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VALUE CREATION FROM APPLICATION SERVICES PROVISIONING: LESSONS FROM FOUR VENDOR FIRMS

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Abstract

This paper embraces the electronic business model concept as the unit of analysis for investigating application service providers (ASPs). It develops three constructs fundamental to the ASP business model: strategic positioning, product/service portfolio, and customer value proposition. Four short case study examples of different ASP business models are discussed. The findings suggest that, despite firm efforts to strategically differentiate their ASP business model from their rivals, each failed to provide the customer with an attractive value proposition to achieve a sustainable competitive position.

Keywords: Application services provision, business models, case study research

Introduction

The electronic business literature 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 (Currie et al. 2003). The literature on e-business models is varied with contributions focusing upon the popular examples of Amazon.com, eBay, and Priceline.com from a buyer behavior perspective (Kauffman and Wang 2002), taxonomies of e-business models (Weill and Vitale 2001), and value creation from e-business models (Amit and Zott 2001). Adopting the e-business model as the unit of analysis is useful since it provides a deeper understanding of firm performance (Magretta 2001), although others criticize 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 studies¹ on the application services provider (ASP) industry, which emerged at the height of the dot.com era. Industry analyst 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 (Bennet and Timbrell 2000). The optimism surrounding the potential of the ASP market witnessed the growth in service providers, with telecommunications firms and 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

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the ASP business model as the unit of analysis, as opposed to either the firm or the industry level, is valid, since it focuses upon specific activities and behavior.

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 case study findings from four vendor firms, each of 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). The findings suggest that, despite attempts to develop a sustainable ASP business model, each firm failed to create sustainable business value for the end customer. The lessons learned from these case study scenarios reinforce existing literature on the difficulties of developing e-business models more generally (Timmers 1999; Weill and Vitale 2001) and the benefits and risks from adopting an ASP solution more specifically (Currie 2003; Kern et al. 2002; Susarla et al. 2003).

The Literature on 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 being tautological. Thus, “A good business model remains essential to every successful organization, whether it’s a new venture or an established player” (Magretta 2001, pp. 86-87). Other definitions focus upon the organization or architecture relating to products, services, and information flows and how revenue is generated to benefit suppliers and customers (Timmers 1999, p. 5). More recently, the link between the business model concept and e-business has become more explicit. For example, an e-business model is, “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” (Weill and Vitale 2001, p. 34).

Recognizing that such broad definition poses problems for research, Weill and Vitale (2001) deconstruct 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 how value is created from e-business. Thus, “A business model depicts the design of transaction content, structure and governance so as to create value through the exploitation of business opportunities... 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” (Amit and Zott 2001, p. 493). Similarly, business models demonstrate “changes in how the firm generates revenues or manages costs” (Ross et al. 2001, p. 3).

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. E-business models can be identified in e-shops, e-procurement, e-mail, e-auctions, and e-markets (Timmers 1999). The literature is broadly divided into generic and specific types of business models, with some providing taxonomies of business models (Timmers 1999; Weill and Vitale 2001), and others looking at specific outcomes or activities from e-business models, such as e-markets (Bakos 1998), value creation (Amit and Zott 2001), firm profitability (Ross et al. 2001), B2B e-commerce (Soh and Markus 2002), and group buying behavior on the Internet (Kauffman and Wang 2002).

In parallel with the expansion in e-business, firms develop new business models to create value for their customers or to replace existing business processes and operations (Magretta 2001). Yet there are few examples of *successful* e-business models, as thousands of 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 criticize 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

²The 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).

be evaluated independently of industry structure. The business model approach to management becomes an invitation for faulty thinking and self-delusion.

Faced with such criticism, it is essential to delineate e-business models into taxonomies (Weill and Vitale 2001), value-creating activities (Amit and Zott 2001), or sources of revenue generation (Bakos 1998) to give meaning to the concept. Clearly, generic e-business models used to describe the e-business activities of firms will produce a vague description of how business value is created. Against this background, a research study was developed with the purpose of isolating the ASP business model, which is a subset of e-business, broadly conceived.

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 centers across a wide area network or virtual private network (Currie 2000; Susarla, et al. 2003). An ASP allows customers to remotely access their software applications on a subscription (pay-per-seat) basis (Kern et al. 2002). A few years ago, numerous ASP start-ups emerged, many 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 (Currie and Seltsikas 2001). Initial pilot research and emerging literature also suggested that the ASP business model was more complex than simple definitions suggested (Currie 2003; Kern et al. 2002).

