longevity and existence	*2.4* **2.6**	*7.7* **7.9**	*28.6* **39.5**	*34.5* **28.9**	*26.8* **21.1**	*3.76* **3.58**

Note: Rating of potential drawbacks of the ASP solution on a Likert scale (No concern – Major concern): Experience (grey) vs. Expectation (dark). Drawbacks are sorted (ascending) on the average of the response of the respondents that come from companies currently sourcing from an ASP.

will be monitored through service level agreements, while contractual issues will be handle through carefully developed contracts.

The above primary concerns of both potential and existing customers reveals a close match on the issues, although the order of importance varies, and on two issues the two types of customers diverge. The one issue of ASP's dependency on other parties is of greater concern for potential customers, while a second issue of integrating ASP with existing applications is of greater concern to existing customers. It seems that the dependency issue in general is on customers' minds from the beginning, as no matter how you perceive an ASP venture, you enter into a dependency arrangement. For potential customers it will, thus, be of importance to minimise and possibly enforce control as much as possible, which becomes less likely as third-party dependencies from the application service providers side also arises. However, for those customers that have already decided to go for an ASP venture, it seems less likely that this issue is of concern. For them the integration of the ASP solution with the existing ICT services of course is of greater concern as they move to operationalising their ASP service.

***Finding 5.3* – Existing and potential customers are most divided on the impact of the following three issues: (1) ASP's dependency on other parties, (2) security, and (3) ASP's service and business stability.**

Finally, regarding the disparity between some of the existing and potential customers ratings, it is evident that potential and existing customers differ the most in opinion and rating of concerns on the following three issues (1) ASP's dependency on other parties (0.67), (2) security (0.55), and (3) ASP's service and business stability (0.53). What is the likely reason for this? The simple answer might be experience. Yet we argue that the ratings by potential customers, which are higher in essence, are more reflective of the uncertainties regarding the experiences existing customers have gained. In particular, security - the most often discussed

concern issue both in the media and amongst customers - lacks any clear standards on best practice. This also holds for service and business stability of an ASP. In view of early 2001 closures and bankruptcies this is a justifiable concern, which will likely only be down-rated once larger ICT service firms lead the ASP market and introduce a greater sense of continuity. Finally, the issue of dependency is clearly less of a concern for existing customers, due to their better understanding of who they actually are dependent on, and what back-up arrangements are in place from the application service provider. Yet clearly, the customers' concerns here are over the underpinning resource dependencies their existing/potential ASP enters into to cater for their particular service demands.

Clearly, ASPs have their work cut out in ensuring that none of the concerns truly result in major drawbacks. Often, it will be up to the individual managers and the specific application service provider firm to alleviate and mitigate the above concerns. Remembering here that all of these factors above actually appear to be perceived as genuine, sometimes serious, risks in the eyes of customers.

***Finding 5.4* – Risk mitigation in ASP deals should focus on security, service and business stability, reliability, and ASP longevity.**

According to both existing and potential customers the four core risks that need to be mitigated throughout the venture are security, service and business stability, reliability, and ASP longevity. These are the issues also of chief concern.

B. Skills Sets and Service Expectations of an ASP

Customers interested in sourcing an application service look towards their service provider for not only particular applications but also additional skills and services. As Figure 21 reveals, the skill set most commonly expected from an application service provider relates to hosting services, closely followed by helpdesk services and system integration capabilities. These services are considered to be integral to an ASP's service offering. Hence ASPs can expect to be assessed by customers on whether they are sufficiently resourced with these skill sets and capabilities to deliver services in these areas.

***Finding 5.5* – Over 60% of both potential and existing customers commonly expect hosting, help desk and system integration skill sets and services to be integral to an ASP's application solution.**

The strong interest in hosting is clearly indicative that customers perceive application service providers in essence as an advanced hosting solution. Thus customers will look to their ASP not only to procure particular applications, but to also host their own applications.

In terms of helpdesk services, as customers source an application service they expect their ASP to be able to explain, assist and advise on problems that arise with their application solution. It needs to be remembered that many customers may source applications from an ASP to which they have had no previous exposure or for which they have no internal expertise. Also, help desk capabilities will be essential to not only assist in the training on new application solutions, but also to resolve any query about particular functionality, and address general service or solution inaccessibility issues.

Integral to an ASP solution is its integration with customers' existing ICT infrastructures, processes and general operations. Here naturally both customer types rated an ASP very high, which can be expected as this is a necessary service of an ASP solution. Similarly, application customisation is expected by potential customers to be a skill set ASPs need to have and offer. To make an application work for a customer a certain amount of customisation is absolutely essential. In turn it is surprising to find that experienced customers rate it less important. In fact, there is a 17% difference in the number of customers who rate it important between potential and existing customers (see Figure 21).

***Finding 5.6* - Compared to 36% of existing customers, 54% of potential customers think that application customisation capabilities and skill sets is absolutely essential and integral to an ASP's skill sets.**

This disparity is possibly a result of the types of applications initially sourced by existing customers. The complexity of applications and hence the need for customisation may be lower than what a number of potential customers expect to be sourcing from an ASP. It may also be that potential customers are looking to source a number of applications and together would expect to acquire a certain degree of customisation of the application package to their needs.

Another interesting finding to note, is the disparity between what existing customers rate more frequently important than potential customers. In particular, existing customers rated the following more frequently as important (percentage difference):
11% legacy systems outsourcing,
7% legacy systems management,
5% hosting services,
4% WAP based services, and
3% strategic management consulting.

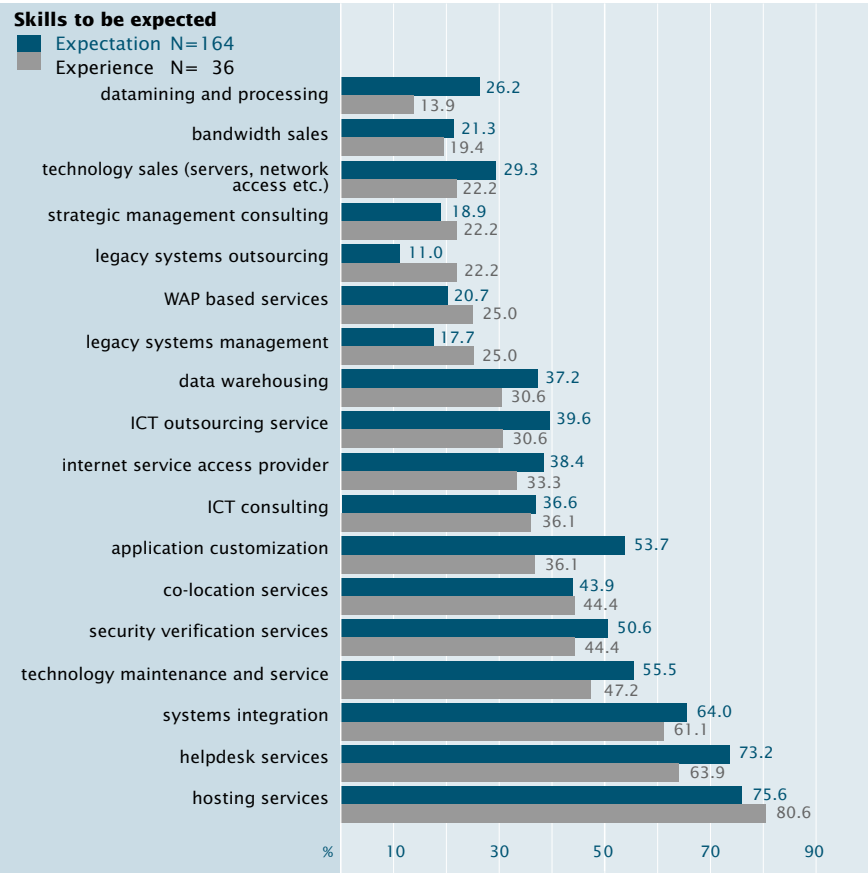

Figure 21: Skills to be expected from an ASP

Finding 5.7 **– Experienced customers rate, in order of frequency difference on importance, (1) legacy systems outsourcing, (2) legacy systems management, (3) hosting services and WAP-based services, (4) strategic management consulting skills as more important than potential customers.**

This disparity is clearly based on customers experience with operationalising their service. Customers once signed-up may have realised that they needed additional skills from their ASP that they had probably not considered important at the outset, i.e. consulting, outsourcing, WAP-based services, etc. Thus, situations may have arisen in which customers determined, once in the deal, that they would like to have their other applications also hosted on an ASP infrastructure due to simplicity and satisfaction with existing technical arrangements. In addition, they looked to outsource and hence rid themselves of their existing legacy systems and services, by handing them over to their ASP. Finally, they looked to their ASP for consulting services to improve operations, but more importantly improve their competitiveness. Here ASPs are expected to have unique insights due to operating services for an array of different companies. This demand for additional services once in a deal, usefully identifies for ASPs the potential extra business areas and hence revenue opportunities.

