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eOperational Model: Correlating x-Service Provision to the IT/IS Function for Innovation and Alignment

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Abstract

The Application Service Provision (ASP) business model can be exploited by organisations to tap into ready-made source of innovation. The ASP business model addresses a range of IT/IS services and markets: this is expressed by the ASP taxonomy that varies with the grouping of the value chain.

On the other hand, the IT/IS infrastructure required for electronic business models can be complemented or replaced by an ASP offering. This is a synergistic combination for co-evolving the business and the IT/IS infrastructure for greater alignment and innovation across and around the business. The ASP becomes a Meta model to e-business enterprises.

The analysis of IT/IS needs for electronic business models delineates a new strategic partnering path that is required for innovation whilst maintaining an electronic enabled operational environment. The analysis reveals important issues for the management of ICT for e-business, and opportunities for ASP/xSP firms.

Keywords: ASP, Atomic e-business models, IT/IS infrastructure, innovation, integration.

1. Introduction

The business and IT/IS academe literature and, in fact, many senior business and IT managers support that the expression ‘e-business’ is a transitory term to explain current changes and challenges in integrating real time, online transactions across the business. Amongst these challenges are those of managing ICT (IT/IS infrastructure) of e-business initiatives.

It is essential that firms put into operation quickly new e-business ideas, and react equally fast to the new business needs generated by the novel source of knowledge flow it creates (Prahalad and Krishnan 2002, Quinn 2002, Reich and Benbasat 2000). Given the nature of e-business models, it depends primarily on a reliable technical infrastructure (Weill and Vitale 2002). Despite the coupling of e-business models to the IT/IS infrastructure

being very tight, it is only sustainable and viable through sound governance to allow economies of scale and scope, otherwise innovations and revenue are dispersed, devalued and disintegrated before reaching their market potential (Prahalad and Krishnan 2002, Quinn 2002, Reich and Benbasat 2000). In this paper we argue that by adopting IT/IS outsourcing solutions based on the ASP model organisations will benefit from the economies of scale and scope created by the ASP supplier whilst rationalising the integration of the business and IT/IS function via market contracting.

If best outsourcing practices are observed and deployed to the client-supplier relationship then organisations can benefit both from potential innovations and consequent revenues of successful businesses. In this paper, we argue that this client-supplier relationship forms an e-operational model supporting strategies and facilitating integration and innovation.

Over the last two decades some changes have been made to the centralised governance of IT/IS function: IT remained centralised in the IT function caring for basic software and hardware and the IS have shifted to the business unit. Later, with the dissemination of local networks part of the basic software and hardware came under the shared custody of the IT function and several business units (Agarwal and Sambamurthy 2002, Chan 2002, Reich and Benbasat 2000). With the advent of electronic activity, a new layer of technical infrastructure is required, not only fully integrated to all parts of the business, but also allowing alignment and innovation within, across and around the business.

Research by Weill and Vitale (2002) shows that “most firms require significantly more and different infrastructure services today than a few years ago”. This research has furthered other questions by proposing an IT infrastructure that deals with greater externality and increased contribution. Both factors, greater externality and increased cooperation, combined are pushing firms to market test commodity services and to outsource them.

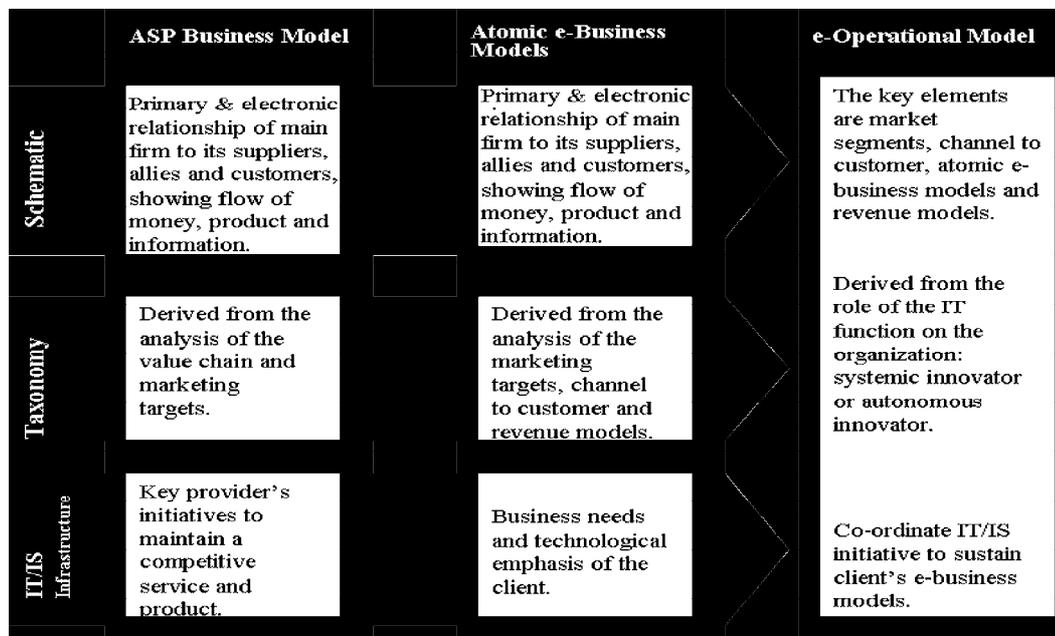


Figure 1: Structure of This Paper

First, we introduce the concept of ASP illustrating the ASP ecosystem through an e-business notation. Next, we argue that the ASP taxonomy is related to the organisation of

its value chain. The concept about the ASP ecosystem and its taxonomy results from a wider study being carried by the ALTERNATIVE project that has as its objective to “provide European SMEs with a web-enabled tool to manage risk assessment with respect to the deployment, hosting and integration of business-critical information systems by application service providers” (ALTERNATIVE 2001).