The first phase of the research study was designed to provide an overview of the emerging ASP market. This was important given the variation in the structure, size, and technology of vendor firms developing ASP business models. For example, telecommunications firms, such as Cable & Wireless, could not be investigated at the level of the firm or strategic business unit given that their ASP business accounted for only a small proportion of their total business activities (usually measured by revenue streams). Large firms comprise numerous business models, with some focusing upon specific products/services and their respective customer/supplier interfaces. By isolating the ASP business model, it was possible to gain a broader understanding of the strategies for market positioning, products/services, pricing models, cost structures, and sources of value creation from ASP initiatives. In start-up ASPs, usually described as pure-plays, the ASP business model was less complex and could be isolated, as most or all of the revenue was generated from offering software-as-a-service.

This study develops three constructs for analyzing the ASP business model. They are strategic positioning; products/service portfolio, and value proposition. These constructs are developed from the literature on strategic management (Amit and Zott 2001; Grant 1995; Porter 1980) and e-business (Magretta 2001; Timmers 1999; Weill and Vitale 2001). The three constructs are potential sources of value creation from the ASP business model (see Figure 1). Relating these constructs to the e-business concept, it is argued that a combination of industry-level and firm-level analysis is critical for understanding how vendor firms develop and implement their ASP business models. This is discussed more fully later in the paper.

Data Collection and Analysis

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, and contact details (Web site/e-mail) of the ASP firms. Using the database, it was possible to scrutinize the Web sites to elicit further data/information on the strategic positioning, product/service portfolios, and customer value proposition in order 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 with providing customers remote delivery of software applications. How each firm entered the ASP market varied, with some firms seeking partnerships with ASPs, and others seeking partnerships with telcos. 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).

³The 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 center and networking firms, management consultancies, and many others.

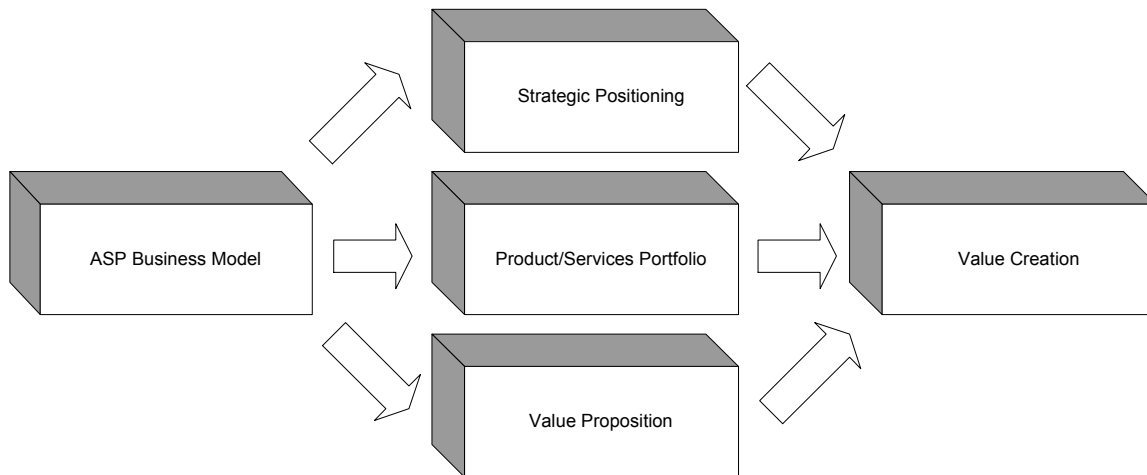


Figure 1. Value Creation from the ASP Business Model

Second, an exploratory-descriptive case study methodology (Yin 1994) was used. A case study methodology was anticipated to provide a rich data set for analyzing firm activities and behavior (Benbasat et al. 1987; Eisenhardt 1989; Silverman 2001). Having developed the constructs and attributes of the ASP business model (see Table 1) 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 four-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?