C. Summary

The general scarcity of ICT resources and capabilities has put a serious constraint on companies' in-house deployment of ICT skills and services. In many cases this drove companies with ICT capabilities shortages to source vital skills from external suppliers, such as application service providers. As with any sourcing decision advantages and drawbacks arise that shape the logic of opting for the ICT service market. Understanding what the current list of concerns are that define such an option is integral to managing and mitigating any risks and achieving customer expectations.

For small and medium sizes enterprises (SMEs) and companies pursuing maximum growth strategies, the ASP model also makes applications accessible that otherwise are not affordable. For instance, the ASP model makes prohibitively expensive ERP applications and the necessary skill-sets, accessible for SMEs. For larger companies, the ASP model may reduce the efforts involved with maintaining and managing applications, while also giving access to specific and unique skills and capabilities.

Finding 5.1 **- The biggest concerns of potential customers are in order of impact: (1) an ASP's service and business stability, (2) security, (3) reliability, (4) ASP's longevity and existence, and (5) ASP's dependency on other parties.**

Finding 5.2 - **The most important concerns for existing customers, which are largely comparable to potential customers lists, were in order of concern: (1) ASP's longevity and existence, (2) reliability, (3) ASP's service and business stability, (4) security, and (5) integrating ASP with existing applications.**

Finding 5.3 – **Existing and potential customers are most divided on the impact of the following three issues: (1) ASP's dependency on other parties, (2) security, and (3) ASP's service and business stability.**

Finding 5.4 – **Risk mitigation in ASP deals should focus on security, service and business stability, reliability, and ASP longevity.**

Finding 5.5 – **Over 60% of both potential and existing customers commonly expect hosting, help desk and system integration skill sets and services to be integral to an ASP's application solution.**

Finding 5.6 - **Compared to 36% of existing customers, 54% of potential customers think that application customisation capabilities and skill sets is absolutely essential and integral to an ASP's skill sets.**

Finding 5.7 – **Experienced customers rate, in order of frequency difference on importance, (1) legacy systems outsourcing, (2) legacy systems management, (3) hosting services and WAP-based services, (4) strategic management consulting skills as more important than potential customers.**

6. Relational Drivers

The relational drivers refer, in essence, to how customers enforce their operational service requirements and contracts, while in parallel foster a relationship that encourages an ASP to apply its capabilities and innovations to facilitate operational, organizational or technical value-added. Initially, the details of the contract and service level agreements form the basis of relations, and act as a guide. Research into more mature forms of ICT outsourcing underlines the importance of focusing efforts initially on contract management and operationalisation, before fostering closer ties on the basis of softer issues, such as trust. Service reviews, in particular, are essential monitoring and control processes ensuring that an ASP is performing according to expectations.

Looking at ASP-client relations, a similar formula might apply, where the initial focus is on service level enforcement and operational trust, before moving towards fostering closer ties between individuals and the two firms as a whole. Here, three issues are of particular interest:

- Contract details and comprehensiveness
- Performance review plans and practice
- Developing trust in the ASP

These issues will be part of any ASP venture and their careful planning and subsequent enforcement and development becomes part of the post contract management agenda. We have found in our studies of outsourcing deals elsewhere that early planning of these will help to minimise subsequent relational difficulties (Kern and Willcocks, 2001).

A. Contracting for ASP services

The ASP contract not only defines the basis of the ASP venture, but also outlines in writing the specifics of what the customer expects from an ASP. In other words, we see the contract here as integrating both the legal agreement and the service level agreement.

Finding 6.1 – **Best practice shows that customers include, in order of importance, the following specifics in their ASP contracts: (1) application availability metrics, (2) security guarantees, (3) confidentiality clauses, (4) customer services, and (5) application response times.**

According to customers' experiences, application and service performance, followed by security and confidentiality issues, are clearly the most important dimensions to be specified in the ASP contract (see Figure 22). This corresponds to what customers also emphasise as being the main areas of concerns, and hence risks, in their eyes. It seems that as a precaution customers bring their concerns into the contract and then possibly use the contract as a form to mitigate and alleviate some of the risks. The approach here is one of transferring the risks to the ASP, by making their mitigation a contractual requirement.

To our surprise, and contrary to what past best practice in ICT outsourcing has shown, customers rate penalties, warranty clauses and liability and indemnity issues as relatively less important. In our experience, having these issues detailed explicitly in the contract can be vital in those situations where service performance drops far below expectations and/or where exiting the deal will become necessary. Although 33% of existing customers

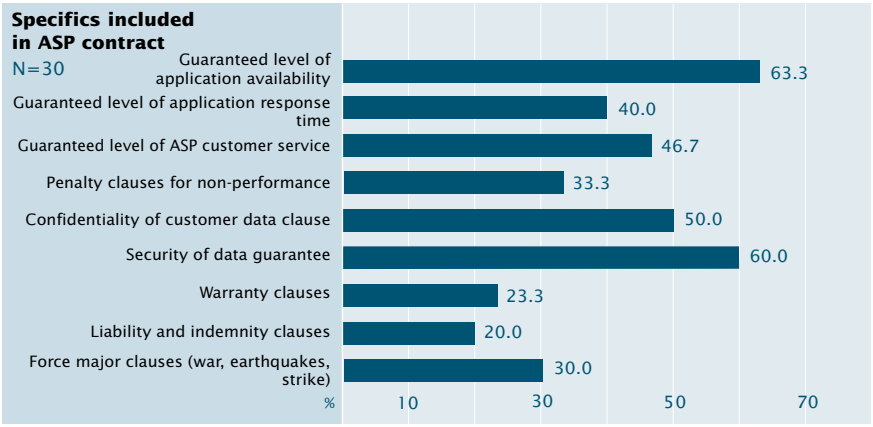

Figure 22: Specifics included in current ASP contracts

incorporated penalty clauses, as in ICT outsourcing generally, we expect to encounter very few instances where customers actually enforce penalties (see case studies below). Note, ASP contracts are often very immature due to the lack of long-term experience. The principles of sound service level agreements found in traditional outsourcing contracts may be a good starting point for advancing ASP contracts. Traditional ICT outsourcing service level agreements include 100% accountability, define accuracy as well as timeliness of the service, identify customer and supplier responsibilities, rate criticality of service, establish SLA monitoring and reporting systems, define procedures for escalation, and award penalties for non-performance.

B. Service Performance Control

Similar to ICT outsourcing, customers will be keenly interested following implementation to determine whether ASPs are operationalising their service levels to their expectations and specification, especially as payment often depends on service achievement. For this, customers will primarily use a reporting and reviewing procedure, which will occur in different intervals according to the level of control they wish to enforce.

