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# EXPLORING THE SUPPLY-SIDE OF WEB SERVICES: THE NEED FOR MARKET POSITIONING

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## Abstract

*Web services are emerging as a new paradigm for integrating business processes across heterogeneous computing environments. They are expected to alleviate the perennial problem of interoperability of software applications, which results in data and information silos. Many application service providers have repositioned themselves as Web services providers to compete in this highly volatile industry. This paper focuses upon the supply-side of Web services, utilizing four constructs: market positioning, partnerships and alliances, products and services, and integration. It presents the findings from survey research into 190 technology sector firms, which indicate that Web service firms will need to strengthen their market positioning if they are to develop strong partnerships and alliances with leading technology firms.*

**Keywords:** Web services, supply-side, integration, application service provider

## Introduction

Web services are emerging as a new paradigm for connecting business processes independent of their underlying implementation (Hagel 2002). Previously, consistent implementation was necessary to enable distributed application interactions. More recently, Web services enable the construction of new composite applications using business functions from other internal or external applications without being dependent on an implementation. Definitions of Web services vary. According to Smith and Andrews (2002, p. 13), "Web services are loosely coupled software components delivered over Internet standard technologies. A Web Service represents a business function or business service and can be accessed by another application...over public networks using generally available protocols."

Web services are designed to resolve the perennial problem of integrating disparate applications within or between organizations (Vidgen et al. 2004). They are emerging as a systematic and extensible framework for application-to-application integration. Built upon existing web protocols and open XML standards (Curbera et al. 2002), information can be seamlessly passed between remote applications running in different environments. This architecture paves the way for Web services to enable system integration at an affordable price (Iyer et al. 2003). Such a new distributed computing model is described as the next-generation of service-oriented Internet applications. Customer requirements for e-commerce, collaborative commerce (c-commerce), and interorganizational systems (IOS) are behind this drive toward integration. It is estimated that, by 2006, service-orientated development will change the way software is built, packaged, and sold by more than 80 percent of independent software vendors (ISVs); with new licenses for software that use Web services, standards will represent £21 billion in sales by 2005 (Smith and Andrews 2002).

This study reports the findings from research conducted in North America and the United Kingdom on the emerging Web services industry. Currently, there is a proliferation of Web services providers. Yet the market is immature with many firms formulating their corporate strategies to compete in this highly dynamic and volatile sector. From a background of disappointing results after the dot.com crash (Cassidy 2002), where the first phase of the software-as-a-service market was largely dominated by application service providers (ASPs) with "flawed business models" (Hagel 2002), this research focused upon the supply-side of Web

services. The relationship between ASPs and Web services firms is significant, particularly as many ASPs, having witnessed the downturn in their market, have relabeled themselves Web services providers. Drawing from three streams of literature, broadly defined as strategic management, e-business, and IT management, a theoretical model was developed incorporating four constructs: market positioning, partnerships or alliances, products and services, and integration. In this study, we use a survey methodology to explore the relationships between these constructs. This research contributes to the growing body of work on IT services within the information systems community on emerging technologies.

This paper is organized as follows. First, we discuss the theoretical background to the study and present our key constructs. Second, we present our research model and hypotheses. This model incorporates five hypotheses developed from the literature and interviews with technology sector firms. Next, we discuss our research methodology. Following this, we present our research findings. We conclude the paper by summarizing our findings and discussing implications for research and practice.

## Theoretical Background

A salient observation emerging from the dot.com downturn was that few firms emerged as market leaders (Cassidy 2002). Despite considerable financial investment in Internet start-ups and e-business initiatives of existing technology sector firms (i.e., from telecommunications firms, ISVs, etc.), the outcome was invariably disappointing. In the first phase of the ASP market, most service providers went out of business by 2001 having failed to achieve strategic differentiation as commodity-type offerings ignored the integration requirements of potential customers (Susarla et al. 2003). Strategic differentiation between firms is achieved through developing, mobilizing, and deploying a complex mix of firm assets, resources, and capabilities (Montealegre 2002). But this is complicated where firms competing in fragmented industries collaborate with partners to develop joint strategies, methods, tools, and techniques for maximizing the value of combinations of physical, human, and organizational resources. Such integration of resources can lead to the development of resources and dynamic capabilities, which can help the firm achieve a competitive advantage over other competing firms with similar individual assets and resources (Clemons 1986, 1991).

