

AN INVESTIGATION OF THE PARTNERING
STRATEGIES IN APPLICATION SERVICE PROVISION: A
VENDOR PERSPECTIVE

A thesis submitted for the degree of Doctor of Philosophy

by

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ABSTRACT

This research aims to investigate the partnering strategies in Application Service Provision (ASP) from a vendor's perspective. Although some attention was recently given to the ASP model, the main focus of the published academic work was essentially on the customer's side. This research focuses on ASP vendors, and aims at studying the partnering strategies used by these in order to source the different ASP model components.

From the studied literature, it was found that the ASP model relies on 4 main infrastructural layers for delivering services: the data storage layer, the server layer, the network layer, and the application layer. Due to the different nature of each of these layers in terms of the required technology, it was concluded that ASP is a complex service, for which the required resources and capabilities are unlikely to be owned by one single company, thus the importance of studying the partnering strategies needed for ASP vendors.

Through the use of Transaction Cost Economics (TCE) and the Resource-based View (RBV), predictions were made about the expected sourcing modes (market, integration, or strategic alliance) for each of the ASP layers. The next phase was to study six ASP cases, in which the partnering strategies of each firm for each ASP layer were studied. The main result from this analysis was that the actual outcomes from the case studies did not fully match the predictions that were initially made.

A cross-case analysis was then undertaken by reapplying TCE and RBV to the studied cases. In this phase, for each ASP layer in each case study TCE and RBV attributes were investigated, and the drawn conclusions were two fold. First, the

initial assumption that the software layer is the core layer of the model, based on which the predictions were made, was rather flawed; it was found that although many ASP vendors draw value from the application layer, several others rely on other ASP layers. Secondly, it was concluded that the two used theories – TCE and RBV – did not, independently, explain all the actual sourcing modes of the studied ASP vendors, though RBV showed more explanatory power than TCE. Furthermore, it was demonstrated that the combination of TCE and RBV, in the context of this study, offers more explanatory power than if the two theories were used independently. Although this is an important finding in the context of ASP, the implications on IS research is tremendous, where multiple-theory applications are increasingly called for.

To the memory of my mother...

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REFEREED CONFERENCE PAPERS

Tebboune, D. E. S., Weerakkody, V. J. P., and Currie, W. L. (2003), Strategic Alliances in Application Service Provision: A Theoretical Perspective, in Proceedings of the 2003 UK Association of Information Systems (UKAIS) Conference, Warwick, United Kingdom;

Desai, B., Weerakkody, V., Currie, W. L., Tebboune, D. E. S., and Khan, N. (2003), Evaluation of Strategies Deployed by Application Service Providers, in the 36th Hawaii International Conference on System Sciences (HICSS);

Tebboune, D. E. S., Weerakkody, V. J. P., and Currie, W. L. (2002), Application Service Provision: Revolution or Evolution?, in Proceedings of the 2002 Business Information Technology (BIT) Conference, Manchester, United Kingdom;

Seltsikas, P., Currie, W. L. and Tebboune, D. E. S. (2002), Strategic Alliances in Application Service Provision, in Proceedings of the 2002 *Information Resources Management Association (IRMA) International Conference*, Seattle, Washington, USA, 726-730;

BOOK CHAPTERS

Weerakkody, V., Tebboune, D. E. S., Currie, W. L., Khan, N., and Desai, B. (2003), Analysing the Risk Factors of Moving to a Remote Application Outsourcing Model, in Al-Qirim, N. (eds.) *Electronic Business in Small to Medium Sized Enterprises, Frameworks, Issues and Implications*, to be published in 2003 by IDEA Group Publishing;

Tebboune, D. E. S. and Seltsikas, P. (2003), Partnering for Success in Application Service Provision, in Kangas, K. (eds.) *Business Strategies for Information Technology Management*, 115-128, IDEA Group Publishing;

CHAPTER 1

INTRODUCTION

1

1.1 SUMMARY

Information technology (IT), an ever increasingly necessary component of today's business, has seen major strategies applied to it; from being considered as a strategic asset that has to be kept inhouse for maximising performance, and hence achieving competitive advantage, to being considered as only complimentary and non-strategic to the organization. As a result, IT sourcing is performed differently by different firms, where some still rely on inhouse provision, whereas others are increasingly interested in outsourcing strategies (Lacity and Hirschheim, 1993b; Beulen et al., 2006).

IT outsourcing is practiced by many firms who, for different reasons, prefer external agents to manage and supply the IT functions needed for their business to run. Selective IT outsourcing is of a particular interest in this context due to its flexibility and less risky nature (Willcocks and Feeny, 2006), where firms outsource different IT functions to different vendors. Outsourcing software applications can be considered as part of selective IT outsourcing, where external vendors take over the deployment, management, and even the development, in some cases, of business software applications.

Application service provision (ASP) has recently emerged as a new form of delivering software applications as a service. Being remotely hosted, the application

service is offered, on a rental basis, via a wide area network, frequently the Internet. Although several studies were conducted about the strategic choice of customers when it comes to choosing the ASP option, no studies have considered the vendor's side of the model. Looking at the ASP model from the vendor's perspective, it is regarded as a complex technology that needs the aggregation of different skills and capabilities, which are impossible for a single organization to own. In this context, partnering for acquiring these skills is only natural. However, as some studies suggest, such as that of Gartner Group (2001) and Smith and Kumar (2004), ASP vendors are still facing major challenges in developing a business model that works successfully, where the wrong choice of partners is among the reasons behind such challenges. This only suggests that adopting the appropriate sourcing strategy for the different components of the ASP model is critical to the success of ASPs.

This study aims to investigate the partnering strategies of ASP vendors. It aims at analysing the ASP model, and looking at the different sourcing strategies that should be adopted for each component of the model. The present chapter aims to introduce the research issues raised in this study, and further explain the progress of this thesis.

1.2 THE RESEARCH ISSUE

IT has been the focus of many studies in different fields. These studies are different in scope, and most importantly in their units of analysis. Whereas some studies focused on the strategic use of IT for gaining competitive advantage, others focused on the economic aspects of IT use, by scrutinising issues such as IT investment and its effect on productivity. The general debate that emanates from such studies is around whether IT is strategic to the organization, or a commodity component. Until

recently, the debate is still standing, and contradicting views are still expressed (Ross and Weill, 2002; Carr, 2003).

Concurrently, the management literature has seen increasing support for the concept of core competencies as a source of competitive advantage (Prahalad and Hamel, 1990). As a strategy of compensating for those non-core business activities, outsourcing gained much interest. Outsourcing consists of relying on third-party firms for conducting organizational activities (Quinn, 1999). Largely due to the debate about the strategic importance of IT, as explained above, IT fell into the dilemma of whether it should be outsourced or kept inhouse. Again, the views on such a dilemma were of great variety, and frequently contradictory. On the one hand, well publicised examples, such as that of American Airlines (Lacity and Hirschheim, 1993a) showed the potential of IT to generate strategic benefits and competitive advantage when deployed internally; on the other hand, other well publicised examples such as that of Eastman Kodak (Grover and Teng, 1993; Lacity and Hirschheim, 1993a) illustrated the benefits of outsourcing IT.

Although IT outsourcing was frequently associated with total outsourcing, where the whole IT function is outsourced such as in the case of Eastman Kodak, it has been shown that selective IT outsourcing (Lacity et al., 1996; Willcocks and Feeny, 2006) proved more beneficial. In this context, the IT function was decomposed into smaller functions that were sourced from multiple vendors. Software applications fall in this category as being part of the important IT functions that many organizations rely upon for their daily business activities.

Software applications are increasingly becoming more sophisticated, and more complex, covering different functions in the organization. This was widely enhanced by the emergence of the Internet as a business environment, in which e-business is becoming more and more established. As a result of the variety and the complexity of business software applications, the costs related to implementing and maintaining them grew exponentially, becoming enjoyed only by large organizations and leaving the smaller ones out of reach. The emergence of ASP was thought of as being a solution mainly targeted at small to medium enterprises (SMEs). The solution consists of deploying, managing and remotely hosting software applications through centrally located servers (Kern et al., 2002a). Such a new method of software distribution promised many benefits such as cost reduction (Miley, 2000; Smith and Kumar, 2004; Lee et al., 2007), reduced management problems and complexities (Dewire, 2000; Phillips, 2000; Lee et al., 2007), and reduced need for skilled IT people (Dewire, 2000; Kern and Kreijger, 2001; Ma et al., 2005).

As defined above, ASP is about offering business software applications as a service, on a rental mode. Although ASP is a new phenomenon, a few studies have been published by key IT outsourcing authors (Kern et al., 2002a; Kern et al., 2002b; Jayatilaka et al., 2003; Dibbern et al., 2004; Lee et al., 2007). However, what is noticed from reviewing these studies is that their focus is on the end user of the ASP model. Most of these studies have considered investigating customers' strategic choice of the ASP option. This focus on the customer's side has left the ASP vendor's side under researched, in which this study aims to take part.

Among the problems faced by the ASP vendors is the lack of product differentiation (Porter, 1980). Many firms, from different backgrounds, jumped on the ASP

bandwagon, and ended up with very similar offerings, making it difficult for them to attract customers. The case of Cable & Wireless' a-Services, as is further explained in Chapter 2, clearly illustrates such a situation. As claimed by Columbus (2000), partnering has become an indispensable strategy, by which ASP vendors can create differentiation.

From a different perspective, the ASP model can be seen as a complex technology (Singh, 1997), which necessitates the aggregation of several resources and capabilities, and which are difficult to be owned by a single firm. Partnering comes as a potential solution in this context too (Hagedoorn, 1993; Singh, 1997). Therefore partnering is core to the ASP model.

Looking at the partnering strategies, it is clear that ASP vendors have a wide array of possibilities for sourcing the required resources. Summarised as being make, buy, or ally options (Child and Faulkner, 1998), firms can choose to internalise a given business activity, buy it on a market transaction basis, or enter a strategic alliance for sourcing it. Applied to the ASP model, vendors face the same options when deciding to source the components of the model. At the very basic level, if the company owns the resources and capabilities required for performing a given activity then internalisation may make sense, otherwise buying from the market or allying with an external supplier might be a solution. However, such a view is too simplistic, as it does not provide firms with a detailed analysis of the rationale behind their choices.

In the strategic management literature, a number of academics worked on the development of theories of the firm that would help to make strategic decisions such

as sourcing decisions. Theories such as the transaction costs theory (TCE), resource-based view (RBV), resource-dependence view (RDV), agency theory (AT) and several others, have been widely used in strategic management, and also served other fields of research such as information systems (Cheon et al., 1995; Kern and Willcocks, 2002; Jayatilaka et al., 2003) to explain different research issues. As is further explained in Chapter 3, TCE and RBV are two theories of particular interest due to their complementary perspectives, and therefore are the lenses through which this study analyses the partnering strategies in the ASP model.

1.3 RESEARCH AIM AND OBJECTIVES

From the background to the research described above, it was shown that ASP vendors could be facing major challenges in the formation phase of their strategic alliances, and coupled with the view that ASP is a complex technology (Singh, 1997), it should be concluded that ASP vendors might consider different strategies for sourcing each component of the model. Therefore, the aim of the present research is to investigate the strategies that should be adopted by ASP vendors for sourcing each component of the ASP model.

Given the fact that sourcing any given component is a strategic decision, as it affects the model as a whole, the use of strategic management's theories of the firm forms a set of lenses that would guide the research. In other words, the present study also aims at integrating these theories of the firm with studying the partnering strategies of each component of the ASP model.

The objectives of the present study are as follows:

1. Conduct a detailed literature research on the emergence of the ASP model, and the different components that compose the model;
2. Conduct a detailed literature research on partnering strategies, and relate these to the context of the ASP model;
3. Predict the ASP vendor decisions on sourcing each component of the ASP model, using the TCE and RBV lenses; this prediction results in a set of propositions being formed;
4. Investigate how existing ASP vendors are sourcing these components, and what parameters are involved in their decisions;
5. The result of the previous investigation will be compared to the suggested predictions;
6. Conclude with a set of recommendations that help ASP vendors to better consider their partnering strategies, which can result in propositions for partnering in the ASP market;
7. Analyse the use of Transaction Cost Economics and the Resource-based View in the ASP context, including their complementarity. This results in a discussion around the use of the two theories in IS research.

1.4 OUTLINE OF THE THESIS

The present thesis is divided into four major parts. The first part covers the literature background based on which the present study makes its arguments, and the reflection emanating from it; this is spread over two chapters (Chapter 2 and 3). The second part covers the research methodology followed in this study, and is detailed in

Chapter 4. The third part of this thesis covers the empirical study, in which the collected data is described and analysed; this is detailed in Chapter 5. Finally, the fourth part of this thesis focuses on analysing the results of the present study, and highlight the claimed contributions (see Figure 1.1).

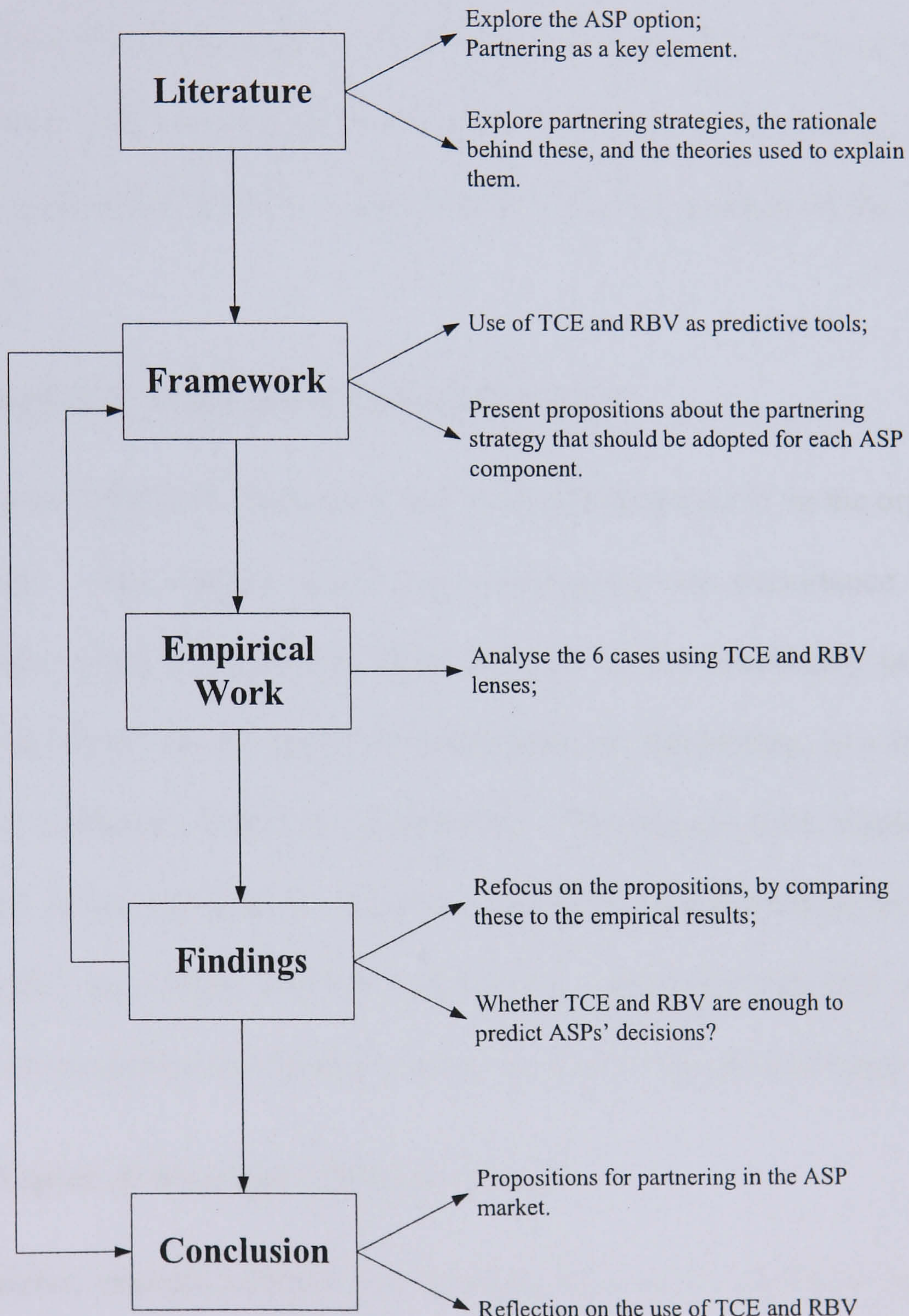


Figure 1.1: Outline of the present study

In a more detailed format, the following explores the outline of the thesis, and describes the content of the included chapters.

1.4.1 Chapter 1: Introduction

Chapter 1 – the present chapter – is an introduction to this study. In this chapter, a brief overview of the background to the research is presented. A discussion on the research issues to be investigated is also established at this level. Finally, an outline of the structure of the thesis is explained with a brief description of the content of each chapter.

1.4.2 Chapter 2: Application Service Provision

In this chapter, a detailed literature review of several issues on IT in the organization is presented. The chapter begins by investigating the importance of IT in organizations, where a discussion of the strategic versus commodity perspectives will be established. The chapter then investigates IT outsourcing, as a strategy for sourcing IT functions needed by organizations. The chapter, then, investigates the ASP model, where the latter is defined, including its characteristics, benefits, and risks. Finally, the chapter ends by raising some issues with the ASP model, and highlights the concept of partnering as being the focus of the present study.

1.4.3 Chapter 3: Strategic Alliances in ASP

In this chapter, strategic alliances are investigated from the strategic management literature. The rationale behind alliances, and their benefits and risks, will be investigated. Looking at the strategic alliance as a process, alliances progress through two major phases: the formation phase, and the post-formation phase. When the process perspective is related to the ASP model, vendors are more challenged by

the formation phase of strategic alliances, which further narrows the focus of the present study, concentrating the study on the formation phase of strategic alliances in ASP. Furthermore, as ASP vendors are still challenged by the difficulty in defining their business model, this study focuses on studying the rationale behind ASP vendors entering into partnerships with their suppliers. This involves investigating the appropriate sourcing strategy for each component of the ASP model.

The second part of Chapter 3 reflects on the conceptual framework that guides the present study. Looking at the strategic management and IS literature, many academics have relied on different theories of the firm to explain firms' strategic decisions. Adopted in this study are the transaction cost economics view (TCE) and the resource-based view of the firm (RBV). Both views aim at studying firms' organizing mode, but each focuses on a different unit of analysis. In the former view – TCE – considers economising as the main problem of the firm (Williamson, 1989), whereas RBV focuses on the unique resources and capabilities that lead the firm to achieve and sustain competitive advantage (Barney, 1991). Using these two views – TCE and RBV – the ASP model is investigated, looking at the attributes of each component, and their sourcing mode that ASP vendors should adopt. The chapter concludes by providing propositions about the partnering approach for each ASP component, as guided by the two above theories.

1.4.4 Chapter 4: Research Methodology

In this chapter, the research methodology that guides the present study will be explained. The chapter starts by highlighting the research paradigm to which the author subscribes in conducting this study. The chapter continues by detailing the research approach, being case study, and the used data collection techniques.

Finally, the chapter ends by describing the choice of the used cases, and the way the research was conducted.

1.4.5 Chapter 5: Research Findings

In this chapter, each case study will be investigated separately. Under each case, a background to the organization is given, and then a more detailed study follows. In the latter, the partnering strategy adopted in each case will be described then related to the conceptual model produced in Chapter 3. Relating the actual strategies to the conceptual model helps validating the suggested propositions in Chapter 3.

1.4.6 Chapter 6: Data Analysis

In this chapter, a cross-case analysis is undertaken, aiming at the validation of the propositions established in chapter 3, and further investigation of the parameters that may not have been previously considered. By performing this analysis, it becomes clearer as to what partnering strategies should ASP vendors consider for each component of the ASP model. Furthermore, a discussion on the use of TCE and RBV in the context of this research will be established.

1.4.7 Chapter 7: Conclusion

This final chapter aims at summarising the different sections of this thesis, highlighting the key points covered in each chapter. The chapter then covers the contribution part of the study, and the main areas of further research. The chapter also aims at describing the limitations of this study; this will cover the limitations particularly faced with data collection phase of the research, and the use of the theoretical perspectives.

CHAPTER 2

APPLICATION SERVICE PROVISION

2.1 INTRODUCTION

This chapter aims to investigate the concept of Application Service Provision (ASP) and its use within organizations. As it is further explained below, ASP is a form of application outsourcing. Hence, the discussion on the concept of ASP has to be derived from the application outsourcing and Information Systems (IS) outsourcing literature.

The chapter starts by establishing a wide discussion of the role of IS and Information Technology (IT) in organizations. Next, IT outsourcing will be discussed, highlighting its emergence, its benefits and risks. The following section discusses the concept of ASP, the core of the chapter; in this ASP will be defined and the potential benefits and risks will be analysed. The section will be expanded by further narrowing the focus of the present thesis, which is about the partnering strategies in the ASP arena. Finally the chapter will end with a concluding section that sets the basis for the next chapter.

2.2 THEORETICAL UNDERPINNINGS OF IT IN ORGANIZATIONS

Information Systems (IS) and Information Technology (IT) are used to describe different elements of the organization, where the former encompasses the software

and database elements used to manage the functions of the organization, and the latter includes the set of communication media and devices which link IS and people (Dewett and Jones, 2001). Although IS and IT differ, they are “*inextricably linked*” (Dewett and Jones, 2001, p. 314) to the extent that both acronyms are often used interchangeably (Dewett and Jones, 2001; Ward and Peppard, 2002). In this study, the ASP model is defined mainly in terms of its technical components, and thus IT is the main area of interest. Thus, for the purpose of simplifying the reading of the present chapter, the term IT will be used to mean both IS and IT.

IT, a business component that is becoming increasingly important to organizations of any kind (Ward and Peppard, 2002), has seen a rapidly growing adoption (Gurbaxani and Whang, 1991; Mukhopadhyay et al., 1995). IT has not only helped firms to automate their processes, but has also become an integrated part of their business, to the extent of becoming commodity like (Dewett and Jones, 2001). This is particularly evident with industries that rely heavily on IT, such as telecommunication and financial sectors.

As IT has recently become so important to the daily life of organizations (Carr, 2003), investments reached very high levels making it one of the most expensive assets of the businesses. This was to such an extent that careful and appropriate IT investment decisions became more of an economic and competitive necessity (Bacon, 1994). The increasingly competitive environment, on the other hand, forced organizations to consider lowering their costs, and consequently IT always went under scrutiny.

IT is considered as an asset that can lead to the achievement of corporate efficiency, if used correctly (Iliff, 1994; Mata et al., 1995); in this context, Ross et al. (1996, p. 41) argued that “[u]nless and until a firm does it well, information technology management can represent either a distinctive competency or a competitive liability.” In other words, although the risk of an unsuccessful use of IT cannot be neglected, the potential for IT to add value to the business is important.

However, even if it shows a highly optimistic vision to organizations, research on the business value of IT has frequently been inconclusive, and sometimes contradictory (Weill and Olson, 1989; Brynjolfsson, 1993; Mata et al., 1995; Mukhopadhyay et al., 1995; Hitt and Brynjolfsson, 1996; Dewett and Jones, 2001); whereas IT was considered by some academics as a source of added value (Ives and Learmonth, 1984; Mata et al., 1995; Ross et al., 1996; Dewett and Jones, 2001), it was seen by others as a less certain source of added value, mainly due to the fact that demonstrating the effects of the enormous investment in IT on organizational performance proved very difficult (Weill and Olson, 1989; Venkatraman, 1994; Mukhopadhyay et al., 1995; Mahmood and Mann, 2000).

Productivity, being one of the fundamental economic measure of a technology’s contribution (Brynjolfsson, 1993), has been the focus of many researchers who, for several years, attempted to study the ‘*productivity paradox*’ of IT (Brynjolfsson, 1993; Brynjolfsson and Hitt, 1998; Dewan and Kraemer, 1998; Chan, 2000; Navarrete and Pick, 2002; Ross and Weill, 2002). Brynjolfsson (1993) stated that productivity has, repeatedly, been negatively linked to IT, chronicling, thus, the disappointment in IT.

At present, the debate on the strategic importance of IT is still continuing; for instance, Carr (2003) strongly states that the very power and presence of the core functions of IT, such as data storage, data processing and data transport, “*have begun to transform them from potentially strategic resources into commodity factors of production.*” (p. 42) This statement mainly stems from Carr’s (2003) belief that IT is only part of a series of infrastructural technologies that became broadly adopted and have reshaped industry; technologies like the steam engine, the telephone, and the electric generator became commodity inputs as they became ubiquitous, and similarly IT is following the same path. Although the debate on the value of IT is far from settled (Hitt and Brynjolfsson, 1996; Ross and Weill, 2002), the likelihood of this debate to continue seems evident, and what has and still occupies academics’ and managers’ thinking is whether IT is core or non-core to the organization.

2.2.1 Core Competencies

Firms are continuously encouraged to focus on core competencies as a source of competitive advantage. Prahalad and Hamel (1990, p. 79) argued that “*[d]uring the 1980s, top executives were judged on their ability to restructure, declutter, and delay their corporations. In the 1990s, they’ll be judged on their ability to identify, cultivate, and exploit the core competencies that make growth possible...*”

However, defining core competencies is far from easy, as it is difficult to know what is core to any given business and what is not (Drucker, 1999). According to Quinn and Hilmer (1994), the distinction between what is core to any organization and what is not core to it requires thinking about which activities do or have the potential to create value. In a research undertaken by Alexander and Young (1996), it was found that different managers accord different meanings to ‘core’. As a result, Alexander

and Young (1996) identified four meanings of core activities, summarised as follows:

- *Activities traditionally performed internally:* activities that have long been performed internally, that find reluctance when it comes to being outsourced, mainly due to the fear of hidden costs;
- *Activities critical to business performance:* these are the activities that may affect the business deeply if not well performed. However, retaining direct internal control of such activities “*may offer managers psychological comfort, but it may not guarantee performance.*” (Alexander and Young, 1996, p. 117)
- *Activities creating current or potential competitive advantage:* these are the activities that provide existing or potential competitive advantage. However, as “*few companies will simultaneously gain advantage in all, or even most, activities that offer such potential. By specializing in a few, they may increase their chances of building real advantage there.*” (Alexander and Young, 1996, p. 118)
- *Activities that will drive future growth, innovation or rejuvenation of the enterprise:* these are the activities that could provide new business streams and innovations.

IT, as a business component, has frequently fallen into the analysis of whether it is core to the organization, or peripheral (Feeny and Willcocks, 1998). Several famous examples of IT deployments, such as American Airlines and American Hospital Supply, were publicised as best examples of how IT can strategically improve

organizations' business (Lacity and Hirschheim, 1993b). Such examples led to the increasing consideration of IT as a strategic tool, and thus core to the organization. This is consistent with the third definition of core competencies provided by Alexander and Young (1996), as explained above; in fact, as IT was presented, through these examples, as a potential source of sustained competitive advantage, it gained tremendous importance, mainly among managers, as a premium core competency.

On the other hand, many practitioners and managers have come to the conclusion that IT is more of a commodity, and should be obtained at the lowest possible price (Benko, 1992; Lacity and Hirschheim, 1993b). Furthermore, many senior executives view IS as a non-core activity, due to their belief that IS failed to deliver its 1980s promise – competitive advantage (Lacity and Hirschheim, 1999).

Such a difference in visions has largely created confusion, both among academics and practitioners, and initiated opportunities for conducting research around the unsolved dilemma (Lacity et al., 1995). However, although both visions still exist, what has come to be noticed is the development of IT outsourcing strategies as a response to the idea of IT being non-core to the organization. These strategies have seen an increasing interest (Willcocks and Fitzgerald, 1993), and much research has been done to further understand this ever scaling phenomenon. The following section attempts to cover IT outsourcing and analyse its characteristics.

2.3 IT OUTSOURCING

Outsourcing has existed for many decades, consisting in conducting one or more organizational activities, using external agents (Lacity and Hirschheim, 1993c;

Beulen et al., 2006). It has been often used for the least important organizational activities that could be better performed by external providers. Quinn and Hilmer (1994) affirmed that, in order to leverage companies' skills and resources, strategies should be deployed to concentrate the firm's own resources on core competencies, and strategically outsource the other activities. This meant that companies should focus on their core competencies from which competitive advantage can be brought, and outsource the rest of the activities, "*for which the firm has neither strategic need nor special capabilities.*" (Quinn and Hilmer, 1994, p. 43) On the other hand, Quinn and Hilmer (1994) argued that the previous idea is possible if supplier markets were totally reliable, however it is not the case, and risks are always found related to price, quality, time, and many more other factors.

The field of IT has also exploited this strategy, which is increasingly becoming important in scope (Lacity and Hirschheim, 1993c; Currie, 2000); it is about the "*transfer of assets – computers, networks and people – from a user to a vendor, the vendor taking over the responsibility for the outsourced activity.*" (Takac, 1994, p. 140) As a result, IT outsourcing is found to be growing enormously, being a point of interest of many organizations from different sectors.

Turning IT functions to outsourcing could be an intriguing statement; how could such an important function, that has been widely described as indispensable, and as a source of competitive advantage, be outsourced? Although IT outsourcing has become important in scope only recently (Cheon et al., 1995; Jurison, 1995), it is far from being a new phenomenon (Teng et al., 1995). IT outsourcing can be traced back to the 1960s, where the cost and the size of IT equipment were major inhibitors for organizations to own it (Ketler and Walstrom, 1993). The renewed interest in

vertical integration in the 1980s made from IT a valuable asset to be kept inhouse (Ketler and Walstrom, 1993). Despite the continued interest in keeping IT functions inhouse, the 1990s have seen a resurging interest in IT outsourcing, with a much bigger scope (Ketler and Walstrom, 1993; Lacity and Hirschheim, 1993b; Rao et al., 1996). The reasons, compared to the ones associated with the initial wave of IT outsourcing, are several; many organizations revealed the increasing cost and dependency on technology (Takac, 1994), the shortage of skilled IT staff, and the difficulty in coping with the rapid pace of change associated with IT (Domberger et al., 2000), as strong impetuses for adopting outsourcing. Furthermore, the view that many senior executives have on IT, as a non-core activity, has largely contributed to the development of IT outsourcing (Lacity and Hirschheim, 1999).

Recently, we witnessed a total expansion in the IT outsourcing market, with contracts varying in type, length, and price, where, in some cases, “*mega*” deals could even be worth over £1 billion with a duration of 10 years, such as the case of Cable & Wireless Communications and IBM (Lacity and Hirschheim, 1993a; Currie, 2000). According to Currie and Willcocks (1997; 1998), IT outsourcing is found in four different types:

- *Total outsourcing*: this is when organizations choose to outsource 70-80% of their IT facilities, to a large supplier, with usually contracts of 5-10 years. This instance of outsourcing could have the major drawback of over-dependency of the organization on the supplier’s quality of services, which prevents it from taking advantage of other providers’ high quality services and technologies (Cross, 1995);

- *Multiple-supplier sourcing (or selective sourcing)*: in this case, the organizations outsource from multiple suppliers. In this case, contracts do not usually exceed 5 years length. According to Lacity et al. (1996), IT outsourcing based on the selective approach was recording an increasing growth, as it meets customers' needs while minimising the risks associated with total outsourcing;
- *Joint venture/strategic alliance sourcing*: in this case, the organization enters into a joint venture with a supplier, with sharing risks and rewards;
- *Insourcing*: in this case, the organization chooses to retain its large centralised IT department, from which management and technical capabilities are outsourced.

Among these forms of IT outsourcing, selective outsourcing has received a stronger importance (Lacity and Hirschheim, 1999; Domberger et al., 2000). Selective IT outsourcing gained such success mainly due to the flexibility it offers to the adopting firms, which results in a lower-risk sourcing approach (Willcocks and Feeny, 2006).

2.3.1 The Rationale behind IT Outsourcing

Organizations have adopted IT outsourcing strategies at unprecedented rates. Several drivers and incentives for organizations to adopt such a strategy can be found in the literature. At a very general level, DiRomualdo and Gurbaxani (1998) classified the reasons behind outsourcing IT under three categories: IS (or IT) improvement, business impact, and commercial exploitation.

IT Improvement

Many organizations focused on how to improve the performance of their IT functions, and IT outsourcing was commonly seen as a strategy for achieving such needed improvements. Managers frequently aimed at “*cost reduction, service*

quality improvement and acquisition of new technical skills and management competencies.” (DiRomualdo and Gurbaxani, 1998)

In this context, a frequently mentioned reason for IT outsourcing is cost reduction (Ketler and Walstrom, 1993; Lacity and Hirschheim, 1993a; Takac, 1994; Clark et al., 1995; Cronk and Sharp, 1995; Lacity and Willcocks, 1995; McLellan et al., 1995). The cost of IT became problematic not only because of the purchasing investment required to build it inhouse, but also due to the complexity associated with maintaining, operating and integrating it (Takac, 1994). Furthermore, cash infusion needed by organizations frequently put IT under scrutiny due to the heavy investments associated with it (Lacity and Hirschheim, 1993a; Smith et al., 1998). Another element that contributes to the high cost of the internal provision of IT is the difficulty in having IT experts. The latter becomes especially critical when the scope of IT expands, and the organization’s needs for more experts in different areas increase (Ketler and Walstrom, 1993). Moreover, if IT were to be considered non-core, then “[m]inimizing costs would be the paramount consideration in deciding whether to outsource the commodities.” (Lacity et al., 1995, p. 86) As a result, IT outsourcing offered a more cost effective solution for efficiently acquiring IT functionalities, based on vendors’ ability of to offer greater economies of scale (Clark et al., 1995).

Perception about the lack of effectiveness of the internal IS department is also cited among the most important reasons for adopting IT outsourcing (Lacity and Hirschheim, 1993a; McLellan et al., 1995). The reason for such a perception, according to Lacity and Hirschheim (1993a), is because many organizations consider outsourcing vendors to be IT professionals, thus can provide IT functions more

effectively. Under the effectiveness rationale also lies the idea that IT outsourcing vendors are better at managing IT change than internal IT departments, as they have access to software and hardware upgrades more effectively.

Business Impact

This category, according to DiRomualdo and Gurbaxani (1998), includes the drivers that are related to improving the business performance of an organization.

Focus on core competencies, in this case, is a strong rationale for outsourcing IT (Prahalad and Hamel, 1990; Lacity and Hirschheim, 1993a; Takac, 1994; Smith et al., 1998; Lee et al., 2000). This is consistent with the view that IT is not core to the organization, and thus should be outsourced, which allows them to focus on their core competencies necessary for achieving and sustaining competitive advantage. In fact, according to Lacity and Hirschheim (1999), IT outsourcing adoption can be seen as a consequence of a shift in business strategies, where many organizations have begun quitting their diversification strategies. In this context, McLellan et al. (1995) reported that many firms were of the idea that the lack of strategically thinking managers, and that outsourcing is a potential solution as it gives managers more time for this activity.

Flexibility is another rationale behind IT outsourcing (Lacity et al., 1995; Lee and Kim, 1997; Domberger et al., 2000). According to McLellan et al. (1995) organizations needed to create a flexible IT sourcing to react effectively to business change.

Commercial Exploitation

Under this category, DiRomualdo and Gurbaxani (1998) identified that many organization, that previously developed innovative IT, found it difficult to maintain

and improve their systems. Moreover, the migration to new platforms, and the exploitation of emerging technologies, proved difficult financially. Thus, IT outsourcing offers the fast and cost effective access to emerging and new technologies, skills and capabilities (McLellan et al., 1995; Gurbaxani, 1996).

Although the above cited list of drivers is non-exhaustive, an important driver that is missing, but affected the decisions of many executives, and led to such a large scope adoption of IT outsourcing, is the bandwagon effect (Grover and Teng, 1993; Lacity and Hirschheim, 1993b; Earl, 1996; Gurbaxani, 1996; Lacity and Willcocks, 1998; Lee et al., 2000). Well publicised examples of large scale IT outsourcing deals, such as that of Eastman Kodak (Grover and Teng, 1993; Ketler and Walstrom, 1993; Lacity and Hirschheim, 1993b) and British Petroleum (Cross, 1995; Cross et al., 1997), were a major incentive for organizations to consider this strategy. Eastman Kodak, for instance, outsourced its data processing function to IBM, Anderson Consulting, Businessland Inc., and Digital Equipment Corporation, with the aim of focusing on the business core competencies and reducing the costs associated with IT (Ketler and Walstrom, 1993). Such examples attracted the attention of managers from different sectors, and inspired their thinking about new methods of acquiring IT functions (Loh and Venkatraman, 1992; Lacity and Willcocks, 1995; Willcocks and Lacity, 1995). The bandwagon effect was so strong that the increase in the outsourcing decision were referred to as the “*Kodak effect*” (Loh and Venkatraman, 1992; Teng et al., 1995).

2.3.2 The Advantages of IT Outsourcing

Although the previous section about the rationale behind IT outsourcing leads to conclusions about the advantages of this strategy, the benefits gained are not always intended. Therefore, by separating the advantages of IT outsourcing from the rationale behind adopting it, it is aimed to come up with the benefits that are proved to be gained.

IT outsourcing offers adopting organizations several advantages and benefits (Takac, 1994). Cost reduction is a major benefit of outsourcing IT, compared to maintaining it internally, where vendors might offer the same value for reduced price according due to their ability to provide economies of scale (Clark et al., 1995). According to McLellan et al. (1995), their research showed that outsourcing activities help organizations to lower IT and business costs in four areas: hardware costs, software costs, IS personnel costs, and business operations costs. The financial benefits of IT outsourcing are further enhanced by the fact that the costs associated can be much more predictable as a result of fixed-price and agreed service levels (Takac, 1994; Lacity et al., 1995; Currie and Willcocks, 1997). Additionally, as some IT outsourcing deals involve selling the IT assets to an external agent, cash could be generated, thus making from fixed costs variable (Lacity and Hirschheim, 1993a). In summary, the following are some of the advantages associated with IT outsourcing:

- Faster development of IT applications, while improving the quality of the service (Clark et al., 1995)
- Access to leading-edge technology (Clark et al., 1995)

- Reducing technological risk while increasing technological flexibility (Clark et al., 1995; Lacity et al., 1995). This is particularly important when business growth is possible without changes to the IT infrastructure
- Refocus on the core competencies of the business.