***Finding 6.2* – Some 52% of potential customers see service performance reviews as a daily/weekly task, while actual practice (57%) tends to carry out performance reviews on a more monthly/quarterly basis.**

Figure 23 shows that potential customers are more nervous before they sign ASP deals and will look to review ASP performance more frequently than those in existing deals. In fact, this may well reflect actual practice, as we found elsewhere in other types of outsourcing arrangements. Essentially, in a period of transition and relatively low trust, with no supplier track record in the deal, and at a time when activities and performance have not stabilised, a customer will want to monitor a supplier more vigorously, not least to add to its learning. Figure 23 may well reflect that existing customers are experiencing a more stable supplier performance, will have built up more reliable measures and processes, and a more efficient relationship with supplier staff. They can, thus, afford to loosen a little the frequency and tightness of monitoring.

C. Operational and Technical Trust in ASPs

Inherent to an ASP venture has to be a certain amount of trust. One simple reason is that ASP deals will eventuate in a degree of dependency and hence lock-in. So of interest is to understand how ASPs generate trust with their company and solution in the customers view. Clearly, trust is not only a qualitative and subjective issue, but it also revolves around the amount of confidence vested in an application service provider. Confidence has been shown to be more measurable in that it is possible to specify the means by which it can be generated. Often trust and confidence can be established by industry rating or evaluation of a service, product and firm. Industry peer assessments is one way,

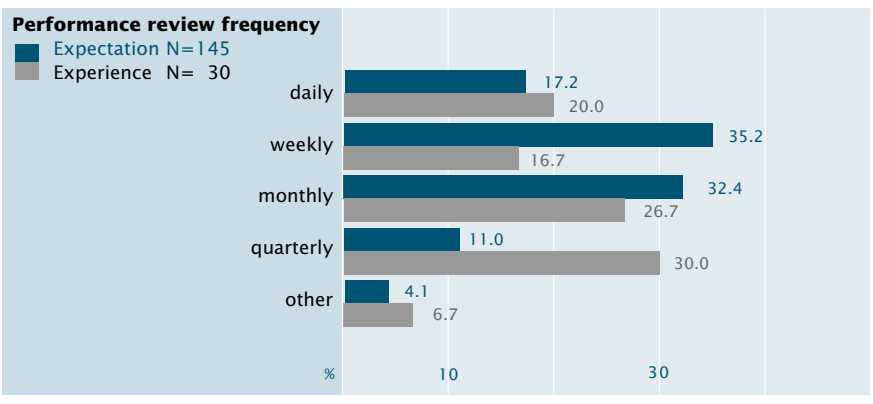

Figure 23: ASP performance review frequency - expectation and experience

Table 5: Trust enhancing factors

	1 Strongly Disagree %	2 Disagree %	3 Neutral %	4 Agree %	5 Strongly Agree %	Average rating (1–5)
Expectation, N=158 / **Experience, N= 35**						1 2 3 4 5
Branding and marketing	*5.1*	*13.3*	*42.4*	*34.2*	*5.1*	*3.21*
	11.4	**14.3**	**22.9**	**34.3**	**17.1**	**3.31**
Security audits by well-known auditing firms	*3.8*	*8.2*	*29.7*	*39.9*	*18.4*	*3.61*
	2.9	**14.3**	**25.7**	**37.1**	**20.0**	**3.57**
Verification services such as Verisign and TRUSTe	*1.9*	*10.1*	*39.9*	*39.9*	*8.2*	*3.42*
	0.0	**2.9**	**34.3**	**48.6**	**14.3**	**3.74**
Alliances and partnerships with established telecomms providers, hardware manufacturers and software vendors	*3.2*	*6.3*	*27.8*	*44.9*	*17.7*	*3.68*
	0.0	**8.6**	**22.9**	**51.4**	**17.1**	**3.77**
Industry recognition	*1.3*	*7.0*	*31.0*	*48.1*	*12.7*	*3.64*
	0.0	**2.9**	**28.6**	**48.6**	**20.0**	**3.86**

Note: Rating of agreement on statements concerning factors that could potentially generate trust in the ASP solution on a Likert scale (Strongly Disagree – Strongly Agree): Experience *(grey) vs. Expectation (dark). The statements are sorted (ascending) on the average degree of agreement drawn from the response of those respondents that come from companies currently sourcing from an ASP.*

and trust-related characteristics can be measured in terms of, for example, willingness to enter into alliances, outcome of audits and vetting, branding, and general industry recognition. Indeed, most potential and existing customers, accepted that such aspects can be used to identify confidence, hence trust at the outset (see Table 5).

***Finding 6.3* – Both potential and existing customers agreed that key to confidence and trust in an ASP's service is primarily generated through alliances and partnerships, and industry recognition.**

To our surprise, security audits and security vetting of services by third party trust firms like Verisign or TRUSTe were rated less important. They came second, although we would assume that positive audit outcomes on an ASP's technical infrastructure is equally important for developing trust and confidence in such a solution. Marketing obviously has little affect or influence on trust. Nor was branding considered to be so important for generating trust. Customers generally were more neutral about branding's influence on boosting trust. This was a little surprising, given that we know from general marketing and industry practice that branding focuses essentially on the generation of consumer confidence. It is possible that since the ASP market is still embryonic, company names have not reached a necessary level of brand recognition yet. Rather, we found that brand names from strategic partners and alliances are of greater value at this stage. In a number of years, we would expect that this rating may be different as ASPs will have become more established and accepted service providers.

D. Summary

From the outset it will be in the customer's interest to control any potential relation with an application service provider. For this an integral part will be the monitoring and evaluation procedures the customer has, or plans to, put in place. This will be essential for determining an ASP's performance. Technical performance can be monitored using periodical performance reviews of service levels, which most ASPs will make readily available to their clients. Penalties for not meeting service level agreement (SLA) standards can be an enforcement instrument, but the ASP must be clear on the circumstances in which the penalties will be operationalised.

The basis for any relation is the degree of trust an ASP can generate and the contractual arrangements that are in place. As apparent from the research, customers will use the contract as a means to mitigate some of the risks they perceive within the ASP venture. To this extent, any contract needs to be as complete and comprehensive as possible. Trust, on the other hand, will have an influencing role on the relation in the form of alleviating some of the potential concerns. Trust was found to be shaped and defined by external third parties, which together helps to create a certain amount of industry recognition for the ASP. It should be pointed out, however, that in the ASP market, as in the ICT outsourcing market generally, more lasting trust and confidence is built over time through performance.

***Finding 6.1* – Best practice shows that customers include, in order of importance, the following specifics in their ASP contracts: (1) application availability metrics, (2) security guarantees, (3) confidentiality clauses, (4) customer services, and (5) application response times.**

***Finding 6.2* – Some 52% of potential customers see service performance reviews as a daily/weekly task, while actual practice (57%) tends to carry out performance reviews on a more monthly/quarterly basis.**

***Finding 6.3* – Both potential and existing customers agreed that key to confidence and trust in an ASP's service is primarily generated through alliances and partnerships, and industry recognition.**

III. Case Exemplars of ASP Solutions

Three case exemplars of ASP practices are presented in the following. They outline the solutions and customer findings from ASP solutions provided by a US startup and two European startups. Together they provide an in-depth micro-view of the solutions, processes, benefits, challenges and opportunities available to customers.
Additional, case studies and research is presented in the forthcoming (2001) Prentice Hall book "Net Sourcing Strategy".

Zland.com (US)

Zland.com rents their proprietary e-marketing, e-commerce, and e-operations applications through a franchise business model. Over two hundred product developers headquartered in Aliso Viejo, California release improved versions of existing software as well as developing new products. Headquarters also manages the outsourced data center operations in Seattle and provides franchise support such as customer billing. Sales occur through over 400 franchise territories worldwide. Franchise operators only need to invest $150,000 to become a licensed franchise. The value-added of this business model is to offer decentralized sales to small and mid-sized companies while centrally developing excellent products at a reasonable price. Like many companies operating in the ASP space, Zland has seen a steady growth in revenues, but is still operating at a loss.