Subsequently, we explore the IT/IS infrastructure for the electronic business model proposed by Weill and Vitale (2001, 2002) and correlate their IT/IS needs to the ASP taxonomy. Finally, we argue that this combination brings together a workable electronic model for co-evolving business and IT/IS infrastructures for greater alignment and innovation across and around the business.

This paper demonstrates that firms will not only gain from outsourcing due to economies of scale and scope, but also because of the benefits gained from aligning IT/IS to the business and from co-evolving them to intensify innovation. This paper is based on a combined commercial and academic research carried in the University of Surrey in the area of application service provision (ASP) and it is sub-divided in three main sessions.

1.1 Research Approach

This study took place within the context of the ALTERNATIVE project (ALTERNATIVE 2001), which has as primary objective to identify and to understand the issues that will facilitate the use of ASP services in European organisations.

The ALTERNATIVE consortium has been surveying the ASP space since the middle of 2001 to present. The initial survey, “Growth of ASP” aimed to provide a body of research about Senior Management perceptions and intentions for ASP. It gauged the level of interest on the ASP model and the level of activity of ASP companies. Amongst the results, the analysis showed that Senior Management had a high awareness of the generic conceptual benefits of the ASP model although just a few enterprises had developed a strategy for ASP. The ASP marketing level was not high as only a few of those companies reported being approached by ASP vendors.

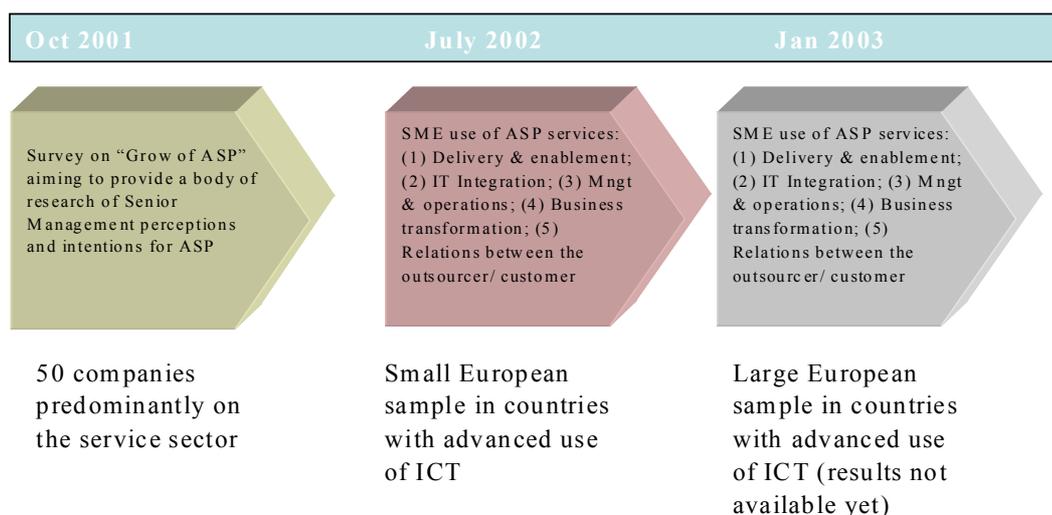


Figure 2: ALTERNATIVE Consortium Studies

As part of their investigative work, the ALTERNATIVE Project team mapped the variation on technical infrastructure of ASPs, which is determined by their products and services. For instance, a basic offer of back-up or storage services will not require extended enterprise architecture which, in contrast, is essential for ASPs offering ERP applications as a service (ALTERNATIVE 2002b). The ASP taxonomy is mainly determined by the service offered, a point that is examined in greater detail at section 2.1 – *A Brief Explanation of the ASP Taxonomy* - given its importance and the fact that business and IT Senior Managers respondents did not know these concepts which are key to the ASP selection.

Not surprisingly, amongst the types of applications considered by these companies were those applications related to e-commerce, e-procurement and online payment. Nevertheless, despite the interest, the recognition of the strategic purpose of the ASP model and confidence on it in terms of reliability and delivery, the majority of these organisations expressed concern about losing control over core applications to an ASP vendor.

At operational level, more than half of respondents were positive about the fact that the ASP lowers the total cost of application provisioning; for almost half percent of respondents the rate of business growth and adaptability is constrained by IT, therefore improvement in security, scalability, flexibility, speed to market of IT services should improve business growth. The results of the survey conveyed the perception that legal contracts and service level agreements would assist in improving the level of IT/IS services to the business.