2.3.3 The Risks of IT Outsourcing

Even if the above list cites many potential benefits associated with IT outsourcing, there could be pitfalls associated with outsourcing contracts (Currie and Willcocks, 1997), if care is not taken while and after signing these contracts. In this context, the wide literature on IT outsourcing has shown that although this strategy offers many benefits to the adopting firms, the potential for becoming a risky strategy is important. However, the risks and problems associated with IT outsourcing are less intensively publicised than the benefits. Lacity and Hirschheim (1999), for instance, argued that the IT outsourcing literature displays an overly optimistic view. An important part of this publicised literature was mainly based on projected results instead of actual results, particularly regarding the cost savings that adopting organizations could enjoy. Moreover, the hidden costs are also major risks of outsourcing (Willcocks et al., 1996; Barthélemy, 2001). These costs “*arose from failure to identify comprehensively present and future requirements, loose drafting of contracts, lack of awareness of costs of managing the outsourcing arrangement, and vendor opportunism.*” (Willcocks et al., 1996, p. 144) According to Barthélemy (2001), the benefits offered by IT outsourcing are frequently reduced as a result of the incapacity of managers to consider such hidden costs.

The loss of IT expertise is frequently cited a potential threat to any organization that chooses to outsource its IT to third party vendors (Lacity and Hirschheim, 1993a; Rao et al., 1996). The threat is particularly enhanced in the cases of total outsourcing, where the client loses control over major and minor areas, and thus dependency on external suppliers is increased (Takac, 1994; Clark et al., 1995). In this context, although not specific to IT, Prahalad and Hamel (1990, p. 84) argued that *“[o]utsourcing can provide a shortcut to a more competitive product, but typically contributes little to building the people-embodied skills that are needed to sustain product leadership.”*

Furthermore, related to this potential problem is the fear of opportunism; as an organization outsources its IT functions to a third party, the latter may feel in a stronger position, leading to a potential threat of opportunistic behaviour. Such opportunism can materialise in excessive fees being charged for services not adequately covered in contracts (Lacity and Hirschheim, 1993a). Moreover, such opportunistic behaviour can have deeper effects when it comes to contracts renewal, as outsourcing customers can be at a disadvantage (Lacity and Hirschheim, 1993a).

To summarise the risks involved in IT outsourcing, the work of Earl (1996) is still the most detailed study, in which he investigated the potential problems that could emanate from adopting this strategy. These risks are summarised in Table 2.2.

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Outsourcing IT could be more economic than maintaining it internally, as vendors might offer the same value for reduced price according to their economy of scale; ▪ Fixed-price and agreed services levels can considerably reinforce predictability; ▪ Service could be improved by vendors, who can provide additional technical capabilities; ▪ Refocus on the core competencies of the business, i.e. by outsourcing, key IS/IT staff could be freed to concentrate on more important activities; ▪ By selling the IT assets to an external agent, cash could be generated, thus making from fixed costs variable; ▪ It could be easier for organizations to access new technologies by outsourcing; ▪ Value-added service, in the form of consultancy from the outsourcing provider; ▪ Business growth is possible without changes to the IT infrastructure. 	<ul style="list-style-type: none"> ▪ Hidden costs, including those that may arise from failure to identify present and future requirements, loose drafting of contracts, lack of awareness of costs of managing the outsourcing arrangement and vendor opportunism; ▪ There could be problems with cost savings and financial benefits associated with contracts, as these returns could be based on assumptions that become invalid over time; ▪ Service quality and performance could be affected negatively, providing from the vendor, especially with poorly specified contracts and agreements; ▪ Possibility of loss of control, especially in the cases of total outsourcing, where the client loses control over major and minor areas. Also, an increased dependency on external suppliers; ▪ Some issues of confidentiality may arise.

Table 2.1: Summary of the Advantages and Disadvantages of IT Outsourcing

From above, it is clear that outsourcing offers both benefits and costs, leading, thus, to confusion on whether to outsource or maintain internally (refer to Table 2.2 for a full summary of the risks involved in IT outsourcing as developed by (Earl, 1996)). In this context, the following section attempts to investigate the decision making about outsourcing IT.

Risk	Explanation
1. Possibility of weak management	Management issues are of major importance, where there is a risk that complex IT management responsibilities that an outsourcing customer want to reduce, turn to be the same, if not worse, when outsourced to a third party. Earl (1996, p. 27) highlights that if a given firm selects outsourcing as a strategy, <i>“the executives also have to know how to manage contracts and relationships with third parties.”</i>
2. Inexperienced staff	Capable IT staff is rare, and there is risk that the service provider might not have the required staff. This is especially true when the customer’s staff move to work with the vendor.
3. Business uncertainty	Uncertainty about the future business developments that any organization may need to do, could lead to use outsourcing as a solution for emerging problems. This is particularly true when it comes to outsourcing IT, as it usually comes into scrutiny when costs need to be reduced. Thus, IT Outsourcing may have a long-term risk of inhibiting business development.
4. Outdated technology skills	Earl (1996) argues that as legacy systems are outsourced, there are serious risks that the market will be frozen in old technology, and therefore customers may not have access to any current technology.
5. Endemic uncertainty	In outsourcing contracts, customers should seek for flexibility, as IT and business requirements are always due to change. Therefore, Earl (1996, p. 29) recommends that <i>“IT contracts of any sort should first agree on a process of conflict resolution and problem solution for the inevitable uncertainties.”</i>
6. Hidden costs	Firms usually underestimate the costs involved in outsourcing deals, including setup and management costs, where a basic comparison of vendors’ costs with current costs is done.
7. Lack of organizational learning	By outsourcing IT, firms tend to limit their learning on its capability, as usually firms learn to manage IT by doing.
8. Loss of innovative capacity	There is a risk that outsourcing IT might inhibit customers from maintaining IT innovative capacity. Earl (1996, p. 30) adds that while it is not sure that innovation cannot be bought, it is suggested that <i>“partners have their limitations and that expectations must be properly managed.”</i>
9. Dangers of an eternal triangle	In outsourcing deals, it is often the case where firms’ managers want people who understand their business and their culture, resulting in vendors aiming to reskill their specialists and make them more aware of the business issues and building organizational relationships. Such a change may lead some organizations to stand still in their IT evolution, and this is what Earl (1996) qualifies as <i>“the eternal triangle”</i> .
10. Technological indivisibility	Mentioning the classic example of desktop outsourcing, Earl (1996) cites technological indivisibility as a potential risk of outsourcing IT. He (ibid) argues that current information systems <i>“are increasingly integrated or interconnected, and problems can occur at the interface of responsibility between different vendors or between the vendor’s domains and the customer’s domain.”</i> (p. 31)
11. Fuzzy focus	Earl (1996, p. 32) states that a serious problem with outsourcing is that it <i>“concentrates on the how of IT, not on the what.”</i> As such, outsourcing frequently fails to bring innovative ideas that may be important for businesses.

Table 2.2: The risks of IT outsourcing (Earl, 1996)

2.3.4 The Decision to Outsource IT

Decisions that senior management frequently face when it comes to outsourcing versus keeping inhouse any type of activities can prove very difficult to make. In this context, Teng et al. (1995, p. 78) found that the strategic outsourcing decision of any business resource is related to two conditions:

1. The performance of the resource in question falls short of expectations;
2. An outsourcing vendor may significantly improve the performance.

According to Quinn and Hilmer (1994, p. 48), *“the key strategic issue in insourcing versus outsourcing is whether a company can achieve a maintainable competitive edge by performing an activity internally – usually cheaper, better, in a more timely fashion, or with some unique capability – on a continuing basis.”* This statement, when related to IT, leads again to the discussion established above on whether IT is core to the organization or commodity-like. Therefore, any IT outsourcing initiative should be preceded by a process, in which a careful consideration of both options should be made.

In research undertaken by Willcocks et al. (1996), the findings were that many organizations follow a common approach towards the evaluation of IT outsourcing options. This approach is graphically represented in Figure 2.1.

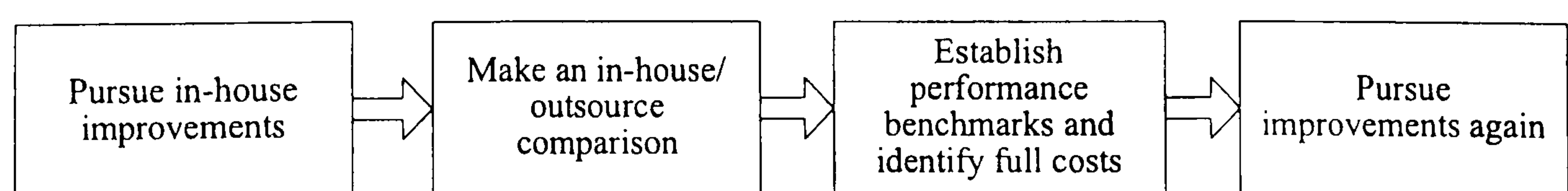


Figure 2.1: The IT outsourcing decision process (adapted from Willcocks et al. (1996, p.157))

The first step is an attempt to improve inhouse provision of IT services. In the following step, the organization establishes a comparison between the inhouse offering and that of the potential outsourcing vendors. For this purpose, the firm has to go through a “*technical assessment of the existing operations, review management tools, databases, and problem resolution processes.*” (Chaudhury et al., 1995, p. 135) This approach involves an iterative process, in which the organization is constantly called to evaluate its IT sourcing strategy.

Furthermore, Quinn (1999) drew a potential for “*competitive edge/strategic risk of outsourcing*” matrix, where he explained the relationship between the risk of outsourcing an activity, and its potential to lead to competitive edge, thus leading to whether to outsource the activity or insource it. The developed matrix is illustrated in Figure 2.2.

Potential for Competitive Edge	High			Strategically control (produce internally)
	Moderate		Moderate control needed (special venture or contract arrangements)	
	Low	Low control needed (buy off the shelf)		
		Low	Moderate	High
		Strategic Risk of Outsourcing		

Figure 2.2: Strategic Outsourcing (Quinn, 1999, p. 12)

Based on the matrix in Figure 2.2, it should be noticed that Quinn (1999) tried to build a diagram for keeping core activities produced internally, against outsourcing the strategically low functions. This, in fact, further illustrates the opinion of many authors.

IT outsourcing has developed enormously during 1990s; the earlier period was mainly marked by the common belief that IT was a source of competitive advantage, and that it should be sourced and controlled internally (Lee et al., 2000). However, during the 1990s, organizations developed the understanding that competitive advantage comes from the way IT is used, and not IT itself (ibid). The resulting development of IT Outsourcing consisted in that firms' interest in outsourcing IT increased significantly, leading service providers to be more willing to take on management responsibilities, and to develop stronger partnerships with their clients as opposed to the customer-vendor type of relationship practiced before (Lee et al., 2000).

More recently, another business phenomenon emerged in the form of offshore outsourcing, or global outsourcing (Erber and Sayed-Ahmed, 2005; Beulen et al., 2006; Rottman and Lacity, 2006). It is defined as the migration of business processes overseas *“to lower costs without significantly sacrificing quality”* (Venkatraman, 2004, p. 14). Although offshore outsourcing is not specific to IT, the latter attracted more attention due to the wide availability of high quality expert knowledge in countries like India, Ireland, and China (Erber and Sayed-Ahmed, 2005; Tafti, 2005) The benefits of offshore IT outsourcing are mostly shared with those of traditional IT outsourcing with a strong emphasis on cost minimisation (Farrell, 2004; Tafti, 2005) Similarly, the risks of offshore IT outsourcing are comparable to those of traditional IT outsourcing (see Table 2.2). However, according to research undertaken by Rottman and Lacity (2006), it was found that one of the main risks of offshore IT outsourcing is the intensity of hands-on management required control the outsourcing vendors, which results in severe

increases in transaction costs. This, according to Rottman and Lacity (2006), is a major barrier to the success of the model. Despite the risks involved, the offshoring phenomenon is increasing at a rapid pace, and is forecast to attract even more attention in the future (Nair and Prasad, 2004).

In the next section, application service provision is presented, highlighting the reasons for which this model has emerged, its benefits and problems, and finally the initial thoughts about the research questions related to this study will be discussed.

2.4 APPLICATION SERVICE PROVISION

Application Service Providers (ASPs) have created a new form of outsourcing that can be seen as a type of application outsourcing, referred to as ‘third wave outsourcing’ (Currie and Seltsikas, 2001) or ‘netsourcing’ (Kern et al., 2002a; Loebbecke and Huyskens, 2006). In its simplest form, the model consists of deploying, managing and remotely hosting software applications through centrally located servers (Kern et al., 2002a). Customers use the hosted applications through a ‘rental’ arrangement (see Figure 2.3). This model represents a very new approach to software distribution and effectively results in the delivery of software as a *service*.

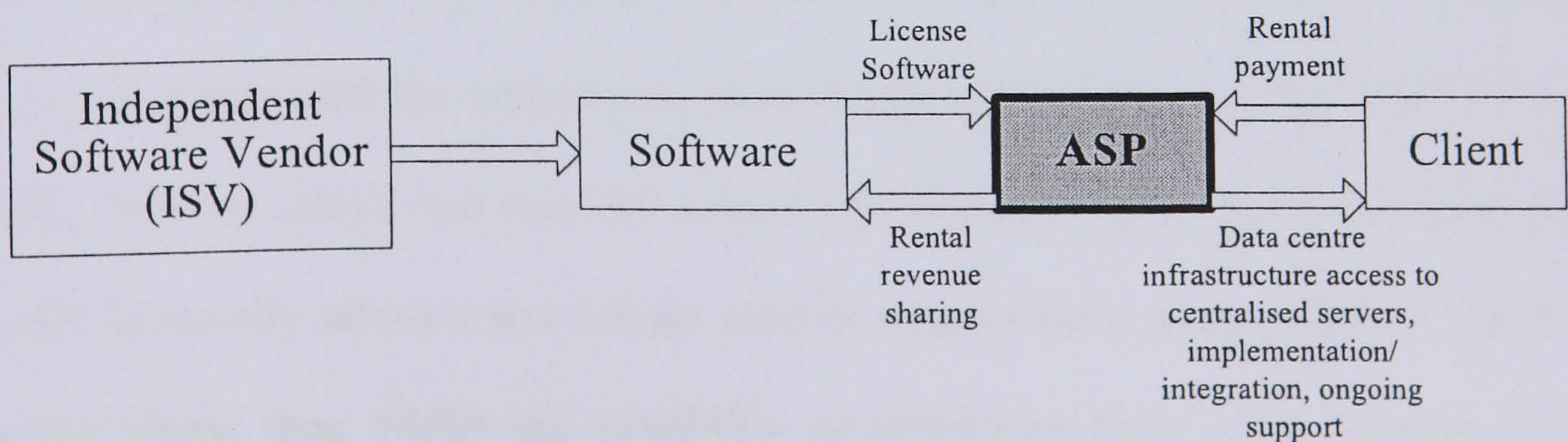


Figure 2.3: The basic ASP model (CherryTree & Co., 1999)

According to the ASP Industry Consortium (ASPIC), an ASP “*manages and delivers application capabilities to multiple entities from a data center across a wide area network (WAN).*” (cited in Susarla et al., 2003) Therefore, an ASP provides access to remotely hosted software applications, under a contractual agreement (Dewire, 2000).

The ASP phenomenon has gained much publicity in the business world as the ultimate solution for acquiring software resources. According to Phillips (2000) this new mode of software delivery is expected to become a major trend over the next few years, particularly with the small to medium enterprises.

2.4.1 The Drivers of ASP

The emergence of the ASP model has been driven by two sides: the customers and the vendors.

The Drivers Related to Customers

There have been many stimuli to the emergence of the ASP model from the customers side. Most notably, the small and medium sized enterprise (SME) segment of the market was virtually excluded from the enterprise applications market, largely due to their inability to afford them (Dewire, 2001). In fact, the fixed costs associated with the deployment of such applications proved very high (Dewire, 2000; Dewire, 2001), and thus the access was limited only to the big players who could financially afford it and left the smaller organizations marginalized. The ASP model offers, thus, SMEs the possibility of leveraging these costs because of the economies of scale that ASP vendors can enjoy. Based on the principle of *one-to-*

many, where the same application is offered to multiple customers, the ASP model is believed to create enormous cost savings of the order of 20-50% (Miley, 2000).

The management problems and complexities associated with deploying and managing such software applications has also been reported in the rather limited literature on the topic (Dewire, 2000; Phillips, 2000; Gupta and Herath, 2005; Lee et al., 2007). In fact, according to Phillips (2000), the costs related to system maintenance consist in around 36% of the overall application costs. As the applications offered by ASPs reside in their local servers, the management of these applications is totally taken in charge by the vendor. As a result, the vendor ensures continued service as well as improvements, such as software updates and upgrades (Currie and Seltsikas, 2001; Kern and Kreijger, 2001; Ma et al., 2005; Lee et al., 2007). Software updates and upgrades are of particular importance, where if the customer is to manage these, not only the task is overly complex and time consuming, but also the cost of the operation is significantly high, which has previously inhibited many organizations to frequently operate these improvements.

The skilled people required to manage the increasingly needed IT infrastructure, have never been more difficult to find. In this regard, the ASP model offers the solution of shifting these management tasks to the vendor, allowing customers to focus their limited IT resources and staff on more strategic operations (Dewire, 2000; Kern and Kreijger, 2001).

The Drivers Related to Vendors

The drivers that attracted vendors to the ASP model are several. The ASP model offers vendors such as Independent Software Vendors (ISVs) “opportunities for

generating new business by developing partnerships with ASP and other key players.” (Currie and Seltsikas, 2001, p. 125) New business opportunities will also be developed by targeting the SME market, where this segment of the market was neglected due to their low IT budgets and requirements (Currie and Seltsikas, 2001). Moreover, the ASP model helps vendors, especially ISVs, to generate a steady stream of revenue (Dewire, 2000). As the applications offered by an ASP vendor are on a rental basis, the vendor has more ability to predict his revenues.

On the management side, ASP vendors have to maintain only the master software copies residing on the servers, taking away, thus, the management complexities associated with deploying the applications on multiple customer machines. Furthermore, upgrading the hosted application has never been easier, where only the master software copies are upgraded and all the subscribing customers receive the updated versions (Dewire, 2000).

Alternatively, Tao (2001) argued that the emergence of ASP has its roots in three separate trends: selective outsourcing, application hosting, and browser-based computing, as illustrated in Figure 2.4. Tao (2001) argues that the ASP model is inspired and directly influenced by selective outsourcing. As discussed above, selective IT outsourcing gained tremendous interest from adopting organizations (Lacity et al., 1996) due to its flexibility. In this context, the ASP model offers the possibility of outsourcing the deployment and management of applications – a part of the IT functions performed in any organization – to third party vendors.

The second driver, according to Tao (2001), is application hosting, where he considers Internet Service Providers (ISPs) as early forms of ASPs as they provided hosted mail and Web servers.

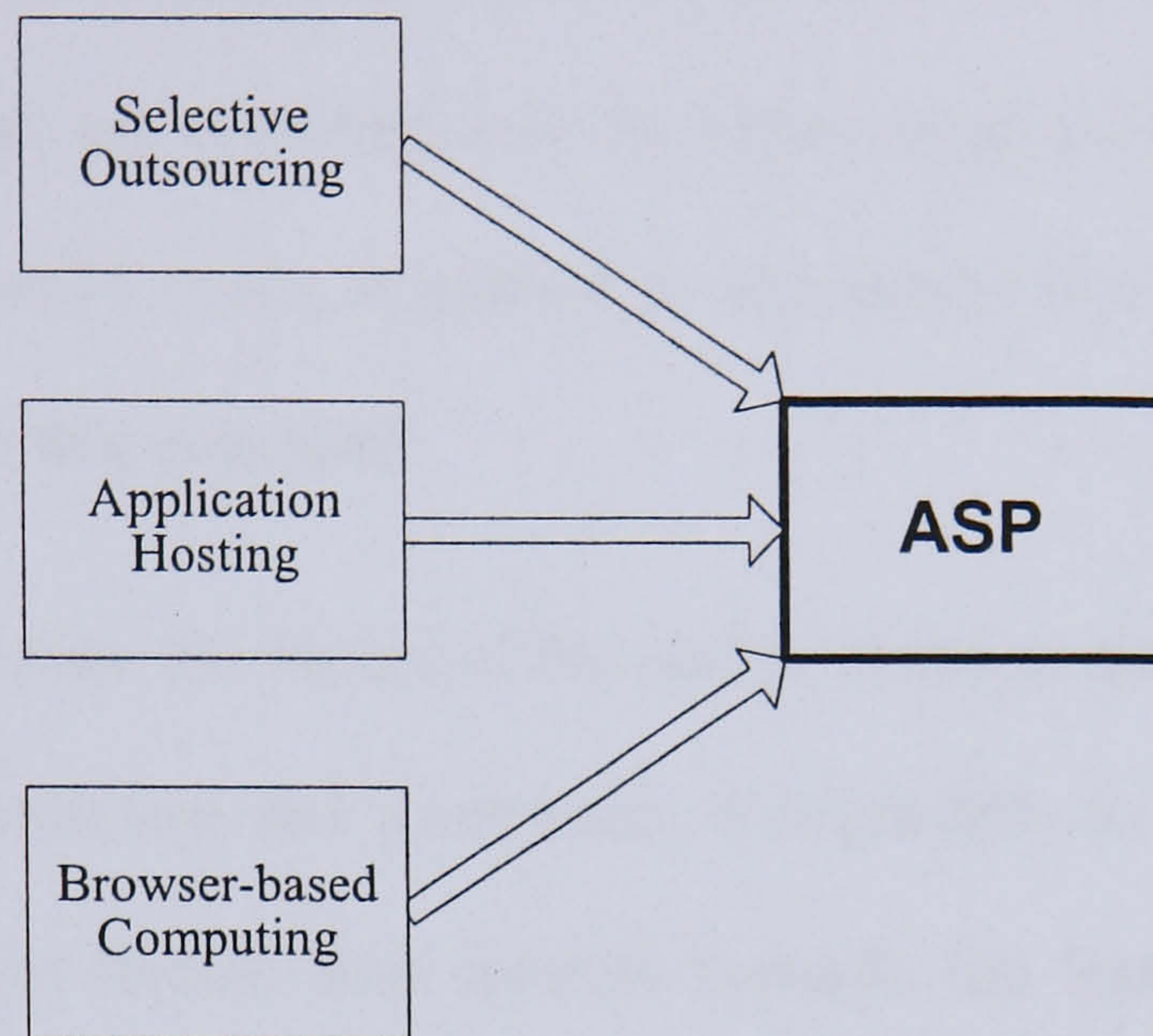


Figure 2.4: Tao's drivers of ASP emergence (Tao, 2001)

Finally, the third driver is Browser-based computing, where the wide spread development of Web-browsers made them capable of hosting real applications, instead of displaying a set of static content. As a result, the acceptance of browsers as the new application interface is increasing (Kern et al., 2002a).

Although the drivers cited by Tao (2001) reflect the development in both the way organizations practice management and the technologies being used, what seems to be missing is from this list is the technology that has revolutionised the business world: the Internet. The Internet is one of the main influencing factors of the ASP emergence (Kern et al., 2002a). It is a real revolution in itself, while its high speed of development in recent years has made it even more important, more secure, and more reliable. Such a development led the business world to find interest in exploiting this environment for their practices. Porter (2001, p. 64) argued that

“Internet technology provides better opportunities for companies to establish

distinctive strategic positioning than did previous generations of information technology.” This means that the Internet as a media for business practices is no longer challengeable and is here to stay. In the case of ASP, it was mentioned above that the main segment that was targeted was SMEs who failed, financially, to access enterprise applications, yet exploited only by larger companies that are financially stronger. It is true that IT costs, in general, is continually decreasing, but what has the Internet to do with this situation?

The Internet has overcome the lacuna of the earlier forms of networking: ‘*cost*’. By using a simple telephone line and a computer, it is possible to get connected. As a result, businesses have turned their interest towards the Internet as a means of business networking, instead of the expensive proprietary networks. This consists in a revolution in business networking and offers businesses a less costly solution for achieving their communication needs. Furthermore, Miley (2000) argued that the *ubiquity* of the Internet, its integral and open standards, and the devaluation of computers led this media – the Internet – to revolutionise business practices, and delivering applications through the Internet is only a *natural*. Therefore, the development of the Internet made the concept of ASP thinkable, and aimed at targeting SMEs for whom cost is a major barrier. Given this context, the diagram presented by Tao (2001) in Figure 2.4 could be expanded as illustrated in Figure 2.5.

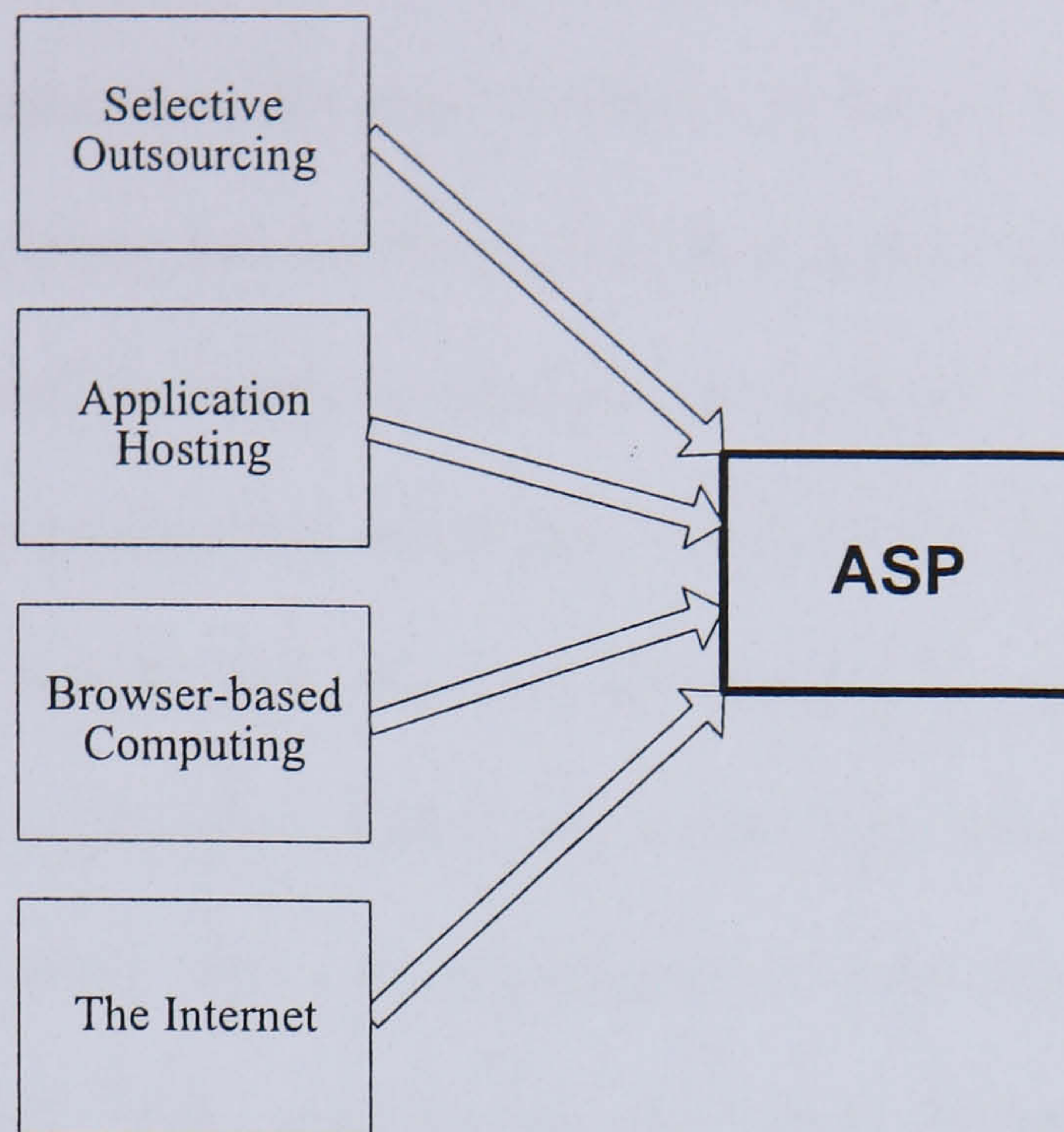


Figure 2.5: Drivers of ASP emergence

2.4.2 Is ASP Different from Traditional IT Outsourcing?

The discussion established so far in this chapter was concerned with two major phases in the history of IT sourcing. IT became under scrutiny leading executives to think about outsourcing it, thus the emergence of IT outsourcing as a field of interest. Recently, ASP is becoming a loud buzzword attracting the attention of many executives, but with no success in attracting their confidence. However, as ASP is still not strongly established, researching it could prove to be difficult. Should it be considered as a traditional outsourcing model, and use the wide existing literature that explained traditional IS/IT Outsourcing? Or more as a standalone field, that requires its own set of rules? In other words, the emergence of ASP has always shown confusion whether this model is a real revolution or just an evolution from the traditional IT Outsourcing.

From studying both strategies – IT Outsourcing and ASP – it is clear that they both have common main incentives for their existence, as shown in Figure 2.6. In fact, focusing on cost efficiency and improving business performance are always sought by organizations, as well as aiming to focus on core competencies that can lead them to achieve and sustain competitive advantage. As shown in Figure 2.6, these shared drivers, which come mainly from the need for outsourcing, represent the common roots of both strategies; in other words, this shows the *evolution* of ASP from IT Outsourcing. It should, thus, be concluded at this level that ASP shows characteristics derived from outsourcing, and that literature on outsourcing, particularly IT Outsourcing, has to be considered for researching it.

On the other hand, it is found that when both strategies are compared, despite their common drivers, they have some unique characteristics drawing a gap of difference between them. Taking the case of the former strategy – IT Outsourcing, – it was mainly reserved for bigger firms, based on a unique provider/client relationship. This was due to the fact that different clients had different requirements, especially when selective sourcing is practiced. ASP, however, focuses mainly on sharing resources through a one-to-many type of relationships. This has helped the model to be targeted at a different segment of the market – SMEs – by focusing on economy-of-scale strategies.

Furthermore, as explained above, the Internet is one of the main elements and influencing factors of the ASP model, and as a communication media, this technology should not be neglected. At this level, it should be concluded that ASP developed new characteristics that gave it a revolutionary character. These, in fact, represent the features that are unique to ASP, and that have helped the model to emerge.

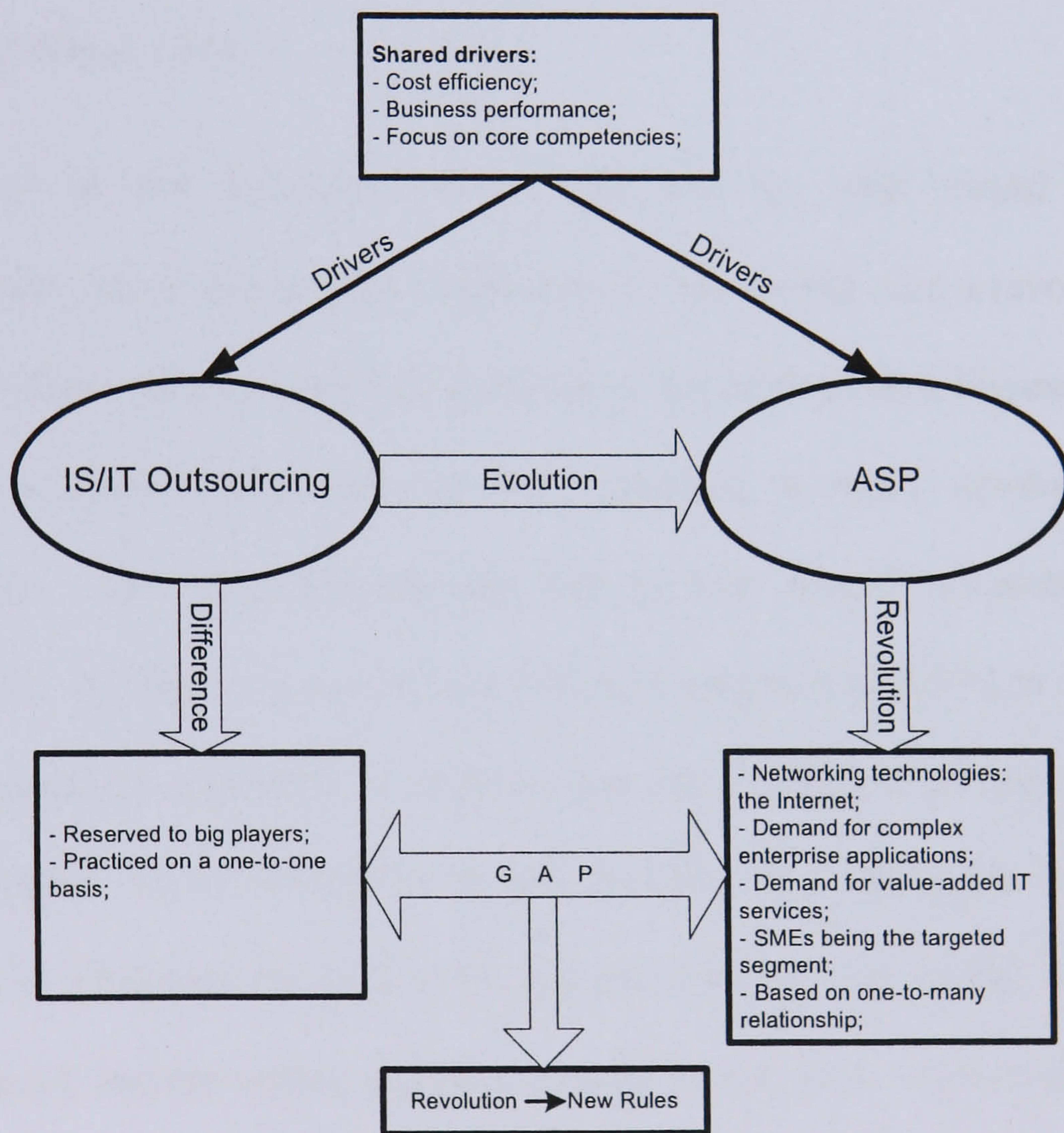


Figure 2.6: ASP's Evolution/Revolution Model

Weighting the two scenarios above, it is true that ASP is both revolutionary and evolutionary. However, considering that it is hardly conceivable that something emerges with no influence, it would be wrong to suggest that a model such as ASP emerged from a predefined set of environmental variables and a set of practices

already experienced. Instead, the highly significant role played by the Internet on the delivery of ASP solutions, makes it reasonable to suggest that ASP could be considered more revolutionary than evolutionary. Furthermore, even if the development of IT outsourcing in the last two decades has been enormous, and it has certainly influenced the emergence of ASP as a way of outsourcing applications, many ASPs tried and still try hard to avoid discussing such a linkage, possibly due to numerous failures and unsuccessful deals already experienced with traditional outsourcing (Toigo, 2002).

As a result of this discussion, it is clear that the ASP model shows two characteristics; an evolution from traditional IT Outsourcing, and a revolution as the model introduces new components, particularly the Internet (see Figure 2.6). It has also been explained that ASP can be considered as more revolutionary than evolutionary. The issue that emerges here is, how should researching ASP be approached? In Figure 2.6, it is shown that the emergence of ASP has created a gap when compared to traditional IT Outsourcing, due to the new parameters involved with this model. Such parameters include the Internet as the media through which the model is delivered, the type of relationship between the vendor and the client (one-to-many), and the market segment targeted being SMEs, to cite a few. This gap suggests that there is a need for new rules to explain ASP. This does not separate ASP from its precedent IT outsourcing strategy, as we suggest that the latter's literature is of great value, as ASP emerged from it; however we also argue that this set of literature is not sufficiently adequate to be uniquely used for researching ASP.

2.4.3 Benefits and Risks of ASP

The main claimed benefits of the ASP model are as follows (Cherry Tree & Co., 1999; Currie and Seltsikas, 2001; Kern et al., 2002a; Leem and Lee, 2004; Lee et al., 2007):

- The shortage of IT experts, where some companies, especially the smaller, cannot afford to pay for IT experts on a long-term basis. ASPs offer access to skilled personnel at minimum cost;
- Improvement in application deployment time, reducing it from months to days or weeks;
- Access to latest technology and software;
- Minimising the total cost of ownership (TOC) of applications, as fixed costs shift from application users to the ASPs;
- More focus on core competencies, by eliminating non-core functions.

The size of the ASP market, as forecast by many analysts, is also an important sign of the importance of this business model. IDC, for instance, expected the market to grow from US\$ 300 million in 1999, to US\$ 25 billion in 2004 (cited in Miley, 2000). Furthermore, IDC expect US enterprise ASP spending alone to grow to US\$ 2.5 billion by 2004. However, even if the ASP market is in continuous expansion, many issues still form a strong barrier to its development. Such issues are as follows:

- Security is a main concern for prospective customers causing ASP uptake to suffer (Dewire, 2001; Kern and Kreijger, 2001; Kakabadse et al., 2004). In fact

the uncertainty of whether ASPs are capable of ensuring the security of proprietary information is emerging as a major factor inhibiting the deployment of the ASP business model. This issue is intensified when *mission critical* applications are to be supplied;

- Performance concerns, where many analysts argue that deploying existing applications, based on client/server architecture, on an ASP delivery presents significant degradation in performance, as these applications were not designed to be ‘hosted’. Instead, Web-enabled applications of suitable architecture can ensure optimal performance (Columbus, 2000);
- Customisation can also be considered as a potential risk for ASP delivery; according to Phillips (2000) customising ASP delivered applications would add costs and limit marketability, which stands against the benefits expected from the ASP model;
- Furthermore, as ASP market is expected to grow, ASP vendor responsiveness may decline, and therefore an over-dependence on ASP services, particularly for sourcing mission-critical applications, may seriously affect ASP customers by losing control over application management (Phillips, 2000; Kern and Kreijger, 2001).