Evolution of Products

As of early 2001, Zland had 160 propriety applications, bundled in three base packages e-marketing, e-commerce, and e-operations. Zland is striving to add functionality, including the addition of more languages. The products currently support English, German, and Spanish.

To keep customer's costs low, ASPs rely on a one-to-many model which requires standard offerings. Zland, however, does offer customization. If the requesting functionality is seen as valuable for many customers, headquarters will build the functionality at a reduced cost to the originating customer then release the functionality in subsequent versions. If the requested functionality is highly idiosyncratic, customers will be charged a premium. In some cases, customers request changes that are unnecessary, so franchise operators try to convince customers to use the practices available in the templates: *"Most customers say they want "real time". Like inventory control. We have a product that integrates orders to back-order inventory systems. It's batch, but it updates every 5 minutes. The customer says, 'but I want real time.' But they don't even have real time inventory control systems. We show them how much money they can save with a 5 minute batch update. We fight against preconceived notions on what they need. The sales process is long, but we try to get the customer's cost as low as possible."* (Kevin Davis, Sales and Marketing, Zland).

Like many ASPs, Zland does not own a data center, but instead uses a third-party data center. Zland, however, manages the servers and applications via a network operating center: *"Net Operating Center (NOC) - it's a bunker, dual Cisco 70 routers, it's an art form in itself. We looked to outsource to the best operating facility possible. We could never duplicate it on costs because [the outsourcer] has umpteen customers going through it. It's battery backed up. Generator backed up. It's state-of-the-art. We do what we do best and outsource to the best hosting site. The NOC will be regional as we grow. We'll have a mid-west NOC, a European NOC. So that will change as we grow."* (Kevin Davis, Sales and Marketing, Zland).

Customer Perspective – A.E. Schmidt

In 2000, Zland already had over 700 customers. Current customers are typically small businesses with less than 100 employees. On Zland's website, 11 of their 29 customer success stories are from customers with under 20 employees. In a few days, for as little as $1,395, customers can have their own website with a full suite of e-commerce capabilities such as a product catalog, frequently asked questions, press releases, shopping cart, and customer returns. Franchise operators sit down with local customers to select options in the Zland development environment to set parameters for the look-and-feel of the website as well as selecting functionality.

The goal is to train the customer to support their own website through the Zland user-friendly customer maintenance environment. Zland's product and service excellence from a customer perspective is best illustrated through an example – A.E. Schmidt in this case.

The ASP decision

In St. Louis, Missouri, A.E. Schmidt is a 147 year old, family-owned company that builds custom pool tables. Although this company may not be widely recognized outside of St. Louis, St. Louisians covet the artistry of this company's products. If you've "made it" in St. Louis, you own a house in Ladue, drive a Lexus car, and own an A.E. Schmidt pool table. A.E. Schmidt customers are extremely loyal and long-lasting. Pool table maintenance and accessories are purchased through A.E. Schmidt during the life of the pool table. A.E. Schmidt was finding that many of their existing customers were moving from the St. Louis area. They maintained customer relationships via direct mail, but were increasingly looking for a way to better communicate with existing customers, to reach new customers, and to develop better relationships with their authorized dealers. Enter Don Veenstra, General Manager and Kevin Davis, sales and marketing manager of Zland's St. Louis franchise.

The Zland business to consumer e-commerce solution

Don and Kevin worked with A.E. Schmidt to develop a web-based solution to meet their business goals. Beginning with e-marketing (i.e., no transactions), they sat down with Pat Spangler, an A.E. Schmidt employee to design the web site. By logging on to the development environment, Kevin and Pat moved through the parameter-driven options. The look-and-feel of the website is selected through a series of templates in much the same way a user selects a PowerPoint design by clicking on a design option. For example, A.E. Schmidt chose to have their option buttons on their home page to be placed on the left and their logo on the top. Option buttons are numbered sequentially with billiard balls, giving the page a personalized touch. Functionality is added to the web pages in the same manner—franchise operators point-and-click on application functionality such as "frequently asked questions". While the look-and-feel and functionality of the site is selected using the development environment, the data content for the site is managed through user-friendly customer support environment designed to be maintained by the end customer. Kevin trained Pat to use the customer support environment, such as adding a product to the product catalog, including uploading a picture, item number, size, pull-down menu for finishing options, and click buttons for additional product features. Thus, one of the ways Zland keeps customer costs low is to have the customer maintain their own data content.

A.E. Schmidt's initial web-site functionality included an on-line catalog of pool tables and products, customer support such as locating a dealer for pool table repairs, and interactive dealer support such as price quotes. The dealer support functionality has restricted access, and dealers must sign in using a logon ID and password. Additional functionality was added later, such as online ordering.
Visit A.E. Schmidt's website at www.schmidtpool.com.

"There are several things that impress me about Zland.com. They have great problem-solving abilities. I am a relative novice in the field of websites and my earlier experiences with other companies were filled with great quantities of technical babble but little or no training and support for lay people such as myself. My Zland.com representative and his staff were patient and thorough in their explanations and support. They are training me to be self-sufficient in my editing style." (Pat Spangler, A.E. Schmidt).

A.E. Schmidt is representative of Zland's target customers: small to mid-sized businesses. These customers require a significant amount of hand-holding, and thus the sales effort requires personalized, face-to-face support.
In the second quarter of 1998, Zland began to actively franchise and rent its products more effectively.
"Zland.com franchises work in the same communities as their customers, so they know first-hand the challenges small businesses face in their local markets and in the global economy. Because of this connection, franchisees provide a level of on-site e-business consulting and local accountability that isn't available through traditional distribution and telesales channels." —John Veenstra, Founder and CEO.

Zland targets this market because they believe that it would be too difficult to sell to larger companies. Large companies already have e-marketing, e-commerce, and e-operations, plus a large in-house support staff and infrastructure in place: *"From the corporate research, that's where we see the low-lying fruit. [Big companies] are hard companies to get into and crack the ceiling to create cash flow to survive the early years of the internet and application service provision. There is more opportunity in the mid to smaller-sized companies. For example, one of our customers is A.E. Schmidt Pool Tables. It's a 150 year old company. The son of the son of the grandfather who found it is the president sitting on left of me. The daughter is the marketing person sitting on the right. They don't have an ICT department. We gave them a full suite a products in a few days. No committees. No long approval process. That's why we go after that market. We have the talent to go after big companies. But it's a question of is it worth the dollars to go after them?"* (Don Veenstra, General Manager).

Siennax.com (NL)

Founded by five former BSO Origin employees, Siennax started out its life in 1998 as a consulting company headquartered in the Netherlands. Its early objectives were to provide ICT consulting services and application solutions on the bases of ICT outsourcing to small and medium-sized firms. The idea was to offer application solutions from a centrally managed environment, giving customers access to solutions via a virtual private network and/or internet. The initial product to be offered was its proprietary solution suite called SX Intranet Suite, comprising e-mail, scheduling, calendars and document libraries. Together with its hosting partner KPN Dutch Telecom, this defined the first applications solutions they would rent to customers. Then in late 1998 Siennax became aware of the Application Service Provision model in the United States: "*Just then we read in magazines and reports like Durlacher that what we were doing had a name: Application Service Provision.*" (Michiel Steltman, CTO Siennax).

As a result, early 1999 Siennax refocused its business towards being an ASP solution provider and in the Benelux became one of the first pure-play ASP start-ups. Growth since 1999 continued at a rapid pace, seeing Siennax acquire 50 customers by 2000 and approximately 15,000 end-users. With the general downturn of the technology markets, Siennax still remains on target for a positive cash flow in one-and-a-half years and further expects to become profitable within one year. Currently, Siennax employs about 90 people with two main operating markets the Benelux, i.e. the Netherlands and Belgium, and Germany.