In summary, the survey found that there were concerns of loss of control, threats to data security and poor performance that could hinder the ASP market growth. Business benefits appear limited, with the costs of IT provision being re-shaped rather than released. However, it was believed that ASP based services will allow SMEs' to compete effectively with large organisations.

The second study (ALTERNATIVE 2003a), structured interviews with a small sample of German SMEs aimed at understanding the critical issues of outsourcing to SME companies in term of their assessment of: (1) Delivery and enablement; (2) IT Integration; (3) Business transformation; (4) Management and operations and (5) Relations between the outsourcer/customer. Those categories were also part of the scope of the initial study referred to above. Although it is not feasible to present the extensive analysis of this study in this paper, it should be sufficient to highlight the following findings:

In the area of **delivery and enablement of IT services**, the ability to migrate all existing customer data prevailed over product portfolio (end-to-end software solutions), a key area for the management of *Data & Knowledge* and for the alignment and integration of new e-business into organisations.

The argument is strengthened by the results obtained on **IT Integration** and *application management*. Results of the study suggest that integration issues, at application and organisational level, had the greatest impact upon customers' outsourcing decisions. "The results of the study indicated that prior to outsourcing IT initiatives, the majority of companies surveyed were not fully aware of the necessity of having some level of understanding of their organisational business processes, in order to integrate IT capabilities within business functions to support the processes and to fully exploit the business opportunities that existed" (ALTERNATIVE 2003a).

The study showed, in the area of **business transformation**, that organisations are increasingly seeing IT as a Service and that outsourcing through the ASP model offered opportunities to become more competitive by having access to the latest technology.

In the category of **management and operations**, client's companies showed a remarkable interest in quality aspects over quantitative/ cost aspects and in "strategic issues such as optimisation of the platform for the company e-commerce strategy" (ALTERNATIVE 2003a).

Finally, for **relations between the outsourcer and customer**, the study suggest that after a company engages in an outsourcing, if there is an acceptable level of services, than there is a strong inclination to continue with the partnership or with the sourcing approach.

Amongst other issues on ASP, the ALTERNATIVE studies identified the importance of the outsourcing governance and continuity for both suppliers and clients; and the recognition of the importance of IT integration at application and organisational level (2001, ALTERNATIVE 2002b, 2003a). These topics have been furthered by combining these finds with the research and analysis carried by Weill and Vitale (2001, 2002) on the internal IT infrastructure. It gives continuity to the research into ASP as a Meta electronic business model that enables other electronic business models, therefore ASP is seen as a key participant in firm's operational activities.

2. Application Service Provision Business Model

Application Service Provision (ASP) is the central contractual node of the value chain of service provision, offering to deploy, host, manage, and rent access to applications from a centrally managed facility or facilities.

The broadest definition of ASP is that provided by the ASP Consortium (2002): "Application Service Providers deliver and manage applications and computer services from remote data centres to multiple users via the Internet or private network". An enlarged definition from the ALTERNATIVE report (ALTERNATIVE 2002a) describes an ASP as 'an organisation that delivers via the Internet a specific functional service to a variety of users to a contracted service standard for agreed fees'. Thus, ASP may be seen as a sub-sector of the IT application outsourcing marketplace, representing a new style of outsourcing which empowers third party suppliers with the ability to implement, manage and deliver application capabilities to multiple entities from hosting data centres across a wide area network. Any definition of business models should be complemented by their potential benefits to customers including: (1) focus on core competencies of the business; (2) faster deployment of new business applications; (3) control of cash flow and software costs and (4) simplification of IT/IS operational processes.



Figure 3: ASP Business Model Schematic Diagram

The ASP, as part of the electronic business model generation, shares many traits of those of the Media Business Model (ALTERNATIVE 2002a, Lechner and Schmid 1998); it defines the major benefits proposed or needs identified in the market and it describes the relevant business community motivation to fill a market gap. For instance, the ASP business vision is implemented through services, transactions and infrastructure and is, therefore, capable of equipping organisations with relevant IT/IS assets, knowledge and of enabling resources for innovation.

The ASP business model schematic (figure 3) contains several components. The scheme shows the boundaries of the firm by differentiating between external and internal partners. In this instance, external partners are the ISVs, the resellers, and storage and networked services. It accounts for the service to be provided by assisting with the identification of the business function(s) to be provided and it integrated with the client's organisational operation, including any organisational activity that can be informative and able to be delivered over the web. The choice of type of business activity is a matter of opportunity and/or marketing strategy.

Through the ASP business model each customer relationship is regulated by a contract and service level agreement retaining the three key assets of the service provider's customer: relationship, data and transaction. (Weill and Vitale 2001, Weill and Vitale 2002). The model illustrates two levels of relationships. The first level shows the ASP as the firm of interest, or "the organisation whose business model is illustrated by the schematic" (ibid). The ASP is represented with key aspects of its internal chain, its suppliers and allies, and its customers. Customers are extended and represented by their

e-business models (Direct to Customer, Intermediary, and Content Providers) and they represent the second level of relationship, and are shown as a firm of interest.

