Value creation from the application service provider e-business model: the experience of four firms

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Keywords

Business planning, Applications software, Electronic commerce

Abstract

This paper embraces the e-business model concept as the unit of analysis for investigating the ASP market. It develops three constructs of the ASP business model: strategic positioning; product/service portfolio; and customer value proposition. Using a case study method, it discusses the findings from four ASP firms; each having attempted to develop a unique ASP business model. The findings suggest the ASP business model is fundamentally flawed as ASP firms fail to provide the customer with an attractive value proposition.

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Introduction

In the last five years, interest in e-business has evolved from optimistic scenarios with the explicit message that, "If you're not an e-business, you're out of business", to pessimistic scenarios pointing to the demise of the dot.coms. The literature on e-business models is varied with contributions focusing upon the popular examples of Amazon.com, ebay, priceline.com from a buyer behaviour perspective (Kauffman and Wang, 2001); taxonomies of e-business models (Weill and Vitale, 2001); and value creation from e-business models (Amit and Zott, 2000). Taking the e-business model as the unit of analysis is useful since it provides a deeper understanding of firm performance (Magretta, 2001). Others criticise the business model concept by arguing that it is important to evaluate firm performance within the wider context of industry structure (Porter, 2001).

This paper discusses the findings from two research studies[1] on the application services provider (ASP) industry, which emerged at the height of the dot.com era. Industry analysis reports claimed the ASP market would grow to $25 billion dollars by 2005 (IDC, 2000), with many small and medium businesses (SMBs) adopting a hosted delivery model for their business software applications. The optimism surrounding the potential of the ASP market witnessed the growth in service providers, with telecommunications firms, independent software vendors (ISVs) among others, setting up e-business subsidiaries.

The paper considers the generic literature on e-business models, which provides a theoretical and empirical basis for this research study on the ASP business model. Notwithstanding the criticisms of the business model concept, the paper argues that evaluating the ASP business model as the unit of analysis, as opposed to the firm or industry level, is valid, since it focuses upon specific activities and behaviour.

The paper presents a conceptual framework of the ASP business model using three constructs: strategic positioning; product/service portfolio and value proposition. It presents the findings from four firms, each of

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

which developed an ASP business model, either by setting up a subsidiary or as a start-up: Cable & Wireless a-Services (a subsidiary of Cable & Wireless); Netstore plc (a leading European pure-play ASP with venture capital funding); JDE.sourcing (a subsidiary of J.D. Edwards); and Aristasoft (a start-up Silicon-Valley-based vertical ASP).

E-business models

The concept of the business model has gained momentum in recent years, partly through the growth and interest in e-business. Definitions of what constitutes a business model vary in the literature, with some running the risk of being tautological. Thus, Magretta (2001, pp. 86-7) contends that:

> A good business model remains essential to every successful organization, whether it's a new venture or an established player.

Timmers (1999) defines a business model as:

> ... the organization (or "architecture") of product, service and information flows, and the sources of revenues and benefits for suppliers and customers.

The link between the business model concept and e-business has become explicit in recent years. Weill and Vitale (2001, p. 34) define an e-business model as:

> ... a description of the roles and relationships among a firm's consumers, customers, allies, and suppliers that identifies the major flows of product, information, and money, and the major benefits to participants.

Such a broad definition poses problems in researching the e-business model. Recognising this, Weill and Vitale (2001) de-construct the e-business model into eight "atomic e-business models"[2]. Firms may develop one or a combination of these atomic e-business models to pursue their business strategies. There will also be variants of each atomic e-business model, depending upon the factors outlined by the authors. Other writers suggest that the business model is a useful construct for understanding value creation from e-business. Amit and Zott (2000, p. 1) assert that:

> A business model depicts the design of transaction content, structure and governance so as to create value through the exploitation of business opportunities. We propose that a firm's business model is an important locus of innovation and a crucial source of value creation for the firm and its suppliers, partners and customers.

Similarly, Ross *et al.* (2001, p. 3), claim that business models demonstrate "changes in how the firm generates revenues or manages costs".

The business model concept is both explicit and implicit in much of the e-business literature. The common thread is the search for successful business models. According to Timmers (1999) e-business models can be identified in e-shops, e-procurement, e-mail, e-auctions, and e-markets. Table I outlines some of the key contributions on the e-business model concept. The literature is broadly divided into generic and specific contributions on business models, with Timmers (1999) and Weill and Vitale (2001) providing taxonomies of business models, and others looking at specific outcomes or activities from e-business models from e-markets (Bakos, 1998); value creation (Amit and Zott, 2000); profitability (Ross *et al.*, 2001); B2B e-commerce and group buying behaviour on the Internet (Kauffman and Wang, 2001).

In parallel with the expansion in e-business, firms developed new business models to create value for their customers or to replace existing business processes and operations (Magretta, 2001). Yet in recent years, there have been few examples of successful e-business models, as many start-up e-businesses failed in the dot.com downturn. Large firms also abandoned their e-business subsidiaries due to lack of customers and the failure to generate new sources of revenue (Currie *et al.*, 2003).