Like other firms, Web services providers must develop strategic differentiation by developing valuable assets, resources, capabilities, and competencies, which are not easily imitated by rival providers (Swinarski et al. 2002). Strategic differentiation may only be obtained by combining the different strengths of firms through developing strategic partnerships and alliances. Yet Web services providers may experience difficulties where antecedent paths and positions both help and inhibit their efforts (Sambamurthy et al. 2003). The market positioning of the firm is a consequence of prior strategic decisions about partnerships or alliances and product and service choices, combined with strategic choices to optimize current opportunities in the market place. The market position of the firm is, therefore, constrained and facilitated by these two factors (Grant 1991).

Market positioning is relevant to our understanding of the evolutionary paths and positions of e-business firms. From the late 1990s to the present, many ASPs evolved from hosted software delivery firms to self-styled Web services providers. This repositioning was largely a re-labeling exercise as the acronym ASP became associated with failure during the dot.com crash (Hagel 2002). Firms like Salesforce.com, Netledger, and Employease were all depicted as ASPs prior to the dot.com crash, but evolved into Web service providers. While the products and services portfolios of these firms were partly determined by their paths and positions, their ability to collaborate with other firms may also enhance their service offerings. Research and development activities shared among firms result in new products and services development (Grant 1991) that may also offer established players a new channel to market. Differentiation is obtained through exploiting these relationships by expanding customer choices, or through developing unique, value-added features built into products and services. Whereas most ASPs originally offered simple commodity products or services on a one-to-many basis, with poor customer adoption and diffusion, Web services firms realize they must offer a unique value proposition to customers.

Software application integration is perceived as the critical missing link between product and service portfolios and the ability of service providers to obtain strategic differentiation. Previously, the cost of integration has precluded many providers from undertaking this activity. With Web services, for example, 20 trading partners may use XML-based protocols (WSDL, SOAP, UDDI) to expose their internal systems to the exchange located on the extranet. This enables each trading partner to invoke, through the extranet, the unique software functionality offered to the exchange by each of the other trading partners. Each piece of software functionality resides within the extranet as a Web service, available for utilization by all trading partners.

Using Web service standards alleviates the need to write custom APIs to accommodate each of the 20 different computing platforms. Instead, each party complies with one set of Web service standards, thus reducing the cost of integrating with the

trading exchange. The success with which Web services providers and their partners enable their customers to reduce integration costs will significantly enhance their own strategic differentiation among competitor providers. From our review of the academic and practitioner literature, we contend that market positioning, partnerships or alliances, product and service portfolios, and integration are critical factors to the evolution of Web services.

## Research Model and Hypothesis Development

In this section, we develop a research model that depicts the complex relationship among market positioning, partnerships or alliances, product and service offerings, and integration offered by Web services providers (see Figure 1). Based on the model, we develop five research hypotheses to evaluate the influence of strategic factors on integration in Web services.

The logic of positioning demonstrates how superior firm performance is determined by the strategic position of the firm, and the extent to which it executes those positions through an integrated system of activities (Sambamurthy et al. 2003). The basic premise is that the firm has multiple options in positioning itself in the marketplace and it chooses one based on its strategy. Notwithstanding the antecedent paths and positions of the firm, firms can strengthen their market position through partnerships and alliances (Henderson 1990; Koza and Lewin 2000; Porter 1980). Strategic partnerships are likely to arise when performing an activity with a partner is superior to performing the activity internally (Faulkner and DeRond 2001; Porter and Fuller 1986).