2.4.4 Issues with the ASP Model

The original ASP model, as defined above (see Figure 2.1), presented many weaknesses. The model suffered the lack of product differentiation (Porter, 1980), as different ASP vendors focused mainly on hosting applications. In fact, the similarity of offerings in the marketplace was fuelled by low entry barriers, and

caused an explosion of similar services provided by look-alike ASPs (see Figure 2.7). Using Porter’s (1980) competitive model, as illustrated in Figure 2.7, it should be noticed that the ASP market was highly accessible; entry barriers are low. This left the market wide-open to new entrants. The high number of competitors made profit a difficult target to achieve. Consequently, many players in the ASP market felt the need for differentiating their product(s): “...in order to build a sustainable company, additional value-added components need to be offered in order to build long-term, strategic relationships with customers”, Cherry Tree & Co. (2000, p.7). Thus, for ASPs, simply hosting and managing applications did, in general, not provide sustainable strategies. Instead, “companies that ultimately build sustainable ASP related businesses will also offer a value-added component(s) to their service that is simultaneously difficult for competitors to replicate and customers to replace” Cherry Tree & Co. (2000, p.8).

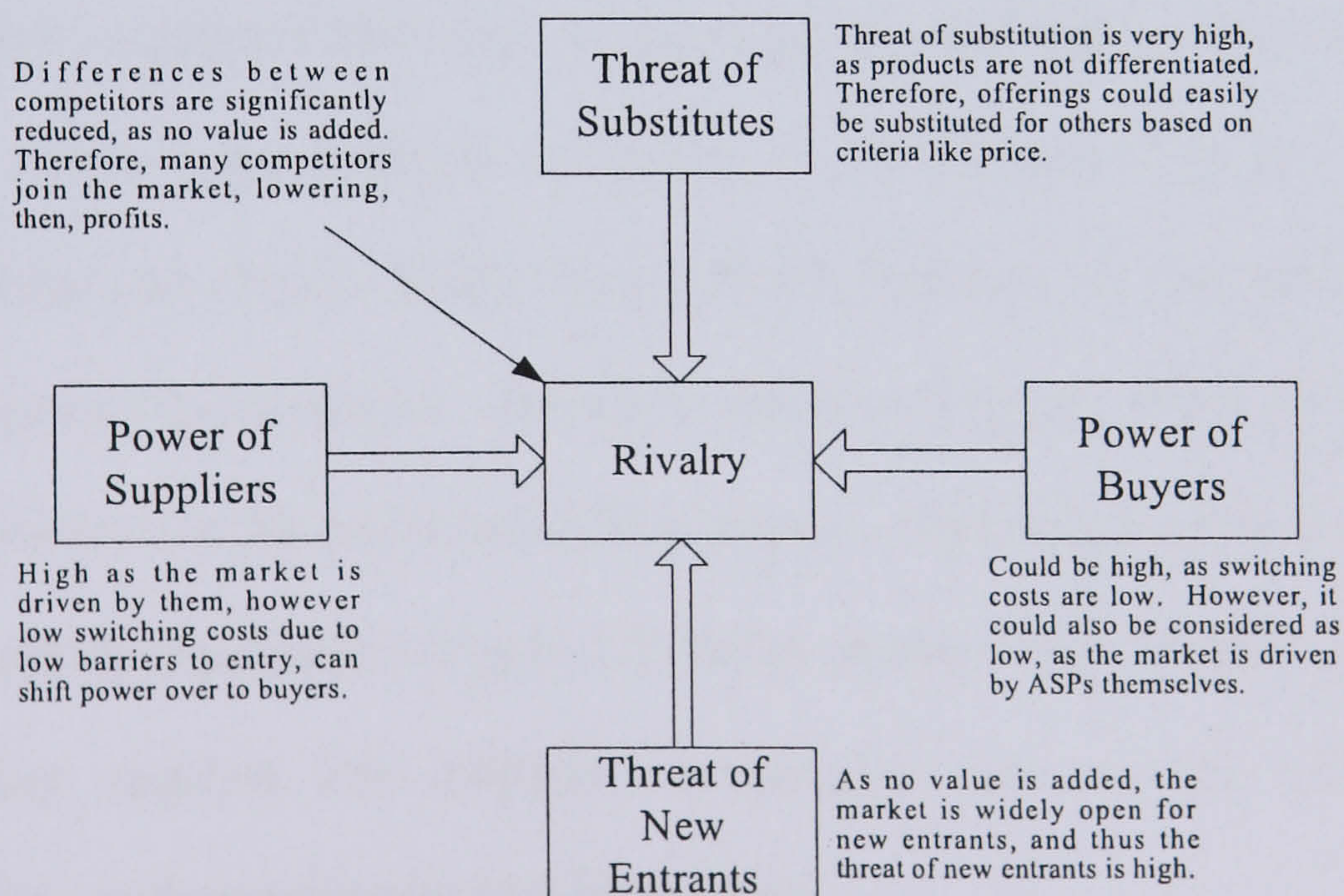


Figure 2.7: The competitive forces of the ASP model (Adapted from Porter, 1985)

Furthermore, ASP can be seen as a complex technology; Singh (1997, p. 340) defines a complex technology as “*an applied system whose components have multiple interactions and constitute a nondecomposable whole.*” From this definition, Singh (1997) deduced that firms commercialising complex technologies face the challenge of developing multiple capabilities, but few firms have the ability to develop the broad set of competencies required. In this context, looking at the ASP model, it relies on grouping different technologies together in order to offer services to customers. Although the literature on ASP differs in terms of defining these technologies, mainly due to the focus of the different studies, the required IT-based components for delivering ASP services seems to be related to networking, hosting, computing architecture, and software (Dewire, 2000; Toigo, 2002; Smith and Kumar, 2004). Due to the wide spectrum of the different configurations an ASP model can take, it is difficult, and of little use, to cite all the capabilities required for ASP delivery. However, in order to simplify the situation and make this study more controllable, a generic definition of the required capabilities seems more suitable. Among some of the different definitions in the literature (Dewire, 2000; Toigo, 2002; Smith and Kumar, 2004), Toigo’s (2002) presents an appropriate description of the required technologies. Therefore, based on Toigo’s (2002) description of the layers involved in the provision of IT services, a representation of the ASP model’s components is illustrated in Figure 2.8. In his model, Toigo (2002) explained that an IT service requires five different components: data storage, server, network, application, and management (see Figure 2.8).

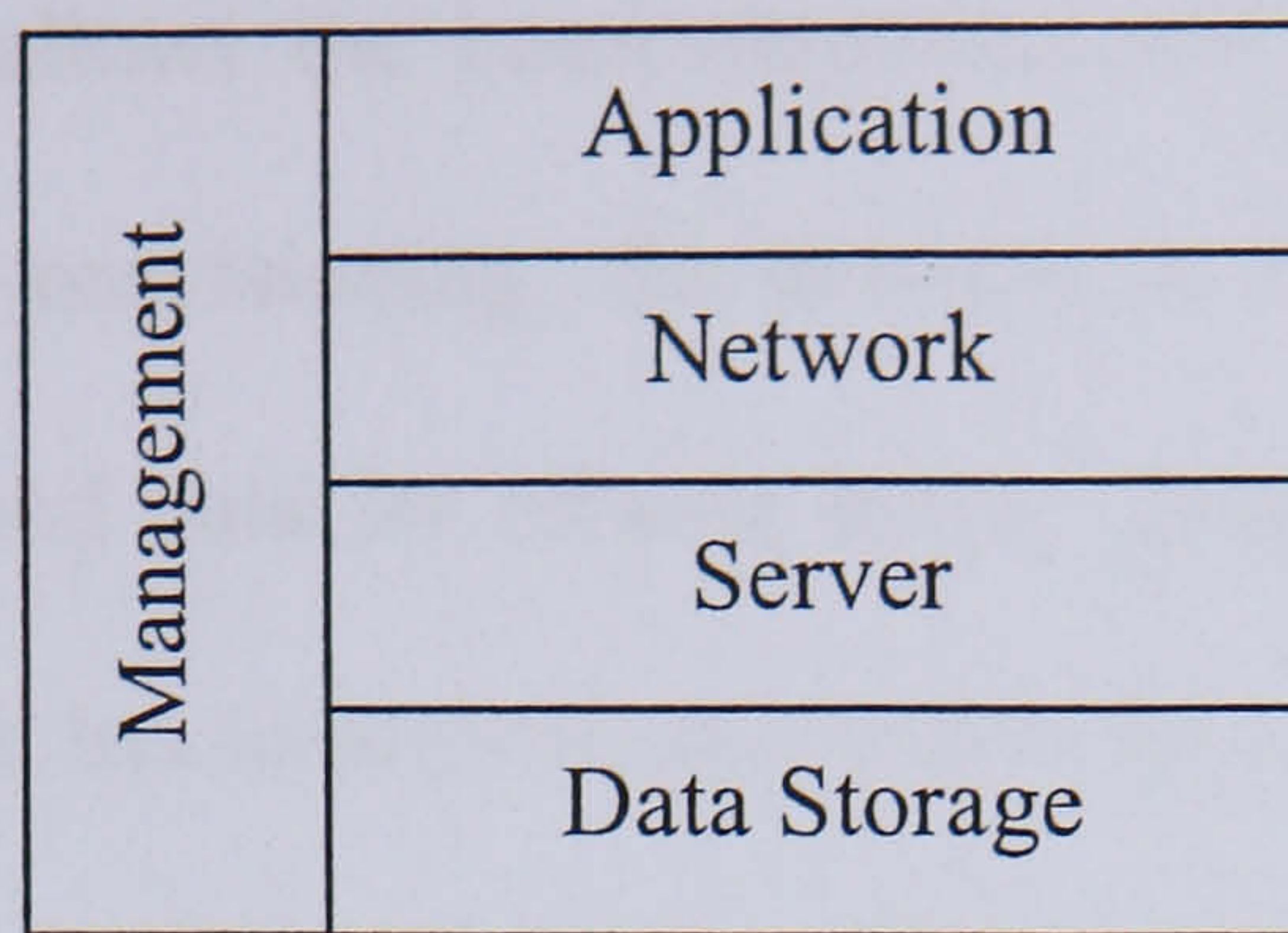


Figure 2.8: Infrastructural Perspective of IT Service (Toigo, 2002, p. 7)

Data Storage: it provides the required space for storing data, as well as stored data access and data sharing. Storage is so important to the performance of IT services that a class of service providers, being Storage Service Providers (SSPs), have emerged. In the context of ASP, storage is a key element of the model, where applications and data are stored remotely, away from the customer’s premises. Although data storage, simply described, consists in storing customers’ data, and offering data backup and data recovery facilities, the architecture of such storage is complicated. According to Toigo (2002), storage can either be directly attached to servers, network-attached storage (NAS), or pooled via a storage area network (SAN).

Server (Computing Infrastructure): this represents the computing infrastructure, which contains the hardware used for data processing. The server layer is very important for providing IT services, as it contains the platform on which the provided applications run. Such an infrastructure should provide good access to applications and data, and acceptable levels of security. In the context of ASP, servers are co-located in data centres, containing the different applications used by different users. Applications are shared among different users in an organization, and sometimes among different users in different organizations.

Network: the network allows the interconnection and interoperation of distributed servers. In IT service provisioning, the network is important in that it provides access to applications and data for remote users. Besides offering application and data access, the network has to provide acceptable levels of security, through which operations can be safely performed. In the context of ASP, the model is based on the remote use of applications and manipulation of data, which makes from the network an element of considerable importance, connecting users to their applications and data. The most common forms of network used in ASP delivery are the Internet, private networks and virtual private networks (Kern et al., 2002b).

Application: this is the program used to support business processes. Applications vary in many ways according to their use and their architecture, and therefore have direct impact on the requirements that need to be met by the elements described above (data storage, server, and network). In the context of ASP, applications can be found in two categories; the applications that are core to the model, dictating the service being offered, and the middleware applications. In the former category, the applications offered by an ASP range from very basic and standardised applications such as e-mail, to the most complex and expensive enterprise applications such as enterprise resource planning (ERP) applications (Kern et al., 2002b). The providers of such applications also vary from very large ISVs such as Microsoft, Oracle, and Siebel, to smaller ones specialising in vertical and niche markets.

The second category consists of applications used for interfacing with the former category of application in order to enable these to be offered over a network. These applications are key to the ASP model, particularly when traditional client/server applications, which have not been designed for ASP delivery, are being offered. The

most common middleware solutions are provided by companies like Microsoft (Windows Terminal Server) and Citrix (Nfuse).

The choice of the application, or the set of applications, to be offered should guide the requirements in data storage, such as the required capacity, the server, such as the platform, and the network, such as the bandwidth.

Management: although management function is involved in each of the layers described above, orchestrating these layers together is a task of major importance. Moreover, the provided IT service needs to be linked to the supported business process, aiming, thus, to assess the results of the offered service by measuring its performance. In the context of ASP, the management function is of tremendous importance; the layers illustrated in Figure 2.8 need to be coordinated to ensure the best performance and quality of service. In this case, the ASP is the coordinator. Although the ASP could be providing one or more of these layers – data storage, server, network, and application – the management function is its main task. Despite orchestrating the different layers described cited above, the management layer requires systems integration services to be delivered to customers. Moreover, sales and marketing skills are also necessary. Therefore, overall, in order for the ASP to be consistent with the service level agreement drawn with its customers, good management skills are essential.

From Figure 2.8, it should be noticed that the ASP model fits into the definition of a complex technology (Singh, 1997). The model requires different components – or layers – to operate, which are disparate in nature. Each described layer needs

dedicated resources and capabilities in order to be run. Thus, how can an ASP vendor aggregate these layers?

At the present level, two issues have been discussed. The first issue is that of the strategic differentiation between the different players in the market, and the second being that of the complexity of the technologies required for running the ASP model. In the former, the ASP vendors face the need for differentiating their offerings in order to stand out among competitors. According to Porter (1985, p. 120), “[a] firm differentiates itself from its competitors when it provides something unique that is valuable to buyers beyond simply offering a low price.” Differentiation can be achieved in different ways, and according to Porter (1985) a firm can either become unique at performing its existing value activities, or enhance its uniqueness by reconfiguring its value chain. The latter seems of particular interest in the case of the ASP model, where the ASP vendors could reconfigure their value chains in order to add value to their offerings and thus differentiate themselves. In order to achieve this, a widely practiced strategy in the ASP market is partnering. According to Columbus (2000, p. 171), “[i]n the business plans of many application service providers today there is a strong focus on leveraging partnerships to create differentiation.” Therefore, partnering is important for ASP vendors to offer value added components that may enable them to differentiate themselves. As a result of the focus on leveraging partnerships to create differentiation, the ASP market witnessed major changes with the emergence of different variations of the initial concept (Columbus, 2000). These variations are classified as follows (Currie and Seltsikas, 2000; Lehman Brothers, 2000): *Enterprise ASPs* where ISVs deployed their own ASP strategy, choosing to offer their services directly to their customers,

accessing thus a wider segment; *ASP Enablers* who support the infrastructure through which ASPs deliver their offerings; *Pure Play ASPs* characterised by owning their delivered resources, and acting as a single point taking responsibility of all the requirements for delivering their resources; *Vertical ASPs*, targeting industry-specific applications and processes; *Horizontal ASPs* offering, mainly, collaborative applications such as email; and *Full Service Providers (FSP)* providing an end-to-end solution.

In the second issue – complex technology – the ASP vendor is faced with challenge of aggregating different capabilities under the same model. As seen in Figure 2.8, the ASP model requires many complex technologies that are difficult to be developed internally, unless these are the core competencies of the ASP vendor; in fact, as different ASP vendors come from different backgrounds, and thus master different technologies, one or more of these layers may already be part of the vendor's arsenal. However, in a general rule inspired from the concept of complex technology explained above (Singh, 1997), it is extremely difficult, if not impossible, for a single ASP vendor to own all the required components of the ASP model. Thus, ASP vendors face the challenge of developing multiple capabilities, and here again partnering is a potential solution for having access to these (Hagedoorn, 1993; Singh, 1997).

In conclusion, partnering is core to the ASP model, as it allows ASP vendors to differentiate themselves, and gives them access to the critical technical components without which the ASP model would not exist. Moreover, partnerships are also becoming an important part of an ASP's strategy as the ASP market grows, where, according to Columbus (2000), customers' expectations concerning an ASP's

performance will grow, and therefore partnerships will be adopted at an enormous pace in order to ensure the highest level of performance. However, such achievements cannot be guaranteed, as partnering has to be successful in order to bring advantages.

Gartner Group (2001) forecast that 60% of ASPs created before 2001 will fail due to poorly developed business models, the *wrong choice of partners*, an inability to execute high levels of service, and consolidation in the ASP market. This is indicative of recent progress in the ASP industry, where choosing the appropriate partners may be problematic. Furthermore, reviewing the cases of some of the biggest ASP initiatives helps to learn more about the development of this model. Two mini-cases are considered in here; these mini-cases are written based on the publically available literature, although the author was involved in interviewing an executive at Cable & Wireless' a-Services. The use of these mini-cases is limited to an indication of the potential problems that ASP vendors may face, and thus help in defining the research questions related to this study.

Case Study: Cable & Wireless' a-Services

Cable & Wireless, a telecommunication company, started in the late 1990s to expand its offering to exploit the Internet. It offered Internet access as an ISP and Web hosting. A further enlargement of its strategy led the company to enter the world of application service provision. In November 1999, Cable & Wireless announced a plan to form a global relationship with the Compaq Computer Corporation, and planned to commit a total of US\$500 million for the relationship during a period of 5 years, with Compaq sharing revenues and providing a traditional supplier contract. According to Cable & Wireless (Cable & Wireless Press Release:

<http://www.cw.com>), this relationship would position them as a leading application service provider, targeting small and medium sized enterprises (SMEs), to provide them with complete end-to-end e-business solutions.

Starting from the relationship with Compaq, the objectives of Cable & Wireless were to offer a complete end-to-end integrated solution including application hosting, network connectivity, and eBusiness consulting (ibid). The next major step that Cable & Wireless achieved was its strategic alliance with Microsoft in June 2000. Within this relationship, Microsoft provides “*marketing, product and support professionals as well as making available the facilities and staff of the Microsoft Partner Solutions Center (MPSC) labs for development of future services, products and testing*” (Cable & Wireless, 2000). By doing so, Cable & Wireless based a range of new services on the Windows platform, featuring initially Microsoft Windows 2000, Microsoft Office 2000, and Microsoft Exchange with integrated messaging and collaboration tools.

In May 2001, following the implementation of the first phases of its ASP strategy, Cable & Wireless acquired Digital Island, a leading provider of managed Internet services for business customers. Digital Island supplies integrated managed hosting, content delivery and intelligent network services. This enhanced Cable & Wireless’ capabilities. Digital Island planned to add new services to those offered by Cable & Wireless such as ‘content delivery’. Through this partner Cable & Wireless’ hosting capabilities were increased with additional nine hosting centres worldwide (previously managed by Digital Island). The Digital Island deal also gave Cable & Wireless access to a very strong customer base (including Microsoft, Cisco, and Sony).

Cable & Wireless set up a wholly owned subsidiary, a-Services, to manage its ASP offerings. The aim has been to evolve to being a Full Service Provider (FSP). Unfortunately, a-Services closed down by the end of 2001, as they failed to attract enough customers.

Although it cannot be argued that a-Services failed because of partnering problems, what should be drawn from this case is that how three major IT players – a leading telecommunication provider (Cable & Wireless), a leading software provider (Microsoft), and a leading hardware provider (Compaq) – did not manage to make from their ASP proposition a successful business.

Case Study: Pandesic

Pandesic is an ASP that specialised in Business-to-Consumer e-Commerce. The company was launched in 1997 as a joint venture between Intel and SAP. Pandesic was launched during the golden era of the dot-com explosion, when there were tremendous expectations about profits that could be realised. As its main strategy, Pandesic focused on enabling the emerging e-tailers and retailers that wanted to have fast access to the dot-com market. However, the investment community had high expectations of Pandesic. It has been an important illustration of a failure in the ASP industry. When it announced its closure, it had recorded estimated losses of around \$US20 million per year. The causes of such a failure were not clear, and many analysts (such as IDC) remained confused. It was clear however that its founders – Intel and SAP – were deeply involved.

Pandesic specialised in Business-to-Consumer e-Commerce but started off by targeting SAP's existing customers. These were mainly large corporations that were not interested in the consumer-oriented services that Pandesic offered. Additionally,

according to IDC, Pandesic did make attempts to shift its strategy toward Business-to-Business opportunities. With hindsight, Pandesic's failure appears to be strongly linked to its 'inappropriate' strategy, but most notable is that Intel and SAP occupied all six board seats at Pandesic (IDC). As a result (ibid.), blame for Pandesic's failure was directed to both parents – Intel and SAP. The parents were 'accused' of playing a "*laissez-faire*" role, and doing very little to help Pandesic to develop and update its strategy. What was needed was a shift to the more profitable Business-to-Business e-Commerce.

The case of Pandesic displays another unsuccessful ASP initiative that failed to generate revenue and meet the expectations. Contrary to the previous case, Pandesic failed because of partnering problems.

2.5 CONCLUSION

This chapter has covered many topics. It started by giving an overview of the way IT is considered in organizations. Issues such as whether IT is core to the organization have been discussed, and it was concluded that although such debate might continue, managers' and academics' thinking about the value of IT for the organization will still vary.

This chapter has also covered the topic of IT outsourcing. It was demonstrated that although outsourcing IT can be a risky option, it has many benefits that attracts the attention of managers increasingly.

As a special form of IT outsourcing, ASP was discussed as an alternative for traditional software distribution methods. The concepts behind the model were explained, and the benefits and risks were described. Focusing more on the ASP

model, it was demonstrated that the ASP model has well evolved and emerged from IT outsourcing, but has many unique features that distinguish both (see Figure 2.6)

Finally, two major issues concerning the ASP model were revealed; ASP vendors need to differentiate themselves from competitors by adding value to their offerings. Also, considering the ASP model as a complex technology (Singh, 1997), ASP vendors face the challenge of developing broad set of competencies required from the model to operate. It was demonstrated that both these issues could find solution in partnering with other firms. Therefore, it was concluded that partnering is core to the ASP model.

Alternatively, the two cases cited above lead to another conclusion. As drawn from the limited literature on ASP, this solution seems very attractive in that it offers tremendous potential benefits to the end users as well as the ASP vendors. However, in the first illustrative case, three major IT players have failed to build a successful ASP model; although the publicised reason for this failure was the lack of customer interest, what should be noticed is that these major firms together were unable to be successful, and therefore the partnership involved in this case is questionable. The second case illustrated a failure directly related to partnering issues; here again, two major IT firms partnered for an ASP initiative, however due to their lack of commitment they failed to make from it a successful business. Moreover, Gartner Group (2001) predicted that the wrong choice of partners is one of the reasons for many ASP vendors to fail.

As a conclusion to this chapter, the objective of the present thesis is to investigate the partnering strategies deployed by ASP vendors. Refining this objective is necessary

due to its rather large scope, however, in order to achieve this, a detailed review of the partnering literature is of highest importance. Partnering strategies have received a very wide consideration from both academics and practitioners, and the literature involved can only be characterised as massive. In the next chapter, partnering strategies in strategic management will be reviewed, then related to the ASP model, and finally refine the research objectives and questions for this research.

CHAPTER 3

STRATEGIC ALLIANCES IN ASP

3

3.1 INTRODUCTION

From the strategic management perspective, the main objective for any given firm, acting in any given environment, is to achieve and sustain competitive advantage. As Porter (1991, p. 96) explains it, *“firm success is manifested in attaining a competitive position or series of competitive positions that lead to superior and sustainable financial performance. Competitive position is measured, in this context, relative to the world’s best rivals.”* Therefore, in order to be successful, it is imperative for any firm to establish and preserve a difference, in a way that it outperforms its rivals (Porter, 1996). Porter (1990) also defined competitive advantage as coming from innovation, which is approached in a wide sense to include new technologies and new ways of doing things.

However, as the competitive conditions change, firms would attempt to alter their strategies in order to sustain their competitive advantage or to regain it. This is particularly true in today’s business environment, which is characterised as being dynamic and uncertain, and where technologies change at rapid pace (Porter, 1996; Courtney et al., 1997). Faced by these pressures, firms need to make decisions on how they would establish their strategies in order to cope with these changes. Strategic alliances are among the strategic tools that can be chosen by firms (Mason, 1993; Murray and Mahon, 1993; Stafford, 1994), as they are considered to *“take place in the context of a company’s long-term strategic plan and seek to improve or*

dramatically change a company's competitive position." (Devlin and Bleackley, 1988, p. 18) However, strategic alliances are not the only solution, where firms frequently consider the option of allying against other options, such as "*do it yourself*", as named by Kanter (1989, p. 184). In other words, firms have frequently considered the option of performing the required activity internally, against the option of allying with other firms who can better perform it. This has significantly altered the whole concept of the firm, where "*good fences make good corporations*" (Kanter, 1989, p. 183) used to be the main assumption of traditional management. According to Kanter (1989), this assumption has its limitations, in that it is costly, in time and resources, for any firm acting in today's highly competitive environment to perform everything internally, even if it has the capacity to do it. As a result, competitive success became to be perceived as requiring the integration of multiple capabilities across internal and external organizational boundaries (Lorenzoni and Baden-Fuller, 1995).

On the other hand, strategic alliances are not always commonly considered as a better option, where according to Murray and Mahon (1993) many firms see them as "*potential traps*" that may lead to mediocrity. In fact, several cases reported failed alliances, resulting from poor collaboration between partners (Medcof, 1997). Several reasons led to such poor collaboration, mainly poor partnering skills, unbalanced intentions among the partners, and incompatible business objectives (Dacin et al., 1997).

The aim of the present chapter is to investigate the partnering literature. The term strategic alliance is used to describe these partnerships between firms. After defining the concept of a strategic alliance, the chapter will look at the different

aspects of strategic alliances, including the incentives for forming them, their benefits and risks, and the process through which these alliances evolve. Then, alliances will be looked at specifically in the context of IT outsourcing and ASP. Finally, the research objectives of this study will be further refined, and a conceptual model will be generated.

3.2 STRATEGIC ALLIANCES

Strategic alliances are not a new concept, as they were very commonly practiced between firms in oil extraction and petroleum refining (Powell, 1987; Pekar and Allio, 1994). However, in recent years strategic alliances formation has exploded in an unprecedented way (Powell, 1987; Geringer, 1991; Murray and Mahon, 1993; Gulati, 1995b; Dacin et al., 1997; Dyer and Singh, 1998; Kumar and Andersen, 2000; Hoffmann and Schlosser, 2001; Buckley et al., 2002), which increasingly attracted academics' attention. As a consequence, strategic alliances began gaining tremendous importance, to the extent of being seen as a vital key to success in many fast-evolving industries, such as computer hardware and software (Pekar and Allio, 1994).

The present section is an attempt to investigate the different aspects of strategic alliances as covered in the literature, including definitions of alliances, the rationale for their formation, their benefits and risks, their structures, their phases, and their theoretical explanations.

3.2.1 Definitions

From the wide available literature on inter-organizational relationships, it is difficult to precisely define what the term '*strategic alliance*' means, due to the complexity of inter-organizational relationships (Osborn and Hagedoorn, 1997). The term '*strategic alliance*' has frequently been employed with different meanings (Nooteboom et al., 1997; Das and Teng, 1998b), drawing much confusion about its appropriate use. Whereas some academics (Murray and Mahon, 1993; Nooteboom et al., 1997; Gulati, 1998; Spekman et al., 1998; Koza and Lewin, 2000), use the concept to mean a wide array of organizational forms that fall beyond market transactions, other academics (Barringer and Harrison, 2000) use it to mean a specific relationship between two firms or more, that does not involve joint ownership. The purpose of the present chapter is to study the cooperative strategies in which two or more firms are involved, and does not intend to define the terms used to define such partnerships. In order to simplify the readability of the present chapter, the term '*strategic alliance*' is used as a generic term for inter-organizational relationships of any type, excluding mergers and acquisitions, or full equity ownerships, where, according to Murray and Mahon (1993, p. 103), "*if one organization completely purchases another, the purchased firm loses its identity and is unable to exit from the relationship.*" This would, if full equity ownership were to be considered as a type of strategic alliances, deprive the partners from exiting the relationship. Furthermore, Jorde and Teece (1989, p. 30) argued that strategic alliances cannot include mergers because "*by definition alliances cannot involve acquisition of another firm's assets or controlling interest in another firm's stock.*"

Gulati (1998) defines strategic alliances as “voluntary arrangements between firms involving exchange, sharing, or codevelopment of products, technologies, or services.” This is a situation where two companies, or more, forge an agreement to leverage combined resources, knowledge, and capabilities in order to achieve, enhance, or maintain competitive advantage for each participant (Mohr and Spekman, 1994; Clarke-Hill et al., 1998; Spekman et al., 1998), in a way that neither partner could achieve it alone (Borys and Jemison, 1989; Mohr and Spekman, 1994). The benefits that each partner receives from such a relationship are not equal in all situations, but are proportional to the contributions made (Murray and Mahon, 1993).

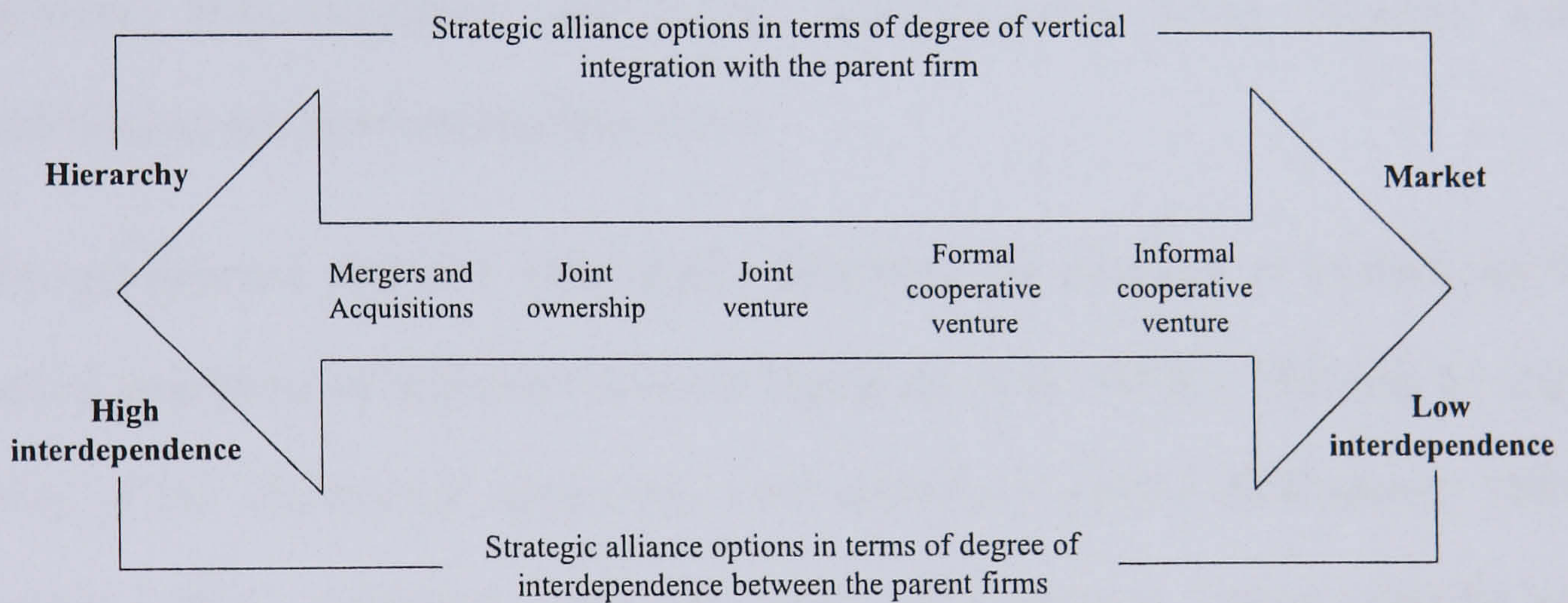


Figure 3.1: Definition of Strategic Alliances (adapted from Lorange and Roos, 1993)

In defining what a strategic alliance really means, and the different forms an alliances can take, Lorange and Roos (1993) suggested two theoretical views; on the one hand, it is possible to look at alliances options in terms of vertical integration, resulting in a continuous scale between transactions on a free market, and total internalisation, and any venture along this scale is defined as a strategic alliance. On the other hand, the second view consists in considering the interdependency between

the parties involved, varying from a high interdependency to a low interdependency.

Figure 3.1 summarises both theoretical views.

From the diagram in Figure 3.1, it is clear that alliances can be found in different types, serving different purposes. In fact, many academics, particularly in the strategic management area, have given different taxonomies according to different criteria of classification. Lorange and Roos' (1993) theories cited above could be considered as an attempt to classify strategic alliances. Furthermore, Barringer and Harrison (2000), suggested a taxonomy of inter-organizational relationships, according to the strength of the link between partners. This taxonomy contains tightly coupled forms of inter-organizational relationships, being joint ventures, networks, and consortium, and loosely coupled forms, being alliances, trade associations, and interlocking directorates.

The management literature was largely influenced by concepts of minimizing the sum of production and transaction costs (Spekman et al., 1998). This was the main focus of the well-known transaction costs economics (TCE) (Williamson, 1981). Initially, TCE considered only two ways of organizing, being markets and hierarchies, which explained that the choice is either to make or to buy (Ring and Van De Ven, 1992; Ring and Van De Ven, 1994; Park and Russo, 1996; Spekman et al., 1998). In other words, an organization has the choice between either internalising a given activity, or procuring it from another organization. However, as collaboration between firms started to develop, partnering started to become a considerable option, extending the organization's choice to make, buy, or ally (Child and Faulkner, 1998), as seen in Figure 3.2.

Strategic importance of activity	High	Ally	Invest and make	Make
	Medium	Ally	Ally	Make
	Low	Buy	Buy	Buy
		Low	Medium	High

Competence compared with best in market

Figure 3.2: The make-buy-ally matrix (source: Child and Faulkner, 1998, p. 91)

In Figure 3.2, Child and Faulkner (1998) attempted to explain the choice that an organization could face concerning any given activity, according to its competence in this activity compared with best in market, and to the strategic importance of the considered activity. As a result, the organization has the choice of buying the activity from the market, in case this activity is of a low strategic importance, internalise the activity and carry it out on its premises, or ally with another organization – or group of organizations – in order to learn the required skills to improve its performance in processing it (Child and Faulkner, 1998).

Strategic alliances have proliferated at very high pace. In explaining the reasons behind the increasing importance of such organization forms and their wide use, Powell (1987) argued that no one factor can give precise explanation, however he cited the following as the most relevant reasons:

- In a broad perspective, Powell (1987) argued that the economic environment has been subject to radical changes, due to a movement both away from an older set of industries and toward a new set of industries. The new market resulting from such movement is characterised by a different kind of demands, particularly technological, according to which alliances represent a better fit. Moreover, the apparent shift in consumer taste, particularly characterised by a lean toward diversity and customisation, resulted in breaking mass markets for standardised products, and as a consequence new organizational forms, such as strategic alliances, were needed (Powell, 1987);
- The large-scale organization has proved its limits as the environment changes; large and hierarchical organizations were found in environments that lack strong competitive pressures. However, with those existing, and emerging, highly competitive environments, responsiveness to market demand is of prime importance. Powell (1987) argued that in such environments, high responsiveness can be provided by smaller firms, which are flat and decentralised, and not large ones. Such situations have frequently induced the appropriateness of vertical disintegration as opposed to vertical integration;
- The speed of access to know-how that more technologically driven industries need for running their businesses, has gradually become essential and critical to success. However, frequently, such know-how is located outside the boundaries of the large corporation, which leads such firms to seek for acquiring this knowledge. In discussing the way firms may go about acquiring the required know-how, Powell (1987) highlighted the preference for hybrid organizational forms – strategic alliances – as opposed to mergers, where due to the tacitness of

certain technological knowledge, and acquiring the rights to a particular technological process does not translate automatically in that the required knowledge is acquired. On this, Powell (1987, p. 81) argued that hybrid forms *“represent a fast means of gaining access to sources of know-how located outside of the organization, without risking the chance that the know-how will dissipate.”*

3.2.2 Rationale for Entering Alliances

According to Murray and Mahon (1993), the main, and obvious, reason for firms to enter alliances is the unavailability of a valid alternative that permits it to pursue its objectives. In fact, as explained above, faced by environmental conditions of different types, firms have to alter their strategies in order to achieve and/or sustain a competitive advantage. Therefore, the objective behind any alliance is to *“further the strategic business objectives of the firms involved.”* (Medcof, 1997, p. 720). Together with this view, the rationale behind alliances is consistent with the fact that *“firms need to concentrate on core competencies, to outsource more activities and use outside partners as sources of complementary knowledge and competence”* (Nooteboom, 1999, p. 43). Such a view has had a major influence in the management literature, where authors like Prahalad and Hamel (1990) underscored the fact that top executives needed to rethink the concept of the corporation, by focusing on their core competencies. However, rationales as simplified as the ones cited above do not give a full vision of why firms choose to partner.