This has led some commentators to criticise the popularity of the business model concept. Porter (2001, p. 73) asserts that:

> The definition of a business model is murky at best. Most often, it seems to refer to a loose conception of how a company does business and generate revenue. Yet simply having a business model is an exceedingly low bar to set for building a company. Generating revenue is a far cry from creating value, and no business model can be evaluated independently of industry structure. The business model approach to management becomes an invitation for faulty thinking and self-delusion.

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

Table I E-business model literature

E-business models	Authors
Business models for e-commerce	Timmers (1999)
Migrating to e-business models	Weill and Vitale (2001)
Why business models matter	Magretta (2001)
The emerging role of e-markets	Bakos (1998)
Value creation in e-business	Amit and Zott (2000)
IT infrastructure capabilities for e-business models	Weill and Vitale (2001)
Migrating to profitable e-commerce business models	Ross *et al.* (2001)
Business model design and performance of entrepreneurial firms	Zott and Amit (2000)
Group-buying business models in Internet-based selling	Kauffman and Wang (2001)
Application service provider business model	Currie (2003)

Taking these criticisms into consideration, it is essential to delineate e-business models into taxonomies (Weill and Vitale, 2001) or value-creating activities (Amit and Zott, 2000). The one-size-fits-all approach is likely to produce a vague description of what constitutes a business model, particularly as e-business models (as the literature demonstrates) vary considerably. Against this background, a research study was developed with the purpose of investigating the ASP business model, broadly conceived. The ASP business model may be depicted as a sub-set of e-business models.

The research study

A research study was developed to investigate the deployment, hosting and integration of the ASP business model. An ASP manages and delivers application capabilities to multiple entities from data centres across a wide area network or virtual private network. An ASP is an e-business model, which allows customers to remotely access their software applications on a subscription (pay-per seat) basis (Kern *et al.*, 2001). During 2000, numerous ASP start-ups emerged, having secured first-round venture capital funding. In parallel, large firms (i.e. telecommunications and independent software vendors) set up ASP subsidiaries to offer IT infrastructure capability or hosted/managed software applications respectively. The ASP market rapidly became a confusing array of firms, all competing to offer hosted software applications, largely to small or midsize firms.

The first phase of the research study provided an overview of the emerging ASP market, utilising the business model as the unit of analysis. This was important given the variation in structure, size and technology of firms developing ASP business models. For example, telecommunications firms, such as Cable & Wireless and British Telecom, could not be investigated at the level of the firm given that their ASP business accounted for only a small proportion of their total revenue streams. Conversely, it was possible to investigate pure-play ASPs as an isolated business model since their revenue was generated almost entirely from their Internet product/service offerings.

The method of data collection and analysis was twofold. First, secondary data was collected from a database of 700 ASPs[3]. This database contained the names, addresses, industry sector, product/services, contact details (Web site/e-mail) of the ASP firms. Using the database, it was possible to scrutinise the Web sites to elicit further data/information on the strategic positioning, product/service portfolios and customer value proposition, to define the attributes of these constructs. For example, telecommunications firms were strategically positioning themselves to become IT infrastructure providers; as opposed to ASP start-ups, which were largely concerned to provide customers with remote delivery of software applications. How each firm entered the ASP market varied, with one firm seeking

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

partnerships with ASPs, and the other, seeking partnerships with telecos. An important attribute of strategic positioning was therefore market segmentation (how ASPs defined their target markets, i.e. infrastructure providers, enterprise application providers, etc.). Another important attribute was customer focus (the target customers of ASPs, i.e. large, midsize or small firms, and their respective business sectors). A conceptual model of the research study is given in Figure 1.