The objective of super imposing both firms of interest is to highlight the fact that while the ASP provides the IT infrastructure, it also acts as an enabler or Meta model to other enterprises. Consequently, this correlation needs to be applied to the interpretation of all other components of this schematic. As a result, two distinct sets of customers were depicted: (1) the ASP clients and, (2) the e-business clients.

The ASP, as the supplier organisation for the e-business model is depicted in the schematic and provides goods, services, and information through its network of suppliers. As in most contractual cases, there is a flow of money from the customer to the firm of interest.

The schematic depicts two kinds of customer relationship: the primary relationship and the electronic relationship. The primary relationship is, in the case of ASP, generally governed by a legal contract and service level agreement. Weill and Vitale (2001, 2002) suggest that the firm with the greatest potential to own the customer relationship has clear advantages over others. "Owning the customer relationship provides the firm with the opportunity to know the largest amount of useful knowledge about the customer".

The flow of information can be depicted as one-directional or bi-directional flow, depending on the information use. For instance, for business-to-customer (B2C) models, the flow of information is from the firm of interest to the customer and it plays a vital role in guiding customers. Optionally, for business-to-business (B2B) the stream of information flows from the customer's transactions to the firm of interest informing the firm of interest about their client's services, products, and customers.

The flow of money is "one-directional flow" indicating "a payment from one party to another, in exchange for goods, services, or information. Often there is a flow of product in the opposite direction"(ibid). The flow of product is also a "one-directional flow, which indicates a transfer of physical goods or digital products from one party to another. Often there is a flow of money in the opposite direction" (ibid).

The four main dimensions depicted on the schematic of Figure 3 form the main structure of this article. The first dimension is the value chain from which is derived the next dimension, the taxonomy of the ASP model. Following a brief overview of the ASP taxonomy, we discuss the third dimension: the e-business models composition (atomic e-business models) and their IT/IS needs. Lastly, we correlate IT/IS needs of the e-business model to the ASP taxonomy.

2.1 A Brief Explanation of the ASP Taxonomy

The type of service provision determines the composition of the chain and its capacities, therefore describing a taxonomy. A brief overview of the taxonomy will be given to aid the correlation of ASP to e-business models. The services and products that an ASP firm can offer is limited to its IT/IS infrastructure.

The ASP taxonomy expresses the business vision, the shape and composition of the chain (Figure 4) and the transaction services proposed to customers. Academic and industrial analysts, (Currie and Seltsikas 2000), (CherryTree&Co 1999, CherryTree&Co 2000a, CherryTree&Co 2000b), (Cushing 2001), (Delaney, Walsh, Oawsey and Walton 2001), (Dutton and Wentworth 2001) abstracted the taxonomies so far developed based on the ASP offerings observed in the market place. The variation of definitions exemplifies the

strength of the business model and its rapid evolution in response to marketing challenges, new technologies, and process optimisation.



Figure 4: ASP Taxonomy (ALTERNATIVE 2002a)

In the arena of service provision, there is a categorisation reflecting the value chain and infrastructure; and this includes, at present, horizontal, vertical, pure-play, enabler, full-play, managed service provider, storage service provider, network service provider. As in the atomic e-business model of Weill and Vitale (2001, 2002) the smallest ASP composition is the delivery of a service over the Internet, common to all types of ASPs.

As demonstrated above, the ASP model has a wide set of service provision to support electronic business models. Focused on one or more aspects of the IT/IS infrastructure, including the e-application, they can play an important role on strategic partnering for building and maintaining a sustainable electronic operational model. This is the main point of the next section.

3. eOperational Model for Alignment and Innovation

To get a responsive IT infrastructure, research shows a requirement for not only collaboration and participation of senior business managers and senior IT professionals (Chan 2002, Prahalad and Krishnan 2002, Quinn 2002, Weill and Subramani 2002, Weill and Vitale 2001, Weill and Vitale 2002), but also from external providers. These

companies add value by participating either with edge or commodity technology (Das 2000, Duysters, Kok and Vaandrager 1999, Teece 1988).

Following a research study of on more than 50 organisations implementing e-business model, Weill and Vitale (2001, 2002) envisioned nine areas of infrastructure service, totalling 70 sub-services. We argue that could be advantageous for organisations implementing e-business models to outsource one or more of the sub-services through the ASP model.

3.1 The IT/IS infrastructure for e-Business Models

We grouped the cluster services identified by Weill and Vitale (2001, 2002) for e-business models in terms of (1) the relationship between providers and clients; (2) the key provider's initiatives to maintain a competitive service and product; (3) the co-ordinated initiatives to sustain client's e-business models.

In the first category, illustrated by Figure 5, there is the relationship between providers and clients. This is the main sub-service is the *IT Management Services and Facilities*. It is a key area for the relationship between providers and firms, including the organisation and negotiation of strategic, business and operational issues. The network relationship between supplier and client is best co-ordinated through account management. Research data shows that Senior Management has clear and articulated understanding of this area (ALTERNATIVE 2003a).