In reviewing the wide literature on strategic alliances, it appears that firms enter alliances for a variety of reasons. To begin with, resources scarcity is an important

rationale for entering strategic alliances (Oliver, 1990). As resources are scarce in a firm, and if the latter is unable to generate them internally, it is very likely that it establishes a tie with one or more firms in order to overcome this problem (Oliver, 1990; Nohria and Garcia-Pont, 1991). As a result, strategic alliances should require that each partner bring valued resources to the partnership (Lasher et al., 1991). Moreover, the combination of the advantages of partners can also be targeted by firms entering alliance; as Blodgett (1991) explains, in the context of joint ventures, each firm makes a contribution in the hope of adding their partners' competences to its own. The combination of resources has also been linked to the stability of alliances, where an alliance could stay stable as long as partners continue to acquire key resources from the partnership (Park and Ungson, 1997). Still in the context of resources scarcity, Burgers et al. (1993) identified demand uncertainty as a possible driver for entering strategic alliances; as demand conditions might change in a given environment, firms have to adapt to such changes in order to survive. However, these firms might be constrained by the difficulty of developing, internally, the required capabilities for coping with such changes, which leads them to use strategic alliances as a way of accessing those capabilities. As a result, Burgers et al. (1993, p. 420) argued that *“by enabling the firm to quickly gain access to key strategic capabilities, strategic alliances help firms to cope with unpredictable changes in consumer purchasing patterns.”*

Learning is, also, frequently cited among the most important drivers for entering alliances (Parkhe, 1991; Lei and Slocum, 1992; Powell et al., 1996; Spekman et al., 1996; Child and Faulkner, 1998; Powell, 1998; Inkpen, 2000). This is particularly true in fields of rapid technological development (Powell et al., 1996). According to

Inkpen (1996), as new knowledge is important for achieving and sustaining competitive advantage, firms are continuously looking for ways to acquire such knowledge, and strategic alliances create the potential for such acquisitions.

Furthermore, many firms entered alliances in order to establish a set of enablers that help them penetrate or expand in new or existing markets (Borys and Jemison, 1989; Spekman et al., 1996; Mockler, 1999; Hitt et al., 2000), including geographical market participation (Park and Ungson, 1997). This is mainly driven by the globalisation that businesses worldwide are facing (Ohmae, 1989; Pekar and Allio, 1994; Gulati, 1995a; Park and Ungson, 1997); as organizations aim to globalise their businesses, the scopes of their projects increase, and therefore the development of strategic alliances becomes very important in order to spread the risks involved (Borys and Jemison, 1989; Ohmae, 1989; Spekman et al., 1996; Park and Ungson, 1997; Sulej, 1998), or to access new markets.

The rapid development of technology, and its increasing complexity, are also important drivers for the adoption of strategic alliances (Sulej, 1998; Singh, 1997). As technology is developing at a rapid pace, organizations are unable to provide all the resources and skills necessary for their business. Therefore strategic alliances gained high importance as a solution for gaining access to skills and knowledge (Büchel, 2000).

Kanter (1994) considers human factors as important drivers for entering alliances, where she argues that relationships between companies “*begin, grow, and develop – or fail – in ways similar to relationships between people.*” (p. 98). Furthermore,

Kanter (1994) asserts that successful company relationships frequently depend on creating and maintaining comfortable personal relationships between executives.

Another classification of the rationale for entering alliances divided alliances into offensive alliances and defensive alliances (Lei, 1993; Lorange and Roos, 1993; Murray and Mahon, 1993). The former category has as objectives, creating or penetrating new markets, or defining or setting new standards. In this case, companies form alliances in order to strengthen themselves for an offensive action. The second category – defensive alliances – has as objectives strengthening and protecting existing positions of partners.

3.2.3 The Risks of Strategic Alliances

Partnerships and strategic alliances are very important for the development of today's businesses in creating value for all partners. Spekman et al. (1998, p. 758) highlighted that value is created "*through synergy as the partners achieve mutually beneficial gains that neither would have been able to achieve individually.*" It was shown in the previous subsection that firms enter alliances for different reasons, and therefore partners are very likely to have different expectations of the outcome of the alliance (Borys and Jemison, 1989). The different reasons cited above are, then, the benefits perceived by firms prior to entering the alliance. However, even if strategic alliances seem to bring many benefits, failure among those formed was not rare (Medcof, 1997). Such failures were frequently overlooked by the prescription to form alliances to gain competitive advantage (Mohr and Spekman, 1994). In fact, it was argued by authors, such as Brouters et al. (1995), that strategic alliances could be a very risky business solution, as many firms see them as "*potential traps*" that

may lead to mediocrity (Murray and Mahon, 1993). Furthermore, alliances failure has frequently been linked to the partners themselves, where management styles and motivations could be conflicting between partners (Hitt et al., 1995). In this regard, Lei and Slocum (1992) underscored the idea that strategic alliances could be used to slowly “*deskill*” a partner who is not aware of the risks of such arrangements. This conclusion came as a result of a study undertaken by Lei and Slocum (1992) in which they investigated how American firms in different sectors were outpaced by their foreign, especially Japanese, partners.

Hamel et al. (1989) qualified cooperation as “*competition in a different form*” (p. 134), due to the risks that could be involved in such ties as some partners might aim to disarm others. Adding to this, alliances that bring competitors, with similar core businesses, geographic markets, and functional skills, to cooperate are likely to have an unsuccessful end due to the tension that could evolve between them (Bleeke and Ernst, 1995).

Powell (1987) also cited the disproportionate share of the value of the alliance as a major concern. Adding to this, Powell (1987) explained that the situation becomes worse when concerns that partners will not perform according to expectations, arise. This strongly explains the fear that several firms have when approaching the strategic alliance strategy (Powell, 1987).

Instability of alliances has been frequently considered by academics (Inkpen and Beamish, 1997). Studying the issue of instability in the context of joint ventures, Inkpen and Beamish (1997) concluded that, as many firms enter joint ventures in

order to acquire knowledge, instability may occur as a result of a shift in the balance of bargaining power between partners due to this acquisition.

It is, also, argued that cooperation between organizations could be difficult to manage (Osborn and Hagedoorn, 1997), where Mockler (1999, p. 6) argued that “*the essential concept of sharing control and management on a continuing basis is what makes managing strategic alliances such a critical, difficult and demanding task.*”

As a result, many failures of alliances in different industries were recorded, which led research interest to shift to focus on alliances management (Spekman et al., 1998). In this context, some research attempted to investigate the whole lifecycle of alliances, as a means of analysing the development and management of an alliance.

3.2.4 The Strategic Alliance as a Process

Many academics used the organic growth perspective to explain “*development in an organizational entity from its initiation to its termination.*” (Van De Ven and Poole, 1995, p. 513) This has also been applied for studying strategic alliances. In viewing a strategic alliance as a process, many authors (Borys and Jemison, 1989; Lorange et al., 1992; Ring and Van De Ven, 1994; Das and Teng, 1997; Spekman et al., 1998; Ring, 2000; Das and Teng, 2002) described the phases through which strategic alliances evolve. However, even though these phases are described differently, according to different authors’ perspectives and views, and according to the nature of the research undertaken by these authors, the major steps seem to be similar. At the general level of defining strategic alliances as a process, the latter can be divided into two major stages (see Figure 3.3): *pre-formation phase* and *post-formation phase*.

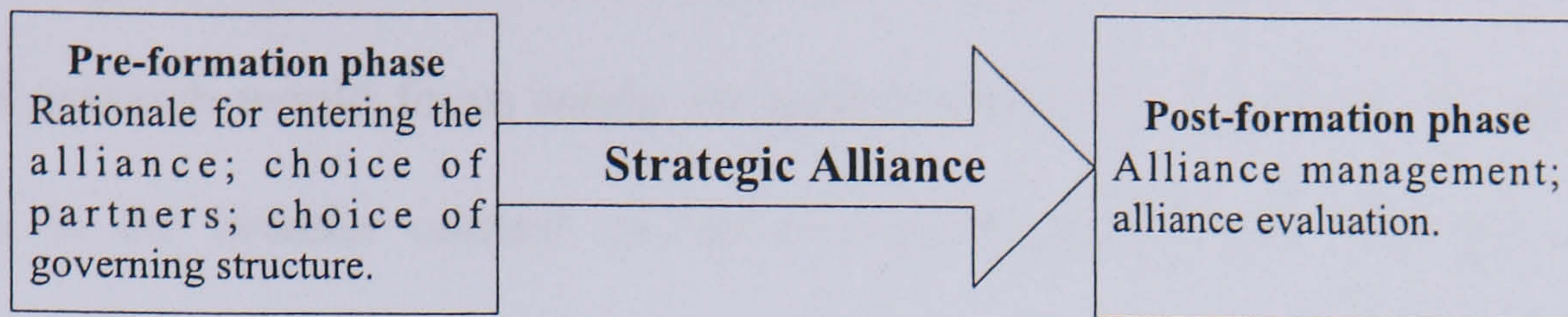


Figure 3.3: The phases of a strategic alliance

The pre-formation phase is the one that involves the initial steps that firms would make before the alliance is formed. Such steps include the rationale behind the sought alliances, choosing partners, choosing the appropriate alliance type or structure. The post-formation phase begins after that the alliance is formed, and includes managing and evaluating the alliance.

The research objectives, as initially described in the previous chapter, were not detailed enough, and thus need to be further refined. For this purpose, some key issues need to be considered. It was mentioned in the previous chapter that strategic alliances are core to the ASP model. However, after illustrating two real examples of ASP failure, and after briefly reviewing the research published by Gartner Group (2001), it was concluded that ASP vendors could be facing challenges with their partnering strategies. Therefore, some decisions concerning this research's orientation need to be taken, based on the following key points:

- Strategic partnering is a source of challenge for ASP vendors, because in the two cases discussed in the previous chapter, major IT firms partnered together and were unsuccessful;
- Gartner Group (2001) predicted that an important number of ASPs will fail, due to several reasons among which the wrong choice of partners was cited.

Although the reason cited here is partner selection, it is hardly conceivable that this research would focus solely on partner selection. It is more rational to put this in the broader context of the process through which strategic alliances evolve. This leads to consider the pre-formation phase of strategic alliances. The post-formation phase cannot be taken into consideration here because the ASP model, as cited in the previous chapter, is still in an embryonic stage, and thus most ASP vendors would find the pre-formation phase more challenging.

From the two points cited above, the focus of the present research is further narrowed by focusing only on the pre-formation phase of strategic alliances instead of the whole process. The rest of this chapter will focus uniquely on the pre-formation phase of strategic alliances.

3.2.4.1 The Pre-Formation Phase of Strategic Alliances

The pre-formation phase of strategic alliances consists of all the steps that a firm should go through before the alliance is actually formed. In the rich, but complex, literature on strategic alliances, many researchers studied the formation process of this mode of organizing (Ring and Van De Ven, 1994; Das and Teng, 1997; Spekman et al., 1998). However, these studies frequently resulted in different perspectives being presented. As explained above, the major steps in the alliance process seem to fall under two main phases: the pre-formation (or formation phase) and the post-formation phase (or alliances management). Similarly, the former phase – pre-formation – has been studied differently by different academics. However, the major steps, here again, seem to fall under three main categories: the rationale behind the alliance, the choice of partners, and the choice of the governance structure (Das and Teng, 1997) as seen in Figure 3.4.

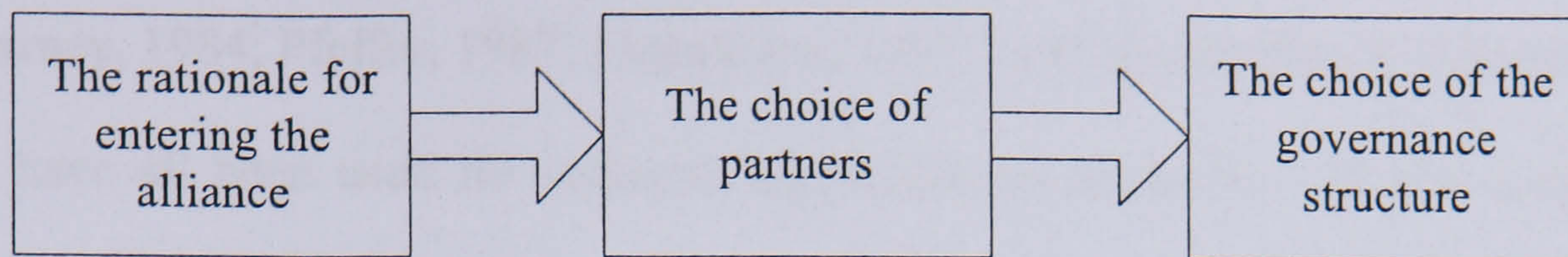


Figure 3.4: The Pre-formation Phase of Strategic Alliances

The Rationale for Entering the Alliance

According to Das and Teng (1997, p. 51) “[t]he first stage of strategic alliance management is to evaluate alliances as a strategic option, along with other alternatives such as vertical and horizontal integration and market-based transactions.” In other words, being a way of business development that a firm may choose to improve or change its competitive advantage, it is indispensable that the firm analyses the alliance according to its overall objectives and strategic intents, and to other strategic alternatives (Forrest, 1992; Das and Teng, 1997; Devlin and Bleackley, 1988; Ring, 2000).

Although a detailed discussion on the rationale for entering alliances can be found in the corresponding section above, what were missing are the tools that help firms to decide on a strategic alliance as the appropriate governance form, as opposed to other options such as market transactions. Again, such tools are of tremendous variety, where different researchers adopted different perspectives according to which such decisions were explained. Strategic management is one of the most important fields from which many theories were adopted (Lockett and Thompson, 2001). Theories like the transaction cost economics (Kogut, 1988; Williamson, 1991), the resource-based view (Wernerfelt, 1984; Barney, 1991; Eisenhardt and

Schoonhoven, 1996; Das and Teng, 2000), the resource-dependence theory (Ulrich and Barney, 1984; Pfeffer, 1987; Finkelstein, 1997), and agency theory (Cheon et al., 1995) have all been used for strategic organizational decisions. In the context of strategic alliances, these theories were used to perform a variety of decisions and analyses. Although each theory has the potential to individually offer very detailed insight, *“it is unlikely that one single theory can explain the complexities of the process.”* (Spekman et al., p. 749) Furthermore, Combs and Ketchen (1999, p. 867) explained that “[t]he capacity to bring multiple and often competing perspectives to bear on important organizational phenomena is one of the appealing qualities of strategic management research.” Therefore, the use of more than one theory for performing the decision for entering alliances is advisable.

Two theories that have gained tremendous importance in recent years are Transaction Cost Economics (TCE) and Resource-based View (RBV) (Combs and Ketchen, 1999). TCE focuses on economising as being the core problem of the economic organization (Williamson, 1989), whereas RBV is more concerned with the link between a firm’s internal characteristics and performance (Barney, 1991). Studying inter-firm cooperation and performance, Combs and Ketchen (1999) concluded that although TCE and RBV are traditionally thought of as competing perspectives, firms effectively react to contingencies identified by both. Thus, using both theories – TCE and RBV – in the context of the present research can only be beneficial.

A more in depth discussion of these two theories – TCE and RBV – is included in section 3.4 below.

Partner Selection

Having decided on an alliance as the most suitable strategic option, the choice of the right partners is the following step (Das and Teng, 1997; Ring, 2000). Moreover, as a strategic alliance involves the cooperation of two or more firms, it is natural that these firms would, initially, face the question of whom they should partner with. This question has been addressed by many authors, and it has been frequently concluded that alliances' success is strongly linked to the choice of partners (Beamish, 1987; Dacin et al., 1997; Medcof, 1997; Hitt et al., 2000). On the other hand, Dacin et al. (1997) argued that incompatible business objectives and failure to communicate effectively between partners can lead to tremendous problems, causing the alliance to fail. Therefore, choosing the right partner is a critical decision to make after a firm has decided to form an alliance (Geringer, 1991; Dacin et al., 1997; Hitt et al., 2000). As Dacin et al. (1997, p. 5) state it: “... *managers must find ways to develop win-win deals (both partners benefit) for these alliances to be successful.*” In other words, Dacin et al. (1997) claim that in order for a strategic alliance to be successful, each partner involved must view the alliance positively, and regard it as beneficial.

In many cases, firms choose their partners based on either past experience with them, or by chance meetings (Dacin et al., 1997). Stafford (1994) further argued that the list of potential partners is usually built from the personal network that executives maintain with senior managers from other firms. Moreover, the social network, which is built from prior alliances, and in which firms are embedded, is an important source of information on current and potential partners (Gulati, 1995b; Gulati, 1999). According to Gulati (1995b), such information can help firms to learn about new

alliances opportunities, thus playing important role in shaping future alliances, and it can enhance their trust in current and potential partners.

However, a simple list is, by far, insufficient as the question is about finding the right partner, with whom working successfully towards the objectives is achievable. It is, therefore, essential that for any strategic alliance, of any type, to be successful, a careful choice of partners has to be made. For this purpose, it is important to investigate the different criteria found in the literature that are to consider when choosing partners.

Among the mostly cited criteria is the search for partners with complementary resources (Dyer and Singh, 1998; Hitt et al., 2000; Hoffmann and Schlosser, 2001). As alliances are frequently formed with the objective of aggregating complimentary skills, this criterion is only natural (Hitt et al., 2000). Firms have different perspectives on what could be complimentary to their resources, depending on different parameters. Such resources could be tangible or intangible; for instance, firms could be looking for physical and financial assets – tangible resources – to complement theirs or to enhance their resource endowments, or could be looking for particular knowledge – intangible resources – that may improve or enhance their competitive advantage. In a study on partner selection in international strategic alliances, Hitt et al. (2000) analysed the selection criteria for emerging and developed markets. Their findings confirmed the importance tangible and intangible resources have in selecting partners. Hitt et al. (2000) further enhanced the importance of intangible resources, particularly those based on tacit knowledge, arguing that due to their tacitness, they are difficult to imitate, thus providing a basis for a competitive advantage. This puts such resources, when applicable, as critical

factors for selecting partners. In the same context, Hoffmann and Schlosser (2001) argued that synergy is created by sharing or transferring complementary resources. As a result, it was concluded that in order for any alliance to be successful, a firm must “*contribute individual strengths and look for complementary (or similar) resources.*” (Hoffmann and Schlosser, 2001 p. 360).

Partners that provide the potential to learn new capabilities are, also, of major importance. According Hitt et al. (2000, p. 450) “[l]ess resource-endowed firms may desire to learn new technical and managerial capabilities, whereas more resource-endowed firms want to gain knowledge of markets and build relationships to access to those markets.” This stems from alliances being formed for learning purposes, as previously described in this chapter. Firms facilitating learning involves them willing to share their expertise, and thus being valuable potential partners (Hitt et al., 2000).

Learning is particularly important when intangible resources are involved. In fact, due to the tacitness of some of such resources, learning and sharing the expertise of partners is of prime importance. It should, therefore, be concluded that learning facilitation and the willingness to share knowledge is another important criterion in selection alliances’ partners.

Enhancing the legitimacy of a firm might be an important objective in selecting partners in an alliance. In this context, other types of intangible resources, such as reputation, can play a major role in the process of selecting partners (Eisenhardt and Schoonhoven, 1996; Hitt et al., 2000). In fact, as firms aim to improve their image in a given market, they might prefer establishing links with more established firms, taking advantage of these partners’ reputation, to improve theirs.

Good partnering skills are another important criterion for partners' selection, which includes the ability and the will to partner (Dyer and Singh, 1998).

Compatibility of the business objectives and strategic orientations of the partners is also a frequently cited criterion for partners' selection (Hitt et al., 2000), where Brouthers et al. (1995) argued that if the alliance does not improve the firms' strategic goals, it is likely to fail.

Trust can, also, be considered as an important criterion of choice. This importance emanates from the fact that trust *“reduces the specification and monitoring of contracts, provides material incentives for cooperation, and reduces uncertainty.”* (Nooteboom et al., 1997, p. 310) Trust should, therefore, be considered as an important criterion for choosing partners, where Das and Teng (1998a) highlighted the importance of the confidence that a firm has to have in partner cooperation for alliances to work. In other words, firms' expectations about their partners' behaviour is key to the success of the alliance. In this context, Das and Rahman (2001) analysed the threat of partners misbehaviour, and concluded that firms should consider the potential of such misbehaviour when choosing partners.

DeFillipi and Reed (cited in Child and Faulkner (1998)) distinguished between unilateral and bilateral alliances. The former is the case where the motive for forming the alliance comes from one of the partners only, whereas the latter is where both partners are motivated to form the alliance.

Structures of Strategic Alliances

The following stage in the pre-formation phase is the choice of the governance structure of the alliance (Das and Teng, 1997). It consists in the shape that the partnership between two or more firms takes. In this context, Lorange et al. (1992, p. 11) argued that *“the parents’ desires regarding input and output resources are the basic determinants of the type of strategic alliance a firm is going to enter into.”* The desires concerning input are concerned with the way each partner prefers to invest resources in the alliance. On an end of the spectrum, partners might prefer to invest a minimum of resources, frequently on a temporary basis, leading to an ad hoc alliance, or, on the other end of the spectrum, partners might prefer to invest heavily, leading usually to the formation of a full-blown joint venture (Lorange et al., 1992). The desires concerning the output are, on the other hand, concerned with the way the alliance parents prefer the results to be allocated; following the spectrum described above, in an ad hoc alliance, parents prefer the output to be given to the parents, whereas in a full-blown joint venture, the output is given to the alliance itself (Lorange et al., 1992).

Furthermore, on the output criteria for choosing an alliance governance structure, many authors (Gulati, 1995a) distinguished between equity and non-equity, or contractual (Mockler, 1999), alliances. Equity alliances are those that involve equity transfer or creation (Das and Teng, 2001; Das and Teng, 1996), including joint ventures and minority equity alliances. Equity alliances are the preferred governance structure in the cases where opportunistic behaviour is to be controlled (Das and Teng, 1996). On the other hand, non-equity alliances are those that *“don’t involve the sharing of exchange of equity, nor do they usually entail the creation of a new*

organizational entity.” (Gulati, 1995a, p. 88) These are, according to Gulati (1995a), closer to arm’s length market transactions, and are not suitable to cases where opportunistic behaviour needs to be controlled. As a general rule, Gulati (1995a) explained that when the risk of opportunistic behaviour proves to be high, and costly, equity alliances are the preferred structure.

Author	Alliance Structures
Das and Teng (2000)	Joint ventures, minority equity alliances, R&D contracts, joint R&D, joint production, joint marketing and promotion, enhanced supplier partnership, distribution agreements, and licensing agreements
Oliver (1990)	Trade associations, voluntary agebcy federations, joint ventures, joint programs, corporate-financial interlocks, agency-sponsor linkages
Dussauge and Garette (1995)	R&D agreements, unstructured co-production projects, semi-structured projects, business-based joint ventures
Gulati (1995a)	Joint ventures, joint R&D agreements, technology exchange, direct investment, licensing
Osborn and Baughn (1990)	Joint ventures, licensing agreements, distribution agreements, technical assistance agreements, supply agreements, marketing agreements
Lorange et al. (1992)	Ad hoc pool, consortium, project-based joint venture, full-blown joint venture

Table 3.1: Alliance structures

Alternatively, Das and Teng (1997) explained that the choice of the alliance governance structure depends heavily on the trade off between flexibility and embeddedness that is required from the alliance. Flexibility, when compared to traditional hierarchical organizations, is seen as a key advantage of strategic alliances (Das and Teng, 1997), where the partners may be involved in alliances without

investing resources heavily. Therefore, partners become more flexible about quitting the alliance if it does not progress satisfactorily. According to Das and Teng (1997), some of the alliance structures that are best at offering flexibility are licensing, joint R&D, joint marketing, and research consortia. Conversely, embeddedness in alliances leads to aligning the interests of the partners, and to discourage the partners from behaving opportunistically (Das and Teng, 1997). Thus, a balance between flexibility and embeddedness would guide the choice of the alliance governance structure, depending on the vision and expectations of the partners.

As a result of the research outcomes cited above, several types of alliance structures can be found in the literature, as described by many authors (Das and Teng, 2000). Organised in a non-exhaustive list, Table 1 summarises these different structures.

3.3 STRATEGIC ALLIANCES IN APPLICATION SERVICE PROVISION

As explained in Chapter 2 (see Figure 2.6), ASP has partially evolved from IT outsourcing, therefore it would seem sensible to investigate how partnering was considered in the IT outsourcing literature, before focusing on the ASP model.

3.3.1 Strategic Alliances and IT Outsourcing

The literature on partnering in IS outsourcing is rather important, where many academics investigated different aspects of the partnership in IT outsourcing deals (Henderson, 1990; McFarlan and Nolan, 1995; Willcocks and Choi, 1995; Klepper, 1995; Lee and Kim, 1999; Kern and Willcocks, 2002; Kishore et al., 2003).

A strategic alliance in outsourcing involves an organization to enter into a partnership, such as a joint venture, with a supplier, sharing risks and rewards (Currie and Willcocks, 1998). This way of contracting offers many advantages, mainly reducing the risks of single-supplier or multiple-supplier outsourcing contracts (Currie and Willcocks, 1998). In fact, the basis of the contract being on shared risk/reward involves efforts from both parties in order to make the outsourcing successful (McFarlan and Nolan, 1995). However, McFarlan and Nolan (1995) argued that such arrangements – strategic alliances – could be much easier to enter than to sustain and dissolve. In fact, McFarlan and Nolan (1995) discussed many of these difficulties such as:

- Problem with the contracts lengths, as the standard tend to be around ten years. McFarlan and Nolan (1995) explained that such long contracts, in accordance with the fast increasing technological performance, might have an effect on the economics of the contract; *“a rigid deal that made sense at the beginning may make less economic sense three years later...”* (McFarlan and Nolan, 1995, p. 9);
- Difference in perceived benefits by both parties, which creates the conflict of the anticipated outputs, leading to more negotiation and misunderstanding;
- Only a few suppliers are capable of undertaking large contracts; McFarlan and Nolan (1995, p. 10) precise that *“if an alliance is not working out, a company has limited options for resolving the situation...”*

In a general view, McFarlan and Nolan (1995) argued that the growth of IT outsourcing has been affected by the acceptance of strategic alliances. In fact, strategic alliances have a strong value in many ways, such as the following (McFarlan and Nolan, 1995):

- More stability, as the organization finds a partner that to complement an area of weakness;
- Simplification of management;
- Leverage a key part of the value chain, by complementing its skills.

On the success side of a strategic alliance sourcing, McFarlan and Nolan (1995) developed a list of success factors:

- There should be mutual interest in the relationship, and also certain flexibility in the contract, as many parameters initially discussed may change as the contract goes on, thus involving shared approach to problem solving;
- Standards and control are two parameters that should be discussed in the outsourcing agreement, as disruption of operations support has immediate and dramatic implications for many organizations;
- The areas to outsource are important to the success of the contract, as these areas should be meaningful in order to attract the attention of the supplier;
- Stability and quality of supplier's offerings should be discussed in the early stage.

3.3.2 Strategic Alliances in ASP

As the objective of the present study is to investigate strategic alliances in the context of the ASP model, it is important to establish, at this level, a set of boundaries that will guide the study. The following is a list of such considerations:

- From the general phases of a strategic alliances cited above, a strategic alliance in ASP would follow the same process; i.e. the pre-formation and post-formation phases should be identified. It is, thus, important to consider strategic alliances in ASP to be progressing as a process, and to be subject to a life cycle similarly to the one presented in Figure 3.3;
- As explained in Chapter 2, the ASP market is still considered as an emergent industry that is still new, very dynamic, and very unstable. It is understood that cooperation is a major key in the ASP business model, as it is unconceivable that any single firm would have all the resources and capabilities required for it to gain competitive advantage;
- Studies such as that of Gartner Group (2001), have already suggested that many ASPs have or will fail, with wrong choice of partner being on the main reasons. Therefore, it is argued that for any given ASP business success is strongly linked to the success of its set of relationships. Moreover, Smith and Kumar (2004) also suggest that the quality of the services of an ASP is directly related to the coordination of the different components of the ASP model;
- Gartner Group's (2001) study suggests that ASPs might still be struggling at the initial phase, which is the *pre-formation* phase. Thus, this research is naturally pushed towards focusing on the pre-formation phase of the alliances between the ASP and its partners. This involves focusing on the rationale for entering alliances, partners selection, and on the selection of the structures of these alliances. This does not exclude the importance of ASP alliances management (the *post-formation* phase), but it is believed that the latter could not be of focus as ASPs are, generally, not dealing with it yet.

Ring (2000) has clearly stated that the first step that any firm should take when it comes to considering strategic alliances, is to evaluate the appropriateness of it as a means by which strategy can be implemented. The next step should be a careful consideration of potential partners, “*with a focus on functional competences and value creating capabilities*” (Ring, 2000, p. 161). Therefore, based on the above considerations, this study will be focusing on the pre-formation phase of strategic alliances in ASP. Furthermore, although it is clear that ASP vendors may have to consider partnering for sourcing all or some of the ASP layers identified in Figure 2.8, it is not clear which layers will be considered for this. In other words, would the ASPs vendors form strategic alliances for sourcing all the ASP layers, or would they use other modes – internalisation or market. Therefore, the present research will be focusing, more precisely, on the rationale for entering strategic alliances in ASP.

3.4 A CONCEPTUAL MODEL OF THE DECISION TO ENTER ALLIANCES IN ASP

As explained in Chapter 2, ASP relies on many components in order to deliver applications as a service. Figure 2.8 illustrates the generic layers involved. Although some ASPs provide one or many of these elements, many rely on external sources and third parties to operate their services. This section aims to investigate the partnering strategies that may emerge in the ASP arena.

In the present study, the model presented in Figure 2.8 will be taken as basis for analysing the partnerships between ASPs and their suppliers. It should be considered that ASPs have different backgrounds and thus the ASP components they

provide are different accordingly. Moreover, the management layer is concerned with the orchestration of the other layers, and therefore it is the core duty of the ASP vendor. Consequently, the management layer will not be considered in this research, as it is always done inhouse; the very reason for an ASP vendor to exist is to at least be in charge of the management layer, hence the partnering strategies cannot apply to this layer.

The conceptual model used for this study is illustrated in Figure 3.5. Using the Toigo’s (2002) model in Figure 2.8, the two chosen predictive theories (TCE and RBV) will be applied, in order to predict the strategic decision of an ASP on sourcing each of the defined layers.

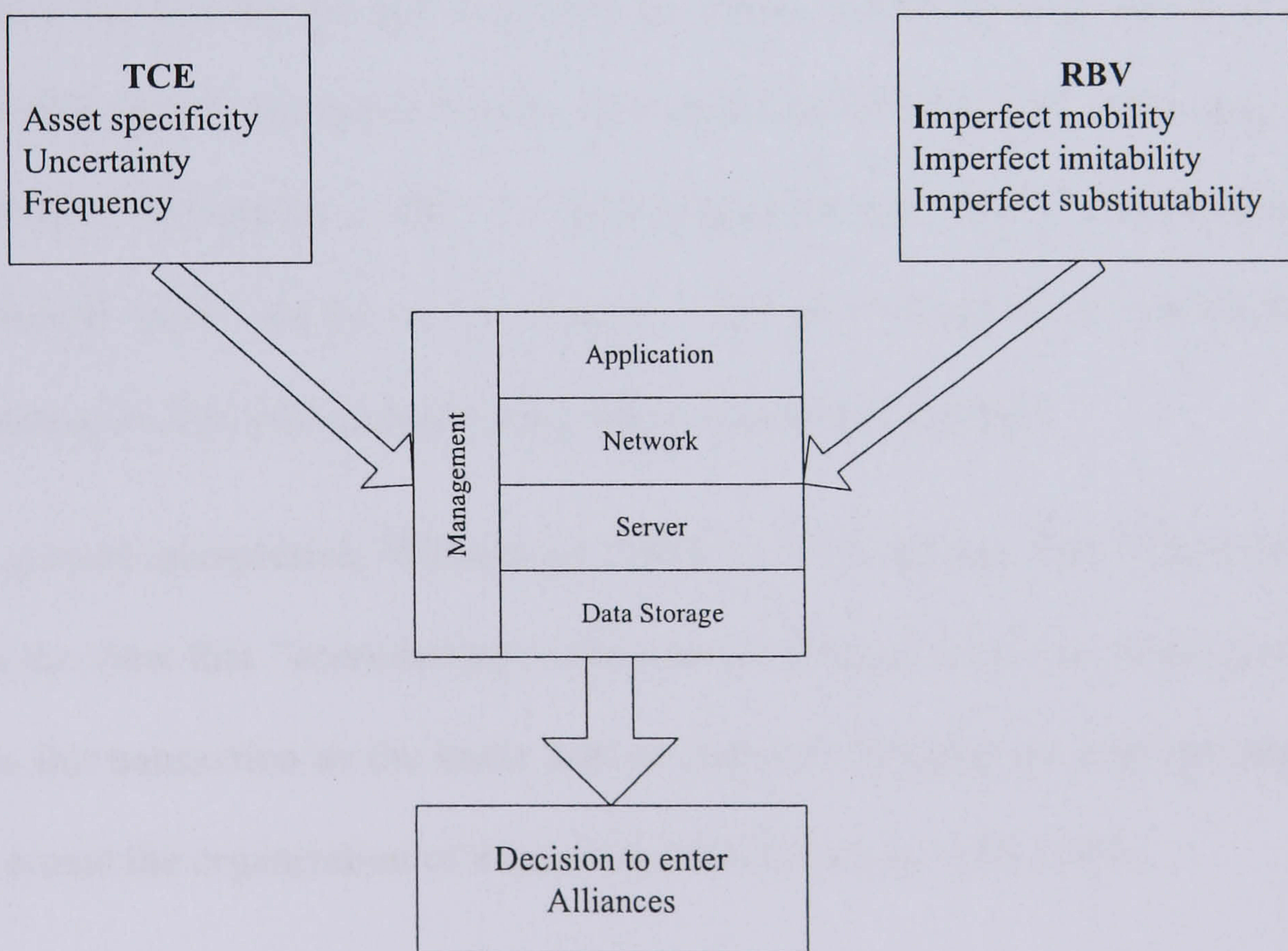


Figure 3.5: A conceptual model of strategic alliances in ASP

3.4.1 Transaction Cost Economics

Transaction Cost Economics (TCE), originating from the work of Ronald Coase (1937), has seen its major development in the work of Williamson (1975), who aimed to make the theory more predictive, particularly concerning the transactions that would be organized within the firm (Madhok, 2002). In Coase's (1937) famous article about the nature of the firm, he questioned the balance between market transactions and organizing, where he asked if there is a need for market transactions if by organizing one can eliminate certain costs and thus reduce the cost of production. Therefore, the problem focused on by Coase was to explain why not all production was carried out by one big firm. It should be noticed from such a statement that the economic view was mainly concerned with two modes being markets and hierarchies, and neglected the hybrid modes through which, in fact, an important part of economic activity was organized (Williamson, 1992; Kay, 1992). However, Williamson (1992, p. 336) explained that TCE *“did predominantly emphasize polar modes at the outset... But the extension of transaction cost reasoning to deal with hybrid modes followed quickly thereafter.”*

In a general perspective, Williamson (1989, p. 137) explains that TCE is consistent with the view that *“economizing is the core problem of economic organization”*. It takes the transaction as the basic unit of analysis, focusing on economizing efforts that attend the organization of transactions (Williamson, 1989; 1991).

The costs associated with a transaction are defined by Robins (1987, p. 69) as *“those costs associated with an economic exchange that vary independent of the competitive market price of the goods or services exchanged... [including] all search and*

information costs, as well as the costs of monitoring and enforcing contractual performance.” Thus, TCE consists in analysing these different transaction costs under alternative governance structures, making from it a theory that focuses on comparative institutional analysis, where a comparison is always established between one form of organization and other alternatives (Williamson, 1989; 1996).

TCE is based around two main assumptions: the presence of bounded rationality and opportunistic behaviour (Aubert et al., 1996). According to these assumptions, the distinction between feasible and infeasible modes of contracting is possible (Williamson, 1989). Bounded rationality considers the inability of processing all the information related to a given transaction, resulting therefore in the difficulty of drawing complete contracts (Aubert et al., 1996). Such a difficulty relates to both *ex ante* and *ex post*; in the former, the difficulty in identifying all the possible contingencies and the probabilities attached to these represents a major barrier. Concerning *ex post*, the difficulty in drawing complete contracts comes mainly from the management and legal costs associated with these contracts (Tirole, 1989).

Opportunism, on the other hand, involves self-focus including *“the distortion and hiding of information, shrewd actions, and Machiavellian intentions.”* (Aubert et al., 1996, p. 53) Opportunism is particularly seen as core to TCE, where the presence of opportunism is always possible, and the costs of determining when and who will behave opportunistically, are high (Madhok, 2000).

At the transaction level, TCE relies on three dimensions according to which the transaction is described. These dimensions help to differentiate between transactions. Moreover, if these dimensions pertain simultaneously, the potential for

opportunistic behaviour should be taken into consideration (Conner, 1991). These dimensions are described as follows:

Asset specificity: this describes the ability of an asset to be reused for alternative purposes, and by alternative users without diminishing its value (Williamson, 1989). In other words, an asset is seen as highly specific to a transaction, if it is durable and dedicated to the transaction (Aubert et al., 1996). If a firm, according to Kulkarni and Heriot (1999), possesses highly specific assets, then outsourcing an activity to a third party becomes a source of major problems, mainly contractual problems. Therefore, *“a firm with specific assets is more likely to organize the activities within its own boundaries, rather than into a transaction with a supplier.”* (Kulkarni and Heriot, 1999, p. 45)

Uncertainty: this refers particularly to behavioural uncertainty, including ‘*opportunism*’ as a main concern of TCE (Williamson, 1981; Williamson, 1996; Kulkarni and Heriot, 1999). Potential opportunism is considered on both parties of a contractual arrangement, where the sourcing firm may use the sourced technology for purposes other than agreed, or conversely the source firm may not provide the agreed level of service (Steensma and Corley, 2001). As this behavioural uncertainty becomes more important, the transaction costs increase as a result of the transacting parties trying to protect themselves by safeguarding the contract (Kulkarni and Heriot, 1999). Therefore, in order to mitigate such a risk of opportunism, a firm may choose to internalise the considered activity through hierarchical control.

Frequency of transaction: this affects enormously the choice of the governance mode. According to Kulkarni and Heriot (1999), recurring transactions involve continuous bargaining, and thus are considered to be costly. As a result, Kulkarni and Heriot (1999, p. 45) concluded that *“increased frequency of transaction is often associated with internalisation of economic activities.”* On the other hand, in the case of low-frequency transactions, firms would prefer taking the risk of opportunism and uncertainty, instead of creating a dedicated governance mechanism (Aubert et al., 1996).