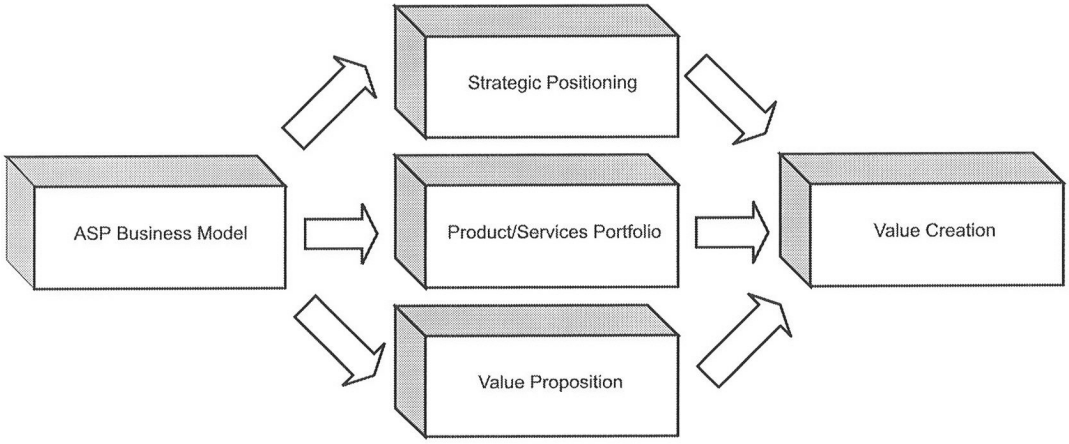
Second, an exploratory-descriptive case study methodology was used. The level of analysis was the business model, not the firm or industry level, so a case study methodology was anticipated to provide a rich data set for analysing firm activities and behaviour (Benbasat *et al.*, 1987; Eisenhardt, 1989; Silverman, 2001). Having developed the constructs and attributes of the ASP business model (see Table II) from the secondary data collection, it was possible to identify a sample of ASP firms for case study research. From a potential sample of over 250 firms, 50 firms were tracked over a two-year period beginning in October 1999. Four firms are selected for discussion in this paper. Interviews were carried out with several members of staff at each firm, including, CEOs, CIOs, business development managers, IT personnel and marketing staff. Interviews lasted between one and three hours. All interviews were tape-recorded and the data was transcribed. The research question was: How do ASP firms create value for their customers from their ASP business models in relation to the attributes of strategic positioning, product/service portfolio and value proposition?

A conceptual framework for analysing the ASP business model

At the end of the twentieth century, the dot.com boom was declining, although numerous start-ups had emerged resulting in a confusing array of firms describing themselves as "self-styled" ASPs (SCN Education BV, 2000). Within the information technology and communications (ICT) sector, telecommunications firms to ISVs perceived a new opportunity to develop an ASP business model (Lewis, 1999). A gold-rush mentality was apparent, as individuals abandoned their jobs with traditional firms to join high-tech start-ups (Nesheim, 1997) in Silicon Valley, Europe and Australia. Telecommunications firms, with vast IT infrastructure capabilities, needed to partner with software applications providers (ISVs and ASPs) to fulfil their ASP aspirations. Conversely, ISVs and ASPs required the services of data centre providers (telecos) to host their software; unless they invested in this capability (most ASPs did not).

A conceptual framework was developed which incorporates strategic positioning, product/services portfolio and value proposition. The three constructs provide a useful lens for delineating the key attributes of the ASP business model.

Figure 1 Creating value from the ASP business model



The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

Table II A conceptual framework of the ASP business model

Constructs	Attributes	Description
Strategic positioning	Industry structure	Determines the profitability of the average competitor
	Sustainable competitive advantage	Allows a firm to out-perform the average competitor
	Market segmentation	Type of ASP (enterprise, pure-play, vertical)
	Customer focus	Target customer market (large, midsize or SMEs/business sector)
	Market differentiation	Geographical reach (international, regional, national, local)
	Firm composition	Strategic alliances, partnerships, joint ventures
Product/services portfolio	Scale economies	Number of customers needed to make a profit (high volume/low cost or low volume/high cost)
	Scope of applications	Type of products/services offered in relation to degree of standardisation/customisation (ERP, CRM, e-mail, etc.)
	Distinctiveness/uniqueness	Combination of product/services (enterprise, vertical, etc.)
	Product/service differentiation	Branding, price, bundling, aggregation, switching costs
Value proposition	Applications/services outsourcing	Delivery and enablement (i.e. 24 × 7 service/data security)
	Value creation for customer	Management and operations (reduced total cost of ownership)
	Benefits/risks assessment	Integration (EAI across depts/sites/borders, etc.)
		Business transformation (increased agility/BPO/BPR)
		Client/vendor partnerships (strength through partnerships)

Strategic positioning

During the dot.com boom, numerous ASPs emerged, most of which were start-up firms positioning themselves to offer vertical (industry-specific) or horizontal (business-focused) software applications to large, midsize or small firms. Many new entrants from telecommunications firms to independent software vendors marked the first phase of the ASP industry (Kern *et al.*, 2001). Large enterprise software vendors wanted to extend their market reach to South-East Asia; whereas other ASPs focused upon national, regional or even local markets. ASP business models needed to demonstrate strategic differentiation between competition, products/services and value proposition. Very few ASPs, however, managed to achieve this objective, as it was hard to differentiate one ASP from another. As Porter (1996, p. 62) points out:

> A company can outperform rivals only if it can establish a difference that it can preserve. It must deliver greater value to customers or create comparable value at a lower cost, or do both. The arithmetic of superior profitability then follows: delivering greater value allows a company to charge higher average unit prices; greater efficiency results in lower average unit costs.