The dynamic, yet fragmented, marketplace in which Web services providers compete is characterized by intense partnering and alliance activity, where providers jockey for position by entering into strategic relationships with a range of industry players (i.e., telcoms and networking firms, data center providers, independent software vendors, management consultancies, managed service providers, ASPs). What type of partnership and with whom they form partnerships depends on the market position of the firm. For large infrastructure providers, partnerships and alliances are sought to create a channel to market for the provision of software-as-a-service for new customer markets like SMEs (Weill and Vitale 2002). For start-up ASPs or Web services providers, partnerships and alliances are critical as they may lack the necessary IT infrastructure assets, resources, and capabilities to provision their products and services (Kern and Willcocks 2002). Within the strategic management literature, the relationship between strategic positioning and partnerships or alliances is perennial. It is no less relevant for our analysis of Web service providers, since this particular business model must be understood within the context of the inter-relationship between many different stakeholders. Web services providers will, therefore, need to consider the scale and scope of their partnerships or alliances. Attempts to engage with too many partners without strategic market positioning are fraught with risk, which may result in weak and/or unviable partnerships, leading to business failure (Cassidy 2002). Therefore, we hypothesize

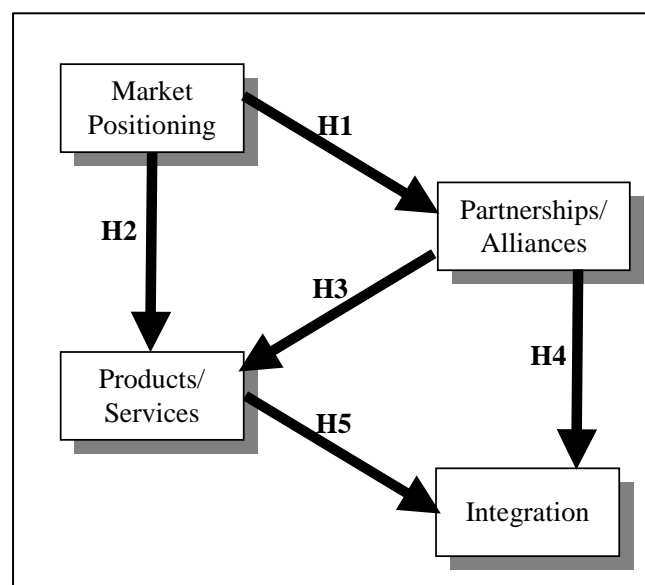


Figure 1. The Research Model

*H1: Market positioning positively influences the development of partnerships and alliances by Web services providers.*

In high velocity markets, products and services face accelerated obsolescence, resulting in the erosion of a firm's competitive position. This dynamic and unstable situation means that the only real source of competitive advantage is the ability to detect and seize market opportunities and respond consistently to changing markets by offering new products and services to create additional business value (D'Aveni 1994; Goldman et al. 1995; Peteraf 1993; Sambamurthy et al. 2003). Market positioning of the firm determines how the firm can leverage its existing product and service mix to effectively develop and offer new products and services. A firm with strategic market position can leverage its position to develop a wide variety of products and services for its clients.

Web services providers also operate in an unpredictable and unstable environment. They need to be prepared to recognize that product and service lifecycles have become increasingly time-compressed (Grant 1995). Many e-business firms have undergone product and service initiation to apparent maturity within only a few years. Time-compression requires a radical rethinking of market positioning and product and service portfolios (Cusumano and Yoffee 1998). A Web services firm has to constantly evaluate its market position and leverage it to develop products and services that help in developing strategic differentiation. Therefore, we hypothesize

*H2: Market positioning positively influences product/service offerings of Web services providers.*

Many Web services providers have entered into partnerships and alliances with large independent software vendors (ISVs) to become self-styled enterprise ASPs. Examples are Blue Star, Corio, and Usinternetworking. These providers offer network-based enterprise applications and services as their core business and enhance and develop resources and capabilities by working with leading ISVs. ISVs benefit by developing a new channel to market (Weill and Vitale 2001) by converting their best-in-class software products into a software delivery service aimed at the SME market (Currie and Seltsikas 2001; Patnayakuni and Seth 2001). ISVs such as J. D. Edwards, Baan, SAP, and Peoplesoft all partner with Web services providers to extend their product and services portfolios, either on a one-to-one model (where customer data is hosted on a single server) or a one-to-many model (where economies of scale are achieved through hosting customer data on shared servers). As Web services providers face intense rivalry and time-to-market pressures, their ability to seize market opportunities with speed and surprise (Sambamurthy et al. 2003) will influence their choice of partnerships and alliances with other industry players (Combs and Ketchen 1999). This, in turn, will influence the types of products and services offered to customers. Therefore, we hypothesize