As a summary of the three dimensions involved in TCE, and based on the work of Williamson (1975), Aubert et al. (1996, p. 54) outlined a framework that combines these dimensions and describes the possible solutions. Details of this framework are illustrated in Figure 3.6.

From the framework outlined in Figure 3.6, Aubert et al. (1996) explained that when asset specificity is low, market transaction is the optimal solution; however, when asset specificity is high, the choice of governance mechanism depends on the two remaining dimensions: uncertainty and frequency. When uncertainty is of a low level, long-term relational contracting is preferred; such contracts include strategic alliances and outsourcing contracts. When high levels of uncertainty are present, then internal governance should be adopted when the frequency of recurrence of the transaction is high, and relational governance (including strategic alliances and outsourcing contracts) should be adopted when transactions are occasional.

		Asset specificity		
		Low	High	
Uncertainty and measurement problems	Low	Market transaction	Complete contract (long-term)	
	High		Relational governance	Internal governance
			Occasional	Recurrent
			Frequency	

Figure 3.6: Transaction Cost Framework (Aubert et al., 1996, p. 54)

TCE has had a tremendous impact in studying strategic alliances (Osborn and Hagedoorn, 1997; Madhok, 2000). It is a theory based on the assumption that managers are motivated by efficiency considerations when it comes to choosing between market, hierarchy, or a mixed-mode relationship, in order to achieve business objectives (Ring and Van De Ven, 1992). Efficiency considerations include focusing on the least costly alternative, taking account of both transaction and production costs (Ring and Van De Ven, 1992). In Madhok’s (2002) words, “*for an activity to be organized within a firm, the costs of doing so would need to be (a) not only lower than that through the market, but (b) also lower than that within any other firm; otherwise, it would be more advantageous for the other firm to organize it.*” (p. 537)

In a more generalised view, TCE looks at organizing a transaction in the most efficient way (Madhok, 2000). Organizing a transaction would, therefore, have to consider:

- Minimising the transaction costs;
- Safeguarding against opportunistic behaviour.

Furthermore, among the most important assumptions that TCE is based on, is “*the belief that the risk of opportunism is inherent in many transactions.*” (Hill, 1990) As a result, it was thought by Williamson that a balance between efficiency and

protection would lead to a mix of markets and hierarchies to manage transactions (Osborn and Baughn, 1990).

3.4.1.1 Application to the ASP Model (Predicition)

Having reviewed the concepts behind TCE, and based on the framework illustrated in Figure 3.6, the components of the ASP model will be analysed. This analysis consists in using TCE to predict the strategic decision of the ASP vendor regarding the sourcing of each component.

Asset specificity

Starting with data storage, the specificity of this asset is low, because storage equipment is standardised and readily available in the marketplace (Broadbent and Weill, 1997; Bharadwaj, 2000). The hardware equipment used for data storage is produced by many IT hardware vendors, and are standard in nature (Aubert et al., 1996). Moreover, backup systems also use standard equipment provided by many hardware manufacturers; these consist in the use of tapes and optical disks for storing backup data. Human asset specificity is also low in this case, as it is not directly linked to the business process being supported, and it is more of a general character. The skills required for implementing data storage for an ASP delivery, and performing data backup and data recovery operations are similar for any type of data, and thus not specific to a particular type of delivery configuration. Therefore, data storage is an asset of low specificity to the ASP model. Furthermore, hosting is also of a very standardised nature, whether provided inhouse or through the market.

In the computing infrastructure layer, which relates to the computing infrastructure that supports the ASP delivery, the asset is again of low specificity. The computing

infrastructure is usually provided in standard designs, and is therefore not specifically linked to the business process (Broadbent and Weill, 1997). The basis for the computing infrastructure is the server. Server technology is widely available and standardised, where many larger and smaller IT hardware manufacturers, such as IBM and Dell, offer a wide range of servers (Aubert et al., 1996). Moreover, the operating environment is also standardised; although operating environments vary in versions and configurations, these are usually limited to Microsoft Windows, Novell Netware, Linux-based, and Unix-based systems (Toigo, 2002). Therefore, the computing infrastructure, including hardware (server) and the operating environments, is standardised, and widely available. The human asset specificity, on the other hand, can be a little higher, as depending on the chosen application architecture, the way servers are implemented, managed and maintained could differ. However, in a general perspective, computing infrastructure is of low asset specificity. Hosting for the server layer is also of low asset specificity, similarly to the data storage layer.

Concerning network, similarly to the above described components, it is of low asset specificity. Network, in this case, is usually the Internet, and is offered by a large number of Internet Service Providers (ISPs) and telecommunication companies. Although networking services are offered in different types and configurations, these services are not provided for particular ASP delivery configurations, and are more of a standard nature. The human asset specificity in this case is a little higher, where knowledge about the application architecture, the platform that the servers run, and the number of users expected to use the application, is important in order to

provide optimised networking. Therefore, the network layer is core to the ASP delivery, but of low asset specificity.

The application is core of the ASP model, and consists in the basis to the service offering. The application is usually highly specific in nature, as it is directly linked to the business process to be supported. Although, some categories of applications, such as e-mail, might not be as specific.

Human asset specificity varies according to the type of application being offered. In this case, there are two ends of a spectrum; on one hand, an application could be of a general character, usually not industry specific, and are horizontally provided in different markets. Such applications are of low asset specificity, as they are not specifically designed and customized to particular industries or a particular business process. On the other hand, applications could be industry specific, targeted at a precise vertical or niche market. Such applications are usually mission critical, such enterprise applications (ERP, CRM, ...etc.), and therefore tend to require in-depth knowledge about the business process being supported. Such applications are of high asset specificity as they are specifically designed and customised to a particular industry or a particular business process.

Uncertainty

In sourcing data storage, although the latter is of low asset specificity, it is highly important for running the ASP model. Unless data storage is kept inhouse by the ASP, contractors' behavioural uncertainty could raise serious problems, which leads to an increase in the transaction costs due to the further involvement of the ASP firm; for instance, if the contractor proves to be behaving opportunistically in

performing regular data backups, the ASP would be pushed to increase its monitoring, raising, thus, the transaction costs. Therefore, in this case, careful contracting and ex ante consideration, as well as safeguarding measures should be considered.

The computing infrastructure is also of low asset specificity but highly critical to the functioning of the ASP model. If the ASP firm decides to outsource this element of the model, careful measures should be taken into consideration when contracting. As the servers are co-located, opportunistic behaviour is a potential risk, which could lead to an increase in the transaction costs due to the ASP trying safeguard the contract.

Similarly to the above-described elements, network could be subject to opportunistic behaviour if the ASP decides to outsource it. Although network is of low asset specificity, the well functioning of the ASP model depends on it, and therefore any opportunistic behaviour coming from contractors could be of serious harm. Careful ex ante considerations are, in this case, of major importance.

The application, once it is designed and provided by the ISV, it is then run from a server, and therefore at this point, not behavioural uncertainty is apparent. However, the ASP needs support for the offered application, particularly if he chooses to outsource it, and thus opportunistic behaviour might raise. This is further enhanced by the need to provide regular application updates, which is a core benefit of the ASP model. Again, careful measure for ex ante contracting should be taken into consideration.

Frequency of Transaction

Concerning data storage, server, and network, these elements are necessary to the functioning of the ASP model. Although these are of low asset specificity, the frequency of their related transactions is high. Data storage, for instance, is required continuously as the users use the ASP service. Moreover, data backups could be performed on a daily basis, which enhances the frequency of transactions. The computing infrastructure and the network are used regularly, as they are the means by which users access their applications and data. Finally, the application also can be qualified as requiring high frequency of transactions, depending on the application in question. Transactions with the software contractor are more on the support side, where the contractor has to ensure application support, and provide regular updates. Therefore, all the layers are considered to be highly recurrent.

In order to correlate the three transaction attributes detailed above, Aubert et al.'s (1996) framework illustrated in Figure 3.5 is used. Accordingly, data storage, server, and network are better suited, from a TCE perspective, to be organized as market transactions due to their low asset specificity, unless the ASP has the asset already inhouse. The application, however, due to its higher asset specificity, needs more careful analysis. In this case, market transactions are excluded from the possible options. Moreover, as explained above, transactions related to the applications are not necessarily recurrent in nature, and could be seen more as of medium frequency. Therefore, according to Aubert et al. (1996), in such situations, relational contracting, in the form of outsourcing and strategic alliances, is likely to prevail.

To conclude this discussion, Table 3.2 summarises the key characteristics of each element of the ASP model, using the TCE perspective.

Element	Asset specificity	Uncertainty	Frequency	Mode of Organizing
Data storage	Low	High	Recurrent	Market transaction
Server	Low	High	Recurrent	Market transaction
Network	Low	High	Recurrent	Market transaction
Application	High	Low/High	Recurrent/Occ.	Relational contracting

Table 3.2: A TCE application to ASP

3.4.2 The Resource-based View

The resource-based view (RBV) of the firm has emerged as an important theory in strategic management (Grant, 1991; Peteraf, 1993; Das and Teng, 2000), examining *“the link between a firm’s internal characteristics and performance.”* (Barney, 1991, p. 101) It also *“focuses on costly-to-copy attributes of the firm as sources of economic rents and, therefore, as the fundamental drivers of performance and competitive advantage.”* (Conner, 1991, p. 121)

It adopts, according to Barney (1991), two main assumptions in analysing sources of competitive advantage:

- It assumes that firms within an industry (or group) may be heterogeneous with respect to the strategic resources they control;
- It assumes that these resources may not be perfectly mobile across firms, and thus heterogeneity can be long lasting.

These assumptions came as a critique to the view that resources are homogeneous and fully mobile, largely adopted by scholars such as Michael Porter, who focused mainly on analysing the external environment in which firms compete, and the threats and opportunities that the latter might face. As a result, it was argued that *“strategy formulation starts properly, not with an assessment of the organization’s external environment, but with an assessment of the organization’s resources, capabilities, and core competencies.”* (Black and Boal, 1994, p. 132)

In the context of the RBV, firm’s resources are defined as tangible and intangible assets, *“which are tied semipermanently to the firm.”* (Wernerfelt, 1984, p. 172) Barney (1991) further defines three categories of firm’s resources: physical capital resources, human capital resources, and organizational capital resources. However, in the same work, Barney (1991) underscores that not all these resources are strategically relevant, as some resources may prevent the development of valuable strategies, may lead firms to develop strategies that reduce their effectiveness and efficiency, or may have no impact on strategies development. Therefore, Barney (1991) highlights that the attributes of a firm’s physical, human, and organizational capital that do enable a firm to conceive of and implement strategies that improve its efficiency and effectiveness are, in the context of the RBV, firm’s *resources*. These are distinguished from those attributes that do not enable a firm to do so.

Few studies of strategic alliances using RBV can be found in the literature, such as Eisenhardt and Schoonhoven (1996) and Das and Teng (2000). The rationale behind using this theory in the context of strategic alliances is because *“firms essentially use alliances to gain access to other firms’ valuable resources.”* (Das and Teng, 2000, p. 33) The contexts in which these studies were undertaken are different, where

Eisenhardt and Schoonhoven (1996), for instance, aimed at studying the strategic and social effects in entrepreneurial firms, whereas Das and Teng (2000) aimed at producing a more general resourced-based theory of strategic alliances.

Strategic alliances are a suitable option when firms need to access other firms' resources, with the objective of realising values and competitive advantage that are otherwise impossible to achieve. As a result, unique resources combination offers firms an advantage over competing firms who do not do so (Dyer and Singh, 1998). In a general rule, the principle behind choosing a strategic alliance as a strategic option, in the RBV, is to *“aggregate, share, or exchange valuable resources with other firms when these resources cannot be efficiently obtained through market exchanges or mergers/acquisitions (M&As).”* (Das and Teng, 2000)

For the purpose of the present study, analysing the partnering strategies from an RBV angle follows the perspective as defined by Das and Teng (2000) as it is the most complete and detailed resource-base theory of strategic alliances available in the literature; while other academics such as Eisenhardt and Schoonhoven (1996) focused on certain aspects of partnering such as strategic needs and social opportunities for cooperation, Das and Teng (2000) focused on presenting a method for applying RBV to the strategic alliance process based on Wernerfelt (1984) and Barney (1991).

Das and Teng (2000) argued that, from an RBV angle, two motives lie behind the use of strategic alliances: obtaining resources, and retaining resources.

Obtaining resources: this relates to firms using strategic alliances to access other firms' resources that prove to be essential to achieve competitive advantage. In this

context, strategic alliances is particularly suitable, compared to other strategic options such as M&As, when only part of the resources possessed by the target firm are valuable to the acquiring firm. Therefore, from an RBV perspective, strategic alliances offer the benefits of accessing only the required resources, while by-passing the non-required ones.

Retaining resources: this is more concerned with keeping resources securely in the firm. As Das and Teng (2000) explained, that in some cases, although a firm may possess valuable resources, it may lack the capabilities of making use of them. As a result, strategic alliances can be used as a strategy to retain these resources by deploying them externally. In this sense, the particular advantage that strategic alliances offer compared to other strategic options, such as M&As, is that resources are only temporarily relinquished, being, therefore, still available for internal use in the future.

Although the two types of motives cited above are different, their sharing point is that strategic alliances *“will be forged only when the realized value of those resources contributed to the alliance is higher than their value as realized through either internal uses or relinquishment.”* (Das and Teng, 2000, p. 38)

According to Das and Teng (2000), three resource characteristics, consistent with the assumption of sustained resource heterogeneity (Barney, 1991; Peteraf, 1993), can be defined as: imperfect mobility, imperfect imitability, and imperfect substitutability.

Imperfect mobility defines the difficulty of moving certain resources from one firm's premises to another. This is particularly valid in the case of intangible resources, such as firm reputation, which are difficult, if not impossible, to trade into.

Imperfect imitability and imperfect substitutability on the other hand are concerned with difficulty of obtaining similar resources from other firms. This further enhances the assumption of sustained resource heterogeneity. In this context, concepts like causal ambiguity emerged, which refers to the blurring of the link between resources and competitive advantage, leading thus to less clarity about the resources responsible for competitive advantage. Imperfect imitability refers to the difficulty in reproducing the resources that lead to the same advantage achieved by the imitated firm. This is strongly consistent with the concept of causal ambiguity, where although the resources might be reproduced, the link between the original resources and competitive advantage is so unclear that the reproduced resources may fail to offer the same value.

Finally, imperfect substitutability refers to the difficulty in substituting one firm's resources for another's, and achieving the same value, and thus the same competitive advantage. This mainly is explained by the idiosyncratic character of these resources, where perfect imitation is impossible, and therefore the substituted resources will not achieve the same objectives.

In a general perspective, Das and Teng (2000, p. 40) concludes that "*resources that are not perfectly mobile, imitable, and substitutable can be obtained through alliances.*" In other words, a firm enters in an alliance arrangement with a firm that owns the required resources only if it fails to efficiently source these resources from

elsewhere (Das and Teng, 2000). However, rarity as explained by Barney (1991) is of prime importance. Furthermore, Barney (ibid.) defined imitability and substitutability as the ways for a resource to become mobile. Therefore, for applying RBV to the context of strategic alliances, the main consideration is that if a resource is rare, imperfectly imitable, and imperfectly substitutable, then a firm can obtain it through alliances (Barney, 1991; Das and Teng, 2000).

3.4.2.1 Application to the ASP Model (Prediction)

For the present study, similarly to the process followed in applying TCE to the ASP model, the present concepts developed by Das and Teng (2000) will serve to analyse the organizing mode for each element of the model in Figure 2.8 in an RBV perspective.

To begin with, data storage is, as explained above, standardised in the computing industry. Therefore, there are no particular idiosyncrasies attached with this resource, as it is not directly linked to the business process being supported. Therefore, this ASP element is not rare, not imperfectly imitable, and not imperfectly substitutable, which excludes the option of forging a strategic alliance to source it. Unless the ASP initially owns this resource, as different ASPs have different backgrounds and industry expertise, internalising it may face a major financial barrier. In fact, the costs of owning data centres are so high that justifying the investment might become a major problem. Furthermore, acquiring the firm that owns this resource may lead to internalising other unnecessary and unsuitable resources, which may result in added managerial burdens. Overall, data storage, according to RBV, is better sourced through market exchange or inhouse development if financially feasible.

The computing infrastructure is also standardised in the computing industry, and is, therefore, not rare, not imperfectly imitable, and not imperfectly substitutable. Therefore, it is unlikely that ASPs forge strategic alliances to source computing infrastructure resources. Unless the ASP firm owns the computing infrastructure, and depending on the size of the offering, and the size of the customer base of the ASP, the latter might choose to internalise this function, acquire a firm that owns this resource, or source it through market transactions. In the first case, internalisation may incur unnecessary high investments, which do not bring any specific gains. The acquisition of a firm that owns the resource might, similarly to the case of data storage, lead to internalising unnecessary resources that may only increase the managerial burden put on the ASP. Finally, sourcing through market transactions is more appropriate in this case, as suppliers will be have to compete to offer the resource due to its widespread nature.

Network, mainly the Internet, is, also rather standardised, and widespread in that many firms specialise in offering network capabilities. It is not a rare resource, but can be difficult to imitate, as the knowledge and financial capabilities required to do so represent a major barrier. However, it is not so imperfectly substitutable, because of the number of firms that specialise in providing network capabilities, such as ISPs. Because of the latter characteristic – imperfect substitutability – ASPs might not choose to enter alliances to source the network, unless the resource proves to be imperfectly substitutable due to unique capabilities offered by the network owner. Furthermore, internalisation is not a valid option due to the difficulties in acquiring the required knowledge to do so, and the heavy financial investment that may incur. Acquisition is also a hardly possible option, for the same managerial reasons

explained for the above-described ASP components. Therefore, unless the ASP is a network provider, sourcing network through market transactions seems to be a more appropriate option.

Finally, the application element illustrates a totally different situation. The offered application is chosen because of its uniqueness. This is particularly valid in the cases where the application is designed and targeted at a specific vertical market, where the resource becomes rare, imperfectly imitable, and imperfectly substitutable due to the idiosyncratic knowledge involved. In this case, unless the ASP is an ISV, forging a strategic alliance with the application owner is a more valid option. Furthermore, if the application is not designed for a particular vertical market, and is more targeted at horizontal delivery, than unless the ASP owns the application, sourcing it through strategic alliances is still the most suitable option. The rationale for that is that the ASP vendor will have to develop skills specialised in delivering the application, which results in the application becoming rare, as the skills are not necessarily transferable to other software applications. Furthermore, acquisition might be a valuable option if it does not lead to internalising other unsuitable resources, such as other applications not needed for the ASP offering. Internalisation, as an option, is hardly conceivable, due to the time costs involved in developing applications inhouse, and the knowledge involved (Armour, 2000).

To summarise the discussion established above, Table 3.3 outlines the characteristics of the ASP component illustrated in Figure 1 in an RBV perspective.

Element	Rare	Imperfect imitability	Imperfect substitutability	Mode of Organizing
Data storage	No	Low	Low	Market transaction
Server	No	Low	Low	Market transaction
Network	No	Low	Yes/No	Market transaction
Application	Yes	Yes	Yes	Strategic alliance/Acquisition

Table 3.3: An RBV application to ASP

From the application of both TCE and RBV, the predictions show consistent results between the two theories (see Table 3.2 and Table 3.3). It appears that the application layer is the most important in ASP delivery. In fact, as the core service of an ASP vendor is to deliver applications, the latter becomes the focal element of the model. Therefore, unless an ASP is an independent software vendor, it is expected that they will forge strategic alliances only for the application layer. For the remaining layers, unless these are owned by the ASP vendor, the latter will tend to source them from the market due to their low importance. In this context, McCutcheon and Stuart (2000, p. 283) argued that “[w]hile a firm may benefit from establishing alliances with a few key suppliers, it may be better served to maintain arm’s length contractual relationships with its suppliers of lower-importance inputs.” Related to ASPs, and based on the predictions made above, this could mean that ASP vendors might prefer to forge strategic alliances with ISVs, unless they own the application, and source the rest of the ASP model components using simple contractual relationships.

3.5 CONCLUSION

This chapter has fulfilled two objectives. The first one was to investigate the strategic alliance literature, in order to understand the concept with more depth. The different phases of strategic alliances were discussed, and it was concluded that the focus of this research is on the pre-formation phase of strategic alliances. Furthermore, looking at the rationale behind entering alliances in the pre-formation phase was suggested to be an even deeper focus. In the second part of the chapter, TCE and RBV were introduced as potential theories for predicting the partnering strategies of ASP vendors. After the application of both theories to the context of ASP, the resulting predictions were that ASP vendors expected to forge strategic alliances only at the level of the application layer, if they do not already own it. It was also suggested that, for the remaining ASP layers, unless the ASP vendor owns the layer in question the sourcing will be from the market.

In the next chapter, the research methodology used for this research is described, detailing the research approach, as well as the data collection methods.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 INTRODUCTION

In this chapter, the research methodology used for conducting this research is explained. As explained by Orlikowski and Baroudi (1991) and Walsham (1995a), research methodologies, particularly in the field of IS, need to be clearly explained and explicitly stated, in order to increase the credibility of the presented research, and thus convince the reader of the validity of the chosen methods of investigation. This chapter begins by giving an explanation of the research paradigm followed, then explains the type of data required for conducting the research, and finally explains the research strategy used, including the data collection methods.

4.2 THE RESEARCH PARADIGM

Defining the research paradigm followed is the most important methodological step in undertaking any research, as it is “*the basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways.*” (Guba and Lincoln, 1994, p. 105) Before attempting to investigate the different paradigms found in the literature, a brief review of the basic beliefs (Guba and Lincoln, 1994), according to which these paradigms are defined, would facilitate the understanding of these paradigms. The basic beliefs, or fundamental questions according to Guba and Lincoln (1994, p. 108), are as follows:

- The ontological question: what is the form and nature of reality and, therefore, what is there that can be known about it?
- The epistemological question: what is the nature of the relationship between the knower or would-be knower and what can be known?
- The methodological question: how can the inquirer (would-be knower) go about finding out whatever he or she believes can be known?

In general terms, two major research paradigms can be identified: positivist (or scientific) and phenomenology (or interpretivist) (Galliers, 1991; Lee, 1991; Remenyi et al., 1998; Walsham, 1995a). In the positivist paradigm, *“the researcher is working with an observable social reality and that the end product of such research can be the derivation of laws-like generalisations similar to those produced by the physical and natural scientists.”* (Remenyi et al., 1998, p. 32) In terms of the basic beliefs cited above, the positivist paradigm assumes that an apprehensible reality exists, driven by unchanging natural laws and mechanisms; this commonly referred to as *‘naïve realism’* (Guba and Lincoln, 1994). Moreover, this paradigm assumes that the researcher is independent of the subject of the research, and does not affect nor can be affected by this (Remenyi et al., 1998). On the methodological question, the positivist paradigm assumes the possibility of generalising and modelling, mathematically in particular, the observed phenomena. As a result, quantifiable observations that lead to statistical analysis are highly recommended.

More recently, the interpretive approach emerged with a focus on studying individuals’ and groups’ lived experience of their reality (Holstein and Gubrium, 1994; Orlikowski and Baroudi, 1991; Sandberg, 2005; Schwandt, 1994). Consequently, this approach does not consider reality to be totally objective, but

relies on the primacy of subjective consciousness, where “[e]ach situation is seen as unique and its meaning is a function of the circumstances and the individuals involved.” (Remenyi et al., 1998, p. 34) The interpretive approach, also, considers the researcher not to be independent of what is being researched, but being rather an intrinsic part of it (Lee, 1991; Sandberg, 2005). On the methodology question, phenomenology is frequently linked to qualitative research, in which many research strategies can be found (Lee, 1991). Table 4.1 summarises the characteristics of Positivism and Interpretivism.

Item	Positivism	Interpretivism
Ontology	An apprehensible reality exists, driven by unchanging natural laws and mechanisms	reality not totally objective; relies on the primacy of subjective consciousness
Epistemology	that the researcher is independent of the subject of the research	researcher not independent of what is being researched, but rather an intrinsic part of it
Methodology	quantifiable observations that lead to statistical analysis	frequently linked to qualitative research

Table 4.1: The positivist and interpretive paradigms

Both the positivist and the interpretive approaches are frequently seen as competing paradigms due to their contrasting nature, particularly at the epistemological and ontological levels. (Lee, 1991; Mingers, 2004; Prasad and Prasad, 2002; Sandberg, 2005; Schwandt, 1994; Walsham, 1995a; Walsham, 1995b) According to Lee (1991, p. 350), “[t]he positivist approach makes the claim that its methods – the methods of natural science – are the only true scientific ones, while the interpretive approach makes the counterclaim that the study of people and their institutions calls for methods that are altogether foreign to those of natural science.” Furthermore, interpretive research is also frequently seen as less rigorous than the positivist

approach, and sometimes even inferior to it. (Lee, 1991; Prasad and Prasad, 2002) However, as Prasad and Prasad (2002) explained, the interpretive approach has demonstrated its high rigour, though this has to be judged by a different set of criteria from that used in conventional empirical research. As a result of the competing forces between the two above discussed paradigms, social scientists frequently refute the appropriateness of the positivist approach to research due to its failure to consider inter-subjectively created meanings, which are essential for the understanding of human and organizational phenomena. (Lee, 1991; Sandberg, 2005)

However, despite the strong separation between the two paradigms of research, several authors suggested that the idea of Positivism and Interpretivism as competing paradigms may not be totally true, and that both paradigms may have complimentary characteristics. (Cavaye, 1996; Landry and Banville, 1992; Lee, 1991; Lee, 1994; Mingers, 2001; Weber, 2004) Lee (1991), for instance, developed a framework in which he integrated the two approaches so that each takes advantage of the other's strengths, and demonstrated how such an approach may yield better results in organizational studies. Moreover, Mingers (2001, p. 241) argued that "*different research methods (especially from different paradigms) focus on different aspects of reality and therefore a richer understanding of a research topic will be gained by combining several methods together in a single piece of research or research program.*" Even more controversially, Weber (2004) claimed that the rhetoric of Positivism versus Interpretivism is no longer useful and should be totally neglected as it only promotes unhelpful conflicts among researchers.. He further stated the importance of studying both paradigms, and the importance of being aware of their

differences, and he concluded regarding these differences that “[w]e should understand them, but they should not divide us.” (Weber, 2004, p. xii)

Information Systems (IS) is a discipline that witnessed several difficulties in terms of research methods; according to Benbasat and Weber (1996), Mingers (2001), and Robey (1996), the variety of disciplines that IS draws upon, has led it to be in a position where multiple research paradigms can be followed, and as a result confusion was inevitable. Research in information systems displays a wide view on the paradigms followed, as both of the paradigms cited above have been successfully used to accomplish research studies. Pure subscribers to the positivist paradigm can be found (Lee, 1989; Orlikowski and Baroudi, 1991), as well as pure subscribers to the phenomenological, or interpretive, paradigm. (Klein and Myers, 1999; Walsham, 1995b)

Although both paradigms – positivist and interpretive – have been successfully used, with a dominant use of the positivist approach (Chen and Hirschheim, 2004; Kaplan and Duchon, 1988), interpretive research has frequently been used in IS studies, helping researchers to “understand human thought and action in social and organizational contexts.” (Klein and Myers, 1999, p. 67) Moreover, according to Benbasat et al. (1987, p. 369), as a result of dissatisfaction with the information provided by quantitative techniques, qualitative methods evolved and became of great interest to researchers. Such dissatisfaction emanated from different issues such as the difficulty in manipulating quantitative methods, and the difficulty in understanding and interpreting the results of studies using such methods. To further enhance the case of following the interpretivist paradigm in the context of IS, Klein and Myers (1999, p. 67) explained that “it has the potential to produce deep insights

into information systems phenomena including the management of information systems and information systems development.” Moreover, Walsham (1995a) not only argued that interpretivism is an important approach to consider for studying IS in organizations, but also confirmed that although positivism is more dominant in IS studies (Chen and Hirschheim, 2004; Orlikowski and Baroudi, 1991), interpretivism is better in this context.

However, as Chen and Hirschheim (2004) found out, despite the fact that IS research invited more paradigmatic pluralism, the situation has seen very little change in terms of positivism versus interpretivism; the former is still the dominant paradigm, although interpretivism has received increasing interest.

In the case of this research, the approach that is most appropriate is of a hybrid nature, with a dominance of interpretivism. Positivism here is used because the application of TCE and RBV in Chapter 3 resulted in predictions of the sourcing decisions of the different ASP layers, which could be considered as hypotheses. However, interpretivism is more strongly present here, because it is not assumed that the reviewed theories as well as their predictions represent the final truth (Walsham, 1995a); the predictions are only useful for guiding the study, whereas the main objectives are to investigate the partnering strategies of ASPs for sourcing the different ASP layers. Therefore, the research approach adopted in this study is interpretivism, although positivism is partially involved.

4.3 QUALITATIVE RESEARCH

Qualitative research is very frequently directly linked to the interpretive research paradigm, where the latter is seen to have emerged due to the limitations of

quantitative research and the rise of qualitative research as a valid alternative for overcoming these shortcomings (Lee, 1991; Prasad and Prasad, 2002). However, as Prasad and Prasad (2002) explained, qualitative research cannot be naturally considered to be interpretive; qualitative positivism, for example, follows assumptions of the positivist paradigm but using non-quantitative methods. Consequently, Prasad and Prasad (2002) concluded that “*qualitative positivism maybe seen as suffering from limitations similar to those that invest quantitative positivism.*” (p. 6)

Although most research studies use either qualitative or quantitative data, qualitative and quantitative research are not necessarily competing approaches, where Kaplan and Duchon (1988) explained that “*combining these methods introduces both testability and context into the research.*” (p. 575) In the field of Information Systems, according to a survey of IS publications conducted by Chen and Hirschheim (2004), quantitative research is still in a dominant position compared to qualitative research. However, as explained above, the rise of interest in using interpretive approaches in IS studies is, increasingly, changing the situation, where according to Miles and Huberman (1994), in interpretivism, there is always a need to interpret meanings made by the social actors as well as the researcher, hence the need for qualitative research. Moreover, quantitative research has increasingly received criticisms regarding its use, where, for instance, Prasad and Prasad (2002) argued that “*conventional quantitative organizational research, notwithstanding its use of increasingly complex statistical techniques, often proved to be somewhat simplistic, ahistorical, decontextualized, reductionist, philosophical, and nonreflective.*” (Prasad and Prasad, 2002, p. 5)

According to Marshall and Rossman (1999), qualitative research is particularly suitable for certain types of studies such as the following:

- Studies where complexities and processes need to be examined in depth;
- Studies carried out on innovative systems or phenomena that are little known;
- Studies that seek to explore where and why policy and local knowledge and practice are at odds;
- Studies investigating in formal and unstructured linkages and process in organizations;
- Studies for which relevant variables have yet to be identified.

However, despite the benefits of using qualitative research, the latter proves to have some negative issues associated with it. According to Miles and Huberman (1994), the fact that qualitative data is essentially of textual nature, aggregating and summarising these may lead to loss of richness. Moreover, according to Eisenhardt (1989), the nature of humans of being poor information processors, further enhances the problem with qualitative data, which could lead to anomalies or wrong research results and interpretations.

Additionally, generalisation based on qualitative research also poses tremendous difficulties, where Miles and Huberman (1994, p. 28) argued that “*the most useful generalizations from qualitative studies are analytic not ‘sample-to-population.’*” In fact, as qualitative research, particularly those based on case studies, focus on a small number of cases, sample-to-population generalisation might be problematic, and sometimes even impossible. In this context, however, Klein and Myers (1999)

explained that *“it is important that theoretical abstractions and generalizations should be carefully related to the field study details as they were experienced and/or collected by the researcher. This is so readers can follow how the researcher arrived at his or her theoretical insights.”* (p. 75)

In the present research, several reasons make form qualitative research the best suitable approach. As explained in Chapter 1, the main research aim here is the investigation of the partnering strategies used by ASP vendors to deliver their services. The idiosyncratic nature of such decisions makes it necessary to study them in their natural context – the organization. Thus, it is essential to understand these decisions based on the rationale behind them, which is derived from the meanings that people associate them with. Furthermore, according to the categorisation given by Marshall and Rossman (1999) above, the aim of this research is also to investigate complexities and processes related to the sourcing strategies of the different ASP layers.

4.4 THE RESEARCH STRATEGY FOR THIS STUDY

In Table 4.2, Yin (2003) compared different research strategies according to a set of three criteria: the form of research question that could be answered using the strategy, whether the strategy requires control of behavioural events, and whether it focuses on contemporary events. From these parameters, it is possible to choose the appropriate research strategy.

Strategy	Form of Research Question	Requires Control of Behavioral Events?	Focuses on Contemporary Events
Experiment	how, why?	Yes	Yes
Survey	who, what, where, how many, how much?	No	Yes
Archival Analysis	who, what, where, how many, how much?	No	Yes/No
History	how, why?	No	No
Case Study	how, why?	No	Yes

Table 4.2: Relevant Situations for Different Research Strategies (Yin, 2003, p. 5)

According to the first parameter – form of research question – different research questions can lead to choosing different research strategies. From Table 4.2, two categories can be defined; the first category contains the strategies that are appropriate for ‘how’ and ‘why’ types of questions. In this category, research questions are explanatory, dealing with “*operational links needing to be traced over time, rather than mere frequencies or incidence.*” (Yin, 2003, p. 6) For this category, experiments, history, and case studies are the preferred research strategies. The second category derived from Table 4.2 contains the research strategies that are appropriate for ‘who’, ‘what’, ‘where’, ‘how’, ‘how many’, and ‘how much’. These types of research questions lead to more exploratory studies, with the goal being “*to develop pertinent hypotheses and propositions for further inquiry.*” (Yin, 2003, p. 6) According to Yin (ibid.), even though all the research strategies cited in Table 4.2 can be used for exploratory studies, the preferred ones remain surveys and archival analyses. In general rules, defining the research question is key to choosing the appropriate research strategy. Defining the research questions, however, requires determining their *substance* and *form* (Yin, 2003); the substance defines the purpose

of the research, and the form defines the type of questions being asked, as detailed in Table 4.2.

The second parameter – requires control of behavioural events? – defines whether the control over behavioural events is necessary for completing the research. Among the research strategies cited in Table 4.2, only experiments allow such control allowing direct manipulation of behaviour (Yin, 2003).

The third parameter – focus on contemporary events – looks at the events to be looked at and the data to be collected. From Table 4.2, it should be noticed that the only research strategy that does not focus on contemporary events is history. When combined with the other two parameters described above, Yin (2003) suggests that after formulating the research questions, the researcher has the capability of choosing the appropriate research strategy, or a combination of many strategies.

In this study, as derived from the survey of the literature, the area to be investigated is that of the partnering strategies deployed by ASPs. This focuses mainly on the way ASPs source the different components of their ASP model, and thus the partnering strategies for each component of the model will be investigated. Derived from this area, the main research questions are as follows:

- How do ASPs decide on sourcing the components of their ASP model?
- How do these ASPs decide on the organizational form to be used in order to source these components?

From the questions above, it should be noticed that the present study is aiming at investigating the process through which ASPs consider the components of their ASP model, and form their partnering strategies. Referring to Table 4.2, the form of the

questions asked follows a more explanatory approach, focusing on ‘how’ type of questions. Furthermore, this research does not require any control over behavioural events, as it is necessary for the researcher to investigate the way partnerships are being or have been formed. Adding to this, this research aims to focus on contemporary events, as the subject being studied may still be happening; information on how a particular partnership was formed in the past, and on how a partnership is being formed are both relevant to this study. In conclusion, a decision can clearly be taken from Table 4.2, as the combined three parameters related to this study result in the case study approach to be the most suitable.

4.4.1 The Case Research Strategy

A case study is defined as a research strategy that “*examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, or organizations).*” (Benbasat et al., 1987, p. 371) In further defining case study as a research strategy, Benbasat et al. (1987) established a comparison with other methods; laboratory experiments, field experiments, and field studies. It was concluded that case study method differs mainly in that the research may have less priory knowledge on the required variables and the way these might be measured.

The case research strategy is often confusing when trying to identify the research approach, positivist or interpretivist, to which it belongs (Galliers, 1991; Walsham, 1995b). It has been identified as an important research method by many positivists (Dubé and Paré, 2003; Eisenhardt, 1989; Lee, 1989; Yin, 2003) as well as interpretivists (Klein and Myers, 1999; Porra et al., 2005; Walsham, 1995b;

Walsham and Waema, 1994). Furthermore, Cavaye (1996) explained that the case research is a highly versatile strategy in that it finds its use in interpretive as well as on positivist research, can use qualitative and quantitative methods, and can be used to investigate one or several cases.

Among many other methods for data collection, the case study approach has gained tremendous importance in IS research (Benbasat et al., 1987; Cavaye, 1996; Darke et al., 1998; Walsham, 1995b) (a summary of the key characteristics of case studies is illustrated in Table 4.3), as it is “*well-suited to capturing the knowledge of practitioners and developing theories from it.*” (Benbasat et al., 1987, p. 370) Moreover, Benbasat et al. (1987) argued that three reasons make from case study research a viable IS research strategy. These are as follows:

- IS can be studied in a natural setting, helping thus to generate theory from practice;
- It allows “how” and “why” questions to be answered;
- It is an interesting strategy for studying new topics.