The large enterprise software vendors (J.D. Edwards, Baan, Oracle, Peoplesoft and SAP) each developed an e-business subsidiary aimed at the midsize market (see JDe.sourcing outlined below). Each firm sought to differentiate itself competitively to enhance its strategic position within the e-business market. As leading enterprise ISVs, these firms had extended market reach, yet to capture the midsize market they needed to build a customer base in specific vertical sectors (health, logistics, education, etc.). In parallel with enterprise software vendors, new entrants emerged as vertical ASPs. These firms focused upon one or more vertical sectors, often forming strategic partnerships with the leading players to offer enterprise software (see Aristasoft outlined below). Another category was pure-play ASPs (see Netstore outlined below). These firms were usually start-up ASPs, having developed software applications to run specifically over the Internet. Unlike the enterprise ASPs, which had to adapt their software applications for the Internet, the pure-play ASPs used the Internet as their main delivery channel.

The challenge of all these ASPs, however, was strategic differentiation to create and sustain a competitive advantage. The dynamics of competition in the ASP market saw the

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

emergence of complex partnering arrangements between telecos, ISVs, ASPs, data centre and networking firms and others. Whilst strategic partnerships were important, they nonetheless added complexity to the industry structure, with numerous players seeking ways to generate new revenue streams.

Product/service portfolio

The product/service portfolio of ASPs varied, with some offering "vanilla" enterprise resource planning (ERP) solutions to midsize firms, and others focusing upon collaboration tools (e-mail, calendaring, etc.) or vertical industry applications (healthcare, finance or manufacturing). One of the challenges is the relationship between scale economies and scope of applications. Gaining traction in the ASP market was essential since scale economies dictated that hosting collaboration tools, for example, on a subscription (pay-per-seat) basis required many customers to return a profit. Many ASPs only had two or three paying customers, so they needed to either increase this number or increase the scope of their applications. Some ASPs aimed to become full service providers (FSPs) to offer a range of software applications (ERP, accounting, HR, etc.), whereas others tried to create a "unique selling proposition" as vertical, industry-specific ASPs. To a large extent, the one-to-many business model became the "same for all" as ASPs found it increasingly hard to differentiate their product/service portfolio. Some ASPs believed that FSP was the way forward and aimed to develop a "packaged solution" offering (i.e. IT infrastructure, applications, managed services, consultancy, data security protection, etc.). Telecommunications firms, with a large investment in IT infrastructure, positioned themselves to enter the ASP market, often seeking partnerships with ISVs and others to fulfil their aim to become a FSP (see Cable & Wireless a-Services, below). Telecos, however, tended to have remote customer relationships, unlike ISVs and systems integrators, who tended to work closely with their customers on site. The creation of a distinct or unique product/service portfolio was a major challenge for all ASPs, especially for those offering commodity software applications.

Value proposition

The value creating potential of ASPs was a critical factor for the success of any ASP business model. Currie (2002) developed a knowledge-based benefits/risks assessment framework[4] which delineates five key performance areas (KPAs) for evaluating the value-creating potential of ASP business models:

(1) delivery and enablement;
(2) management and operations;
(3) integration;
(4) business transformation; and
(5) client/vendor partnerships.

In each category, a list of key performance indicators (KPIs) may be evaluated by existing or potential ASP customers. For example, under delivery and enablement, the customer evaluates the importance of receiving an application 24×7 (or 99.999 per cent of the time) in relation to their own business. Customer requirements may vary with this performance indicator, so it is incumbent upon the ASP to evaluate how important this requirement is for individual customers. 24×7 may be more important to a financial firm than to a school. In another example – management and operations – a customer may adopt an ASP solution because they wish to reduce their total cost of ownership (TCO) of their IT facility. Using an ASP for collaboration tools may not be done to save money, but for reasons of efficiency. Alternatively, a hosted CRM application may reduce TCO. The value proposition will therefore vary between the ASP and their customers. The challenge for ASPs is therefore to understand customer requirements and not assume that all customers want the same things. The challenge for ASPs is therefore to understand customer requirements, especially how an ASP offering will create value for the customer.

Four ASP business models

The e-business literature discusses a range of e-business models, many of which have not

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

survived in the dot.com downturn (Hagel, 2002). This research study was concerned to explore ASP business models across ICT firms. Four firms are discussed to illustrate their different strategic positioning; product/service portfolios and customer value propositions; rather than to provide a basis for comparison. A telecommunications firm, a pure-play ASP, an independent software vendor (ISV), and a vertical ASP, all entered the ASP market with a view to developing a distinct e-business model. Each firm saw SMBs as the "sweet-spot" of the ASP market, with some having more experience than others in serving this sector. Three of the four firms abandoned their ASP business within two years, two of them closing down their subsidiaries, and one going out of business altogether. The remaining firm is still operating as an ASP.

Firm A – Cable & Wireless a-Services

In 1999, Cable & Wireless, a leading telecommunications company, set up a wholly owned subsidiary to enter the emerging ASP market, investing over US$500 million over a five-year period. It entered into strategic partnerships with Compaq (to provide hardware) and Microsoft (to provide software applications). With three leading technology providers, the subsidiary was one of the major competitors in the ASP industry. The objective was to offer SMBs a complete end-to-end integrated technology solution including application hosting, network connectivity, and e-business consulting. Like other leading telecommunications firms, Cable & Wireless identified new commercial opportunities from the Internet and e-business.