Siennax' pure-play ASP strategy

As Michiel Steltman the CTO from Siennax explained, they deliver generic, standard applications on a one-to-many model with a shared service concept and consulting services. The idea being to 'install it once and deliver it many times'. Through this model, Siennax offers a set of web-based business applications, connectivity services and implementation and migration services to customers ranging from small to now large enterprises. The offered application solutions include an Intranet suite, Microsoft Exchange 2000, Lotus Learning Space, electronic document management and customer relationship management solutions. Prices for these application services are calculated on a per-user/per-month pricing model.

Siennax does not, however, provide so called 'mission critical' applications such as enterprise resource planning systems. The reason being that they do not believe that their customers are ready yet to source such applications from an ASP model. Siennax instead has long-term plans to focus its services and efforts on broadening its applications solutions, by extending existing services on the above application portfolio. In addition Siennax offers complex (web) hosting solutions, which function like a middleware platform upon which customers can base their own application services. This then enables clients to act as an ASP for themselves.

Abz Insurance Facilitator – ASP Customer Scenario

Abz is Siennax' largest customer in terms of contract value and potential opportunities in late 2000. As a customer, Abz can be best characterised as a vertical service supplier of information and application solutions to the insurance industry. Abz's primary objective, in turn, is to ensure that business processes between insurance firms and insurance takers and providers run efficiently and effectively. For this Abz's organisational capacity, its unique combination of knowledge of the sector and technology and its group of strategic partners have enabled it to provide a reliable and standardised information, communication and transaction-based (ICT) service (Abz web-site 2001). This has allowed Abz to grow to a sizeable 66.8 million Dutch Guilders (approx. $30m) in revenues. The company now provides its ICT services to over 3,000 companies, serving more than 6,000 end-users.

The ASP Decision

The actual decision to go for an ASP solution evolved through a number changes and long-term objectives. The underlying argument for the decision was, though, that ICT is not core to Abz's business and over the years as they had been in an outsourcing contract they never found it necessary to develop their competencies to ever be able handle their own ICT infrastructure. Instead they look towards their ICT partners to keep them abreast of innovations and possible opportunities on the back of new ICT developments. As a result in November 1999 when the contract with Getronics was nearing its end, Abz began exploring the market for innovations, opportunities new solutions and more importantly an ICT partner. At the time the ASP business model was widely discussed and covered by media, which Abz found to fit exactly their objectives. In fact, what they had envisaged was a solution that would give them flexibility, means to keep on top of innovations, and access to benefiting from new and ongoing application developments.
By February 2000 the company had internally decided to opt for an ASP-driven solution. In the words of the decision maker: "*Back then we did not know much about ASPs. Yet we were convinced that this was a way to help us innovate and develop new services faster than we could think of at the time. The in-depth discussions and negotiations with Graddelt and Siennax confirmed this assumption. Yet when we scanned the market, everybody*

seemed to be claiming they are an ASP – even our existing service provider Getronics. But most of them did not provide the kind of service we sought, the scalability and the necessary 'internet hotel' - the environment where we could run our own business applications from and the infrastructure to plug in our own business applications." (Corné Paalvast, Operational Director, Abz).

Abz was also looking for a new type of service infrastructure, that would allow them to integrate additional functionality with their existing business logic to offer services such as web-enabled address systems, news systems, mail systems, and application services. The objective being to increase customer loyalty by offering greater functionality. Another objective was to use Siennax's application services such as the intranet suite or MS office applications as an additional sales channel to its customers. This was in line with the Abz goal of identifying new opportunities and sales channels. The final long term objective was to sell Abz's expertise in repackaged form through the ASP to their other customers. As Corné Paalvast elaborated that could imply *"that sometimes they resell our products or they take over a service and sell it back to us and to their customers. For example, Siennax could take over our news services and make it into a commodity product and then sell it back to Abz."*

Transitioning to your ASP

In March 2000, Abz and Siennax signed an agreement of intent. It was decided early on to transition incrementally the legacy services from Getronics to the Siennax platform. The migration began with relatively easy parts, such as the html front-end applications and then would be expanded incrementally to cover the whole Abz extranet. Abz's push for an incremental approach, gave them the possibility to always retract when problems took over and re-contract with easily identifiable alternative suppliers or if need be even go back with Getronics. Although complex in nature, the transition was rolled out as planned. *"We started to discuss the transition of their extranet from their servers to our own environment. This transition was something that had never been done before. So it was something new to both organisations. To my advantage I had and faced off with a very good working project team. This cooperation really helped in migrating the services smoothly. Yet there was one exception, which was the implementation of the Verisign certification. On that we were facing a number of problems.*" (Pieter Bokelaar, Abz Account Manager at Siennax).

The inherent problem was that Abz also acts as a Trusted Third Party agent to its customers, providing them with a crucial digital signature/passport functionality. In the old Getronics scenario, Abz was delivering this service conjointly on the basis of a Netscape Certificate Server. However, they had decided to source and update this, in their view, commodity service from Siennax. Abz was now looking for a Verisign Certification service – the industry acknowledge market standard. Having done some market research, Abz identified Roccade (a large European ICT service firm) as a potential provider for this service, which Siennax now only needed to subcontract and integrate into their service package: *"We wanted Verisign, which in Holland is resold primarily through Roccade. They [Siennax] however could not really live with Roccade because of the competition worries. So Siennax decided to go into business with somebody else of which I hadn't heard of before - called BlueX. They said they could arrange the Verisign service before the first of October and it took them till the 22nd of December to do so. Which put us, as a Trusted Third Party, out of Business for seven weeks. During this time I don't think we lost any customers, but we have had to pay back money for service not available and we have had to say sorry for a lot of things. But the image loss is probably the worst thing about it.*" (Corné Paalvast, Operational Director Abz).

Of course the difficulties were in part already planned for as the migration of such a complex service solution was not only a novelty for Siennax and BlueX, but also Abz. Some of the problems were apportioned to BlueX, a young start-up firm in the Netherlands with little experience in implementing Digital Signature services on an ASP model. *"What we were confronted with was that BlueX did the job for the first time too. In the very complex migration we already had, this [the migration to the Verisign Certificate] was an extra complexity, which cost a lot of time. The Verisign Certificates were delivered just before Christmas. So its running now, it's 'running OK, but it was too late.*" (Pieter Bokelaar, Abz Account Manager at Siennax).

The difficulties with the migration of this service, points to an essential issue of how services and performances are measured in the venture. As both parties from the start had formalised an SLA, it was now a matter of enforcing this agreement. Measurement of Siennax's performance was, however, not so much done to the letter of the technical measures, but handled more on the feedback from the operational level. Of course all technical failures and problems are reported, and the technical performance is within service level parameters, but most important is the perceived performance by the internal end-users and its customers. Here performance measures focused on how problems are addressed, whether charges are raised for minor issues, whether logs of problems are kept and whether they could have been planned for and hence prevented.