Within the second category, the key provider's initiatives is to maintain a competitive service and product, mainly centred in three sub-services: (1) *risk management and security*; (2) *applications management*, (3) *communication management* and (4) *IT-architecture and standards services*.

Risk management and security is considered the most important step into outsourcing (ALTERNATIVE 2002a). With the integration of several electronic channels and the need to build up trust with customers and partners, and to protect the brand, revenue streams and assets of the firm, collaborators need to establish the acceptable risk level of their in-sourcing and outsourced activities. *Risk management and security* concerns should be extended through continuous auditing. By implication, a firm's risk exposure should decrease over time. Amongst the main contributions of the ALTERNATIVE project to the SMEs community is a web-enabled tool (ALTERNATIVE 2003b), which has as an objective the assisting of Senior Managers in understanding risks and opportunities associated with the adoption of ASP.

Applications management becomes the focus of the overall negotiation, as prior to the provision of application software over the Internet, providers and clients need to assert and address the client requirements, customisation issues, and the integration to the client's application portfolio. Research by the ALTERNATIVE project confirms that this is a key issue for organisations of all sizes since there is evidence that electronic activities have been implemented without due concern either for integration or business transformation.

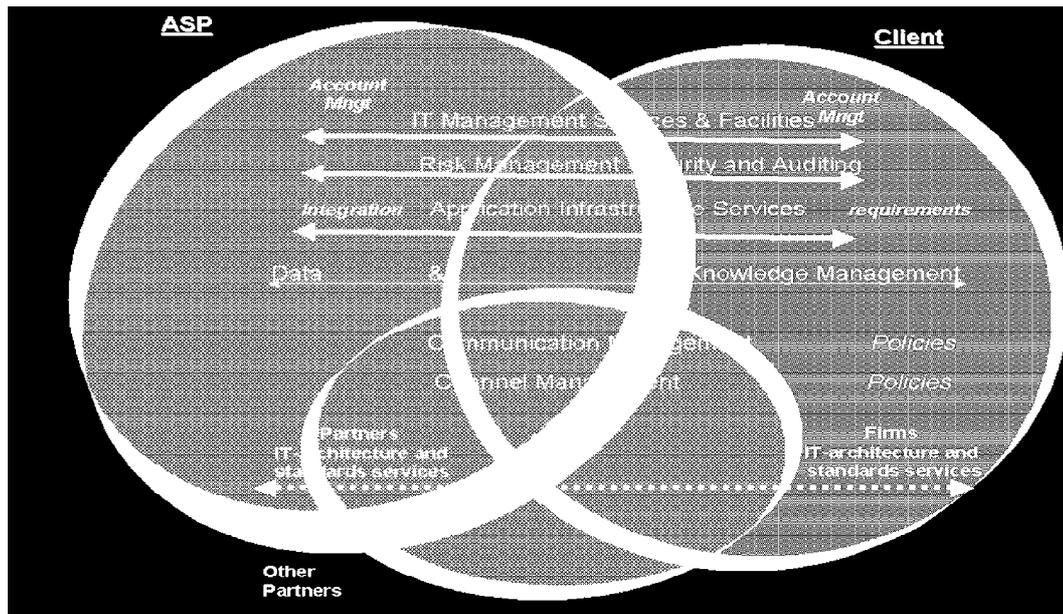


Figure 5: Relationship between ASP's, IT/IS Components and Client Organisations

Communication management and *IT-architecture and standards services* together form the infrastructure to operate transactions. *Communication management*, central to electronic interactions between customers and partners, includes private and public networks and all issues related to data distribution and protection. The *IT-architecture and standards services* of the provider, needs to be flexible and scaleable, and constantly evolving. The ASP IT architecture and network need to be constantly upgraded to enable offering of facilities and components, which allow strategic experimentation of new e-business models, new revenue streams, new partners, and new channels. Findings by the ALTERNATIVE Consortium in the area of management and operations, and business transformation suggest that, once the outsourcing is established, the client organisation has a great interest in having access to advanced technology through the vendor's facilities.

In the third category are the co-coordinated initiatives to sustain the client's e-business models, in which the client will deploy business assets emanating from its customer, i.e., relationship, data and transaction. The related sub-service, *data and knowledge*, and channels to customers, in association with other sub-services, form the basis of exploiting the assets of the customer, in addition to being a notable source of innovation (Afuah and Tucci 2001, Weill and Vitale 2001).

Data and knowledge management services are key to alignment and integration (Chan 2002), (Ghoshal and Gratton 2002). Ideally, *data and knowledge management* services are controlled independent from business applications, generating a knowledge that, once distributed, contributes for the business alignment of the organisation. Given the importance to the client organisation, it should be co-ordinated where it is used, within the client sphere. The importance of *data & knowledge* for integration and alignment is corroborated by the ALTERNATIVE (2003a) findings in which organisations displayed great concern with the quality of data migration and IT integration at the application and organisational level. The logic behind the concern is very simple: amongst other factors; quality, structure and coherence of data are prerequisite for the integration of applications and for the alignment of the businesses process that they support.

Channel Management as the management and integration of electronic channels (Call centres, POS, web sites, mobile kit) is a source of innovation (Afuah and Tucci 2001,

Rappa 1999, Weill and Vitale 2001) and because it involves several providers its success depends on their cooperation in bringing about the inter-operation of their products.