*H3: Partnerships and alliances positively influence product and service offerings of Web services providers.*

Enterprise ASPs partnering with tier-one ISVs will seek to enhance their integration capabilities through a strategy of full service provisioning combining mission critical pre-integrated enterprise software with additional vertical solutions offered on a modular basis. (Vidgen et al. 2004). Customers derive value from a hosting model by eliminating costly integration development and efforts. A modular approach to infrastructure and applications deployment creates business value from scalable, end-to-end solutions. Web services enable a firm to connect its applications to any number of trading partners (Hagel 2002).

Stronger alliances and closeness in partnership increase trust among the partners and lead to a high degree of cooperation (Ring and Van de Ven 1992). Large-scale implementation of ERP systems imposes tightly coupled partnerships and alliances between customer and supplier (Sumner 2003). This situation may result in lock-in for the customer, as the cost of moving to alternative technology partners is too complex and costly to undertake (Shapiro and Varian 1999). A strategy of enterprise ASPs and ISVs is to integrate existing customer ERP systems with Web-hosted ERP modules. Strong alliances or partnerships with other complementary Web services providers and technology partners facilitate such enhanced integration. Therefore, we hypothesize

*H4: Partnerships and alliances positively influence the integration provided by Web services providers.*

Coupled with the forces at play between product and services portfolios and cost structures, the level of integration of software applications offered by Web service providers is integral to creating business value for the customer (Currie et al. 2004). Yet the complexity of software applications integration is a major challenge for Web service providers (Jhingran et al. 2002). Recent research indicates a requirement for ASPs to facilitate integration with the customer's existing IT facility to achieve "superior performance delivery, emphasize rigorous enforcement of SLAs, and ensure that their application meets standards of software capability" (Susarla et al. 2003, p. 111). Yet this is complicated by the issue of asset specificity, which refers to the degree to which firm software applications are specialized to the specific business processes. The greater the degree of asset specificity,

the less likely a firm will enter into an outsourcing contract with a third party supplier. The less asset specific the software application, the more likely it will be outsourced at reduced risk to the firm (Nam et al. 1996). Customers selecting a Web services solution will base their decision on how asset specific their software applications are in relation to their external and internal business processes. A highly complex trading system in a financial services setting will impose significant integration challenges for Web services providers compared with a simple travel and expenses software package.

Despite claims that Web services offer the potential to integrate systems across suppliers and customers, which has hitherto been less feasible than integrating internal systems, significant challenges remain. Unlike a point solution involving the integration of two applications, the integration of six applications is not a linear increase but an exponential one, hence,  $n$ -squared (Hagel 2002). The  $n$ -squared problem depicts the growing costs of complexity associated with integration. A client must, therefore, select the types of products and services according to the integration demands imposed by its business processes. Web services providers, in turn, will have to develop and offer products and services that enable levels of integration to meet the specific integration needs of their clients. A Web services firm with a wide variety of products and services will be better positioned to provide higher levels of integration for clients with different integration needs. Therefore, we hypothesize

*H5: Product and service offerings positively influence the integration provided by Web services providers.*