Table 1. A Conceptual Framework of the ASP Business Model

| Constructs | Attributes | Description |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Strategic positioning | Industry structure Sustainable competitive advantage Market segmentation Customer focus Market differentiation Firm composition | Determines the profitability of the average competitor Allows a firm to out-perform the average competitor Type of ASP (enterprise, pure-play, vertical) Target customer market (large, midsize or SMEs/business sector) Geographical reach (international, regional, national, local) Strategic alliances, partnerships, joint ventures |
| Product and services portfolio | Scale economies Scope of applications Distinctiveness/uiqueness Product/service differentiation | Number of customers needed to make a profit (high volume/low cost or low volume/high cost) Type of products/services offered in relation to degree of standardization/customization (ERP, customer relationship management, e-mail, etc.) Combination of product/services (enterprise, vertical, etc.) Branding, price, bundling, aggregation, switching costs |
| Value proposition | Applications/services outsourcing Value creation for customer Benefits/risks assessment | Delivery and enablement (i.e., 24x7 service/data security) Management and operations (reduced Total cost of ownership) Integration (EAI across departments/sites/borders, etc.) Business transformation (increased agility/BPO/BPR) Client/vendor Partnerships (strength through partnerships) |

A Conceptual Framework for Analyzing the ASP Business Model

The growth of the ASP market was at a peak at the end of the 20th century with numerous start-up firms describing themselves as self-styled ASPs (SCN Education B.V 2000). Within the information technology and communications sector more generally, telecommunications firms, ISVs, hardware manufacturers, and management consultancies, all perceived new business opportunities in developing an ASP business model (Lewis 1999). The ASP market quickly became saturated, as ASP became a global phenomenon. Telecommunications firms, with vast IT infrastructure capabilities, needed to partner with software applications providers (ISVs and ASPs) to fulfil their ASP aspirations. ISVs and ASPs required the services of data center providers (telcos) to host their software, unless they invested in this capability (most ASPs did not). Management consultancy firms perceived new opportunities for change management services (managed hosting), especially in the area of applications outsourcing.

A conceptual framework was developed to operationalize the constructs of strategic positioning, product/services portfolio, and value proposition. The attributes pertaining to these constructs and a description of how they relate to the ASP business model is given in Table 1.

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. 2002). Large enterprise software vendors wanted to extend their market reach to Southeast 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. This scenario is described in the strategic management literature. Thus, “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” (Porter 1996, p. 62). Vendor firms developing an ASP business model would, therefore, need to strategically position themselves through differentiation. Strategies included targeting specific customer groups (i.e., SMBs) or through market segmentation (i.e., vertical industry-sectors, such as healthcare).

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 the discussion on Firm C, JDE.sourcing, below). Each firm sought to differentiate itself to enhance its strategic position within the ASP market. As leading enterprise ISVs, these firms had extended market reach, yet to capture the midsize customer 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 the discussion on Firm D, Aristasoft, below). Another category was *pure-play ASPs* (see the discussion on Firm B, Netstore, 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 for all of these ASPs, however, was strategic differentiation to create and sustain a competitive advantage. The dynamics of competition in the ASP market saw the emergence of complex partnering arrangements between telcos, ISVs, ASPs, data center and networking firms, and others. While 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. One of the challenges was achieving the right balance between scale economies (i.e., the number of software applications sold over the Internet) and scope of applications (i.e., the level of customization/integration demanded by customers). 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 to offer a range of software applications (ERP, accounting, human resources, 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 full service provider 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 large investments in IT infrastructure, positioned themselves to enter the ASP market, often seeking partnerships with ISVs and others to fulfil their aim to become full service providers (see the discussion on Firm A, Cable & Wireless a-Services™, below). Telcos, 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. In conjunction with the ASP Industry Consortium, a knowledge-based benefits/risks assessment framework was developed which delineates five key performance areas for evaluating the value-creating potential of ASP business models: delivery and enablement, management and operations, integration, business transformation, and client/vendor partnerships (see Currie 2003). In each category, a list of key performance indicators can 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 percent 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 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 customer relationship management application may reduce total cost of ownership. The value proposition will, therefore, vary between the ASP and their customers. The challenge for ASPs is to understand customer requirements and not assume that all customers want the same things from an ASP solution.

ASP Business Models in Four Vendor Firms

The e-business literature discusses a range of e-business models, many of which have not survived in the dot.com downturn (Hagel 2003). This research study was concerned with exploring ASP business models developed by vendor firms. Four firms are discussed to illustrate their specific approaches to strategic positioning, product/service portfolios, and customer value propositions: 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 shifted its emphasis onto data storage and continues to offer ASP solutions.

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—a-Services™—investing over U.S. \$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 (human resources 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, specializing 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 centers 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 experienced with Internet Protocol (IP). With its vast physical technical capability, history, and experience of the telecommunications sector, the future of Cable & Wireless a-Services™ 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, *"Telcos 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 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. Total cost of ownership was, therefore, not a relevant financial 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 in experimenting with receiving collaboration tools over the Internet or virtual private network, they did not wish to pay again for their software licence, as the ISV demanded. Consequently, virtually no sales were made as a result.