Having examined (1) the types of services and products offered by ASPs and (2) the IT/IS services required for electronic business model; next, we will discuss what type of ASP service is suitable for each of the atomic electronic business models.

3.2 Correlating ASP Taxonomy to eBusiness Models

Electronic business models are determined by the organisation of their information and technological infrastructure. Their durability and sustainability is dependent on how partners collaborate to maintain their shared alignment whilst innovating in a very competitive market space.

Analyse carried out by Weill and Vitale (2001) conveys that the build up and maintenance of the IT/IS infrastructure are the most critical risks of implementing electronic business models. Equally difficult, is to sustain it through the required changes and upgrades: “the conjunct social effort in investing on infrastructure enables investment to move from IT infrastructure to the business challenges and requirements” (ibid).

Table 1: ASP Taxonomy versus Atomic e-Business Models (Based on Weill and Vitale (2002) research)

ASP Taxonomy		Horizontal	Vertical	Pure Play	Enable	Full Play	MSI	SSF	NSI
Atomic e-Business Models									
Direct Custom	IT Mngt Service Infrst/r	v	RP				C	C	C
	Application Infrs/r	v							
	Risk Mngt & Security	*	The Direct to Customer provides goods or services directly to the customer, often by passing traditional channel members.						
	Data & Knowledge Mngt	v							
	Communications Mngt	v							
	Channel Mngt	#							
	IT Architecture & Stds	#							
Full Serv	IT Mngt Service Infrst/r	v	RP				C	C	C
	Application Infrs/r	v							
	Risk Mngt & Security	*	The Full Service Provider provides a full range of services in one domain (e.g. financial, health) from own products and best of breed, attempting to own the primary consumer relationship.						
	Data & Knowledge Mngt	v							
	Communications Mngt	v							
	Channel Mngt	v							
	IT Architecture & Stds	#							
Whole Enterpr	IT Mngt Service Infrst/r	v			RP	RP	C	C	C
	Application Infrs/r	v							
	Risk Mngt & Security	*	The Whole of Enterprise/Gov/t provides a firm-wide single point of contact, consolidating all services provided by a large multi-unit organization.						
	Data & Knowledge Mngt	v							
	Communications Mngt	v							
	Channel Mngt	#							
	IT Architecture & Stds	#							
Share Infrastructu	IT Mngt Service Infrst/r	#	RP		RP	RP	C	C	C
	Application Infrs/r	#							
	Risk Mngt & Security	*	The Shared Infrastructure brings together multiple competitors to cooperate by sharing common IT infrastructure.						
	Data & Knowledge Mngt	#							
	Communications Mngt	v							
	Channel Mngt	#							
	IT Architecture & Stds	v							
v-present , *-mandatory, #-indifferent, RP-recomended partnership, C-commodity service									

The atomic e-business models discussed in this article (Table 1 and Table 2) differentiated from each other by several factors. Firstly, there is the granularity of customer data required to operate the e-business model. Next, there is the level of differentiation between customer and end-consumer and the level of equivalence between end-consumer and payer. Then, there is the level of equivalence between supplier and payer; the level of proximity to the end-consumer; the level of interactivity between

players; the cost of customer acquisition and retention and cost of transactions. It is those differences, amongst other factors, that determine how the ASP, as an outsourcing proposition, should be considered for each of the models. The association criterion is the ASP specialization.

The criteria to correlate the ASP taxonomy and the atomic e-business models were: (1) atomic e-business models highly specialised requiring wide infrastructure to integrate with legacy applications, (2) atomic e-business models mostly requiring web based applications only. Next, the first category as depicted in Table 1 is reviewed.

The first model to be considered is the *Direct to Customer* model. Because this model requires a high level of application integration (payment transaction processing, stock control, physical logistic) the firm of interest would benefit from the horizontal Application service provision (H ASP), which specialises in enterprise-wide processes and their integration. Given the fact that innovation in this space is driven by intelligent and conflict free deployment of multiple channels, the service provider should excel in research and in the development of new channels.

The *Full-Service Provider* offers “total coverage of customer needs in a particular domain” (Weill and Vitale 2001). Because success and innovation of this model depends on industry knowledge in the specific market/industry of the firm, the vertical service provision (VSP) will form an engaged partner with capabilities to align all other suppliers and partners. VSPs are not necessarily strong on IT infrastructure, which can be resolved by a mix of one or more suppliers and in-sourcing capabilities. Weill and Vitale’s (2001) analysis indicates that the *Full-Service Provider model* requires a high level investment in IT infrastructure and generates equally high overheads. All those costs together act as a high entry barrier for small and medium companies wanting to start electronic activities. The ASP value proposition fits well by providing low entry costs to realise electronic business strategies.