Key Characteristics of Case Studies
<ol style="list-style-type: none"> 1. Phenomenon is examined in a natural setting; 2. Data are collected by multiple means; 3. One or few entities (person, group, or organization) are examined; 4. The complexity of the unit is studied intensively; 5. Case studies are more suitable for the exploration, classification and hypothesis development stages of the knowledge building process; the investigator should have a receptive attitude towards exploration; 6. No experimental controls or manipulation are involved; 7. The investigator may not specify the set of independent and dependent variables in advance; 8. The results derived depend heavily on the integrative powers of the investigator; 9. Changes in site selection and data collection methods could take place as the investigator develops new hypotheses; 10. Case research is useful in the study of “why” and “how” questions because these deal with operational links to be traced over time rather than with frequency or incidence; 11. The focus is on contemporary events;

Table 4.3: Key Characteristics of Case Studies (Benbasat et al., 1987, p. 371)

Several strengths are associated with the use of case studies; through the examination of a phenomenon in its natural context, the researcher is capable of capturing reality and detail. However, despite the many strengths of case study research, the latter suffers from several weaknesses, the main one being generalisation (Cavaye, 1996; Walsham, 1995b). The fact that sample-to-population generalisation in qualitative research is regarded as difficult, and sometimes impossible, makes case studies less than ideal for generalisation purposes.

Case studies can be used in different ways, mainly either to develop or to test a theory. (Cavaye, 1996; Darke et al., 1998; Eisenhardt, 1989) In this context, case study research can be used for inductive purposes, where the idea is to generate theory based on the results of the conducted case studies. (Cavaye, 1996; Eisenhardt, 1989) This is generally the way case research strategy is used in interpretive research and is, frequently, related to grounded theory, which suggests building theories without the use of prior hypotheses. (Bryant, 2002; Cavaye, 1996; Charmaz, 2000) Conversely, case studies can be used for deductive purposes, which consist in the researcher formulating propositions based on theory, then testing these theoretical propositions by comparing them to the findings from observed reality (the collected data) (Cavaye, 1996; Yin, 2003) Furthermore, Walsham (1995b, p. 76) explains that *“[t]he motivation for the use of theory in the earlier stages of interpretive cases studies is to create an initial theoretical framework which takes account of previous knowledge, and which creates a sensible theoretical basis to inform the topics and approach of the early empirical work.”* However, although his idea is strongly shared with that of Yin (2003), Walsham (1995b) warned of the danger of using the theory in rigid way, neglecting thus new issues and avenues of

exploration. As a result, it is recommended to keep openness to the data collected, and a willingness to modify the suggested theory (Walsham, 1995b). Although the inductive and deductive ways of using the case research strategy are fundamentally different, Cavaye (1996) suggested the possibility of combining both methods, which is consistent with the possibility of combining paradigms – interpretive and positivist – as discussed above in the research paradigm section.

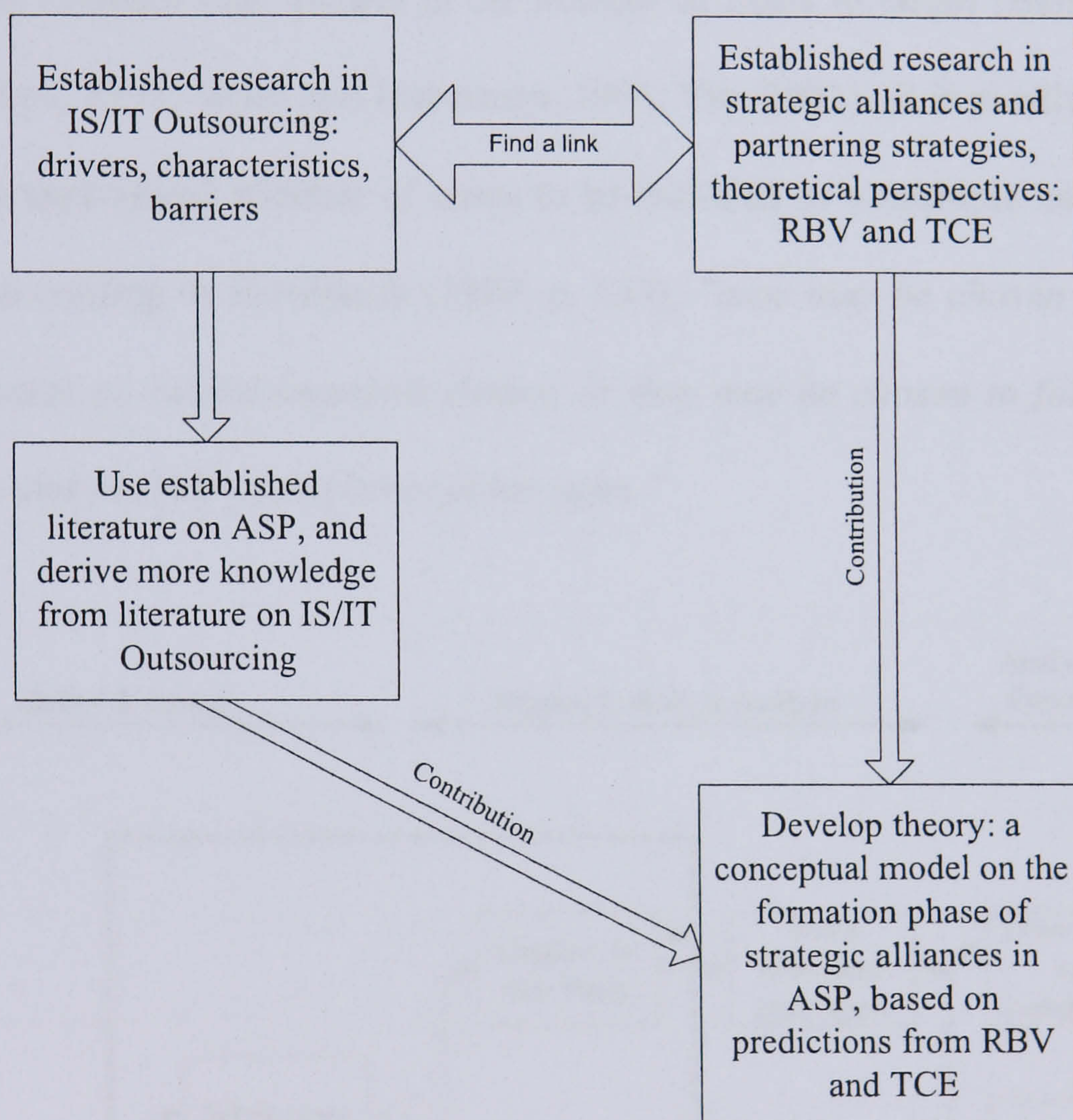


Figure 4.1: Theory development for this study

The decision regarding the number of cases to consider in a case research strategy is of major importance. (Cavaye, 1996; Dubé and Paré, 2003; Yin, 2003) The use of a single case study allows the researcher to get very close to a phenomenon, and can be used either for inductive or deductive purposes (Benbasat et al., 1987; Cavaye,

1996). Multiple case studies, on the other hand, allow data to be analysed across several cases, which “enables the researcher to verify that findings are not merely the result of idiosyncrasies of the research setting.” (Cavaye, 1996, p. 237) Furthermore, Benbasat et al.(1987) added that multiple case studies yield more general results when compared to single cases, and are most useful for description, theory building, or theory testing. Another issue that the researcher should consider when using multiple case studies is the number of cases to target (Benbasat et al., 1987; Cavaye, 1996; Miles and Huberman, 1994; Yin, 2003). It is mostly difficult to suggest an appropriate number of cases to be included in a multiple case research, however, according to Eisenhardt (1989, p. 537), “case may be chosen to replicate previous cases or extend emergent theory, or they may be chosen to fill theoretical categories and provide examples of polar types.”

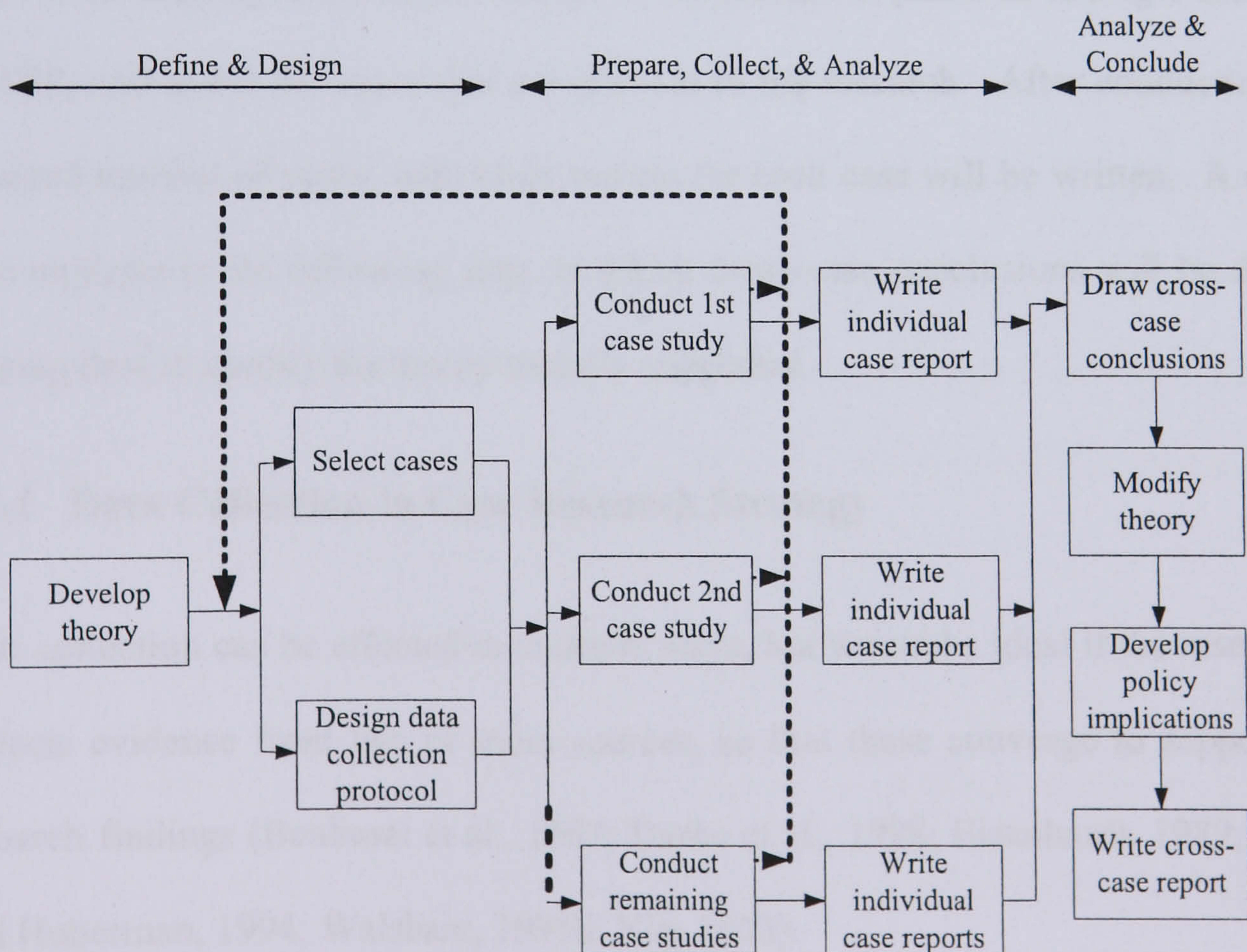


Figure 4.2: Case Study Method (Yin, 2003, p. 50)

In this study, some facts need to be taken into consideration. To begin with, the literature on strategic alliances and partnering strategies is widely established in strategic management and IS fields. Therefore, a solid base for critically reviewing the established literature is available. Furthermore, as explained in Chapter 2, although ASP can be considered as a new field in which research is not very well established, a wide literature on the fields that influenced its emergence – IS/IT Outsourcing – is rather substantial. Therefore, it is very conceivable to derive knowledge from these two streams – partnering strategies and IS/IT Outsourcing – leading to the development of a theory related to the combination of these (see Figure 4.1).

The general research design of the present study follows, then, the process described by Yin (2003) as shown in Figure 4.2. According to Figure 4.2, the present study aims at developing a conceptual model of the formation phase of strategic alliances in ASP, and select the cases that are relevant to the research. After conducting the required number of cases, individual reports for each case will be written. A cross-case analysis is the following step, in which cross-case conclusions will be drawn, helping thus to modify the theory initially suggested.

4.4.2 Data Collection in Case Research Strategy

Data collection can be effected in multiple ways, but would be ideal if the researcher collects evidence from two or more sources, so that these converge to support the research findings (Benbasat et al., 1987; Darke et al., 1998; Eisenhardt, 1989; Miles and Huberman, 1994; Walsham, 1995b; Yin, 2003).

Walsham (1995b) described some of the issues an interpretive researcher should consider when conducting any empirical work. He stated that the first issue involves the choice of the role of the researcher; the researcher can either be an outside observer or an involved researcher. The two roles have advantages and drawbacks, and choosing either one is totally dependent on the context of each research, however, what Walsham (1995b) highlighted strongly is that *“it is essential that the choice in an explicit and reflective way, and that the reasons are given when reporting the results of the research.”* (p. 78)

The second issue, according to Walsham (1995b) is about evidence from interviews. In the case of interpretive research, although the choice of the role of the researcher may affect the choice of the source of evidence, interviews are regarded as the primary source, *“since it is through this method that the researcher can best access the interpretations that participants have regarding the actions and events which have or are taking place, and the views and aspirations of themselves and other participants.”* (Walsham, 1995b, p. 78) Furthermore, Walsham (ibid.) highlighted the importance of keeping a good balance between excessive passivity and over-direction while conducting interviews, as well as the importance of choosing appropriate reporting media necessary to effectively capture people’s interpretation without damaging the social interchanges of the interview.

The final issue according to Walsham (1995b) is that regarding the reporting methods, under this issue, the main idea is that the interpretive researcher does not report facts, but reports interpretations of other people interpretations. Therefore the researcher has to include a maximum of details about how the data were collected,

how these were analysed, as well as details about the iterative process between field data and theory. (Walsham, 1995b)

According to Yin (2003), the most important and commonly used sources of evidence in case studies are as follows:

4.4.2.1 Documentation

Documentation can take many forms, such as letters, agendas, minutes of meetings, administrative documents, and newspaper clippings. Although such types of documents are not always accurate, their use is still important. According to Yin (2003, p. 87), *“the most important use of documents is to corroborate and argument evidence from other sources.”*

4.4.2.2 Archival Records

These include service records, organizational records, maps and charts, survey data, and personal records. Depending on the research being undertaken, the importance of this source of evidence may vary. Such records should, according to Yin (2003), always be used in conjunction with other sources of information.

4.4.2.3 Interviews

It is one of the most important sources of information. According to Walsham (1995b), interviews are the main source for collecting data from the interpretive perspective, as these allow the access to the interpretations and views of the participants with regards to the actions and events that are happening to have already taken place. Moreover, Mason (2002, p. 231) argued that *“[t]he types of questions*

an interviewer asks, and the way they listen to and interpret the answers they are given, undoubtedly help to shape the nature of the knowledge produced.”

In conducting interviews, the researcher should consider a balance between conducting the interview too closely, and too passively (Walsham, 1995b). In the former case, Walsham (1995b) argues that an over-direction of the interview can lead to losing the richness interpretation, resulting from interviewees being not allowed to express their own opinions and views. On the other hand, if the interview is conducted too passively, problems can result from the interviewees doubting the competence of the researcher, or his/her interest in their views, which may lead to endangering future collaborations. Therefore, it is important to determine how to, and how far to, structure an interview. (Mason, 2002)

In general, Yin (2003) argues that interviews are an essential source of data collection, however, due to the problems of bias, and sometimes inaccuracy, data collected using interviews should always be corroborated with information from other sources, such as documents.

4.4.2.4 Direct Observations

This is achieved by making a field visit to the case study site. This could involve observations of meetings, sidewalk activities, factory work, and classrooms. Direct observations could be considered as an important source of data, however such a source finds its best use in the case where the studied phenomenon is not purely historical. If direct observations prove to be of interest to a given research, Yin (2003) recommends the use of multiple observers in order to increase the reliability of the collected evidence.

4.4.2.5 Participant-Observation

This is a mode of observation where the researcher is not a passive observer, but rather a participant in the events being studied. Although the benefits that can emanate from using this technique are several, such as the ability to perceive reality from a participant point of view rather than an outsider one, bias remains a serious danger; problems like the likelihood of following “*a commonly known phenomenon and become a supporter of the group or organization being studied...*” (Yin, 2003, p. 96)

4.4.2.6 Physical Artefacts

According to Yin (2003), physical artefacts are the least relevant in most typical kind of case study, however, these can always be used when appropriate. Physical artefacts can, usually, be collected, if needed, during a field visit.

From the description of the various sources of evidence cited above, some conclusions concerning the present study can be drawn. Interviewing is the most important source of evidence in case study research (Walsham, 1995b; Yin, 2003), and in the context of the present study in particular, interviews seem to be of great value; the purpose is to extract details on the sourcing decisions of the ASP layers, from the people who participated in these. It is, therefore, only natural to adopt interviews as the main source of evidence.

Documentation is also of high importance in this study; the sources of documents are several nowadays, where the Internet plays a major role in allowing access to a variety of sources of information (Allen et al., 2006). Such information collected, would be further supported by other sources of documentation such as company

publications and internal documents. As recommended by Yin (2003), the documents used for this research will be used to corroborate the data extracted from interviews. Archival records, if found, could also be of great value, mainly to support data collected from documents in corroborating interview data. On direct observation and participant-observation, although these could be very relevant and useful for the purpose of the present study, the possibility of conducting these appear minor; the process of forming strategic alliances is of major strategic importance to firms, and allowing an outsider to take part in it is very unlikely. Furthermore, it is most likely that the interviewees in this research will be describing their past or recent experiences when forming strategic alliances, which makes observations not relevant. Finally, physical artefacts are of no relevance to the present study, as the processes being studied are mainly the results of human acts.

In summary, this research will be relying on using case study research strategy, with data being collected through interviewing, and corroborated through data extracted from documentation relevant to the cases.

The choice of study cases was determined by the need to explore a variety of cases that represent different ASP settings. The first two cases (CompanyA and CompanyB) were chosen due to the differences in their partnering strategies, where the former was relying more on inhouse provision, whereas the latter was more into outsourcing. These two case studies were considered by the author as representing two ends of a spectrum, and the remaining case studies were chosen within this spectrum. The main issue that emanated from this phase was that not many firms accepted to participate in the research. A total of ten small-to-medium enterprises (SMEs) were considered in this research, but only six were used due to the

incompleteness of the other four; the other four cases were either not suitable for the study due to their low involvement with the ASP model, or to their reluctance to divulge important information about their strategic plans.

The interviews conducted in this research were all either semi-structured or unstructured (Denzin and Lincoln, 1998). The semi-structured interviews were the main source of data, where it was necessary to keep some level of passivity (Walsham, 1995b) (see Appendix A for more details). The research is designed around the key concepts from TCE and RBV, and due to the complex nature of these concepts, it was judged important not to involve interviewees with them. Moreover, integrating these concepts in the interviews would limit the interviewees' responses, who will limit their stories to the explanation of these concepts. Therefore, the main purpose of the semi-structured interviews was to extract facts from the different interviewees, then map the different theoretical concepts onto those. The unstructured interviews were mainly complementary to the semi-structured ones, and generally took place over telephone conversations or during informal sittings (see Table 4.4). All the semi-structured interviews were tape recorded, and transcribed subsequently (see a sample transcript in Appendix B).

In order to further support the data gathered through the interviews, triangulation (Yin, 2003) was used from a variety of sources. The main ones being documentation originating from the studied organizations (white papers and company reports), whereas electronic sources (Internet) were also used, particularly the ones associated with the ASP area. Furthermore, data from the studied companies' websites was also valuable. Some websites contained newsrooms, where all the latest

developments were published; e.g. “http://www.aspnews.com”, “http://www.idc.com”, and “http://www.gartner.com”.

Organization	Respondent	Type of Interviews
CompanyA	CEO	Unstructured
	VP of the Managed Services Divison	Semi-structured Unstructured
CompanyB	Co-Founder	Semi-structured Unstructured
	Manager of the ASP Solution	Unstructured
CompanyC	Managing Director	Semi-structured Unstructured
CompanyD	CEO	Semi-structured Unstructured
CompanyE	Managing Director	Semi-structured Unstructured
CompanyF	CEO	Semi-structured Unstructured

Table 4.4: Interviews conducted for data collection

4.5 CONCLUSION

This chapter examined the research methodology used for conducting the present research. A discussion was initially provided around the suitable research paradigm, where it was explained that interpretivism was the dominating one for this research. Furthermore, details of the research strategy chosen for conducting this research were provided, where multiple case studies proved to be the most appropriate

method. In this context, details of the data collection techniques (mainly interviews) were presented together with the used triangulation tools.

In the next chapter, a detailed description of the case studies is provided, together with the preliminary results that emerged.

CHAPTER 5

RESEARCH FINDINGS

5

5.1 INTRODUCTION

An important step in the analysis phase of a multiple case study approach is the description of each case independently, or what is commonly known as “*within-case analysis*” (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 2003). According to Eisenhardt (1989), the use of within-case analysis helps the researcher to overcome the problem of coping with massive amounts of data by putting more focus on each case for which a detailed write-up is produced. Although within-case analysis is mostly descriptive, it allows the researcher to produce important insight about each case, which results in more familiarity with the cases, and thus “*allows the unique patterns of each case to emerge before investigators push to generalize patterns across cases.*” (Eisenhardt, 1989, p. 540) Moreover, Yin (2003) stated the importance of having a general analytical strategy prior to starting the analysis phase. On this, the most preferred strategy is to rely on the theoretical propositions based on which the case studies were designed (Yin, 2003). As discussed in Chapter 3, the purpose of the present study is to investigate the partnering strategies of ASPs for sourcing the different ASP layers defined in Figure 2.8. As the cases used in this study were conducted and structured according to these layers, it is preferred that the analysis would follow the same structure (Miles and Huberman, 1994; Yin, 2003).

In this chapter, the 6 cases involved in the study will be described. For each case, the aim is to highlight the core of the ASP strategy, focusing in particular on the

deployed partnering strategy; each case description starts with a brief overview of the studied organization, then a general description of its ASP and a more detailed description of each of the ASP layers and their sourcing modes will follow. Finally, an integrated description of the general partnering strategy of each of the studied firms will be presented.

Due to the requests of some of the studied firms, all the presented cases are given fictitious names in order to keep them anonymous.

5.2 THE CASE OF COMPANYA

5.2.1 Introduction

CompanyA is an e-Business solution provider, specialising in front office applications for sales, marketing and customer service. It also focuses on four key vertical markets, being financial services, life sciences, retail and distribution, and telecommunication, media and technology. When founded, the company acquired two UK consultancies that had a focused expertise in eCRM and e-Commerce implementations.

CompanyA aims at targeting the ASP model for delivering integrated front office and e-Commerce. The company has also targeted WAP-enabled mobile Internet services. Its offerings consist, therefore, in providing both mobile and desktop users access to managed e-Commerce and front office services for a fixed monthly fee.

The products offered by CompanyA are focused on the front office, mainly CRM and workforce management. CompanyA offers Siebel-based and Microsoft-based

CRM applications, IBM’s WebSphere, BroadVision, and Viryanet’s workforce management application.

5.2.2 CompanyA’s ASP Model

Few months after its launch, CompanyA began a slow alteration of its business model to become an e-Business solutions provider. Still in the arena of software-as-a-service, with ASP as part of its business model, CompanyA is now composed of three divisions: Consulting, Managed Services, and Mobile Enterprise Solutions.

The adjustment of CompanyA’s business model came naturally; the company aimed at specialising in the particular vertical markets cited above, and offer value-added service. However, in order to achieve this, CompanyA found itself dealing with applications that need high degree of customisation in order to meet customers’ needs. Such customisation needs led the company to lose many of the advantages of the ASP model such as the one-to-many type of customer relationships. In further explaining this strategy shift, an executive from CompanyA stated that the reasons for which the company has altered its business model are:

“...one is nobody really bought the ASP model, and two we started being successful in offering a one-to-one managed service to people...”

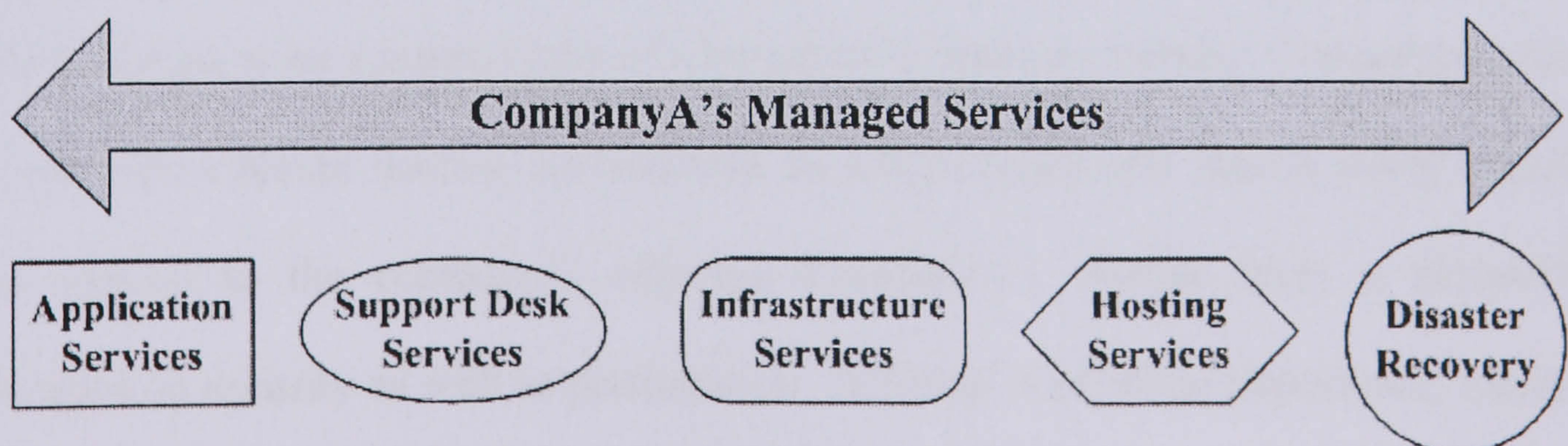


Figure 5.1: CompanyA's Managed Services

Furthermore, the same executive explained that such an alteration did not exclude the usefulness of ASP expertise. He confirmed that the ASP model is still an important part of their business, where he stated:

“...now, we do get a lot of benefits that are in the traditional ASP model because all of our infrastructure is shared across all the services ... so we are able to offer people good competitive rates, but they have a separate virtual network...”

The main ASP activity at CompanyA is run within its Managed Services division (MSD) (see Figure 5.1). When launched, CompanyA was setup as a pure ASP, aiming at serving its customers on a one-to-many basis. However, as explained above, the company altered its business model. In discussing the ASP model in general, the vice president of MSD explained that the major problem with distributing applications on an ASP basis is the lack of customisation. He further explained that as a generic software application does not always give the full set of functionalities required by customers, small niche vendors aim at offering vertically tailored applications. In this context, CompanyA bases its MSD's services on delivering several applications to which the company adds value by essentially distributing these through dedicated virtual networks.

5.2.2.1 Data Storage

Data storage is an essential part of CompanyA's business model. CompanyA aims to provide a secure hosting environment, in which customers' data is safely stored. In relation to the company's offering, CompanyA's storage layer is primarily focused on security as well as performance. Security is of prime importance, mainly due to the discomfort that many companies feel when data is hosted off their

premises. According to CompanyA's CEO, this is an important selling point for the company, without which their business model stands very little chance to succeed.

Performance is also important due to the data intensity of the company's offered applications, particularly the Customer Relationship Management (CRM) packages.

Customers not only need to be comfortable about the security of their data, but also need to have guaranties that they can get real time access to data that is up to date.

The company's data storage layer is, currently, outsourced to a third party organization, Storage Networks, that manages all storage operations including data backups and recovery.

5.2.2.2 Server

The server layer, in CompanyA's case, is based around Sun Microsystems technology running Sun Solaris. At this level, CompanyA focuses on security, manageability and performance. CompanyA has also achieved SunTone certification, a prestigious programme directed by Sun Microsystems which has gained considerable support across the ASP industry.

However, what was expressed by the company is that customers are becoming less sensitive about the hardware in use. As a result, instead of continuing to exclusively deploy Sun Microsystems servers running Solaris, Dell NT machines and IBM machines running AIX are also in use.

The entire computing infrastructure, including all servers and accompanying hardware, used to deliver the ASP solutions is totally owned by CompanyA.

5.2.2.3 Network

CompanyA aimed at creating a shared infrastructure for hosting its customer's applications, but separating each application in a secured manner. In order to achieve this, CompanyA worked with a network partner to develop virtual Local Area Networks (vLANs) for each customer. Each customer is offered a vLAN through which all the dedicated applications can be accessed.

The network layer is of prime importance to CompanyA; the company guarantees high levels of service based on its Service Level Agreement (SLA) with the network provider. CompanyA's SLA guarantees, as advertised by the company, are as follows:

- Global Network access and availability 99.5%;
- Packet loss of less than 0.001% within the network provider's global IP backbone;
- Latency of less than 10 milliseconds between any two points on the network provider's global IP backbone;

According to the vice president of CompanyA's MSD, the company aimed at providing a different level of experience to its customers by providing a unique network setting; through the use of Virtual Local area Networks (vLANs), each customer becomes unique, and thus receives a much better level of service.

5.2.2.4 Application

CompanyA offers a wide range of applications to its customers. These applications are mainly divided into Customer Relationship Management (CRM) packages and e-

Commerce packages; the CRM packages are based on Siebel's and Microsoft's solutions, the latter being mainly targeted at SMEs.

The company also offers IBM's Lotus Domino/Notes and WebSphere, as well as Actuate's business intelligence applications. On the e-business side, CompanyA offers BroadVision's enterprise business portal applications.

Although CompanyA does not own any of the applications cited above, its real expertise lies in its extensive inhouse knowledge of implementing these packages, and most importantly its expertise in systems integration.

5.2.3 Partnering Strategy

By looking at how CompanyA presents itself in the ASP market, it was found that partnering was an important element of its ASP strategy. The company was advertising itself as having ties with companies from different backgrounds. This was particularly communicated through its website and the publicised brochures. However, when the VP of MSD was asked about this, he stated:

"...I think from where you are coming from, we partner with a lot less companies than you would think... so in terms of providing the managed service, the people that we actually partner with are [the network provider], who are the providers of the data centre and the hosting environment... and we sort of have partnerships, but really they are suppliers rather than partners..."

As a starting point, it appeared clear that the case of CompanyA was not displaying the same image that was being advertised regarding its partnering strategy. Therefore, further investigating the partnering strategy deployed by CompanyA

proved necessary. For this purpose, the different ASP layers discussed above will be further investigated in the context of CompanyA's partnering strategy.

For data storage, CompanyA initially forged a partnership with a Storage Service Provider (SSP) which consisted of managing all the company's storage operations as well as its data backup and recovery. However, as explained by the VP of MSD, the company is finding that at the time when the relationship was decided, there was too much hype around data storage, and that nowadays hardware costs are continuously decreasing, which makes the alliance less valuable than before. What is understood is that CompanyA was forced to sign a contract with the SSP, essentially for financial reasons. Moreover, it was explained that initially, before CompanyA went through the process of changing its business focus, the company was aiming to focus on the customer interface. It was, therefore, part of their business strategy to outsource all the ASP layers to third parties, and concentrate solely on the management layer. However, now CompanyA is rethinking its sourcing of data storage, and is considering internalising the whole part of operations related to the layer.

Similarly, the Server layer was previously outsourced to a third party organization. The outsourcing contract involved the entire hardware infrastructure as well as managing the operating system including fine tunings for the deployed applications. CompanyA ended up internalising the whole of the server layer. CompanyA was determined to take control over the Server layer of its ASP model. The justification that both the CEO of CompanyA and the VP of its MSD gave for this strategy is purely related to the SLAs they offer to their customers. It was confirmed that due to the financial sanctions imposed on the company in case the SLAs are not met,

CompanyA chose to be in control of everything in order to minimise the risks of not meeting them.

The Network layer in the case of CompanyA was the most important as it is the one that shapes the whole of the company's offerings. As explained above under the Network layer subsection, CompanyA allocates vLANs to each subscribing customer in order to maximise the security of operations. In fact, the concept of vLANs was used by CompanyA specifically to alter its ASP strategy and thus differentiate itself from competitors. On this, the VP of CompanyA's MSD explained:

"...we actually do get a lot of benefits that are in the traditional ASP model because all of our infrastructure is shared across all the services, so the people, the help desk, the network, the stack... etc, is a shared infrastructure, so we are able to offer people good competitive rates, but they have a separate VN [virtual network], it is called, a separate piece of network where their application sits, and so the hardware and software, the application on it is dedicated to the customer; in a traditional ASP model, you put multiple customers on a single box..."

As a result, CompanyA entered into a strong partnership with a leading telecommunications provider in order to offer this specific mode of ASP implementation. The relationship in this case can be considered as a strategic alliance, due to several reasons; firstly, the dependence of CompanyA on the network provider is very strong, as explained the VP of MSD:

"...[the network provider] is a telecom provider, so their real expertise is around network, so we have outsourced that to them, because for us to get the breadth of

expertise they have, we have to hire an army of people... so it is really about expertise and capability...”

Secondly, this relationship is also qualified as mutually beneficial. On this, CompanyA’s CEO explained:

“...in the situation with [the network provider], we are actually dealing with two different parts of the organization; one is them supplying us a service, but then there is another case that we have worked with that group to say is there anywhere in [the network provider] where you have to go to a market proposition that could benefit from what we do, because every time they sell us, they just sold you as well, because if we have more customers you have to buy more from me... it is a virtual circle... so that is what I mean by mutual benefits situation...”

This has clearly proved to be the most important layer in the case of CompanyA. It is the only layer for which the company has entered into a strategic alliance based on mutual benefits. This was further confirmed by the VP of CompanyA’s MSD, where he stated:

“...for us, my view would be, for a day to day running of the operation, we really only have one partner, and that would be [the network provider], but we have quite a few suppliers, that by definition we would sort of have risk backed off to that...”

The Application layer is characterised by a portfolio of a variety of software applications delivered to the company’s customers. All the offered applications come from third-party ISVs, although the implementation, as well as the integration operations, are effected by CompanyA. At CompanyA, the relationship with these

ISVs is considered as that of a market transaction. In this context, the VP of MSD explained:

“...if we take Siebel for instance, it is in their interest for us to sell projects which contain Siebel, from a sales point of view, then we do work as partners and we will share leads and we will go to market together, but that is not what is underlining our ASP offering in terms of making it work...”

Furthermore, the same executive further expanded on his explanation by stating:

“...with Siebel, on the software side, when you buy a Siebel software there is a maintenance contract you have to buy as part of the license, so if we would resell that software then we work with Siebel through their sort of customer support portal, with an engineer, if we have a problem...”

The two above statements confirm that CompanyA shares relationships with its ISV suppliers that can be qualified as being market-based transactions. The company procures the software application, and gets after sale services as part of the bought license. Although most ISVs involved with CompanyA are advertised as being partners, those are in fact only suppliers because of the lack of shared objectives; such relationships do not involve firms working towards shared targets, and thus can only be seen as market-based transactions.

Another important aspect of partnering that is identified within the application layer is that CompanyA enters into partner programs with bigger companies in order to extract benefits, mainly financially rewarding. On this issue, the VP of MSD explained:

“... IBM, for instance, we are setting up a division really, which is around WebSphere, so it’s a major technology... their strategy is, they have business partners out in the big wide world selling their software for them, and so we are part of that partner program, and as part of that they release marketing funds to us... we are going and if we see a CRM opportunity in a vertical, we will sell web services under line software, so it is very much a sales partnership model in this case...”

Again, this is far from being a partnership as defined in Chapter 3; although the benefits here are mutual, as both parties enjoy benefits from the relationship, the two entities do not work towards shared objectives, and thus cannot be considered as a strategic alliance.

To sum up, the partnering strategy of CompanyA appears to be more opportunity based; the only strong relationship that can be considered as a strategic alliance is that with the network provider. The remaining relationships, although advertised as partnerships, are mere market-based transactions forged specifically to complement the company’s resources. In this context, the VP of MSD stated:

“... at the end of the day, the customer will buy what the customer wants, so you have to try to guide, and you have to change spots and colours to say yes I am what you want, even if your start point is not what they want, you have to stretch yourself... sometimes that means putting partners in, and sometimes it will not...”

The following table summarises the findings from the case of CompanyA:

ASP Layer		Sourcing Mode
Data storage	Operations	Inhouse
	Hosting	Strategic Alliance
Server	Operations	Inhouse
	Hosting	Strategic Alliance
Network		Strategic Alliance
Application		Market

Table 5.1: CompanyA's sourcing of the ASP layers

5.3 THE CASE OF COMPANYB

5.3.1 Introduction

CompanyB is a leading provider of administrative software to performing arts venues and organisations, as well as the conferencing and banqueting industry, stadia and sports venues, local authorities, and councils.

Initially, CompanyB's products began by a software application, which was designed, by one of the company's founders, for a classical music agency. The product offered an interesting solution that most music agents were looking for; it consists of easing the administrative burden that this concert agency's staff was suffering from. The software application was, therefore, aimed at covering all administrative aspects, and particularly at offering shared information among these administrative areas. As the software product grew further, it was expanded, developed, and was eventually adopted by most of the leading artists' managers and

concert agents in the UK and subsequently by many in Europe, the USA and the Far East.

Since its launch, CompanyB has developed enormously, expanding on its portfolio of products by developing several other software packages targeted at different processes in the performing arts sector, as well as diversifying into other markets. Current development includes a new web-based venue management system which is primarily targeted at organisations spread across large areas, according to the company's co-founder.

5.3.2 CompanyB's ASP model

When CompanyB was launched, their products were EXE-based applications running on MSDOS. With their EXE-based applications, CompanyB gained a tremendous number of customers in the venues market, becoming thus a leader, particularly with concert halls and theatres. Due to the saturation in this market, where the company's co-founder stated:

"...[t]here is like two concert halls in this country that have not got our software..."

CompanyB needed to diversify into other markets. The potential markets, as identified by CompanyB, were:

- Conference and banqueting;
- Local authorities, managing community halls, and football pitches;
- Football clubs.