## Research Methodology

### *Instrument Development and Pretesting*

We developed a survey questionnaire to test the hypotheses, based on the four constructs of market positioning, partnerships or alliances, products and services, and integration, described in the research model. For each construct, the instrument includes six items (see Appendix A). These items were developed from primary and secondary data. First, an inductive-case study method was adopted. A lack of prior theorizing and empirical research about ASP and Web services suggested that an inductive case-study method was appropriate for theory development (Denzin and Lincoln 2000; Eisenhardt 1989). Interviews were conducted with technology sector vendors between June 2001 and December 2002. These interviews used a semi-structured questionnaire to elicit data and information from respondents about the evolving ASP and Web services markets. A total of 60 interviews were conducted (25 in the United States and 35 in the United Kingdom). The job titles of respondents varied, but all were engaged in business development of software-as-a-service products and services. Job titles included CEO, CIO, business development manager, IT director, implementation consultant, channel manager, software services manager, and marketing/sales manager. Throughout this pilot study phase, the technology sector was evolving fast. By June 2001, the ASP market was in free-fall, with numerous firms having ceased to exist. Those that survived largely abandoned the term *ASP* in favor of *Web service provider*. Second, desk-based research was conducted where over 1,000 company brochures, reports, and press releases were obtained from the Internet, at trade fairs, conferences, and exhibitions. This material proved invaluable for gaining a greater understanding of the market positioning and products and services of the firms.

Based upon this extensive background research, the survey instrument was developed. Under each construct, six statements were developed to elicit responses ranging from strongly disagree to strongly agree. The instrument was pretested with over 50 providers in the United Kingdom and the Silicon Valley area. The respondents were asked to complete the questionnaire in the presence of a researcher. This was deemed necessary since it would allow interaction to clarify the meaning of terminology and strengthen the quality of questions. Since the survey instrument was developed for the vendor market (as opposed to the customer market), incidences to clarify the definition and meaning of terms were not common. These respondents are not used in the study data analyses. This pilot testing enabled us to fine-tune the wordings in the instrument and to assess importance of the questions in the overall questionnaire.

### *Survey Administration*

Following some fine-tuning of the survey instrument, the data collection phase lasted nine months (January to September 2003). A decision was taken not to administer a mail survey for two reasons. First, the turbulence in the technology sector suggested that traditional IT databases containing the names and addresses of firms would be unreliable. Second, the response rate from a questionnaire survey of over 20 questions was not expected to be high. It was, therefore, decided to select firms that were active in marketing their technology products and services at trade fairs and exhibitions. Researchers attended five trade fairs and exhibitions in the United Kingdom and the Silicon Valley over nine months. This proved to be successful as respondents were

keen to participate in the questionnaire survey as all were actively engaged in developing Web-based products and services. Firms were represented in the following technology subsectors: telecommunications, ISVs, networking and data centers, ASPs, Web service vendors, Internet security firms, and enterprise resource planning vendors. From a potential 217 respondents, 190 agreed to complete the questionnaire. The remaining firms declined to participate for the following reasons: 15 = too busy; 7 = Web services is not part of main business activity; 5 = company policy not to participate in survey research. Of the 190 responses, over 70 firms asked to receive a synopsis of the results as they believed the study to be relevant to their business.

## Results and Discussion

We used structural equation modeling (AMOS version 5.0) to analyze the data and test the research hypotheses. AMOS uses maximum likelihood to estimate model parameters and overall fit of the model. The initial model with six observed items on each of the four latent constructs did not perform satisfactorily. Some observed items showed a low level of loading with the underlying construct. Most of the key fit indices were below the suggested value. We went through several iterations to improve the model fit using the procedure recommended by Segars and Grover (1993) of dropping one observed item that did not pass the convergent validity tests in each successive iteration. Through these iterations, we purged three items out of the original six items on two constructs (items MP3, MP4, and MP5 in Market Positioning and PA3, PA5, and PA6 in Partnership/Alliances) and two items on the other two constructs (items PS5 and PS6 in Products/Services and I4 and I5 in Integration). We also dropped two significant items (PS1 and I1) that reduced each construct to three items to improve the overall fit without sacrificing discriminant validity as suggested by Chin et al. (1997). We statistically tested the items selected in the final model to ensure that they are reflective in nature (Chin 1998). We found all items within each constructs to have significant correlation ( $p < .01$ ), except MP2 and MP6, which had correlation with p-value equal to exactly 0.01. The low number of significant correlations between items from different constructs and the high number of significant correlations between items from the same construct also ensured high construct validity.