Long-term Expectations and Challenges

In light of Abz's experience to date, the next phase will be even more complex as the overall transactional services involving various applications will be transitioned to Siennax's hosting environment. Abz will be looking to Siennax for real value-added. Expectations include identifying new ICT opportunities, faster time to market for new services by using Siennax's economies of scale and expertise, and new products and services for customers that directly result from improved ICT functionality.
These long-term expectations are summed-up by Abz's Operational Director as: *"what is do-able, what services are supported by the different options, can we change our sales and offer proposition for our customer, for example by introducing online marketplaces? All this considering that we at the moment only provide the customer with a transaction interface. […] We want improved time to market for new products. With the old systems it took us six months. […] By using new technology, for example XML, customers can then do their own product introduction on-line. So we are planning to change the proposition and to make the old transaction services much more rich with added functionality."*

TheLodge.be

The Lodge was founded in January 2000 as a company within the Dutch Vision Web group. The Vision Web currently combines ten different businesses that focus on various solutions, ranging from change management, consultancy, interim management, ICT implementation, system integration to application hosting and application services. Headquartered in the Netherlands, the group as a whole achieved a turnover in 1999 of 29 million Euros (approx. $28m US).
The Lodge manages, operates and facilitates ICT. It has offices in the Netherlands and Belgium and focuses on two core concepts: (1) a Single Source of Services (SSS), which caters for implementations and supporting ICT and (2) the Accelerated Business Solutions (ABS), which defines an ASP solution based exclusively on SAP's ERP suite.
Hans Vets, CEO and Founder explains: *"We deliver SAP centric business solutions. ASP is just a way of delivering it. In a year from now there might be an even smarter way."*

Since its start The Lodge has seen an explosive growth. The company by late 2000 had 13 fully paid-up customers. Among them are firms such as Interbrew, the second largest brewery in the world, Vleesmeesters, meat producers of Dutch Ahold supermarkets, De Brandt, a large dairy producer in the Netherlands. These and others have contributed to The Lodge's explosive revenue growth of €3.7 million (approx. 3.5m US) in its first year of operating. The Lodge employed 38 people by late 2000, of which 28 worked in the Netherlands and 10 in Belgium. In addition The Lodge has access to over 80 SAP experts that are part of The Vision Web group.

The Lodge's SAP centric ASP solution

The basic underlying 'Accelerated Business Solutions' concept, that defines the ASP solution, evolved from how fast you can possibly implement and operationalise an application for a customer, as Michel Demmenie, Cofounder of The Vision Web explained. Since speed of deployment is often crucial to firms, and even more so when thinking about an ERP solution, the Lodge is able to complete a template-driven implementation of SAP within four months. This solution at present is focused on companies with a turnover ranging from €45 million to €225 million. Hans Vets explained the key driver for a customer to select their solution is *"a way of bringing down the Total Cost of Ownership of a solution for a customer by having shared service centres. […] We want to bring down the cost of ownership of an application package, which means to us a back office system and a front office system, which includes CRM functionality, business to business, e-procurement and so on. We want to bring that down to a level where everyone can afford it. That means you have to sell it in a shared mode, so customers are sharing the infrastructure cost, so we can bring down the price per user."*

To facilitate a reduction in the TCO of a SAP solution for their customers, The Lodge uses a creative financing model, which in many ways is very different from other ASPs offering SAP applications. Unlike other ASP customers, The Lodge's customers own their SAP software license while paying monthly fees. This type of solution is geared not so much towards larger organizations, as these will usually not change their ERP systems to an ASP model. The way the decision process is structured in these companies will normally keep this from happening.

A customer case example: Punch International

Punch International provides "Electronics Manufacturing Solutions" which integrates manufacturing services, from product and process engineering to the delivery of finished products. Activities at Punch International focus on combining system-supply of mechanical components with the assembly of printed circuit boards and final assembly services, in both the consumer and the professional electronics industry. Punch International's range of products includes audio and video equipment, multimedia products, office and industrial printing equipment, pay-terminals and controller boxes.
The company's list of customers is comprised of the leading "Original Equipment Manufacturers" (OEMs). Geographically dispersed, Punch operates 11 facilities,

in 7 countries: Belgium, United Kingdom, France, Slovakia, Hungary, USA and Mexico. The Group's headquarter is based in Ghent, Belgium. Listed on the Belgian stock market, Punch currently employs approximately 1800 people.

The ASP decision and Selection

Punch decided early on that a full-blown ERP system needed to be implemented to be able to integrate and manage the local efforts. Due to its rapid international growth, the resulting need for improved coordination and logistics, and the demand for company pervasiveness, an ERP solution would offer the necessary technical infrastructure and solution. *"We had different systems in different plants. Our strategy was to be ready, in terms of ICT systems, to have 20 to 25 plants. When you have 5 plants, and for example you need to consolidate your bookkeepings you can use Excel, it will be sufficient. When you have 10 plants this is getting difficult, when you have 20 plants this is crazy. So firstly, the idea was to be prepared for growth. We needed a global system, also to be able to check what is in stock in a certain plant"* (Wouter Cortebeeck, Global ICT manager at Punch International).

Additionally, many of its key customers increasingly demanded direct access to sub-assembly products, like Punch's, to better coordinate production and sales. SAP, in turn, became a natural choice for interfacing with customers and business partners. *"Quite rapidly we chose SAP. We did have a close look at Navision, Scala and Remax. […] But more than half of all our customers work with SAP. In fact customers used it as selection criterion: they asked us 'do you have SAP, because we want to interface with it'."* (Wouter Cortebeeck, Global ICT manager at Punch International).

Moreover, since outsourcing is a core business practice for Punch International, it was only a small step to source externally an SAP solution. As the company had no focus on ICT and did not have the necessary capabilities to run a complex ERP solution internally – nor did it want to – an ICT service supplier was sought. This ICT partner would take care of the complete process of implementing the solution, including rapid future implementations at new plants, and running the system internationally. Following a supplier evaluation period The Vision Web, i.e. the Lodge, was identified as the preferred choice due to its dynamic character and its SAP expertise.

"Then we had to choose an implementer. We chose The Vision Web. A relatively small company, but very dynamic and flexible. That's what we like, we think like that too. We didn't opt for one of the Big Five, because of our experiences in the past. Firstly, these big companies are very expensive and secondly, they are not flexible and not dynamic. It is more important to have the right people on the project than the name of the company. The philosophy of the Vision Web and the atmosphere was right. They understood what we wanted very rapidly, and reacted on it very fast. After we decided for The Vision Web, we did a feasibility study and a mini blue print on which the contracts were then based." (Wouter Cortebeeck, Global ICT manager at Punch International).

The rollout of the solution across the plants

Because all of Punch International's plants are different, it was decided that the solution was to be implemented sequentially rather that simultaneously across the plants. To ensure the solution would fit and is likely to complement future processes an extensive evaluation was undertaken. This so-called 'blueprinting' resulted in a master solution entailing all the needed functionality to handle the different scenarios at the different plants within Punch International.

The nine months of blueprinting accounted for a large sum of the overall costs. Under normal conditions, this phase would have entailed a substantial one-time investment. Yet the Vision Web largely took care of the evaluation and the resulting implementations. Punch will pay though partially for the individual implementations through its monthly fixed fee. The necessary training is also done by The Vision Web; it trains the power users who in turn then train the other users. The first SAP solution was rolled out in France: *"At the moment there are 10 users in France. In the UK another 20 will be added. In France, implementing the solution was no problem. But there were no legacy systems over there, so it was relatively easy. On the other hand, it meant we had to build it from scratch. In the UK, it's different. It's a very mature plant, very well organized. Now The Vision Web will begin installing the system in the UK the first of April; it will be live this summer. It's also the first full implementation, but it will be no problem. For us the UK implementation is a very important benchmark."* (Wouter Cortebeeck, Global ICT manager at Punch International).

The initial experiences

When asked about the first experiences so far with the 'ASP' SAP model, it was described as generally very positive by the responsible ICT manager. As expected it allowed them to focus on their own business instead of worrying about the ERP solution. So far, their experiences match their expectations, as Wouter Cortebeeck, the Global ICT Manager for Punch International explained: *"The first experiences are very good. No fuss, no hassle. We do our job and they do theirs, that's it. We don't want and we don't need to worry about routers, firewalls and servers. That's their business. We have an SLA. Every*

month we review the performance. If they do not meet the SLA standards, we will get a payback. What is important to me, is the response time and the up time: how they do it, that's not my problem. This is all settled in the SLA. When there is a crash, it should be resolved within eight hours. If it's with a back up server or something else, that's not my problem. The agreed upon up time is like 99.9 and something percent. The down time is something like half a day per year. We have one point of contact: the Vision Web. For example, we do not have a contract with PSINet; the lodge deals with PSINet. For us that is what the ASP concept is about: one point of contact. […] Another application we are considering to source via this type of arrangement is MS Exchange, among others. MS Exchange is actually in the pipeline already, also via The Vision Web."