Initially, Cable & Wireless began by offering integrated collaboration tools (e-mail, calendaring, messaging, word processing, etc.) as a hosted solution. It later planned to offer business critical enterprise software from the leading ERP vendors, as well as business-specific (HR and accounting) and industry-specific (healthcare, logistics) ISVs. To achieve this aim, it acquired Digital Island, a leading provider of managed Internet services for business customers, specialising in integrated managed hosting, content delivery and intelligent network services. This acquisition enhanced Cable & Wireless' physical, organizational and human IT capabilities. For example, its hosting capabilities were increased with an additional nine hosting centres worldwide. The deal also gave Cable & Wireless access to a very strong customer base in leading technology sector firms. New business and technical staff formed part of the acquisition, especially those with experience of Internet protocol (IP).

With its vast physical technical capability, history and experience of the telecommunications sector, Cable & Wireless a-Services' future in the ASP industry looked assured. Yet as the dot.com shakeout continued unabated, the firm found that its customer base remained low. Market segmentation meetings designed to identify potential SMB customers pointed to serious problems in its ASP strategy. As a telecommunications firm, it lacked the channel partnerships necessary to sell technology solutions. One comment from a senior technology manager was that, "telecos are good at putting up price lists, but not at customer relationships". One of the major impediments to winning customers was that sales pitches were designed to show how firms could reduce their total cost of ownership (TCO) of IT. Examples were given comparing the cost of developing IT infrastructure and running in-house software applications with a hosted (ASP) solution delivered by Cable & Wireless a-Services. Unfortunately, most SMBs did not spend much money on IT infrastructure and tended to purchase off-the-shelf software applications, which they managed in-house. TCO was therefore not a relevant measure to justify changing to a remote delivery model. Other problems arose because the large ISV offering collaboration tools had not yet revised its licensing policy to accommodate customers wishing to transfer to a hosted software delivery model. Cable & Wireless a-Services found that, whereas some customers were interested to "experiment" with receiving collaboration tools over the Internet or VPN, they did not wish to pay again for their software licence, as the ISV had demanded. Consequently, virtually no sales were made as a result.

So despite large physical capital resources in the form of a telecommunications network, and

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

strategic partnerships with respected technology firms, Cable & Wireless a-Services made little progress with its ASP business. As a result of winning few customers, the subsidiary was closed down, resulting in numerous job losses and a further shakeout in the telecommunications firm as a whole. The firm announced it would concentrate on developing its managed services business and "wait and see" how the ASP market develops.

Firm B – Netstore

Netstore was established in 1996 and entered the ASP market claiming it was "Europe's leading ASP". As a pure-play ASP, it offered systems management, hosted messaging and e-business services across the Internet. It became the UK's first publicly listed ASP, which initially raised $60 million. Its background was in disaster recovery, so entering the ASP market to provide IT infrastructure and technical skills and expertise seemed a natural progression. The firm developed a product/service portfolio consisting of on-line data storage, retrieval and back-up; Web hosting consultancy; weekly/monthly management reports; telephone support services and the delivery of collaboration tools using a hosted model. It owned one data centre and rented another from a third party.

During the first phase of the ASP market from 1999-2000, Netstore secured outsourcing contracts with three main customers: a world leader in networking technologies; a direct seller of beauty and related products; and a fast growing marketing agency. The customer base was varied though their requirements were similar, since they all believed that an external provider would be better positioned to manage and deliver their collaboration tools. These deals meant that Netstore had about 18,500 individual customers across the three firms. The firm advised customers to:

> Outsource everything that takes your eye off the ball. Delegate your information worries. Subscribe to Netstore services and buy the right to focus on your core business.

Like Cable & Wireless a-Services, Netstore realised that hosting collaboration tools was essentially a commodity business, with little scope for competitive differentiation. It was therefore important to expand its software applications portfolio to include enterprise systems, and possibly a vertical sector. The firm explored an opportunity to deliver accounting software with a leading supplier, but progress was slow, as SMBs could not see any real advantages in adopting a hosted delivery model as opposed to running the software in-house. Some SMBs were even hostile to the ASP model as they were concerned about issues of data security and integrity.

During the dot.com shakeout, the rate of growth slowed dramatically causing the firm to experience a large operating loss. Though the firm had established itself as a certified worldwide ASP partner of a leading ISV, it was finding it difficult to win more customers. As one of the leading pure-play ASP firms, Netstore had a first mover advantage which had helped to build its profile in the media, yet its main strengths were in its human capital IT resources. Like other small ASP firms, Netstore had few physical capital IT resources, though it was keen to inform potential customers that it planned to own all its data centres rather than outsource this facility.