We also evaluated the final model for convergent validity. We used confirmatory factor analysis (CFA), because CFA enables a specification of the exact relationship between the common factors and the items used to measure them, instead of merely specifying the number of components and items to be analyzed (Chin et al. 1997). Each construct in the final model was evaluated independently and we found each constructs to have good fit as per most of the goodness-of-fit indices (except for the chi-square measure due to the high sample size). Figure 2 shows the final model with the significant items and their standardized regression weights.

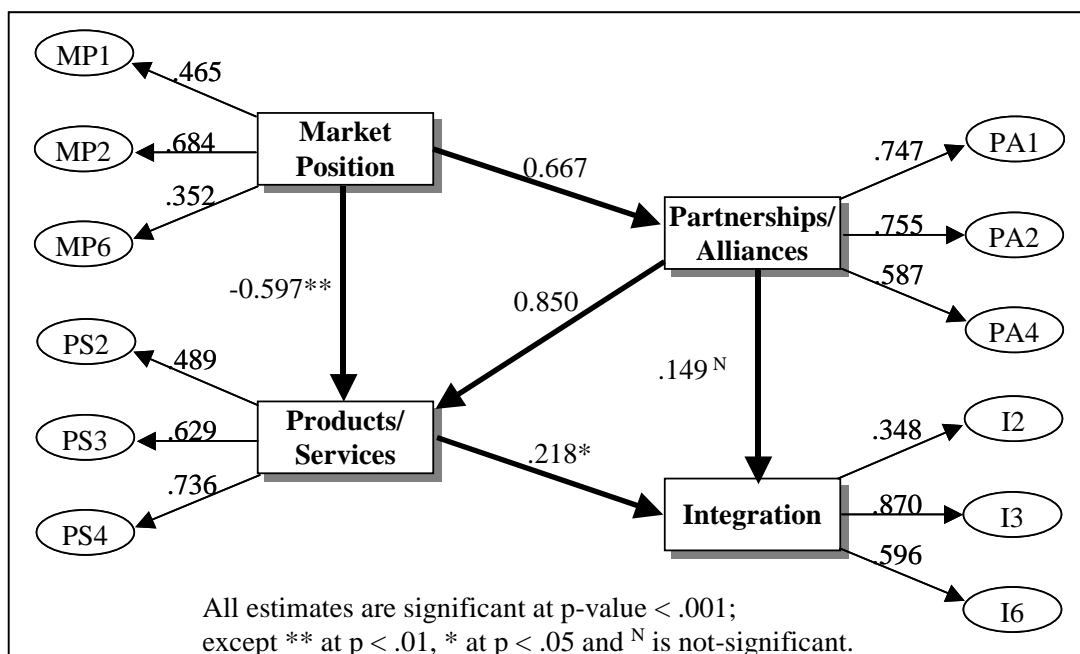


Figure 2. Results

**Table 1. Model Fit Indices**

<b>Goodness-of-Fit Measure</b>	<b>Suggested Value*</b>	<b>Observed Value</b>
Chi-square		82.84
Degrees of freedom		46
Chi-square p-value	$\geq 0.05$	.000
Chi-square/Degrees of freedom	$\leq 3.0$	1.80
GFI: Goodness of fit index	$\geq .90$	.936
AGFI: Adjusted goodness of fit index	$\geq .80$	.886
NFI: Normed fit index (delta 1)	$\geq .90$	.862
NNFI: Non-normed fit index	$\geq .90$	.930
CFI: Comparative fit index	$\geq .90$	.927
RMSEA: Root mean squared error of approximation	$\leq .10$	.068
*Suggested values from Chau 1997; Chin et al. 1997; Gopal and Sanders 1998; Hartwick and Barki 1994; Segars and Grover 1993		