Despite large physical capital resources in the form of a telecommunications network, and strategic partnerships with respected technology firms, Cable & Wireless a-Services™ made little progress with its ASP business model. As a result of winning few customers, the subsidiary was closed down, resulting in numerous job losses. The firm later announced it would concentrate on developing its managed services business and "wait and see" how the ASP market developed.

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 United Kingdom'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 center and rented another from a third party.

During the first phase of the ASP market, 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 even 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 realized 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. Although 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, although it was keen to inform potential customers that it planned to own all its data centers rather than outsource this facility.

The firm also had value-added resellers 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. In 2001, it announced that it was cutting 30 percent 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 recognized that one of its key problems was that, despite its strong value-added resellers 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. The firm later shifted its strategic focus to concentrate on data storage activities.

Firm C: JDE.sourcing

J. D. Edwards was set up in the 1970s and is a large ISV specializing in ERP systems for major 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 center 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 new ASP 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, recognizing 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 cannibalize 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. As the head of JDE.sourcing said, *“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 compelling as a customer solution. However, JDE.sourcing encountered the same lukewarm response from SMBs as experienced by other ASP market entrants such as telcos, 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 direct to customers under its recognized name. It closed its ASP subsidiary in 2000. The firm continued to focus upon its core customer base: larger sized firms.

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 management, and product content management); professional services firms (i.e., management and technical consultancies); infrastructure services (i.e., Internet hosting, network, and broadband services); 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. Although 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, 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). 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 cannibalizing 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 the 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, although this could be questioned in the light of its partnerships with specific vendors.

While 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 it 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 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 an Conceptual Framework of the ASP Business Model to Four Firms

Table 2 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. While each firm had strengths and weaknesses, none of them were able to achieve strategic differentiation. As a large telco, Cable & Wireless’ subsidiary a-Services™ had strengths in IT infrastructure and enablement, yet lacked the 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 and benefits of adopting a remote, hosted software delivery model.

Table 2. Applying the Conceptual Framework to Four ASP Firms

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

Despite their individual strengths in strategic positioning, product/service portfolio, and value proposition, all four companies failed to secure a sufficient customer-base to sustain their ASP business models. Each ASP vendor firm failed to convince potential customers that adopting a software-as-a-service (remote) delivery model would create value for their business.

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 reinforces existing studies within the e-business domain. The findings suggest that, as with e-business models more generally, 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 fail to address important issues of industry structure and competition (Porter 2001), customer adoption strategies for new business models (Chatterjee et al. 2002), the benefits and pitfalls of partnering and alliances (Koza and Lewin 2000), channel conflicts between suppliers and customer and within supply chains (Weill and Vitale 2001), customer risk assessment from deploying a hosted solution (Currie 2003), the relationship between investment in new technology and firm performance (Weill 1992), and how confusing marketing vendor material may detract potential customers from adopting an ASP solution (Kern et al. 2002).

While it is inappropriate to generalize 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 (Currie 2004; Hagel 2003). 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 telcos 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 (Hagel and Seely-Brown 2000). The mistakes that caused 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 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 either does not exist or is not fully understood.

References

- Amit, R., and Zott, C. "Value Creation in e-Business," *Strategic Management Journal* (22), 2001, pp. 493-520.
- Bakos, Y. "The Emerging Role of Electronic Markets," *Communications of the ACM* (41:8), 1998, pp. 35-42.
- Benbasat, I., Goldstein, D. K., and Mead, M. "The Case Research Strategy in Studies of Information Systems," *MIS Quarterly* (11:3), 1987, pp. 369-386.
- Bennet, C., and Timbrell, G. "Application Service Providers: Will they Succeed?," *Information Systems Frontiers* (2:2) 2000, pp. 195-211.
- Chatterjee, D., Grewal, R., and Sambamurthy, V. "Shaping up for E-Commerce: Institutional Enablers of the Organizational Assimilation of Web Technologies," *MIS Quarterly* (26:2) 2002, pp. 65-89.
- Currie, W. "Delivering Business Critical Information Systems as a Service: A Taxonomy of Application Service Providers," Keynote Address, International Conference on Systems Thinking in Management, Deakin University, Geelong, Australia, November 8-10, 2000.
- Currie, W. "A Knowledge-Based Risk Assessment System for Evaluating Web-Enabled Application Outsourcing Projects," *International Journal of Project Management* (21:3), 2003, pp. 139-153.
- Currie, W. (ed). *Value Creation from E-Business Models*, Butterworth-Heinemann, Oxford, UK, 2004 (Forthcoming).
- Currie, W., Desai, B., Khan, N., Wang, X., and Weerakkody, V. "Vendor Strategies for Business Process and Applications Outsourcing: Recent Findings from Field Research," in *Proceedings of the 36th Hawaii International Conference on Systems Sciences*, IEEE Computer Society Press, Los Alamitos, CA, 2003.