The firm also had value added resellers (VARs) who would take a percentage of the revenues from any business they won. With three well-known customers, Netstore had good reference sites, which was a tangible advantage over some of its ASP competitors. Notwithstanding the advantages of a strong management team with wide experience in the technology sector, the firm was affected by the dot.com shakeout of 2000-2001. In 2001, it announced that it was cutting 30 per cent of its workforce, responding to pressure from the financial markets. The firm's cash burn had been high since it had spent vast amounts on marketing and developing new product ideas.

It recognised that one of its key problems was that, despite its strong VAR network, SMBs needed to be "educated" about the benefits and risks of the ASP model. Also, the delivery of collaboration tools was not sufficient in itself to win new customers.

Firm C – JDE.sourcing

J.D. Edwards was set up in the 1970s and is a large ISV specialising in ERP systems for major

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

international clients. At the height of the dot.com boom, it set up a subsidiary (JDE.sourcing) to offer its enterprise software applications and e-business solutions directly to customers across the Internet partnering with a leading Internet data centre services provider. This would give J.D. Edwards access to a global IP network. JDE.sourcing would manage software applications directly for its customers to deliver highly reliable and scalable, infrastructure-based services to enable e-business. Complementing its strengths in organizational and human IT capital resources, the strategic partnership would enhance its physical capital resources to compete with other ASP new entrants such as telecommunications firms (see firm A).

Like other ASP firms, JDE.sourcing believed that SMBs would offer new commercial opportunities. With strong channel partnerships and a customer base, it planned to target several vertical sectors. In particular, it aimed to deliver vanilla-ERP modules to midsize firms, recognising that small firms would not have the financial resources or business requirement for enterprise-wide software applications.

In addition to setting up an ASP subsidiary, the firm also worked with other ASP start-ups working in the capacity of channel partners. JDE.sourcing saw no obvious role conflict with this strategy since it believed that its ASP partners would develop commercial relationships on its behalf, rather than cannibalise existing ones. The firm aimed to provide:

> ... multiple outsourcing services, including business process outsourcing, and application hosting using repeatable solutions tailored for specific vertical markets.

Other strategic alliances were with a leading management consultancy, targeting real estate and electronics; a technology provider, for construction and engineering; a leading technology hardware firm, for manufacturing; and an ASP start-up in the high tech equipment sector (see firm D). The firm also used a preferred technology platform provider for delivering its hosted enterprise software applications to customers. The head of JDE.sourcing said that:

> No longer does a company need to worry about having the up-front capital, the IT infrastructure, and the expensive personnel needed to undertake a complex application implementation and keep it running over time – Now SMBs can deploy the same software solutions their larger competitors have been using against them for years, but without incurring the risks so often associated with these projects.

The logic of providing enterprise software applications to the SMB or "vanilla-ERP" seemed well thought through. However, JDE.sourcing encountered the same lukewarm response from SMBs as experienced by other ASP market entrants such as telecos, ISVs, and ASP start-ups. It had also created channel conflict through its partnerships with ASP start-ups who were also trying to sell the firm's ERP software applications as a hosted solution to SMBs (see firm D). So, in less than a year of setting up the ASP subsidiary, J.D. Edwards decided it would sell directly to customers under its recognised name. It therefore closed its ASP subsidiary in 2000.

Firm D – Aristasoft

The Aristasoft Corporation was set up to be the world's first industry-specific ASP. It was founded in 1998 with a mission to "provide industry-specific, Tier-1 IT solutions" to enable emerging firms to compete with their larger counterparts. The firm developed a slogan that it would be "Your company's IT department". It would provide technical solutions to the high tech equipment, manufacturing sector (i.e. networking and computing devices). A leading Silicon Valley Venture Capital firm funded Aristasoft. Its strength was to offer customers a deep knowledge of industry-specific requirements and best practices and to provide a full range of business and technical services from assembling, implementing, hosting, supporting, managing and advising on enterprise business solutions, such as ERP systems.

To achieve its goals, the firm needed to partner with a range of technology providers:

- enterprise software applications firms (i.e. enterprise resource planning, e-business applications, customer relationship

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

management and product content management);
- professional services firms (i.e. management and technical consultancies);
- infrastructure services (i.e. Internet hosting, network and broadband services); and
- platform technology providers (i.e. systems integration software, network solutions for the Internet, customized computer systems, enterprise storage systems and Intranet and Extranet specialists).

Developing strategic partnerships was a major goal for this firm. Though it shared a belief with its partners that all parties would benefit from collaborating, Aristasoft aimed to "own the customer". This meant targeting potential customers in the high-tech manufacturing sector and providing the solution once the outsourcing contract was signed. Customers did not need to know in all instances who the other partners were, but this information was likely to help where the supplier was a leading name in the industry.