Table 2: ASP Taxonomy versus Atomic e-Business Models (Based on Weill and Vitale (2002) Research)

ASP Taxonomy		Horizontal	Vertical	Pure Play	Enabler	Full Play	MSP	SSP	NSP
Atomic e-Business Models									
Content Provider	IT Mngt Service Infrstr	v		RP			C	C	C
	Application Infrstr	v							
	Risk Mngt & Security	*	The Content Provider provides content (information, digital products, and services) via intermediaries.						
	Data & Knowledge Mngt	v							
	Communications Mngt	v							
	Channel Mngt	v							
IT Architecture & Stds	v								
Intermediary	IT Mngt Service Infrstr	v		RP			C	C	C
	Application Infrstr	v							
	Risk Mngt & Security	*	The Intermediary brings together buyers and sellers by concentrating information.						
	Data & Knowledge Mngt	*							
	Communications Mngt	*							
	Channel Mngt	*							
IT Architecture & Stds	*								
Value Net Integrator	IT Mngt Service Infrstr	v	RP	RP			C	C	C
	Application Infrstr	#							
	Risk Mngt & Security	*	The Value Net Integrator coordinates activities across the value net by gathering, synthesizing, and distributing information.						
	Data & Knowledge Mngt	#							
	Communications Mngt	#							
	Channel Mngt	#							
IT Architecture & Stds	v								
Virtual Community	IT Mngt Service Infrstr	v		RP			C	C	C
	Application Infrstr	v							
	Risk Mngt & Security	*	The Virtual Community creates and facilitates an online community of people with a common interest enabling interaction and service provision.						
	Data & Knowledge Mngt	v							
	Communications Mngt	v							
	Channel Mngt	?							
IT Architecture & Stds	#								

v-present, *-mandatory, #-indifferent, RP-recommended partnership, C-commodity service

The essence of the *Whole Enterprise* business model, as defined by Weill and Vitale (2001), is the ability to provide “a single point of contact for the e-business customer” community. This is not easily achieved because it requires integrating legacy systems to consumer-facing applications throughout the enterprise. The ASP Full-Service Provider (FSP) or ASP Enabler seem to be the best models positioned to work out the level of technical integration and alignment required by the whole enterprise. These will allow a centralised and accountable management of the IT function. For similar reasons, the *Shared Infrastructure* model also should benefit from ASP Enablers or ASP FSPs but with the additional requirement of industry specialization.

In the second category of atomic e-business model are those, which are not dependent on legacy systems, that is, those requiring web-based components only.

The *Content Provider* model requires the distribution of information through several mediums but with non-significant retention of information about the end-consumer relationship, data and transaction. The *Content Provider* is the most virtual and electronic model of all with no links to legacy systems or other business processes. It is a stand-alone activity. It will be advantageous if it is serviced by Pure-play ASPs who can deliver excellent web based electronic models.

Intermediaries, *Virtual Community* and *Value Net Integrator* have a common denominator; they are virtually and completely electronic. None of them holds the customer transaction, as their focus is on customer relationships and customer data. This commonality is reflected in the technology they most need, knowledge management systems and data warehouses. The Pure-Play ASPs value proposition can assist *Intermediaries* and *Virtual Community*, which are based on the quality of online relationships with end-consumers and related data. The *Value Net Integrator*, on the other hand, will have intense interaction with all partners and suppliers' databases that are, by definition, decentralised databases. However, because these databases are likely to be legacy databases, part of industry specific legacy systems, then industry specialization should also be considered.

Lastly, the ASP storage provision (SSP), ASP network provision (NSP) and ASP managed service provision (MSP) should all be considered for rapid upgrade and easy scalability regardless of the type of e-business model.

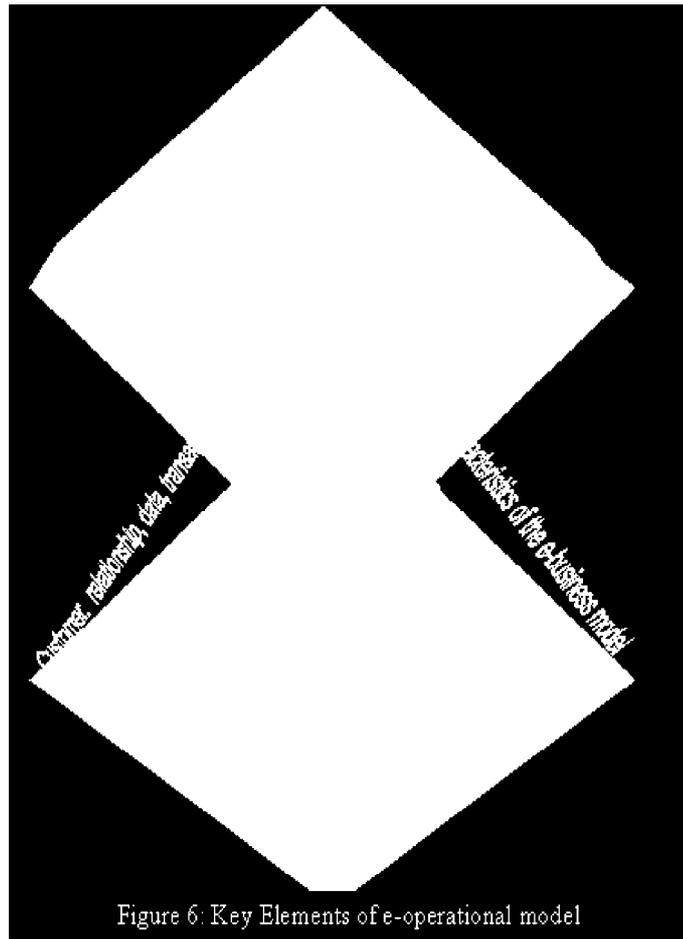
3.3 eOperational Model Components

Based on the analysis, six important components, amongst others, should be considered during the strategy making process of an e-business initiative (Weill and Vitale 2001). Together they form a schema to plan and translate operationally the business strategy. They are:

- (1) the market segments for the e-business strategy;
- (2) the channels to be used to reach and interact with customers;
- (3) atomic e-business models;
- (4) the revenue model;
- (5) customer assets: relationships, data transactions;
- (6) the IT infrastructure.

It is vital to understand the value proposition of the market segment to be targeted in order to identify the channels, which should be different within different customer segments.

In many instances the e-business model may include two or more of the atomic models discussed earlier on, representing a mix of atomic e-business and revenue models.



The IT infrastructure plays a vital role in supporting the models, and allows the easy and seamless exchange of products and services between place and space.

If the entire or partial IT/IS is outsourced to an ASP, the selection criteria should include the characteristics of the atomic e-business model, and the customer channels, along with other factors included in conventional outsourcing.

This e-operational schema is geared to support innovation owing to the mix of atomic e-business models and the consequent mix of revenue models, both sources of innovation (Afuah and Tucci 2001, Weill and Vitale 2001, Weill and Vitale 2002).

The e-operational scheme also supports the systemic innovation model type when used by the whole enterprise to enable business. At the other end of the spectrum, it supports autonomous innovation, if used at local level of business unit (Chesbrough and Teece 2002).

The ASP e-business model can support firms in the course of their strategic experimentation, systemic or local, without committing to the full investment required to implement completely new business models. Firms can attach and use a diverse range of technology, extending in-house capabilities and experimenting with new technologies, achieving improved operational flexibility.

4. Summary and Conclusions

To keep step with the fast speed of change and innovation in the market place, organisations require business and technological articulation which demand financial and human resources which are not always available. Quinn (2002) recommends strategic observation which, in turn, could be followed by strategic experimentation. We have argued that strategic experimentation is feasible though the externalisation of one or more of the IT/IS functions required by electronic business models. To that end, the ASP business model could be deployed.

The ASP business model is an enabler for electronic business models as it offers services covering the whole range of infrastructure services described in the IT/IS function of firms.

In order to demonstrate this correlation, we took several analytical steps and elected four dimension for scrutiny: (1) the ASP value chain, (2) the ASP taxonomy or services; (3) the translating of the ASP services into the function identified in the IT/IS infrastructure required for e-business models, and, finally (4) the correlation of the ASP taxonomy to the atomic e-business models. Firstly, we super-imposed the ASP business model to the e-business model schematic, highlighting the three customer' assets that empirical research by (Weill and Vitale 2001) has isolated: relationship, data, transaction. The ASP will own its client's assets, while the client will own its own customers' assets. Thus, both provider and client will have the advantages springing from the three customers assets. As Weill and Vitale (2001) advocate, 'possessing the customer relationship brings the leverage of influence as the customer looks to the relationship holder for trust, and recommendations'. Ownership of the customer data 'brings the leverage of insight, as the firm has detailed information about the history and needs or likes of the customer'. Possessing 'the customer transaction generates the leverage of customer revenue fees for service' (Weill and Vitale 2001). The power of the ASP e-business model is profound in a future where organisations will generate revenue from electronic transactions based on the management of services gravitating and originating around ownership of the customer relationship.

Next, we visited the ASP value chain in order to clarify which type of infrastructure and applications services it includes, illustrating the analysis with empirical cases of the resulting taxonomy, i.e. introducing real organisations offering ASP services.

After that, we translated the ASP services into the function identified in the IT/IS infrastructure required for e-business model; classifying them by their possible role in strategic partnership alliance, that is: (1) the relationship between providers and clients; (2) the key provider's initiatives to maintain a competitive service and product; (3) the co-coordinated initiatives to sustain client's e-business models.

Finally, we analysed each of the atomic e-business models to recommend a strategic partnership that, potentially could allow strategic experimentation leading to innovation whilst contributing to the alignment of business to IT/IS function.

We conclude by proposing that firms implementing electronic strategies will benefit from the use of ASP. The strategic decision-making to select ASP suppliers needs to take into consideration the market segment for the e-business strategy, the channels to be used and atomic e-business models that are part of the strategy.

Conversely, the ASP supplier needs to gain clear and continuous understanding of e-business strategies to be able to respond to current and emerging demands and to innovate the services offered.

This has been a speculative journey using empirical data from the ALTERNATIVE Project (ALTERNATIVE 2001) associated with recent empirical and theoretical finds of other academic and industry researches. While the ASP business model gains momentum in the industry as it is, the e-Operational Model discussed in this paper should not be overlooked, as it contains several topics, which need to be followed by proper empirical research and analysis.

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