IV. Emerging ASP Advantages

Bringing together the survey and case study research for this report, we uncovered ten main ASP-based advantages for customers. These are as follows:

Cost reductions in set-up, management and total cost of ownership. As the economic drivers clearly highlighted, this was cited in the survey as one of the most important expected benefits from the application service provision solution. An illustrative example of such benefits being delivered is evident in the Zland.com case. At Zland we found one manufacturing firm paying $US200,000 to a two person web developer team to develop e-commerce and e-marketing capabilities.
On-going support cost the customer $40,000 a year, primarily representing consulting fees. Zland.com demonstrated that they could provide the same functionality for a $10,000 set-up fee, and a monthly subscription under $1000 (see the Zland.com case study).

In terms of total cost of ownership and resulting costs savings, we found that potential clients see less of an opportunity to make large savings than those customers experienced in ASP deals. This disparity seems a result of uncertainty in part on how the overall model from the ASP's side actually works, especially in respect to improved economies of scale.

Offers predictable levels of ICT expenditure. Even where ASP use does not turn out cheaper, organizations of all sizes are attracted to the stability of expenditure on ICT, hence applications, offered by the rental model, especially where ICT budgets are more typically volatile, and future ICT needs are unpredictable.

Deals with skilled ICT labour shortages. By 2001 even large organizations were experiencing problems with retaining ICT skilled workers. An ASP can have the effect of reducing the internal ICT headcount, but can also provide skilled labour otherwise not available. It can do this at a reasonable price because of economies of scale achievable by utilizing its staff over multiple clients. An ASP will also be more interested in keeping its staff's skills up-to-date, and be able to provide a broader range of skills than most SMEs could keep in-house (see the ICT services market driver in the survey).

Access to affordable 'best of breed' and new applications. ASPs can achieve scale efficiencies in deploying applications across multiple clients, so offering them functionality, and access to new software not otherwise affordable. ASPs can also assume a role for their clients as an application navigator, identifying 'best of breed', integrable, reliable and coming business-relevant applications.

Allows faster deployment of applications. In the e-business arena fast deployment of applications and computing power can be critical for any business. ASPs can make, for example ERP and business to business exchanges available much quicker than if it was being installed as a customized solution within an organization (see Lodge case). ERP may take between six months and two years on the latter process, whereas enterprise ASPs like the Lodge, Corio and USInternetworking (Usi) have proven to take only 60-120 days. Usi can also configure a Peoplesoft server with software in four man-hours versus 120 man-hours if done without an ASP solution. Such speed can be explained by the lesser degree of customisation provided by the ASP, but also by the fact that the ASP is placing the software on its own familiar hardware, and is able to use software components across clients (see the Lodge case).

Allows the organization* (not just ICT) *to focus on core work. We have seen this argument used for ICT outsourcing generally. Packaged solutions were one move in this direction, but what ASP can achieve is a further move towards the commoditization of ICT and its management, thus freeing up general and ICT staff for more strategic and business focused tasks. This is widely acknowledged (see Siennax.com and the business drivers section of the survey).

Provides bundled solutions. The bundling of hardware, software, systems development, integration and infrastructure and their management again simplifies the administrative and decision-making burdens traditionally associated with ICT. In this sense the organization is buying not a product or a service but a bundled combination, which we could call, following Shiv Mathur in his 1997 book *Creating Value*, a 'systems-buy'.

Transfer of ownership headaches and risks. There are both financial and technological risks associated with ICT, especially where the technology is unproven or there is an existing technology in a new application to a specific organization. An ASP will reduce the investment risk, but also the technical risk, not least because it is easier to back out of an ASP arrangement if it fails technologically. Additionally, an application service provider can always be held accountable and financially penalized. Therefore, reducing such risks becomes particularly important where systems and application failure can have damaging consequences for the conduct of the client's business.

PROVIDES POWERFUL COMPUTING TO GEOGRAPHICALLY DISTRIBUTED ORGANIZATIONS. Clients may experience large managerial and technical challenges with mobile, dispersed workers. ASPs can simplify and centralise these issues and usually provide technical solutions, and access to a broad range of applications and computing power at a lower cost.

Reduces the technical risks associated with a fast growing business in times of rapid technological change. Often a business will need to ramp up its usage of ICT considerably and ASPs can cushion the client from the usual internal ICT problems associated with the need for rapid scalability. Furthermore, ASPs can take away the pain and cost of upgrading applications, and keep up with the technological trajectory, as improvements and new technologies come on to the market.

V. The ASP Model: Concerns and Challenges

Given the relative immaturity of this market, and its fast development, a range of insecurities, concerns and hence risks, continue to present themselves for customers and ASPs alike. In this section we bring a number of these together, which have become apparent over the past year of our in-depth study into ASP practices.

The utility model of pricing, as a development away from software license fees up-front and a monthly fee per user, may well be for many ASPs with a software vendor background the preferred pricing arrangement. Billing processes will need, though, sophisticated models that are understandable to customers, and these may well present a costly as well as technical challenge to ASPs. On pricing, one can add that, on our evidence of customer expectations in 2001, ASPs need to prepare themselves for lower-cost pricing schemes. For ASPs offering to solve business problems one can expect to see more risk-sharing schemes emerge. For example, Eloyalty offers a customer relationship management suite, and is able to calculate the income statement impact of the service, and can calculate loss and profit sharing for ASPs and clients. ***Channel conflicts*** are also cited as an issue to be resolved for a range of traditional operators moving into the ASP market, especially for independent software vendors.

Bandwidth, security, reliability and longevity, quality of service, and capability of services continue to be the main inhibitors to the development of the ASP market. On bandwidth, it is likely that this will be resolved over time as bandwidth capability expands faster than that of CPUs (Gilder's Law versus Moore's Law). As this happens the central objection to the ASP sales pitch – that the ASP model is too slow and not rich enough in features to satisfy a customers' rising demands – will recede. Security is certainly a genuine concern and also an even bigger customer perceptual concern for ASPs, though, as the Zland, Siennax and Lodge examples indicate, it is solvable at the individual ASP level. However, it is likely that customers will insist on higher security and confidentiality measures than they would expect from themselves, especially in the light of the fact that in some cases direct competitors may be serviced by the same ASP.

A key concern emerging from all the 2000/1 studies we have reviewed and undertaken has been ***reliability/ quality of service***. In particular ASPs need to address the issues of handling upsurges in usage, removing single points of failure and offering a local service.

Customers rightly also reveal concerns about ***availability, scalability, data and network redundancy, and network capacity.*** To attract customers, ASPs will probably have to offer large credits for failures early in the relationship. Finally, on flexibility and capability of service, an ASP needs to supply expertise not only in applications but also in the infrastructure on which it sits, as does the business of the client to whom the solution is being delivered. A pure ASP may well outsource this through partnering, but a number of integration issues then present themselves. Customers will thus be concerned that what has seemingly been made 'invisible' and 'non-problematic' may well have damaging repercussions, unless they have checked the arrangements out thoroughly, and have the appropriate detail and evaluation data to gain reassurance from.

We can add to these concerns. A present one must be the ***financial viability and longevity*** of many of the players hustling into the ASP market space. We have already predicted a consolidation and a large shake-out over the next two years, but additionally there will be still new players of all sizes and business models entering the fray. This will create considerable uncertainty for potential customers, and we would recommend a very careful analysis of specific ASPs of both their technical and financial viability, and the basis of their alliance network.

A related point is that to enhance client sense of security, as in all ICT outsourcing deals, ***it is important at contract signing to detail and mutually agree an exit strategy***, including issues like who owns the data, can software licenses be purchased, at what price, guarantees of continuity of service during transition, and so on.