Yet providing a hosted ERP solution designed by a leading ISV on a revenue sharing model would not guarantee profitability in the short or long term. Nor would it guarantee a sustained competitive advantage. The firm therefore needed to provide additional services in the form of management and technology consultancy. One major advantage of the firm was that its main board of directors were experienced executives in the IT industry with excellent contacts in leading firms. In terms of providing ASP solutions, Aristasoft had developed a strategic alliance with J.D. Edwards (see firm C, above) to offer vanilla-ERP modules to the high tech manufacturing firms. Aristasoft claimed its main strength was that it could offer customers a more intimate service than its large ISV partner, given that it had a deep knowledge of this particular technology sector.

Aristasoft quickly acquired five customers. It was aware that it needed to boost its customer base if it was to secure second-round venture capital and survive the economic downturn in the technology sector. As one of the first vertical-focused ASP firms, it had several advantages over its rivals. Its main strength was its management team with their first-hand knowledge of the technology sector and their strong links with Hyderabad in India, where software development work was outsourced to control technical staff costs.

As one of the only firms serving this particular niche-market, it offered a "unique" value proposition to customers, as the only vertical ASP of its kind. Yet, customers were more interested in price competition than buying additional services, and one form of competition for Aristasoft was from its own partner (see firm C). For although it offered ERP modules using a licensing arrangement with a leading ISV, this firm also offered a direct service to customers having set up a separate ASP subsidiary, thus potentially cannibalising its own business. One of the drawbacks of this strategy for both the ISV and Aristasoft was the tendency to create channel-conflict, where the customer became confused as to which supplier offered the best deal (the ISV or ASP). Aristasoft tackled this problem by spreading its risk to offer enterprise software applications from a number of (competing) vendors, and continued to claim that its software application outsourced "value-proposition" was increasing the customer's time to market and alleviating risky and expensive software implementation. It also claimed to offer customers "independent" advice about software choices, though this could be questioned in the light of its partnerships with specific vendors.

Whilst the firm was funded as an ASP start-up, its major strength was in its management team and their deep knowledge of the technology sector. It did not own valuable physical IT capital resources in the form of hardware or software. It outsourced all its hardware and business software requirements to third party firms, and did not have any valuable patents or trademarks. Its valuable resources were inextricably linked with the strategic partnerships it had negotiated. Notwithstanding this point, its "uniqueness" or rarity was that it had few direct competitors offering the same type of industry-specific management consultancy around its ASP solutions. Its potential competition was likely to be from large ISVs attempting to build their

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

knowledge-assets of the high tech equipment manufacturing sector; smaller and start-up ISVs; and even management consultancy and systems integration firms. Despite its potential strengths, Aristasoft did not survive the dot.com downturn.

Applying a conceptual framework of the ASP business model to four firms

Table III applies the conceptual framework of the ASP business model to the four firms. Each firm aimed to create a unique position within the ASP market, with capabilities in IT infrastructure, disaster recovery, enterprise software, and industry expertise. Whilst each firm had strengths and weaknesses, none of them was able to achieve strategic differentiation. As a large teleco, Cable & Wireless' subsidiary a-Services had strengths in IT infrastructure and enablement, yet lacked channel relationships essential for software delivery. Netstore had strengths in IT back-up and support, yet had not convinced enough customers about the value proposition of a remote (hosted) software delivery model. JDE.sourcing had a track record in enterprise software development, yet found the midsize market to be cautious about adopting "vanilla-ERP" solutions. Aristasoft was narrowly focused to serve the high tech equipment-manufacturing sector, yet was also unable to convince enough customers about the advantages/benefits of adopting a remote, hosted software delivery model.

Whilst all these firms had strengths in terms of their strategic positioning, product/service portfolio; and value proposition, they all experienced difficulties in winning new customers. Each firm entered the ASP market offering a variation in their business model, yet all of them failed to convince potential customers about the value-creating potential of a remote delivery model. An industry analysis of the failure of the ASP market points to similarities with e-business models in general (Porter, 2001), since many simply developed technical solutions in search of business problems.

Discussion and conclusion

This paper contributes to the expanding literature on e-business models, taking the ASP business model as the unit of analysis. Empirical research demonstrates that, like many other e-business models, ASP firms have largely failed to create a sustained competitive advantage through their strategic positioning, product/service portfolios and value proposition to customers. Firms developing ASP business models, like other e-business models, often failed to address important issues of industry structure and competition (Porter, 2001); customer adoption of new business models (Chatterjee *et al.*, 2002); the benefits and pitfalls of partnering (Koza and Lewin, 2000) channel conflicts (Weill and Vitale, 2001) customer risk assessment from deploying a hosted solution (Currie, 2003) and the relationship between investment in new technology and firm performance (Weill, 1992).