We obtained the chi-square statistic for the final model to test the plausibility of the model. It was 82.84, with 46 degrees of freedom and p-value of less than 0.05. This significant value of chi-square at the first-glance suggests that the data does not fit the model. However, chi-square has been found to be sensitive to sample size; in large samples, chi-square will always be significant (Hartwick and Barki 1994). In this study, the sample size of 190 observations for only 4 constructs, 5 relationships, and 3 paths seem to have clearly influenced the significance testing. So for a more appropriate analysis of the fit, we instead used multiple goodness-of-fit indices (see Table 1). On most of the indices, the model seems to perform better than the suggested values (Chau 1997; Chin et al. 1997; Gopal and Sanders 1998; Hartwick and Barki 1994; Segars and Grover 1993). Thus, we conclude that the data fit well with the model.

The final model has five hypothesized (and one additional) relationships. We found the relationship between market positioning and the development of partnerships and alliances to be significant and positive confirming H1. This suggests that Web services firms with strong market positioning were more likely to develop strong partnerships or alliances. This confirms existing studies showing that firms with unclear and unstable market positions are unlikely to attract the support of leading industry players to develop strong partnerships (Brynjolfsson and Urban 2001).

We found the relationship between market positioning and products and services offered by Web services providers to be significant but negative. This does not confirm H2. This unexpected finding suggests that the providers with strong market positioning were more likely to offer software applications as products rather than services. For example, many large ISVs, while interested in the pay-as-you-go (subscription-pricing) model for software delivery, were reluctant to change their traditional pricing models (i.e., software license + maintenance fee) to enter the immature and unstable software-as-a-service market. The decision to support a new customer-base (i.e., small and medium enterprises) would involve major changes to existing business models with few possibilities to mitigate risk. Many ISVs, particularly in the ERP area, had little experience working with small firms. Further, profitability from working with small firms was only generated by adopting a one-size-fits-all software delivery model. The difficulty of changing market positioning to seek new opportunities for revenue generation from e-business is well documented in the literature (Rangan and Adner, 2001). Leading ISVs were, therefore, less likely to develop Web-enabled products and services for new customers if it meant diverting energy from their existing customer base.

We found that the relationship between partnership or alliance and products and services offered by Web services providers to be significant and positive, confirming H3. This suggests that the Web services providers with strong partnerships and alliances were more likely to develop products that closely match the needs of their customers and more likely to offer software applications as services rather than products.

We found that the relationship between partnership or alliance and integration provided by Web services firms to be non-significant. This does not confirm H4. This finding suggests that the Web services providers with strong partnerships or alliances



may not necessarily choose to customize and integrate their software application products. We found the relationship between products and services offered and integration provided by Web services firms to be significant and positive, confirming H5. This suggests that the providers that offer their software applications as services and match their application to the needs of specific customers were more likely to provide a higher level of integration to their customers.

Analyzing three possible paths to integration, we found only one path to be significant. Market positioning does not have a direct effect on the products and services offered by and integration provided by Web services firms. However, it significantly influences partnerships or alliances developed by providers, which in turn significantly influences products and services offered by Web services providers. Partnerships or alliances do not directly influence integration provided by a Web service provider, but their influence is through products and services offered by providers.

## Conclusion

Findings from survey research indicate that market positioning of Web service firms is a significant prerequisite for developing strong partnerships or alliances with other technology providers. This supports existing studies which confirm that service providers with poor market positions are unlikely to attract leading industry players for collaboration to enter new markets (Henderson 1990). A salient finding was that service providers with strong market positions were more likely to offer software applications as products rather than services. This confirms studies which indicate that service providers, particularly ERP vendors and niche ISVs, are unlikely to change their business model (i.e., licensing practices) if they remain profitable (Shanks et al. 2003; Weill and Vitale 2001). As the first phase of the ASP market has shown, customers with existing relationships with technology suppliers are unlikely to move to a hosted model of software delivery unless it offers a unique value proposition (Hagel 2002). Yet, most ASPs failed to deliver customer value, realizing that Web-enabled delivery alone needed to be reinforced by additional features, such as enhanced integration of software applications (Susarla et al. 2003). Since many ASPs have now relabeled themselves as Web service vendors, the challenge of integration may be key to their survival (Smith and Andrews 2002). However, those with strong partnerships or alliances may not need to offer customers extensive integration, particularly if they are able to provide support services aligned to their technology partners. Currently, many Web service providers partner with leading ISVs (i.e., J. D. Edwards, Siebel, Peoplesoft). Conversely, Web service vendors without strong partnerships or alliances must seek to offer products and services with integration attributes to match the needs of customers if they are to achieve strategic differentiation from their rivals.