Apart from the potential markets cited above, CompanyB developed interests in box office ticketing, as a potential area of expansion. The Internet became of a particular interest in this area, as the company was considering the importance and the benefits that this networking technology could bring to tickets selling. The company noticed that the solutions being offered were EXE-based, for staff working in the box office, and an Internet solution for customers who prefer to purchase their tickets online. The Internet solution offered an interactive way of purchasing tickets, where the customers could even choose the seats they prefer. Even though the Internet was used, CompanyB co-founder explained that on current systems, you cannot do from the Internet everything that you can do from the traditional system. Similarly, on the event management side, the more peripheral jobs, which do not deal with bookings directly, need to get information about these bookings. Such people like catering managers, can benefit from reports delivered over the Internet on the booking situation.

As a result of a strong interest in exploiting the Internet, CompanyB developed a new path for developing and distributing software, in parallel to their traditional EXE-based solutions, as shown in Figure 5.2. This path consists of using the concept of ASP for software distribution. This solution, being still in the event management sector, is fully web-enabled with no EXE-based interface, according the company's co-founder.

This solution is offered both hosted and as a deliverable; in other words, this solution can either be taken in charge completely by CompanyB, or installed in the customer's server and therefore run internally in the customer's premises. However,

according to the interviewed co-founder, no customer has expressed any interest in the deliverable version of the ASP solution.

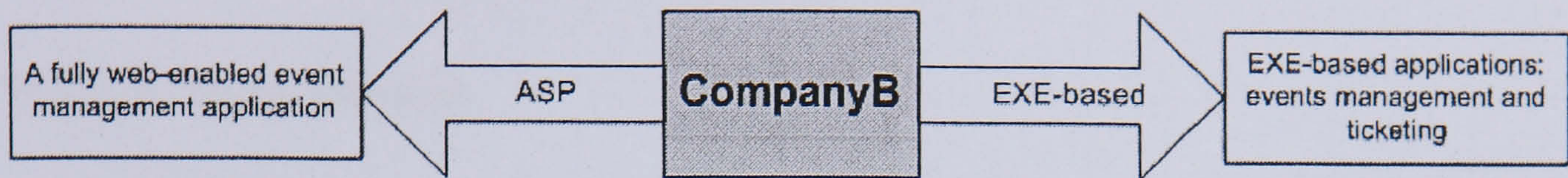


Figure 5.2: CompanyB's strategy for their product offerings

On expanding on the choice of the ASP concept as a basis for their new solution, it was explained by CompanyB that there are two different views that customers have; there are those who need to use ASP, and those who want to use ASP:

- Customers who need to use ASP, do so because they are geographically diverse. In this case, if bookings are to be made centrally, then ASP should be the right solution;
- Customers who want to use ASP, do so because they do not want to be responsible for their own IT assets and activities, such as servers, networks, and backups. They just want to outsource these.

CompanyB's co-founder expressed a lot of optimism about their ASP service, especially its potential use with councils. He explained that most local councils suffer from problems with their IT departments. Furthermore, the pricing style offered by the ASP model, which consists in renting a system as opposed to buying it, is particularly suitable to local councils. On this, CompanyB's co-founder explained that most people in local authorities think in terms of the year's budget and whether they can get things to pass committee, so

“...it is much easier for the local government officer to say I want to spend £300 a month the whole of this year, than to say I want to spend £20,000 next week...”

5.3.2.1 Data Storage

In terms of data storage, CompanyB’s requirements are very basic in that once their ASP product has been deployed, all the operations consist of manipulating and storing data involved in the transactions that are operated through the application. The data operations involved in such transactions are relatively heavy, but most importantly are security intensive particularly those related to the involved financial transactions.

All the data storage hardware is owned by CompanyB, but hosted in a third-party data centre. CompanyB is in charge of the whole operations of data transfer, including data backups; the company operates daily data backups remotely from its premises, where the third-party data centre provider changes the backup tapes on daily basis.

5.3.2.2 Server

Similarly to the data storage layer, CompanyB’s requirements in computing infrastructure are very basic. The company uses standard servers, IBM in this case, in which the ASP application is installed and remotely distributed to customers. Following a more traditional ASP model, the company enjoys economies of scale by sharing each server among several customers.

All the server layer is owned by CompanyB, but hosted in a third-party data centre. The latter provides rack space only, and it is CompanyB that is in charge of all the maintenance operations.

5.3.2.3 Network

The network requirements are also very basic in this case; all that CompanyB requires for running its ASP offering is a fast Internet connection, according to the company's ASP operations' managing director. The company needs to ensure that customers are connected to their dedicated customer, and that the company's premises are connected for management and maintenance purposes. According to the company's co-founder and the managing director of the ASP solution, the basic network needs are a continuous Internet connection to ensure constant provision of their services.

5.3.2.4 Application

Although CompanyB owns a rather important portfolio of applications and software modules, only one package is delivered using an ASP model. The application is a resource management system that handles booking processes. The solution is targeted at organizations that depend on scheduling on a daily basis such as entertainment venues and exhibition venues. As explained above, the software is fully owned by CompanyB, and was partially derived from previous packages designed by the company.

5.3.2.5 Partnering Strategy

The partnering strategy in the case of CompanyB seemed very basic, resulting in a straight forward implementation of the ASP model. The company mainly manages its ASP delivery by itself where the company's co-founder stated:

“... our ASP provision is going to be delivered in a Web browser, with us taking all the responsibility for database services, for user interface services, for backups... so everything is done locally and everything is done centrally...”

Initially, the company did not even use third-party hosting for running their solution; as the solution was in its “beta” version, the company was running all the tests and simulations locally as a fully inhouse system. The servers were managed internally, and the company was paying for a permanent tiers network into its premises, costing around £14,000 a year. The company was, also, in charge of data storage internally. As the ASP solution was about to go live for the first customer, the company reached a decision point in which to chose an appropriate sourcing mode of the ASP layers. For financial reasons, CompanyB decided to move to co-located services, which proved to be more cost effective, and with extra benefits, as the managing director of the ASP solutions explained:

“... now co-locating and all the services we get with co-locating cost about half what we were spending before, and we get four times the bandwidth as well, so therefore it is more economical to do it co-located...”

Although co-location is used in this case, the whole solution is completely run by CompanyB. Data storage hardware is hosted in a third-party data centre, however all the operations are effected remotely from the company's premises; the company

monitors all data transfers, and operates all data backup activities through an Internet connection that links their inhouse systems to the co-located storage hardware. The only operation that is done by the data centre provider is swapping backup tapes, where according to CompanyB's co-founder, the company finds it unnecessary to physically replace tapes on the data centre by one of its employees, and thus left the task to the data centre's staff.

Similarly, the company's ASP dedicated servers are co-located, but all the operations are run internally by CompanyB; they provide the application, provide support to customers, and manage their applications on the co-located servers.

Expanding on the co-location service, the co-founder of CompanyB's explained that the co-location service they get from their ISP are of an excellent standard; however, still the relationship they undertake between themselves is far from being that of a partnership. It was explained to be more of a customer-supplier type of relationship. Even though the service that CompanyB is getting from their ISP is critical to the functioning of their model, it is only a simply bought service. According to CompanyB, they do not need to develop a stronger relationship with their ISP, as the latter's service suits their needs perfectly, and therefore there is no need to alter it. The co-founder of CompanyB explained:

"...they give us a service... first of all certain support we get from them is 24x365, and is excellent, their support is absolutely superb, and they keep the network up all the time and know exactly what is going on, they really are excellent... but that is all we expect from them for the money we are giving them, you know... simple telecom provision..."

Credit card validation is, also, another service that CompanyB buys from third parties. According to a company's executive, it is a process that they do not know about and they do not want to know about, so they buy it.

The ASP solution offered by CompanyB is, then, a self-managed service, with no particular ties with external firms, apart from the services they buy from third parties. However, the interviewed executives expressed some challenges that may form a potential barrier to the future of their ASP business. To begin with, the technical problems that result from foreign customers who work in different languages are very challenging, where separate servers might have to be installed for each set of customers using a particular language. This problem is particularly important knowing that the company had, for the traditional business, appointed distributors in many countries such as in the USA, as well as several European countries. Furthermore, CompanyB has also developed many foreign language versions of its programs. As a result, if the company aims to introduce its ASPProduct initiative abroad, such a problem will certainly be raised.

Another problem revealed by CompanyB was the financial issues if ASPProduct has to be introduced abroad. This potential problem focuses mainly on how their international distributors would make profit from ASPProduct. In fact, in the company's co-founder's opinion, this could be resolved by offering a commission to the distributor.

Even though CompanyB is very optimistic about the future of their ASP product, they still think that their traditional EXE-based applications will still be in demand. Going back to the co-founder's description of the two customers' views cited above,

it was explained that the ASP-based offering might be ideal for a certain category of customers, those who are geographically diverse for instance, whereas for others, the EXE-based solution might make more sense. Therefore, CompanyB predict to see both types of their offering going along side by side, at least in the near future.

ASP Layer		Sourcing Mode
Data storage	Operations	Inhouse
	Hosting	Market
Server	Operations	Inhouse
	Hosting	Market
Network		Market
Application		Inhouse

Table 5.2: CompanyB’s sourcing of the ASP layers

5.4 THE CASE OF COMPANYC

5.4.1 Introduction

CompanyC is a leading provider of online virtual deal rooms and collaboration rooms for Mergers and Acquisitions (M&As). The company was founded in 1996 for which the idea of creating a business of online virtual deal rooms came mainly as an answer to the difficulty and complexity of due diligence process involved in M&As. As M&A activities faced a lot of challenges leading to a serious fall, improving the deal processes and making them more efficient became essential.

CompanyC’s business proposition consists in providing dealers with an electronic mean of communication, where all the required documents are digitalised into

electronic documents, then distribute and manage these using a Web-based application. The benefits, according to CompanyC's managing director, are tremendous in that the management burden that these dealers face is greatly reduced, where he explained:

"...so instead of someone picking a package of information, quarterly reports and whatever, and putting them in a post to one of their clients, they will take them into soft copies, upload them to our work space, and we host, and we give someone access to view these documents..."

The company focuses essentially on the financial services industry, where several of the top investment banks in the US and Europe conducted M&A transactions totally using CompanyC's virtual rooms. However, the most important step taken by CompanyC is to expand its business into more diverse markets. Loan syndications, private equity as well as the pharmaceutical markets are among the most important ones that CompanyC penetrated.

The overall business strategy that CompanyC aimed to deploy is to spread its rather simple, but extremely beneficial, idea to acquire a maximum of customers. The company believes that the idea certainly appeals to most companies that deal with intensive document management and exchange, however the managing director admits that the personal element involved in deals, particularly those of M&As, is here to stay. He explained:

"...we do not suggest to completely eliminate personal interaction... what we offer is a technology-based solution that aims to facilitate the [M&A] process..."

In the case of CompanyC, the benefits of using its online service are usually translated into cost savings. The costs, according to the company's managing director, are not limited to the printing costs that are involved in the traditional distribution of documents, these are more about the time savings that customers could enjoy; using the Web tool, customers avoid the rather time consuming process of sending documents through a courier.

5.4.2 Company C's ASP Model

In implementing this novel concept of exchanging digitised documents for M&A deals, CompanyC realised that the ASP model was very suitable for their business. As the managing director explained, the nature of the idea almost dictated its mode of delivery; the company needed a system that would allow several organizations to exchange the digitised documents, and the Internet proved suitable. As a result, CompanyC developed a Web-based software application that manages the exchange of documents online, allowing basic uploading, downloading and printing operations.

5.4.2.1 Data Storage

Data Storage is an extremely important layer in the case of CompanyC. The business model suggested by the company consists in a solution that relies heavily on extensive storage.

Security of the stored data is of major importance, as customers usually upload business-sensitive data that not only should be kept safely, but also their viewing should be restricted to the authorised users only. For this purpose, the company offers an encrypted environment for message transmission. Furthermore, in order to

improve the security of the uploaded documents, CompanyC has introduced an e-signature capability that allows users to authenticate, electronically, the documents they upload. Currently, although CompanyC focuses extensively on security issues, customers are gradually becoming less worried about these. According to the company's managing director:

“...today, customers' priorities are more about how easy to use is our system, and this is because we have already been tried and tested in terms of security... so that is not an issue anymore...”

Although the company initially was outsourcing its Server layer to IBM Global Services, it moved its hosting service to USinternetworking (USi); the decision to move to USi was largely driven by the desire to move to an Oracle/Unix database platform which proves to offer more scalability, according to CompanyC's managing director. Currently, all the data storage operations, hosting, and most importantly backup and data recovery operations are assured by USi.

5.4.2.2 Server

The Server layer in the case of CompanyC is rather basic; the company uses off the shelf hardware equipment on which their document management application resides. The company needs basic security settings for ensuring that the servers are hosted within a safe and secure environment. The servers are hosted in USi's data centre in the United States.

5.4.2.3 Network

The network requirements for running CompanyC's business are very basic; according to the managing director of the company, CompanyC's business is based

around heavy but simple Internet use. Although the company needs to ensure connectivity to thousands of customers, the basic use of the Internet consists in linking these customers to their targeted deal room. However, what the company's managing director highlighted as being of major importance is the availability of their system; due to the criticality of the data communicated through the virtual rooms, CompanyC needs to ensure continuous connectivity, which makes from the network availability an important parameter to consider when sourcing this layer.

5.4.2.4 Application

The application used by CompanyC to run its business is a Web-based software that offers all the capabilities to upload, store, view, and manage customers' electronic documents. Initially, the founders of CompanyC developed an application based on Lotus' Domino collaboration software, which was an online loan syndication tool. Now, the application is fully web-enabled, and is developed and maintained internally by CompanyC.

5.4.3 Partnering Strategy

The partnering strategy deployed at CompanyC is largely simple. The main character that emanated from this case was the determination of the company to grow and expand as fast as possible. This character was directly reflected in forging its relationships with external firms; in order to further target other untapped markets, CompanyC entered several partnerships, mainly qualified as strategic marketing partnerships, according to the company's managing director. Through these partnerships, CompanyC aimed at offering its services to complement its

partners’, and inversely. So, CompanyC would look at third parties with offerings that are complementary to its Web tool, and then integrate the two to be offered as a single package, which leads to an expansion in the market reach.

One of the companies that CompanyC partnered with in this context was IKON, a distributor of document management products and services. IKON specialised in fast, high volume digital imaging of printed documents. Through this relationship, CompanyC aimed at providing its customers with a service that would allow them to digitalise their documents before these are uploaded into their allocated virtual rooms. Similarly, IKON aimed at providing its customers with CompanyC’s Web tool that would allow them to manage and distribute their digitalised documents. Such a relationship was purely commercial-based, and cannot be regarded as a strategic alliance mostly due to the fact that no resources were pooled between the two companies, and moreover the two partners are not working towards shared objective. The only reason behind such partnerships is strictly related to market and business expansion. CompanyC feels the need to further grow its business, and thus looks at exploiting new markets.

In relation to CompanyC’s ASP business model, the different layers described above are mostly performed either internally or using market-based transactions. The simplicity of CompanyC’s business has made the deployment of their idea a very easy task. In simple terms, the company offers virtual deal rooms, in which digitalised documents are managed, and access to these documents is controlled. Referring to the different layers of the ASP model, CompanyC relies very little on partnerships, where the company’s managing director commented:

“...we do most of the stuff ourselves... we have our own customer service, we write our own software, we use the Web and we need a relationship with a hosting company, but beyond that we don't need much...”

The company's data storage requirements, as explained above, are very simple in terms of physical storage. The company needs high capacity and scalable data storage hardware, as well as secure modes of transmission and access to the stored data. CompanyC, according to its managing director, owns all the data storage hardware, but hosted in USi's data centre. The driver for co-located hosting, in this case, is security. As the company considers security as mission-critical, relying on a strong third-party to take in charge the hosting process was a primary objective for CompanyC.

Similarly, the computing infrastructure – the servers – is owned by CompanyC, but hosted in USi's data centre. Again, the driver in this case is security of the hosted application. Not only the data transmitted through CompanyC's is 128-bit encrypted, but also the access is controlled through document-by-document permission which allows the protection of the submitted documents from unauthorised printing, copying, and forwarding. Thus, on the top of software-enabled security, mainly through data encryption and controlled access, CompanyC requires a safe physical location in which to host its hardware. The company finds the hardware requirements for its business very basic, where the managing director explained:

“...what we do is quite simple, we don't need a whole lot of third party companies, we don't need a hardware provider... we have vendors that provide us with the

hardware, and our customers don't need anything from us, they only need a Web browser..."

However, although all the servers are owned by CompanyC, these are co-located in USi's data centre. Despite the simplicity of the computing infrastructure needed for running CompanyC's business, the company prefers to refer to USi as a close partner, qualifying the relationship as a strategic alliance. On this, the company's managing director stated:

"...we have a very close relationship with USi in terms of having them understand what we need for our specific requirements and availability, because in our contracts we guarantee 99% of time of our service, and so obviously we need a very high level of confidence in the ability to deliver a reliable product, and this reliability is based upon two things; our application as well as how the application is hosted... so we have to make sure that USi and us are very much in synch about what our requirements are. Additionally, we have got what customers require, we have certain levels of integration and documentation about the security and the reliability of the service, so USi has been a very good partner with us..."

From the above statement, it is clear that CompanyC's close relationship with USi is built around the strong commitment of the company to deliver its guaranteed availability time.

The network layer in the case of CompanyC is also of a simple nature. The only requirement is a fast connection that can support high volume of simultaneous access, and that can ensure constant availability in order to fulfil customer SLAs. Similarly to hosting, the company sources the network layer from USi, with whom

they have forged a strategic alliance. The justification for such a relationship is, as explained above, because of the nature of contracts that CompanyC provides to customers. This makes the network an important element of the service. Overall, the partnering strategy of CompanyC is rather simple, based essentially around market-based contracts.

ASP Layer		Sourcing Mode
Data storage	Operations	Inhouse
	Hosting	Strategic Alliance
Server	Operations	Inhouse
	Hosting	Strategic Alliance
Network		Strategic Alliance
Application		Inhouse

Table 5.3: CompanyC's sourcing of the ASP layers

5.5 THE CASE OF COMPANYD

5.5.1 Introduction

CompanyD is a provider of bespoke e-learning packages, predominantly in the retail sector and financial services, focused on training people to deal with the public. After gaining considerable knowledge in the e-learning area, CompanyD started creating generic packages, focusing on health and safety and customer service training and legal compliance. In the current situation, CompanyD finds its revenues as being 80% coming from the bespoke packages, and the remaining 20% coming

from generic sales; however the company's CEO argued that the market is taking a rather different direction, where he explained:

"...what's emerging in the market is an increase in the generic sales because, obviously, the cost is much more approachable for a smaller business, and we're finding the medium-size business, and even the larger, are taking the generic ones and having them tailored..."

Although CompanyD increased its arsenal of generic packages to over one thousand, they still found it difficult to attract many customers, particularly the small to medium enterprises (SMEs). This slow take up of the offered packages is mainly due to the lack of customers' awareness of e-learning, according to the company's CEO. Furthermore, the company's CEO explained:

"...I just get the impression at the moment that the small to medium enterprise, which is the one that would benefit the most from an ASP model, is just not ready for e-Learning, and what we're finding is when we go to clients or we talk at forums or something like that, we're still getting asked what is e-Learning, because the perception is it's the Internet with a book on the screen, and they don't perceive it as an interactive thing that has animations and videos..."

In addition to the awareness problem, CompanyD found that the cost factor is extremely important in the e-learning market. As a result, CompanyD became interested in exploiting IT to improve the delivery of their packages, particularly by using the Internet as a delivery medium. On this, the company's CEO explained that with their model, CompanyD charges a small fee, compared to that of a traditional approach, for an e-learning course to be delivered online, and customers get all the

extra flexibility and interactivity that make the process more enjoyable and more useful, where he explained:

“...if someone wanted to go online and take our health and safety course, it would take them about an hour, it would comply with the law, and we would charge around £5... now if somebody wanted to go and do it in a college, you can get them for free, but you’ve got to travel to the college, and it’s a whole day course... so the difference in cost is quite important... it’s so much better to do it online, and we would argue all the benefits of e-learning, you can do it whenever you want, midnight if you wanted to, you can go back to it... it’s very private, so you can go at your own pace...”

5.5.2 CompanyD’s ASP Model

CompanyD is another example of a company that was not built around the ASP model. The company thought about the ASP model mainly as an alternative strategy for widening its distribution channels. According to the company’s CEO, as the cost of getting ADSL connections dropped consistently, the idea of avoiding potential customers to pay upfront for their training requirements and offer a per-use mode of payment was of great interest. As a result, CompanyD invested over a quarter of its turnover in 2000 into building an online store offering all the developed generic components.

CompanyD, according to its CEO, was not exceptionally successful with their ASP offering, mainly due to the reluctance of customers to subscribe to the service, which is driven by several factors. According to the company’s CEO, the most important factor is that the majority of companies are not convinced of the quality of the

offered content; this is largely due to the lack of interactivity in the content offered by most e-learning vendors. Moreover, the deep involvement of some IT departments made several potential customers prefer solutions deployed inhouse to outsourcing them using ASP.

Although CompanyD is not successful yet in attracting many customers with their ASP-based solution, the company's CEO explained that the problem is at the industry level, where he stated:

"...I think nobody [in the e-learning industry] seems to have cracked supplying the ASP model into 50 or 100 companies, because to sell to that many companies, the marketplace has got to fully understand what e-learning can do for them, it's only the bigger companies that seem to understand... but we'll get there, I'm convinced we'll get there one day..."

5.5.2.1 Data Storage

Data storage in the case of CompanyD is related to all the content of their e-learning packages. As e-learning is considered as non mission-critical, the security of the stored data is not much of a concern. According to the company's CEO, the fact that e-learning is not mission-critical to the organization increases its viability for the ASP model. As a result, data storage is considered in its very simplest form in this case, and the company hires storage space from third party data centres. Furthermore, data backup and recovery is not an important feature for CompanyD, according to its CEO; the data manipulated is of a non-mission-critical nature, the loss of which would not affect the customers in any ways.

5.5.2.2 Server

Similarly to the data storage layer, the whole of the server layer at CompanyD is very basic. On the server side, the company requires basic technology to implement its e-learning library, and be able to deliver these to its customers. Moreover, because generic e-learning packages are used for ASP delivery, which do not require any customisation, the requirements in terms of the server layer are based on increasing capacity as the number of customers grows. Consequently, CompanyD preferred to rely on the market by renting its services from a third-party data centre.

5.5.2.3 Network

The network requirements for CompanyD's ASP solution are limited to a regular Internet connection. In order to implement the solution, the company offers its customers access to e-learning packages through an Internet connection. Moreover, a basic authentication system is also implemented in order to make sure that only authorised customers have access to the specific e-learning packages for which they have paid.

5.5.2.4 Application

The application layer in the case of CompanyD focuses on two different sides. The first part is about the online store, which is the interface between the users and the e-learning packages. The second part deals with the content itself, which of core importance to the company. Both the content and the online store are developed and maintained inhouse by CompanyD.

5.5.3 Partnering Strategy

One of the main areas in which CompanyD was focusing on developing partnerships is the content of e-learning packages; although the company had quite an important portfolio of small packages, they felt that they could not cover all the market requirements. The company's CEO explained:

“...in order for a consortium of companies to work, the publishers of the content need to work together... now I'm quite open, and I say look there are lots of things I don't do, I don't have the people that are expert in it, so I can't do it... I'm quite happy to work with another publisher, but at the moment the e-learning market isn't making that happen...”

Regarding the delivery of the ASP model, CompanyD is another example of a company that has done everything by itself, according to its CEO. Not only the solution is technically very simple to implement, but also the nature of the content is of a non-mission-critical character. According to the CEO, ASP cannot be a valid model for mission-critical applications, on which the organization's business relies heavily. The company's CEO commented:

“...I wouldn't use any mission-critical software using the ASP mode because I don't trust the connectivity, the hosting whatever... no matter how much people say, you know there's always something that can go wrong. With e-learning, what makes it much more viable as part of the ASP model, it's not mission-critical... if you've got to learn about health and safety, whether you do it this morning or next Tuesday doesn't really matter, so a 98.5% up time, who cares... it doesn't make any difference...”

This quote effectively explains the whole approach of CompanyD towards the use of the ASP model for its business. This has, also, made from the partnering strategy in the company very basic in nature. The company relies mainly on hiring the computing infrastructure and data storage necessary for its solution, through third-party hosting. When asked about the mode of hosting of their solution, the company's CEO stated:

“...we host it in a third party data centre... we just shop around... one of the things that's making ASP more viable financially is the cost of hosting is gone really down...”

This type of relationships can only be qualified as market-based, in which the supplier is chosen purely based on cost-related criteria. In fact, CompanyD represents the case of a company totally driven by cost minimisation in implementing its ASP model. In this context, the company's CEO explained:

“...in the last 12 months we've probably reduced our hosting cost by 80%, because we're gone for companies that are maybe slightly smaller but have very good customer service, they're significantly cheaper because you don't have to have your own server, you're not really that worried if 50,000 people go on at the same time and then 20,000 of them get kicked off, because if it's that size of company they've already got it inhouse...”

The network layer is sourced in a very similar way as data storage and server. As explained by the company's CEO above, due to non-mission-critical character of CompanyD's e-learning solution, the criticality of the network component is not very high. Consequently, the position taken by the company is that if a customer is

not successful in accessing an online e-learning package at any moment in time, then the customer will have to come back to it some other time. Furthermore, not being able to access the package will not seriously affect the customer's business. This approach taken by CompanyD has led them to limit their criteria of network choice only to cost.

Moreover, the simplicity of the requirements at the level of data storage, server and network layers is also related to the reduced technical complexity of the developed content and application. Consequently, the company believes that it is totally unnecessary to forge strong relationships with their suppliers, on which the CEO explained:

"...in terms of the partnerships, we haven't got that many people. We use some contractors, it works, it's not a difficult technology, we use Flash, we use ASP on an SQL database, the guys note it's not particularly rocket science, there's no complicated Perl scripts or C++ or Java, you don't need to do that... and also in terms of the online store, we looked at a couple of products out there, you can buy that for £400 and set an online store..."

Similarly to the other cases discussed above, third-party hosting is also present in this case. Although the technical challenges that CompanyD's solution presents are very minimal, maintaining the different layers is outsourced to the third-parties that provide hosting. Therefore, hosting services in this case are merely bought from the market, on a contract basis without any strong relationships with the outsourcing vendors. The company's CEO further explained:

“...the hosting is the only partner we need because we have the content, we’ve built the technology ourselves, we’ve used the tools out there that help us build it quickly, we just need to dump on a server so we don’t have to maintain it here... hiring servers is very cheap... so that’s the one part we need, the only other partners... the thing that gets from our product into theirs... distribution...”

Overall, the ASP solution offered by CompanyD can only be characterised as a simple solution that is totally implemented without the partnering strategy being a crucial component. The only side of the business that proved challenging is market accessibility; the company finds it extremely challenging to attract customers, and gain their interest in the ASP solution they provide.

ASP Layer		Sourcing Mode
Data storage	Operations	Market
	Hosting	Market
Server	Operations	Market
	Hosting	Market
Network		Market
Application		Inhouse

Table 5.4: CompanyD’s sourcing of the ASP layers

5.6 THE CASE OF COMPANYE

5.6.1 Introduction

CompanyE is a software company that specialises in developing Asset Performance Management (APM) applications. Based on Enterprise Asset Management (EAM), which is used to capture asset information and daily maintenance activities, APM

applications help customers to exploit such data to make business and operational decisions.

CompanyE, according to its managing director, moved from providing multiple products to a one product line model. The product being an integrated solution containing several modules which aim at providing customers with a complete APM tool, which is explained by the company's managing director as follows:

“...what it includes is actually a broad functionality around the whole lifecycle of physical assets that people own, so it includes the management of acquiring assets, it includes purchasing, which includes online e-procurement, it includes inventory management...etc...it's quite a broad spectrum, and then a system keeps everything in a database all interlinked, then things roll up to, and the measured performance is measured by key performance indicators and by graphs to tell you when things are going wrong...”

Although CompanyE's solution was not initially developed around the ASP model, the company found great interest in the model and consequently developed a hosted version derived from its long business and technical experience.

5.6.2 CompanyE's ASP Model

Prior to the use of the ASP model, CompanyE unified all its modules that were previously developed to serve different corners of APM into one single customisable package. Although this unification of modules was not initially targeted at an ASP implementation, it has certainly helped the company to make use of the model. As a result of the fast advances in Internet-based technologies, the ASP model caught the

attention of CompanyE as an effective way of distributing its product. Moreover, the company's managing director explained:

"...we had some advantages over standard ASPs because of our single product line... we saw that we could get highly competitive because if you went to an ASP model, we can actually be much cheaper because we only have one product, and we only need one environment... we can actually have 200 customers on the same server if you want..."

Another reason that drove CompanyE to consider the ASP model as a delivery mode was the fact that several existing and potential customers were firms with multiple sites. As explained by the company's managing director, when a firm has several operational sites, centralising IT operations becomes almost a necessity, and thus the benefits of an ASP-based delivery to such firms are tremendous.

CompanyE currently keeps both modes of distributing its APM solution – the standalone and ASP versions – targeting the ASP solution at those customers who are unwilling to manage the application internally, as well the customers who are more cost sensitive. According to the company's managing director, the fact that CompanyE can offer great savings through economies of scale, through one-to-many relationships, many companies are increasingly showing more interest in the hosted solution. However, although the CompanyE's solution fits perfectly within the ASP model, the situation, overall, is that the take up of the hosted solution is rather slow, particularly in the UK. Although the reasons for such a slow take up are various, the company's managing director explained:

“... the real reason is empire protection of the IT departments... the IT people certainly believe that if they go hosting, they’ll lose their jobs, because they won’t have servers, and thus they won’t have to work on these environments... if I were an IT manager, all of those problems around your environment that’s the nasty side of the job, and I’d be glad to get rid of those parts of the job, and I’ll be personally far more interested in how I would integrate the systems, because as a hosted solution we can fully integrate over the Web with ERP systems...”

5.6.2.1 Data Storage

The data storage requirements are quite important in the case of CompanyE; as the managing director explained, it is critical for the company to ensure the safest data storage operations to their customers. The security, as implemented in CompanyE’s solution, is mainly targeted at making customers feel better about their data being hosted away from their premises, where the company’s managing director commented:

“...our server farm is probably 10 times more secure than whatever [customers] have got inhouse... they probably have nothing like the kind of backup and security we offer...”

In order to ensure a maximum of safety on customers’ data, CompanyE hosts all the data storage hardware in a state of the art data centre; in addition to the physical security implemented at the data centre, the stored data are mirrored, in near real time, using redundant data storage devices. Moreover, data backups are performed in multiple operations on a daily basis, which, when combined with data mirroring, offers very strong data security, according to the company’s managing director.

5.6.2.2 Server

Similarly to the data storage layer, the computing infrastructure is organized in what the managing director called server farms, which are based on Sun Microsystems technology. The servers are fully optimised by CompanyE for running their application. The scalability of the computing infrastructure, in the case of CompanyE, is also an important part of the company's strategy; according to the company's managing director, the servers are load-balanced for optimum performance, and the scalability of these are simply managed by adding more servers to the sever farm.

Both the data storage and the server layers are totally managed by CompanyE, but hosted in a third-party data centre, as the company's managing director stated:

“...the facility is not owned by [CompanyE], so we rented the space in that facility, but the hardware is owned by [CompanyE], and all the people who work on it are [CompanyE]'s...”

5.6.2.3 Network

The network layer is provided by the third-party hosting supplier, in which ultra-fast Internet connections are provided. Furthermore, as the company's managing director explained, the network element is organized around multiple Internet connections, which ensures redundant Internet connectivity, and thus minimises data flow interruption. This is particularly important due to the availability guarantees that the company offers to its customers.

5.6.2.4 Application

CompanyE's software product is the company's core product. Although, initially, the company developed and marketed several modules related to APM, it has moved to a single unified product line in the form of a software application that is documented as providing the capability to:

- Analyse data to identify key trends and anomalies;
- Forecast performance issues and model “what if” scenarios;
- Take action to prevent problems and optimise asset performance.

The currently offered application is fully web-enabled, and according to CompanyE's managing director, this is an important step for the company's strategy; the company aimed at offering multi-site enterprises a solution that would allow them to support several sites running a central set of servers over the Internet.

5.6.3 Partnering Strategy

On the partnering side, the case of CompanyE displays a very simple setting. On the data storage and server layers, the company requires very simple solutions that allow it to distribute the software solution to its customers. The company's managing director has specifically insisted on the idea that CompanyE designed its ASP proposition as a one-to-many solution, where he stated:

“...we moved from a very mixed product line to a single product line, and we saw that we could get highly competitive because if we went to an ASP model, we can actually be much, much cheaper, because we only have one product and we only

need one environment, and thus we can actually have 200 customers on the same server if we wanted to... ”

The simplicity of CompanyE’s model made from their requirements to run their solution very basic. The company manages all the data storage and server operations inhouse, but the hosting is done in a third party data centre. According to the company’s managing director, the technology behind their ASP offering got simpler due to the integrated nature of their software application. As a result, CompanyE hosts the application, which is standardised to all customers, and provide appropriate data storage as needed by increasing the capacity. CompanyE chose to produce these server and data storage operations inhouse in order to keep control on their business, and because it is not very challenging financially and technically. However, high standard hosting is still needed by the company in order to ensure high level of service and tight security. As a result, the company chose to buy the services of a third-party data centre for hosting and network provision, but manage all the operations by itself.

On the software side, the application provided by CompanyE is totally owned by them, and developed inhouse. The company started, initially, as an independent software vendor with a software product encompassing a variety of modules. However, CompanyE ended up integrating all the modules into a standalone product, which made it ideal as a hosted solution, according to the company’s managing director. With the current ASP solution, the main component of the application layer is the software application developed by CompanyE, and it requires no special configuration for the different customers. The remaining components of the application layer are simple Oracle-based database element, and this too is produced

inhouse by CompanyE. This makes the totality of the application layer being produced inhouse.

On a wider level, although the ASP solution is an important part of CompanyE's business, the latter is still driven by efficiency measures, where increasing the sales of its software application is the main business incentive. As explained by the company's managing director, the main challenges are not from the running the ASP solution, but from increasing the revenues from sales, and as a result the strongest relationships are focused on the sales strategies, where he stated:

"...we have relationships with various partners... some of them are reselling relationships, and some of them are strategic partnerships... in other words they will push our software, they're not going to make any money out of the software, but they push the software because they would win a big service contract, so they're going to provide consultancy services around that project perhaps..."

Moreover, CompanyE's strategy is to collaborate with other businesses that bring added value to theirs. As explained by the company's managing director, the software application they provide is standard, and would appeal to a wide range of firms, however market knowledge is essential for marketing the product, and thus partners with particular market expertise are the most likely to partner with. The company's managing director further explained:

"...we're a niche player, not a big company... we're a niche player with particular expertise in vertical markets... we will tend to identify someone we think is a real value for us because they're expert in that area, and then we would almost certainly custom craft an agreement based on what they're selling us..."

The following table summarises the findings for CompanyE:

ASP Layer		Sourcing Mode
Data storage	Operations	Inhouse
	Hosting	Market
Server	Operations	Inhouse
	Hosting	Market
Network		Market
Application		Inhouse

Table 5.5: CompanyE’s sourcing of the ASP layers

5.7 THE CASE OF COMPANYF

5.7.1 Introduction

CompanyF is a small consultancy, focused on business and IT change. It was founded in 1997, and was at that time involved in work on strategic architecture, and the strategic delivery of IT solutions, according to its CEO. Having gained tremendous experience in the IT arena, ComapnyF jumped on the opportunities offered by the new advances in networking and Internet technologies. As a result, the company reinvented itself and migrated into a software and Web services company in the last 2 years. In CompanyF’s CEO’s words, he further explained this shift in business strategy:

“...what we see is that legacy systems are just too expensive to maintain and support, they don’t deliver value, they’re monsters, and basically with Web services you can out in much better systems, lower total cost of ownership, more functionality, easier to support, and that’s what we’re about...”

CompanyF's IT experience materialised in a rather unique product; the company focused on the interaction between computer systems and users, and found that today's user interfaces are inadequate. As the company's CEO puts it, humans perceive the physical world in three dimensions, and the existing two-dimensional interfaces have made user experience less enjoyable. The company's resulting product consists of a 3-dimension (3D) based user interface that sits between the user and the application, and that can be used to interact with any source of data.

5.7.2 CompanyF's ASP Model

The main driver for CompanyF to target the ASP model is cost reduction, where the company's CEO explained:

"...you're not asking people to pay huge amounts of money upfront, because they're not quite sure what they're going to use... you're saying that we all use the software components module to keep that price down, if you like it and you're going to use it, you're going to pay for it like a daily newspaper..."

Although moving to the ASP model was a straight forward decision for CompanyF, the latter still provides its interface as a standalone package licensed in the traditional way. However, on the ASP side, CompanyF offers different types of content bundled with the interface. The potential customers will receive the required content, but benefit from the sophistication of using a 3D interface instead of a traditional one.

5.7.2.1 Data Storage

Data storage at CompanyE deals, mainly, with the content provided by the content aggregator. Depending on the content in question, security of the stored data might be more or less critical. According to the company's CEO, data storage is an extremely simple operation; the company works with a content aggregator, who provides content, mainly entertainment based, from different sources, and these are stored into CompanyF's servers. Although, as mentioned above, the used content could consist of sensitive data requiring stricter security, CompanyF is currently dealing with non-mission critical data only, in the form of games, ring tones, and e-cards. According to the company's CEO, at present there are no serious security requirements, and all the data storage operations related to their ASP offering are basic.

All the data storage hardware is owned by CompanyF, and all the data storage operations, including data backups and recovery, are taken care of by the company. The hosting, however, is done with a third party data centre.