- Currie, W., and Seltsikas, P. "Exploring the Supply-Side of IT Outsourcing: The Emerging Role of Application Service Providers," *European Journal of Information Systems* (10:3), 2001, pp. 123-134.
- Debreceeny, R., Putterill, M., Tung, L., and Gilbert, L. A. "New Tools for the Determination of E-Commerce Inhibitors," *Decision Support Systems* (34), 2002, pp. 177-195.
- Eisenhardt, K. "Building Theories from Case Study Research," *Academy of Management Review*, (14), 1989, pp. 532-550.
- Grant, R. M. *Contemporary Strategy Analysis*, Blackwell Publishers Inc., Oxford, UK, 1995.
- Hagel, J. *Out of the Box: Strategies for Achieving Profits Today and Growth Tomorrow Through Web Services*, Harvard Business School Press, Cambridge, MA, 2003.
- Hagel, J., and Seely-Brown, J. "Your Next IT Strategy," *Harvard Business Review* (79:9), October, 2001, pp. 105-113.
- IDC. International Conference on Managing and Growing a World Class ASP Business. Hosted by International Data Corporation, San Francisco, April 4-6, 2000.
- Kauffman, R., and Wang, B. "Bid Together, Buy Together: On the Efficacy of Group-Buying Business Models in Internet-Based Selling," in *The E-Business Handbook*, P. B. Lowry, J. O. Cherrington, and R. R. Watson (eds.), St. Lucie Press, Boca Raton, FL, 2002, pp. 99-137.
- Kern, T., Lacity, M., and Willcocks, L. *Netsourcing: Renting Business Applications and Services Over a Network*, Prentice-Hall, New York, 2002.
- Koza, M., and Lewin, A. "Managing Partnerships and Strategic Alliances: Raising the Odds of Success," *European Management Journal* (18:2) 2000, pp. 146-151.
- Lewis, M. *The New, New Thing*, Hodder and Sloughton, London, 1999.
- Magretta, J. "Why Business Models Matter," *Harvard Business Review* (80:5), 2001, pp. 86-92.
- Porter, M. *Competitive Strategy*, Free Press, New York, 1980.
- Porter, M. "Strategy and the Internet," *Harvard Business Review* (79:3), March-April 2001, pp. 63-78.
- Porter, M. "What Is Strategy?," *Harvard Business Review* (74:6), November-December 1996, pp. 61-78.
- Ross, J., Vitale, M., and Weill, P. "From Place to Space: Migrating to Profitable Electronic Commerce Business Models," MIT Sloan Working Paper No. 4358-01, Sloan School of Management, Massachusetts Institute of Technology, 2001.
- SCN Education B.V, *ASP—Application Service Providing: The Ultimate Guide to Hiring Rather Than Buying Applications*, Friedr. Vieweg & Sohn Verlagsgesellschaft mbH, BraunschweigWeisbaden, Germany, 2000.
- Silverman, D. *Interpreting Qualitative Data*, Sage Publications, London, 2001.
- Soh, C., and Markus, M. L. "Business to Business Electronic Marketplaces: A Strategic Archetypes Approach," *Proceedings of the Twenty-Third International Conference on Information Systems*, L. Applegate, R. Galliers, and J. I. DeGross (eds.), Barcelona, December 2002, pp. 835-845.
- Susarla, A., Barua, A., and Whinston, A. B. "Understanding the Service Component of Application Service Provision: An Empirical Analysis of Satisfaction with ASP Services," *MIS Quarterly* (27:1), 2003, pp. 91-124.
- Timmers, P. *Business Models for Electronic Commerce*, John Wiley & Sons Ltd., Chichester, England, 1999.
- Weill, P. "The Relationship between Investment in Information Technology and Firm Performance: A Study of the Valve Manufacturing Sector," *Information Systems Research* (3:4), 1992, pp. 307-331.
- Weill, P., and Vitale, M. R. *Place to Space—Migrating to eBusiness Models*, Harvard Business School Press, Cambridge, MA, 2001.
- Yin, R. *Case Study Research: Design and Methods*, Sage Publications, Thousand Oaks, Ca., 1994