Another issue lies with the ***necessary continuing evolution of packaged applications designed not for client/server architecture but for a three-tier architecture of thin***

client, application server and database. This architecture is more appropriate for the web-based computing environment, and also allows for easier upgrades and maintenance. It is also the case that a lot of SME themselves do not yet have in place the infrastructure to utilize an ASP, e.g. problems with browser interfaces and printer networks. However, a number of firms such as Centerbeam and Everdream are operating in this problem space and offering creative solutions to SME's infrastructure deficiencies.

A major customer concern has been with the ***integration of internal and external applications***. A common question is: 'are the offerings truly 'plug and play'? It is not unknown for some ASPs to be less than clear about the difficulties on this point. Some are more pragmatic. Jonathan Lee, founder of Corio notes for example: "*Our business model does not let us customize applications for hundreds of clients, so we collaborate with systems integrators, who do the one-to-one work to get applications running on clients' platforms, and working with their other systems.*"

The ***ability of an ASP to partner*** will emerge as critical, especially for marketing and distribution. ASPs going it alone will find it a hard market to crack during 2001, and alliances such as Qwest/KPMG, and USInternetworking and AT&T point to the importance of getting to the mainstream market through utilizing channels such as ISPs, hardware vendors, telecom providers, ISVs, systems integrators and value added retailers.

Finally, as indicated in Figure 9, in our view the secret to successful application service provisioning will be ***mass customization***. This involves achieving a balance of standardization and customization at a competitive price that satisfies each customer. Classically, mass customization works by standardizing what is 'invisible' to the customer, thus achieving economies of scale, while customizing that which is 'visible', thus delivering perceptually on the high service requirement. In ASP terms, much of the infrastructure platform and security issues can be standardized, as can many aspects of skilled labour needed and applications. The customized aspects depend on, for example, parameter-driven software, level of support, and speed of solving problems. On applications, there are a number of issues still being faced by ISVs on making their offerings integrated, web-enabled and customizable for the ASP market. There are clear arguments for developing standardized solutions that are applicable widely across a single industry, and also for developing end-to-end (that is applications through to infrastructure) solutions for customers.

VI. Conclusions: Future Pointers for Customers and Suppliers

- The ASP model, widely defined, is potentially a killer application and has tremendous potential for extending ICT outsourcing notions further, into applications, staffing, maintenance, upgrades and infrastructure, enabled by internet-based technologies.
  Expect a dramatic increase in investor and large customer interest during 2001/2002.

- Expect the ASP model, on the one hand, to fragment to meet different customer needs. SMEs will likely accept more of a standard, potentially killer application, to realize cost savings. On the other hand, some suppliers, such as EDS will offer total solutions, of which ASP is a delivery option. Total solutions may be more appropriate for larger customers that require more customization, more complex contracts and relationships, and even a one-to-one version of application hosting

- However, potential customers must follow ASP market developments carefully in light of impending consolidation and shakeouts. It is important, before signing 1-3 year contracts, to analyse the individual ASP very carefully not just in terms of robustness of pricing and service, but also in terms of financial viability, longevity, and its market strategy.

- Partnering capability, distribution, service and solving customers' business problems will be key differentiators amongst ASPs. Look for increased development of integrated applications, guarantees of security, and vertical and end-to-end solutions.

- Ultimately the challenge for the ASP market is to find ways of providing for a client mass customization, variable ICT costs, virtual connections that are fast and reliable, seamless integration of internal and external ICT-enabled processes. In summary low cost highly serviced (e.g network reliability, security, SLAs, help desks, application monitoring) ICT-enabled processes on a predictable regular payment basis. The winners in the ASP market will be found amongst the companies that respond to this driving customer challenge.

Appendix I – Study Model and Design

The ASP market-space report 2001 was conducted on the basis of a 'drivers framework' developed specifically for this purpose. Based on the notion that customers expectations and their ASP choices are informed by five key, overarching drivers, their achievement will reveal the potential opportunities, benefits, but also the drawbacks of an ASP solution. The five drivers, as outlined in detail above, are:

1. Business
Business drivers define the potential strategic, organizational and operational advantages and disadvantages for selecting an ASP as an ICT sourcing and/or outsourcing option.

2. Economic
Essential to the ASP solution are the pricing models, cost benefits and savings it is likely to free for customers. Here common comparisons made are total cost of ownership versus sourcing applications.

3. Technology
The technical drivers describe the technical characteristics of an ASP solution. These technical features largely describe the means by which the ASP solution will be operationalised.

4. ICT service market
The focus here is on market testing internal ICT services. Economic, business and technical benefits are measured against the perceived suitability of the ASP solution.

5. Relational
Underlying ASP deals is the post-contract management relationship and those factors that will shape the success of operationalising the deal. The focus here is on understanding relational management practices.

The Survey Tool
The respondents to the survey were individuals who freely wished to participate in the study. For their time and effort they were offered in return a free summary of the core findings of the study and instant statistical feedback on ten of the questions upon completing the whole questionnaire. By structuring the questionnaire as an interactive web-enabled tool, data was collected and collated centrally in a database, simplifying the resulting analysis process. By using the power of the internet to enhance questionnaire accessibility, customers from around the globe were able to participate.

The questionnaire was structured into three main sections. (1) An entry screen detailing the purpose of the study. Our definition of application service provision introduced the study and further requested participants to fill in their name, company, country and e-mail address. Respondents were only able to continue to the next set of questions and screen by entering data into all required fields. Data entry was mandatory throughout the questionnaire. (2) The next screens (i.e. second section) determined the split between potential, terminated and current ASP users. (3) Depending on their ticked response, respondents were automatically directed to a set of screens that then asked them 40 customer specific questions about the above five drivers.

However, as a research team we still had to make companies aware of the survey. For this a number of international press releases were issued by our sponsoring company CMG Benelux, highlighting the questionnaire and web site. In addition, a sample of 2000 ICT managers in various European companies were contacted by e-mail, to inform them of the survey. Additional international awareness was created by an ASP information portal (www.aspscope.com) that kindly advertised a banner on their main web-page with a hyperlink to our survey.

To avoid any biases in the eventual results, we performed a careful counterchecking and verification of the respondents to the survey. This became fundamental as we found market research firms like IDC, Gartner Group, and Forrester and a number of ICT suppliers and ASPs

who themselves act as ASPs had entered their details into the survey. Since these firms had ulterior intentions, these were deleted from the data set. The remaining 400 respondents were verified by e-mail for their correctness. Generally, those that were found as fictitious or respondents wishing to bias the survey by giving only negative answers were eliminated. In all 83 responses were deleted from the final data set during the data verification phase. This proved an essential step to ensure reliability of results.

Case Studies

The research team in parallel investigated a number of specific ASP deals with both suppliers and customers in the USA, United Kingdom, Netherlands, and Belgium. These case insights provided the fundamental understanding of how ASPs actually operationalise an application service venture. The learning from these specific case studies offers support for the issues covered by each of the five drivers and the framework guiding the study. In all we undertook case studies with the following ASP companies (although only three are reported): MySAP.com, KPN Telecom, EDS, Marviq.com, Vistorm.com, Oracle, UniXs.com, Portera.com, Corio.com, USinetworking.com, Mainpass.com, Xerox (most of these will be presented in the forthcoming book *Net Sourcing Strategies*, Prentice Hall, USA 2001).

The case process started with contacting ASPs to discuss their offering and experiences with operating ASP deals. During the actual interviews that were subsequently arranged with key managers within the ASP company, a request was raised about whether it would be possible to speak to their customers about their experiences. Of course there was a concern within some of the ASPs initially, but after reassurance about our research objectives and intentions we were given access. The resulting case stories that evolved from the interviews with three or more managers, were very rich in outlining the process and experiences of sourcing an ASP solution.

Appendix II – About the Authors

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