Whilst it is inappropriate to generalise about industry structure from only four case studies, the experiences of each firm, in conjunction with the ASP shakeout, suggest the ASP business model remains immature and fundamentally flawed. The initial focus upon providing a one-to-many model, resulted in numerous ASPs providing the same-for-all, as strategic positioning; product/service portfolios and customer value propositions were largely undifferentiated across the ASP market. ASPs also failed to provide scale economies, as profits from collaboration tools were insufficient to return a profit, let alone achieve a competitive advantage. First mover advantage was also insignificant, as new entrants in the form of ASP start-ups could easily develop partnerships with telecos and ISVs, all wishing to generate new revenue streams from e-business.

At present, the ASP market is being superseded by the emphasis upon Web services as the latest panacea. The lessons learned from the demise of many ASPs, however, will largely be repeated unless firms address a perennial issue in business: how to create value for the customer. As the ASP industry demonstrated, many firms simply assumed the customer

Table III Applying the conceptual framework to four ASP firms

Strategic positioning	Product/service portfolio	Value proposition
Cable & Wireless a-Services		
Global telecommunications firm	IT infrastructure	Brand recognition
IT infrastructure capability	ASP aggregation	Global reputation
Horizontal industry focus	Market segmentation	Commodity pricing
Growth through acquisition (Digital Island and Exodus Communications)	Commodity to customised product/service portfolio	Generic choice of applications
Become full services provider (FSP)	Third largest pan-European provider of B2B IP services	"IT department that never sleeps"
	"A secure, high speed private network for your client's business"	"SMBs can finally benefit from enterprise technologies previously available only to large organizations"
	Data centre ownership	Provision of aggregated solutions
Netstore		
Europe's leading pure-play ASP	Utility applications on a hosted delivery model	"Big company applications at an affordable price"
Managed solutions provider	Systems management, Hosted messaging and e-business services across the Internet	Value added reseller (VAR) network
Target SMBs with "leading edge software applications on a predictable, pay-per-seat basis"	First ASP to complete the BS 7799 (information security management) guaranteeing integrity of customer data	Reduced capital expenditure
		Reduced specialised IT skills for each application
		Accelerated implementation
Become leader in provision of outsourced systems management to firms with distributed enterprise structure	Mirrored data centres	Reliability, accessibility, scalability
		Good service level agreements
Horizontal industry focus	Netstore Exchange Service, Web hosting consultancy, on-line back-up, and on-line recovery	Provision of utility solutions
Background in disaster recovery		Eliminate risks of distributed IT
Microsoft accredited		
JDE.sourcing		
JDE.sourcing is subsidiary of large independent software vendor (J.D. Edwards)	JDE.sourcing to offer "Vanilla ERP" (collaborative Enterprise software for SMBs)	Modular approach to help firms manage product planning, inventories, and finances
Parent firm is leader in enterprise resource planning (ERP) solutions	Focus on integrated, end-to-end enterprise solutions	Knowledge of vertical sector
		Track record of providing software to customers
JDE.sourcing described as "second generation application service delivery business"	Flexibility and interoperability of the WorldSoftware or OneWorld technology	Established channel relationships
		"Your portal to the digital economy"
Vertical industry focus	Managed application solutions (MAS) partnership programme	Provision of ERP solutions (CRM, supply chain management)
"Best of speed" partnering with ASPs (see Aristasoft)	"Outsource-ready software"	
	Direct to customer model	
Aristasoft		
Leading ASP in high tech equipment manufacturing sector	Provide industry-focused core business applications and services (e.g. J.D. Edwards)	"Your IT department for high-tech companies"
Vertical industry focus	Provide top-tier applications	Single point of contact
Develop partnerships with leading ISVs	Develop ASP-enabled distribution channel	Deep vertical (industry) expertise
Target "hyper-growth" high tech equipment providers	Combine business applications with managed services operation	Integrated functionality across manufacturing, finance and distribution/logistics
		Provide single point of contact
High end of the ASP market, developing, integrating and supporting complex business systems to midsize high tech firms	Outsourced data centres (Exodus, Digital Island)	Delivery of unified solution
	Integration of networking, applications and services	"The value Aristasoft provides is integration: integration is very complex"
		Provision of "tailored solutions"

The Journal of Enterprise Information Management
Volume 17 · Number 2 · 2004 · 117-130

would want the remote delivery of their software applications. Such flawed thinking saw the demise of numerous ASP start-ups and subsidiaries. Future e-business models will therefore need to demonstrate how they create value for the customer, as opposed to developing a technical solution in search of a perceived business problem, which does not exist.

Notes

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2 The eight atomic e-business models are: direct to customer; full service provider; intermediary; shared infrastructure; value net integrator; virtual community; and whole-of-enterprise/government (see Weill and Vitale, 2001, p. 21).

3 The ASP Industry Consortium database was used for this purpose. It contains over 700 firms comprising start-up ASPs, telecommunications, independent software vendors, systems integrators, hardware manufacturers, data centre and networking firms, management consultants, and many others.

4 The knowledge-based benefits/risks assessment framework is discussed in detail in Currie (2002). This work was undertaken in collaboration with the ASP Industry Consortium. Empirical research on ASPs in the USA and UK was done to further refine the framework.

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