This research has implications for both academics and practitioners. For academics, it offers an empirical study on the strategic factors influencing Web services drawing from constructs used in the strategic management, e-business, and IT management literature streams. It further adds to supply-side studies on the adoption and diffusion of software applications where there is limited empirical research (Levina and Ross 2003). For practitioners, the study offers insights into the relationships between key constructs (market positioning, partnerships or alliances, products and services, integration) that are critical for developing Web services. By operationalizing these constructs to explore their interdependencies from a vendor perspective, we contend that our study offers some interesting insights on the challenges facing Web service providers, which, if met, may avoid some of the earlier dot.com failures.

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## Appendix A

		Strongly Disagree	Strongly Agree
<b>Market Positioning</b>			
MP1	The first wave of ASPs (1999-2001) was largely unsuccessful because ASPs did not adequately position themselves to succeed in their target customer markets.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
MP2	ASPs/Web service providers should target large/midsize firms more than SMEs.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
MP3	ASPs/Web service providers should target SMEs only.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
MP4	Independent software vendors (ISVs) will all move to the software-as-a-service (rather than product-based) delivery model.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
MP5	Ownership of the customer is one of the main goals of service providers in the software-as-a-service delivery model.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
MP6	Channel conflicts arise if ISVs use third party ASPs/Web service providers as the delivery channel to customers.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
<b>Partnerships/Alliances</b>			
PA1	The first wave of ASPs (1999-2001) was largely unsuccessful because ASPs did not develop strong partnerships/alliances.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PA2	ASP/Web service providers will only attain market leadership by forming partnerships/alliances with industry leaders.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PA3	Partnerships/alliances are critical to the software-as-a-service delivery model.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	

		Strongly Disagree	Strongly Agree
PA4	ASPs/Web service providers should outsource all their non-core IT work to third parties (i.e., data centre providers, networking firms, systems infrastructure ISV).	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PA5	The majority of partnerships/alliances formed by ASPs/Web service providers are unstable.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PA6	Partnerships/alliances are difficult to manage for ASPs/Web service providers.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
<b>Products/Services</b>			
PS1	The first wave of ASPs (1999-2001) was largely unsuccessful because ASPs did not develop products/services to meet customer requirements.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PS2	Software applications offered as-a-service rather than a product will become the primary delivery model for SMEs over the next five years.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PS3	Enterprise ASPs (i.e., offering enterprise resource planning; customer relationship management; supply chain management software, etc) will continue to expand their SME customer base.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PS4	Web service providers (i.e., offering accounting; human resources; travel and expenses, etc) will continue to expand their SME customer base.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PS5	The customer market for commodity/undifferentiated software products/services will continue to expand.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
PS6	The Product/service portfolio will strategically differentiate the ASP/Web service provider from its rivals.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
<b>Integration</b>			
I1	The first wave of ASPs (1999-2001) was largely unsuccessful because ASPs failed to meet customer requirements for customization/integration of software applications.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
I2	Enterprise ISVs (i.e., JDEdwards, Baan, Peoplesoft, SAP) will need to customize their products/services before they can further penetrate the SME market.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
I3	The integration requirements of SME customers will lead to an expansion in business process outsourcing.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
I4	Customization/integration is not a major priority for SMEs in adopting the software-as-a-service delivery model.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
I5	Commodity/Undifferentiated products/services will not be integrated with legacy software applications at customer sites.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	
I6	Customization/integration will strategically differentiate the ASP/Web service provider from its rivals.	1 ... 2 ... 3 ... 4 ... 5 ... 6 ... 7	