5.7.2.2 Server

The server layer, in the case of CompanyF, deals with running the company's main product – the interface – bundled with the content provided by the content aggregator. Similarly to the data storage layer, the CompanyF's server requirements are basic and standard. According to the company's CEO, the wide availability of standardised hardware has made its sourcing a simple and easy task, where he commented:

"...several years ago, there were big differences between one computer and another in terms of quality of build and reliability... in those days, we worked with a

particular vendor based on assessment of quality and reliability, but you don't need to do that these days because they're all solid and reliable..."

CompanyF's server layer is operated by the company itself, but hosted in a third party data centre.

5.7.2.3 Network

The network layer in the case of CompanyF is provided by the hosting provider. Due to the simplicity of the company's ASP model, the network component is considered as a standard Internet connection that allows the company to efficiently deliver the service to its customers. As the company's CEO put it:

"...everybody offers a megabit or gigabit Ethernet connection, so that's not a problem, and there's no differentiator..."

5.7.2.4 Application

The application layer in the case of CompanyF is composed of two main elements; the main application designed by the company, being the 3D user interface, the content provided by the content aggregator. The company's CEO commented:

"...the application we're offering comes from; (1) from our interface and our architecture, and (2) from the content that we use within that architecture... what we've got is a content neutral vehicle, which enables us to get content to anybody, anywhere, anytime..."

Moreover, the database management system necessary to run CompanyF's service is of prime importance, and complements the two above elements. The company

sources its database system from an external third party database provider, who is responsible for all the operations including maintenance.

5.7.3 Partnering Strategy

The partnering strategy at CompanyF is characterised by a variety of settings. The company, according to its CEO, sources all the commodity-like components using market-based transactions, and chooses to either develop inhouse or ally for items of strategic nature. For instance, commenting on hosting and the network component, the company's CEO stated:

“...now with technology people, there are certain aspects which are commodity, such as networks and data centres, so it doesn't matter who we get those from as long as we access them and they're good...”

According to the company's CEO, the company is better off sourcing these components using market-based transactions, due to their wide availability and their standardised nature. Furthermore, hosting inhouse was excluded by the company as this would not provide the same level of service and security as that of specialised service providers, and would not be cost effective. On this, the company's CEO commented:

“...it costs a lot to build a data centre, literally millions of pounds... they're all commodities, and there's so much bandwidth available now, you don't have to worry about getting bandwidth, you can get it from a number of people, and so it becomes a commodity...”

Conversely, the hardware equipment related to the data storage and server layers is sourced internally, due to the standardised nature of the equipment. As explained above under the server layer section, the company considers all hardware equipment from different vendors to present similar characteristics in terms of quality and reliability, and thus due to the wide availability of these, and the high number of potential suppliers, combined with the continuously decreasing costs of acquiring such equipment, the company simply internalised the equipment. Moreover, the company's CEO regards the operations related to data storage as well as the server layers to be rather idiosyncratic; although the equipment required by the company are of a standardised nature, the way these are combined is still strategic to the company. On this, the company's CEO explained that they are happy with hosting their equipment in a third-party data centre, but would have to be in charge of all the operations. He further explained that the extra level of sophistication needed for their business cannot be offered by the external vendor, where he stated:

“...they're good for hosting websites, but you don't want them to manage business applications, because the characteristics of the traffic are completely different...”

On the software side, as explained above CompanyF relies on three main components; the 3D interface they have developed, which is considered as the key component of their solution, the content bundled with the interface, and the database. Being the core element of the solution they provide, CompanyF kept the development of the 3D interface inhouse due to its idiosyncratic nature. With regards to content, CompanyF forged a strategic alliance with a content aggregator, who provides different types of content from different sources. According to the Company's CEO, the content aggregator is regarded as an important strategic partner

due to the complementary nature of his service; the CEO explained that the value of their product – the 3D interface – is non-existent without appropriate content. He further explained:

“...we’ve got a very strong relationship with a content aggregator, who buys content from hundreds of different sources, and what they see us doing is packaging that content to present it to the user in a way that makes sense. We could have worked with 50 content organizations, and 500 games suppliers, but by going to an aggregator, we make our lives easier, because we only got one relationship and he can deal with the content relationships...”

Although the partnering strategy in the case of CompanyF is rather simple, with most components either developed inhouse or sourced from the market, the company’s CEO values their strategic relationships to a great extent. According to the company’s CEO, the existing relationships with the content aggregator and the database provider are far more rewarding than just the monetary gains derived from them. Such relationships are more important in that they provide bigger opportunities for both contracting parties, where the company’s CEO explained:

“...it is money that we exchange with each other, but it’s the market that we create for each other in the short, medium, and long term that is more rewarding... it’s not the money that determines the partnership, but it’s the quality of the vision...”

The following table summarises the findings for CompanyF:

ASP Layer		Sourcing Mode
Data storage	Operations	Inhouse
	Hosting	Market
Server	Operations	Inhouse
	Hosting	Market
Network		Market
Application		Inhouse/Strategic Alliance

Table 5.6: CompanyF's sourcing of the ASP layers

	Data Storage		Server		Network	Application
	Operations	Hosting	Operations	Hosting		
CompanyA	Data storage use to be operated by an external vendor. Now, the company is about to internalise the data storage operations and hosting in order to be able to take full control. Moreover, the cost of hardware has dropped enormously, which made it more feasible to internalise.	Similarly to data storage, the server layer was previously outsourced to an external vendor. Both operations and hosting for the server layer are currently run inhouse in order to keep full control and thus avoid any sanctions due not meeting the agreed SLAs.	The network layer is the most important one to CompanyA. In order to ensure a unique one-to-one customer experience, opted to use dedicated vLANs. For this purpose, the company formed a strategic alliance with a network provider	The company provides a large portfolio of applications around CRM and e-Commerce. All the application comes from third-party ISVs. The relationships with the ISVs is that of market-based transactions.		
CompanyB	Characterised by relatively heavy and security intensive data operations. All data storage operations are run inhouse.	Hosting is provided by a third-party data centre. The data centre is also in charge of swapping the backup tapes. The relationship with the data centre is that of a market-based transaction.	Basic requirements to run the company's solution. The company makes use of economies of scale by sharing servers among several customers. All server operations are run inhouse. The server layer deals with the software used by the company to manage the stored digital documents. All operations related to	Hosting is also provided by a third-party data centre. The relationship with the data centre is that of a market-based transaction.	The ASP delivery is based on a single software package. The software is fully developed and maintained inhouse.	
CompanyC	Data storage operations are related to the digital documents stored and presented in the virtual rooms. All the hardware and	Data storage is an extremely important layer to the company. It is crucial for the company to ensure maximum security of the stored data. All	Similarly to the data storage layer, hosting of the server layer is very important to CompanyC in order to ensure maximum security. Hosting is	The network layer in this case is simple but very important. Being part of the hosting provision, the network needs to ensure maximum	The application consists of the software that manages the virtual rooms. The application is totally developed and	

	operations are run by CompanyC.	data storage hosting is done in a third-party data centre, through a strategic alliance with hosting provider	the server layer are run inhouse.	provided by a third-party strategic ally.	security, and thus is produced by a third-party ally.	managed by the company.
CompanyD	The stored data are largely considered a non-mission-critical. The company hires storage space from third-party data centres on market-based transactions, where hosting is also provided.	Similarly to the data storage layer, the company's requirements in terms of the server layer are very basic. Moreover, due to the non-mission-critical character of the manipulated content, the company hosts its e-Learning content and applications in a third-party data centre on a market-based transaction.	Similarly to the data storage layer, the server layer is based on simple and widely available technology. The company produce all the operations related to the server layer inhouse.	Hosting is again provided by the third-party data centre, where the company simply hires some rack space.	The network requirements limited to a basic Internet connection. The company sources the network layer on a market-based transaction.	The application is composed of e-Learning content combined with the online store (the interface). Both elements are developed and maintained inhouse.
CompanyE	Data storage is an important element of the company's ASP provision. The company runs all the data storage operations inhouse.	Hosting is important but the company's requirements are very basic. The company hires rack space from a third-party data centre.	Similarly to the data storage layer, the server layer is based on simple and widely available technology. The company produce all the operations related to the server layer inhouse.	Similarly to the data storage layer, the server layer is hosted in a third-party data centre using market-based transaction.	The basic requirements here are a constantly available Internet connection. The company sources its network requirements from the same third-party data centre.	The application is based on a single software package that is totally developed and maintained inhouse by the company.
CompanyF	Data storage is related to the content sourced from a third-party content aggregator. The operation related to data storage are simple, and all run by inhouse by the company.	All hosting operations are ensure by a third-party data centre. The sourcing is done through market-based transaction.	The server layer in the case of CompanyF is based on a standard and widely available technology. The operations related to the server layer are sourced inhouse.	Similarly to the data storage layer, the server layer is hosted in a third-party data centre using market-based transaction.	The network layer is provided by the hosting provider. This is sourced on a market-based transaction.	The software in this case is composed of the company's core product being the 3D user interface, bundled with the content sourced through a strategic alliance with a content aggregator.

Table 5.7: Summary of the sourcing modes for the different ASP layers

5.8 DISCUSSION

The 6 cases described above all display some similar and some very different characteristics; a summary of the cases findings are illustrated in Table 5.7.

Table 5.8 below summarises the sourcing modes of all the ASP layers in the studied cases, compared to the predictions made in Chapter 3, based on TCE and RBV.

	Data Storage		Server		Network	Application
	Operations	Hosting	Operations	Hosting		
Predicted	Market	Market	Market	Market	Market	Inh./Alliance
CompanyA	Inhouse	Alliance	Inhouse	Alliance	Alliance	Market
CompanyB	Inhouse	Market	Inhouse	Market	Market	Inhouse
CompanyC	Inhouse	Alliance	Inhouse	Alliance	Alliance	Inhouse
CompanyD	Market	Market	Market	Market	Market	Inhouse
CompanyE	Inhouse	Market	Inhouse	Market	Market	Inhouse
CompanyF	Inhouse	Market	Inhouse	Market	Market	Inh./Alliance

Table 5.8: The sourcing modes of the ASP layers in the studied cases

Table 5.8 highlights some major differences between the predictions made in Chapter 3 and the actual sourcing modes found in the studied cases. In fact, 47% of the actual sourcing modes (the shaded cells in the table) do not match the predictions made in Chapter 3 (see Table 3.2 and Table 3.3). An important conclusion to draw at this point is that the two theories presented in Chapter 3 – TCE and RBV – were not successful in predicting all the appropriate governance modes for sourcing the different ASP layers. Although the predictions based on the two theories were not expected to fully match the actual outcomes, mainly due to the negative correlations

experienced with past studies, such as Lacity and Willcocks (1995) and Aubert and Weber (2001), failure to predict 47% of the sourcing modes appears too high. Therefore, looking closely at the actual sourcing modes from the studied cases, and explaining these using TCE and RBV is imperative. This would help the current research in bridging the gap between the predictive and the explanatory capabilities of the two theories. In the following chapter – Chapter 6 – a more detailed analysis of the studied cases will be undertaken using TCE and RBV as lenses, with the aim of investigating the reasons why an important part of the predictions do not match the actual sourcing modes.

Although the use of TCE and RBV for both predicting and explaining the ASP layers' sourcing modes will be analysed in the Chapter 6, it is important, at the level of this chapter, to extract some theory-independent outcomes of the used case studies. To begin with, the level of dependence on the ASP model seems to have an impact on the sourcing modes. Moreover, the value-creating firms also appear to behave differently compared to the non-value-creating one. These two categories are explained in the following:

5.8.1 ASP-dependent vs. Non-ASP-dependent Firms

Similarly to the use of e-Commerce, where organizations either made use of Internet-based business as a core strategy or as an extension to their distribution channels (Timmers, 1999), ASPs appeared in two general types: ASP-dependent firms (pure plays) and non-ASP-dependent firms. Among the studied cases, the ASP-dependent firms are CompanyA and CompanyC. The former makes use of the

model to deliver managed services based on third-party software packages, whereas the latter's business model is totally dependent on online management and distribution of digital documents; both firms generate revenues solely from their ASP model. The remaining firms, however, use the ASP model on the top of their existing business, therefore generating revenues from different business models; CompanyB, for instance, delivers only part of its software portfolio using ASP and the remaining parts are sold traditionally. Similarly, CompanyE and CompanyF both deliver their software packages through ASP and traditionally. Finally, CompanyD offers part of its e-learning content using ASP, and the remaining is still sold as bespoke packages.

From Table 5.8, it should be noticed that CompanyA and CompanyC – the pure plays – are the firms that make the most use of inhouse provision as well as strategic alliances for sourcing the different ASP layers. Moreover, the two companies also present the least number of matches with the predicted sourcing modes from Chapter 3.

5.8.2 Value-creating vs. Non-value-creating Firms

Among the studied cases, it is clear that two categories of firms exist; firms that have used the ASP model in a creative way providing value surpassing that of the benefits of the ASP model (refer to Chapter 2 for more details), and firms that have simply made use of the ASP model because of its benefits, such as cost effectiveness and simplification of software delivery.

In the first category, CompanyA and CompanyC, again, are the most distinctive firms. CompanyA, for instance, aims to create value by providing a unique customer

experience; by making use of vLANs, the company aimed at treating customers more distinctively by delivering their services on a one-to-one type of contract relationship. CompanyC, on the other hand, created a business idea that is only realisable with the ASP model; despite the simplicity of the company's business proposition, without the online mode of delivery that is provided by the ASP model, the idea would not be thinkable, and thus the value created by CompanyC is more about going beyond making use of the ASP model, and providing a solution that is in essence totally dependent on ASP.

The remaining studied firms – CompanyB, CompanyD, CompanyE, and CompanyF – all made use of the ASP model simply as an alternative to their traditional modes of software delivery, and thus the value offered through their ASP delivery is limited to the known, but important, benefits of the model.

Again, similarly to the previous category, CompanyA and CompanyC, according to Table 5.8, are the most distinctive cases, and the ones that have proved most challenging to the predictions in Chapter 3.

Whether the two categories cited above have an important role in explaining the differences between the predictions and the outcomes of the ASP layers sourcing mode is a more challenging question. This confirms the need to further investigate the cases using TCE and RBV.

5.9 CONCLUSION

This chapter has described 6 case studies that were conducted for the purpose of the present research. The aim of the chapter was to briefly examine the different

governance modes used by the studied firms for sourcing the different ASP layers presented in Chapter 2. Two important findings emanate from this chapter:

- The actual sourcing modes of the ASP layers presented in Table 5.8 show important differences compared to the predictions made using TCE and RBV in Chapter 3;
- Two distinctive categories of firms appear to have behaved differently when choosing the governance modes for sourcing their ASP layers;

This chapter has shown the importance of further investigating the studied cases using the two theoretical lenses – TCE and RBV. Thus, the following chapter – Chapter 6 – aims to further explain the results that emerged from the cases, and draw conclusions regarding the ASP market, as well as the use of TCE and RBV in IS research.

CHAPTER 6

DATA ANALYSIS

6

6.1 INTRODUCTION

As explained in Chapter 5, Table 5.8 has demonstrated that the predictions using TCE and RBV in Chapter 3 have proved to be different from the actual outcomes of the case studies. Although these predictions were consistent between the two theories, it is important to further investigate the differences between the original predictions and the actual sourcing modes in order to understand their nature; at this level, two suggestions can be advanced: either the predictive power of TCE and RBV is not very reliable, or some other parameters are involved and have not been accounted for.

In Chapter 5, “within-case analysis” was used in order to investigate each case study independently, and thus attain more familiarity with each of the studied firms. The results of the analysis in Chapter 5 were essential for investigating the sourcing modes chosen by each company for each ASP layer. Though a compulsory phase in the analysis process, the insight extracted from the within-case analysis only presented the outcome for each case. In order to further proceed with the investigation in the present research, the ASP layers have to be considered across all the studied cases, using the “cross-case patterns” approach (Eisenhardt, 1989; Miles and Huberman, 1994). According to Eisenhardt (1989), the fact that humans are poor information processors poses major problems with the validity of the drawn research conclusions, and therefore researchers need to “*go beyond initial*

impressions, especially through the use of structured and diverse lenses on the data.” (p. 541) Moreover, Miles and Huberman (1994) argued that researchers need to develop more sophisticated descriptions and more powerful explanations by considering the results across the studied cases. According to Eisenhardt (1989), an important strategy to use is to select categories or dimensions, and analyse the differences and similarities across the studied cases. This is what Miles and Huberman (1994) term as *variable-oriented* analysis. In variable-oriented analysis, it is important to define the themes and variables that are relevant across all the cases, where these variables represent the core of the analysis rather than the cases (ibid). As the present research is concerned with investigating the partnering strategies that ASP firms use to source their ASP layers, the latter become naturally the essential variables to be investigated. These variables were described in Chapter 5, and the outcomes were presented for each case, however, through cross-case analysis, it will be important to investigate each of the ASP layers across all the studied cases. This will highlight the differences and similarities, within the group of studied cases, in sourcing each ASP layer. Furthermore, the objective of this chapter, as discussed in Chapter 5, is to further investigate the differences between TCE and RBV predictions, and their explanation of the outcomes of the case studies. Therefore, the structure of the present chapter follows the ASP layers described in Figure 2.8, and for each layer a detailed cross-case analysis and explanation of the different sourcing modes chosen by the different firms is undertaken under the light of the theoretical lenses – TCE and RBV.

6.2 THE DATA STORAGE LAYER

As stated in Chapter 2, the data storage layer consists of the hardware required for storing data, including data backup and data recovery systems. As explained in Chapter 2, data storage is divided into two main components: operations and hosting. Operations consist in the activities related to data storage such as hardware and storage management, as well as data backups. Hosting is more about co-locating these operations into a third-party data centre. Consequently, in analysing data storage using TCE and RBV, it was imperative to consider the separation between these two elements, and therefore both operations and hosting will be considered here.

6.2.1 A TCE Perspective

The TCE perspective, as explained in Chapter 3, looks at the transaction as the main unit of analysis for governance choice. The three transaction attributes – asset specificity, uncertainty, and frequency – will be considered here in order to determine the optimal governance mode for the studied cases. These are, then, compared to the actual governance modes that were chosen by the firms.

Asset specificity, which is about the ability of an asset to be reused for alternative purposes, and by alternative users without diminishing its value (Williamson, 1989) and the extent to which assets are specific to the transaction in question. From a TCE perspective, data storage is generally considered as non asset specific by all firms, as it is commonly regarded as a commodity asset except for the case of CompanyF. Furthermore, all the studied companies, except CompanyA and

CompanyD, run their storage hardware inhouse. However, all the studied cases rely on third parties for hosting their data storage assets.

In the case of CompanyA, data storage is not considered an asset of high specificity.

The vice president of its managed services section stated that:

“... we have a supplier that provides us with storage, but we are in a contract that we signed two years ago, and it is now extortionate because a) it was a hype to the bubble, b) hardware costs within have gone to the floor, so we are trying to get out of that and we will take on storage ourselves as well...”

The company does not need any specific data storage setting unique to its business requirements. When CompanyA started its business, it felt the need to outsource its data storage operations to a third party. As admitted by the VP of its managed services division, the company went with the market trends and outsourced its data storage; at the time, data storage was seen more as an important asset that should be provided by a specialised firm due to several reasons, mainly the capital investment involved, and the security issues surrounding the stored data. Over time, data storage hardware costs dropped enormously, and as a result it became financially possible for CompanyA to internalise its data storage operations. Therefore, although it is an important component of the ASP model, data storage, in this case, is still regarded as non asset specific. The company not only jumped on the bandwagon of the hyped benefits of service providers, but also justified its outsourcing decision by the high costs of hardware at the time when their business started. Now that the cost of computing hardware is continuously decreasing, CompanyA is planning to internalise data storage. It should be noted here that asset

specificity was low for operations only. Hosting was, on the other hand, specific to the transaction, as it was more related to the network layer. More details on this will be discussed under the network layer below.

In the case of CompanyD, the data manipulated by the company was considered to be of a non-mission critical nature, according to its CEO. The company delivers e-learning packages to its customers, which are important for training purposes but do not necessitate specific or customised investments for storing the required data.

According to the company's CEO:

“...we host it in a third party data centre... we just shop around... one of the things that's making ASP more viable financially is the cost of hosting is gone really down...in the last 12 months we've probably reduced our hosting cost by 80%, because we're gone for companies that are maybe slightly smaller but have very good customer service, they're significantly cheaper because you don't have to have your own server... you're not really that worried if 50,000 people go on at the same time and then 20,000 of them get kicked off, because if it's that size of company they've already got it inhouse...”

These statements clearly show that there is no specific investment or customisation involved here, and that both parties (supplier and CompanyD) are not “locked into” the transaction (Williamson, 1981). As the company has changed its data storage contracts several times, purely for economical reasons, it is clear that the company is mainly concerned with the production costs associated with data storage provision as opposed to the transaction costs incurred. Thus, the asset specificity of data storage, in this case, is very low.

Similarly, the remaining cases all showed that asset specificity for both the operations associated with data storage as well as hosting was considered to be very low. All the interviewed executives demonstrated that data storage operations as well as hosting were standardised, and thus not specific to their transactions; they all agreed on the fact that site specificity is very low, where the location of their data storage operations and hosting was not very important, and thus low in specificity. Physical asset specificity was also considered to be very low; all the interviewed executives considered data storage hardware to be extremely standardised, and the need for specific investments in these were not necessary. Furthermore, the physical asset specificity of hosting was similarly considered to be low, where all the interviewed executives considered data centre services to be very standardised, and that all suppliers provide more or less similar offerings. Finally, the human asset specificity was very low due to the well known modes of operating data storage. All the interviewed executives did not see the need for specific human asset needs to operate data storage.

The case of CompanyF, however, displayed a slightly different picture. The CEO of CompanyF, when explaining their data storage operations, stated:

“...we do host our own solutions on someone else’s data centre, but own the server so it’s co-located, and the reason for that is because what we’re doing is quite complicated, it’s not the standard way of hosting, it’s database, it’s Web services and ASP, and we have to take care of that, so need that extra level of sophistication in there that can’t be offered by other people because it’s an extra level of skills that they don’t have... I mean they’re good for hosting websites, but you don’t want them

to manage business applications, because the characteristics of the traffic is completely different...”

From this statement, it is clear that the company considers data centre owners not to be very skilled in terms of managing data storage operations. The type of specificity that CompanyF is considering here for data storage is human asset specificity; as will be explained in the part describing the server layer below, CompanyF thinks that the physical asset specificity is very low due to the high standardisation of hardware, however the skills involved (human asset) in the transaction is rather specific.

The second transaction attribute in TCE is that of uncertainty (Williamson, 1981). Although the sources of uncertainty are various, behavioural uncertainty usually represents the main concern (Williamson, 1981; Williamson, 1996; Kulkarni and Heriot, 1999). In the studied cases, the considerations for the uncertainty attribute varied across the studied firms, and some found it to be high. For instance, CompanyA is currently outsourcing its data storage layer, but is intending to internalise the layer as soon as their contract ends. When the vice president of the managed service section was asked about the rationale for this decision, and whether it would add more burdens by managing data storage internally, he replied:

“... I think it's less hassle because I, as the person in charge of our managed services, can now walk around some desks and say why haven't you fixed that problem?”

This issue, according to TCE, relates to the uncertainty and measurement problem attribute of a transaction (Aubert et al., 1996; Williamson, 1989; Williamson, 1991a). In this case, the vice president of managed services section has strongly

expressed his concerns about monitoring data storage operations if performed outside the boundaries of the company, and the problems that may emanate if not performed appropriately. The main reflection behind this is that CompanyA offers its customers very detailed SLAs that need to be matched in order to stay competitive. Therefore, it is imperative for CompanyA to ensure that operations that affect the successful application of the agreed SLAs are fully controlled, where the interviewed executive thinks that asserting control by “*fiat*” (Williamson, 1985; Gulati and Singh, 1998) is the best solution. This confirms that uncertainty and the measurement problem in this case is high. However, this uncertainty is mainly about the operations associated with data storage and does not include hosting. Hosting, on the other hand, is covered under the network layer.

Similarly, although CompanyC found that data storage operations and hosting were extremely low in asset specificity, they found the uncertainty and measurement problems attributes to be very high. CompanyC’s business manipulates data of very high sensitivity regarding Mergers & Acquisitions operations of their customers. Consequently, the managing director of CompanyC stated the extreme importance of ensuring high levels of operations at all times, including security and high availability of the services. In this context, the managing director of CompanyC stated:

“...because in our contracts we guarantee 99% of time of our service, and so obviously we have a very high level of confidence in the ability to deliver a reliable product, and their reliability is based on two things, our application as well as how the application is hosted...so we have to make sure that USi and us are very much in synch about what our requirements are... additionally, we have got what customers

require, we have certain levels of integration and documentation about the security and the reliability of the service... ”

This statement clearly demonstrates that although the asset specificity here is very low, the company still needs to ensure high standards of its operations, which increases the uncertainty and measurement problems associated with these.

CompanyB’s co-founder also expressed a similar opinion. He stated:

“...the hosting is actually being done at an ISP, but they are simply renting us a rack, and we are buying from them a service whereby they swap tapes over, but all the actual administration of the boxes is done from here, we have an Internet connection up to them, we will do all the access and that will be remotely done, so we have really total responsibility even for checking that the backups have worked, all they are going to do is simply remove tapes, and put new ones in...”

Therefore, hosting in this case is seen as a very simple service that is not associated with any uncertainty, however operations, although not high in asset specificity, are performed internally by the company to ensure optimal results; the fact the company insists on making sure that all the backups have worked proves that some uncertainty is associated with this.

Conversely, the case of CompanyD, for instance, displays a rather different picture. Due to the non-mission critical character of the data involved, the company is not much concerned about the uncertainty attribute. According to the company’s CEO:

“... with e-learning, what makes it much more viable as part of the ASP model, it's not mission critical... if you've got to learn about health and safety, whether you do

it this morning or next Tuesday doesn't really matter, so a 98.5% up time doesn't make any difference... so because of that, that's meant that we can get much more competitive hosting..."

As the CEO explained, the company does not have strict SLAs that need to be respected regarding the availability of their services, and consequently, the company does not see a temporary lack of availability of its services as a major problem, which translates into low transaction costs in TCE terms due to flexibility of the service. Thus, uncertainty is less of an issue in the case of CompanyD, and is therefore low.

Overall, within the language of TCE, most of the studied firms showed that asset specificity of data storage is low. Data storage here is a bundle of hardware and hosting, and in most of the studied firms, the combination of these two was of low specificity. Furthermore, uncertainty was mixed across the studied cases. Two categories can be defined here; the first category is that of the firms who considered uncertainty to be high. Uncertainty was, generally, considered high mainly because of the criticality of data storage to the well functioning of their business, as seen with CompanyA and CompanyC. On the other hand, uncertainty was seen to be very low in the cases where data storage was either not very critical to the business, as in the case of CompanyD, or simple enough not to be a major concern.

The third attribute of a transaction considered in TCE is frequency of occurrence (Williamson, 1981), where recurring transactions involve continuous bargaining, and thus are considered to be costly (Williamson, 1991a; Kulkarni and Heriot, 1999). Data storage for all the studied firms was considered as a high frequency transaction

due to the importance of data manipulation. Furthermore, all the studied companies perform data backup on a daily basis. Therefore, the frequency of occurrence for all firms is high.

6.2.2 An RBV Perspective

In this part of the analysis, the data storage layer will be looked at using the RBV lens and the data from the same studied companies. As explained in Chapter 3, four resource attributes need to be taken into consideration; value, rarity, imitability, and substitutability (Barney, 1991). According to Barney (1991), resources are valuable when these are involved in strategies that improve the firm's efficiency and effectiveness. Rarity refers to the whether the resource in question is possessed by a large number of firms, or idiosyncratic to the firm. According to (Barney, 1991; 1996) rare resources are important for achieving competitive advantage, because they allow the firm to implement value-creating strategies that are not simultaneously implemented by many other firms. The third resource attribute is that of imitability; although valuable and rare resources contribute to competitive advantage, imperfectly imitable resources contribute more to the sustainability of the achieved competitive advantage. According to Barney (1991), in order for valuable and rare resources to be a source of sustained competitive advantage, these have to be difficult to imitate by competitors who do not own them. Finally, the last resource attribute is substitutability, which also contributes to the sustainability of competitive advantage. In order for a resource to be a source of sustained competitive advantage, *"there must be no strategically equivalent valuable resources that are themselves either not rare or imitable."* (Barney, 1991, p. 111) As suggested by Das and Teng (2000), resources that are not perfectly mobile,

imitable, and substitutable can be obtained through strategic alliances. In other words, valuable resources that are rare, imperfectly imitable, and imperfectly substitutable, are strategic and thus firms would prefer to source those using strategic alliances.

To begin with, most of the studied firms considered data storage to be a non rare resource. As seen above, CompanyA, for instance, did not consider the data storage resource to be rare. In fact, the vice president of the company's managed services division stated that since hardware (physical capital resource) costs dropped dramatically, access to good storage services is very easy and widely available in the market, thus not rare. Furthermore, the fact that the company is planning to end its relationship with the current data storage provider, and move its hosting to another location, proves that hosting skills may not be very rare. However, as will it be discussed under the network layer, the case of CompanyA presents some idiosyncrasies when it comes to hosting. The company has made use of the network provider's extended expertise to offer customers a unique one-to-one experience, making from the network an important layer, and thus the hosting is consequently considered to be a rare resource.

Furthermore, as seen in the case of CompanyD, the company moved to different suppliers in a short period of time without affecting its business performance, which correctly translates in that all data storage providers, as considered by CompanyD, offer the same resources (physical, human, and organizational) making from the value associated with this resource being essentially cost minimisation.

The remaining companies, except CompanyC and CompanyF, also found data storage resource not to be rare, particularly for hosting. For instance, the CEO of CompanyF stated:

“...data centres are all the same, they all spend 25 to 50 million on data centres, and they all got an excessive capacity, so they’re into a lowest common denominator, worth their unit price... one data centre looks identical to another data centre because they have been designed by the same people, there are no defining characteristics of data centres from one another...”

This perfectly explains the homogeneity of the hosting market in the case of data storage. However, as seen above under the TCE section, the CEO of CompanyF did not think the same way about the operations associated with data storage. He explained that although the physical capital resources associated with data storage are standardised, and thus not rare, the human capital resources are rare; he explained that the human capital resources associated with their data storage requirements, mainly in the form of their experience with IT, are quite unique, translated, thus, into a rare resource.

The case of CompanyC highlights another different aspect of hosting. Although the company finds the operations related to data storage to be rather basic, mainly due to the simplicity of their business model and the technology needed to implement that, the company’s managing director explained the importance of the organizational capital resources associated with hosting, where he explained:

“...we’d go with somebody who is a big player, because we get thousands of users, so we’re going to go with a big player, we’re going to go with someone who is a

leader in the space for Internet connection and hosting, someone who has tried, has a history of success, and is a reliable company, and someone that has the infrastructure to support the service we need... small players cannot have that going, and we wouldn't go with somebody who's a small player..."

According to this statement, being a “*big player*” is rather important when it comes to sourcing data storage hosting, which is about considering reputation of the supplier as being an important indicator of performance and reliability, translated into an important and rare organizational capital resource. (Barney, 1991)

Concerning the imperfect imitability attribute of data storage, it was generally considered very low, as most of the studied firms felt capable of perfectly imitating the same resources inhouse. ComapmyA for instance, according to the vice president of its managed services division, explained that although data storage operations and hosting are currently being outsourced to a third party storage service provider, the company is planning to internalise the operations part, and move hosting to another supplier with whom they already have ties. As discussed above in the TCE explanation of data storage, the decision to review the sourcing strategy for data storage operations was mainly driven by the fact that data storage hardware's costs have decreased considerably, and thus is more efficiently managed inhouse. This proves that imitability in this case is not imperfect.

Furthermore, in the case of CompanyB, the company was, initially, delivering the whole solution from its own premises; data storage, being part of it, was totally hosted and managed inhouse, however, for purely economical reasons mainly related to network sourcing, the company decided to outsource part of its business

components. As a result, CompanyB continued to be in charge of data storage operations but outsourced hosting to a third-party data centre. This clearly proves that in the case of CompanyB, data storage as a resource was considered to be perfectly imitable.

In the case of CompanyC, however, due to the criticality of the security of the data manipulated through its solution, the company felt incapable of imitating the same level of services inhouse. Moreover, as the company considered the organizational capital resources associated with their partner to be of major importance, it is clear that the company is not capable of imitating these.

Finally, regarding the imperfect substitutability attribute, all the studied firms, except CompanyC and CompanyF, considered data storage not to be imperfectly substitutable. The case of CompanyD is a good example here, where the company consistently moved its storage services to different suppliers with the intention of economising on costs. As stated by the company's CEO, the organizational capital resources (such as size and reputation) here are not of major importance as long as they have a minimum of appropriate human capital resources such as customer service. As a result, the company reduced its data storage cost by around 80% within 12 months.

	Asset Spec.	Uncert.	Freq.	Rare	Imp. Imit.	Imp. Subst.	Actual	Expected (TCE)	Expected (RBV)
CompanyA	Operation	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	High	High	Yes	High	High	Alliance	Inhouse	Alliance
CompanyB	Operation	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	Low	High	No	Low	Low	Market	Market	Market
CompanyC	Operation	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	High	High	Yes	High	High	Alliance	Market	Alliance
CompanyD	Operation	Low	High	No	Low	Low	Market	Market	Market
	Hosting	Low	High	No	Low	Low	Market	Market	Market
CompanyE	Operation	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	Low	High	No	Low	Low	Market	Market	Market
CompanyF	Operation	High	High	Yes	High	High	Inhouse	Market	Market
	Hosting	Low	High	No	Low	Low	Market	Market	Market

Table 6.1: The sourcing modes of the Data Storage layer in the studied cases

The case of CompanyC, however, makes a little exception here, where imperfect imitability of the hosting element of data storage was considered to be high. As explained above regarding the rarity of the hosting element in the case of CompanyC, the company's managing director explained that not only it was confirmed that the organizational capital resource associated with data storage was extremely important, but also that social complexity and maybe even causal ambiguity (Barney, 1991) are of prime importance here. Social complexity here is associated with the fact that this executive has expressed the importance of a company that has great experience and has a history of success for sourcing this resource, which may also be linked to causal ambiguity as the experience increases. Therefore, CompanyC considers these elements to make the hosting part of data storage imperfectly imitable and imperfectly substitutable.

Similarly, CompanyF considered the operations part of data storage to be very idiosyncratic due to the expertise of the company in managing its IT resources. Consequently, the company's CEO found it impossible for regular hosting companies to offer the same level of sophistication required for running its business, which translates into a resource that is not imperfectly substitutable.

6.3 THE SERVER LAYER

The server layer, as explained in Chapter 2, is the computing infrastructure used for data processing by an ASP. Although the server layer is separated from the data storage (see Figure 2.8), most of the studied companies did not clearly separate the two layers from each other. The only exception here is CompanyA, in which the server layer is clearly separated as a unique part of the business. Consequently for

this section of the chapter, the server layer's results are identical to those on data storage.

6.3.1 A TCE Perspective

In the case of CompanyA, the server layer was initially outsourced to a third-party provider, according to the vice president of its managed services division who stated:

“...now for hardware, to be hard into security, we have got hardware experts, and we now own all the stack in terms of hand on engineering and monitoring, and so we have pushed potential partnership areas away so that we have got control over house service levels...”

Furthermore, as was explained in the description of CompanyA's case in Chapter 5, although the company achieved SunTone certification, it was judged very important to diversify in terms of the hardware being used. As a result, CompanyA started offering, on the top of Solaris-based Sun Microsystems servers, Windows-based Dell servers as well as AIX-based IBM servers. This has added flexibility to the company to target a variety of customers, according to the VP of CompanyA's MSD. It is therefore clear that the asset specificity associated with the server layer operations is low.

Furthermore, although CompanyF did not establish a clear separation between the data storage layer and the server layer, confirmed the extent to which computing infrastructure components are standardised and how it becomes an asset of very low specificity as a result of this, where its CEO stated:

“...several years ago there were big differences between one computer and another in terms of quality of build and reliability... in those days, we worked with a particular vendor based on assessment of quality and reliability... you don't need to do that these days, because they're all solid and reliable...”

On uncertainty, however, the case of CompanyA demonstrated that this attribute is rather high. It is clearly stated in the above statement that CompanyA's focus is on uncertainty surrounding the transaction, as the company felt the need to be hard on security and appropriate monitoring of the operation. Uncertainty, in this case, is increased due to the fact that the company is bound by strict SLAs with its customers, and that it is critical ensure optimal operations in order to fulfil these SLAs. However, uncertainty was not expressed regarding the hosting part of the server layer, as the interviewed executive only mentioned the importance of performance of the operations related to it.

On the frequency attribute, similarly to the data storage layer, the frequency is high as it is the core of day-to-day operations.

		Asset Spec.	Uncert.	Freq.	Rare	Imp. Imit.	Imp. Subst.	Actual	Expected (TCE)	Expected (RBV)
CompanyA	Operation	Low	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	High	High	High	Yes	High	High	Alliance	Inhouse	Alliance
CompanyB	Operation	Low	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	Low	Low	High	No	Low	Low	Market	Market	Market
CompanyC	Operation	Low	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	Low	High	High	Yes	High	High	Alliance	Market	Alliance
CompanyD	Operation	Low	Low	High	No	Low	Low	Market	Market	Market
	Hosting	Low	Low	High	No	Low	Low	Market	Market	Market
CompanyE	Operation	Low	High	High	No	Low	Low	Inhouse	Market	Market
	Hosting	Low	Low	High	No	Low	Low	Market	Market	Market
CompanyF	Operation	High	High	High	Yes	High	High	Inhouse	Market	Market
	Hosting	Low	Low	High	No	Low	Low	Market	Market	Market

Table 6.2: The sourcing modes of the Server layer in the studied cases

6.3.2 An RBV Perspective

From an RBV perspective, and similarly to the discussion of the data storage layer above, CompanyA internalised its server layer operations as a result of decreasing hardware prices, this not only explains that physical capital resources associated with the server layer are not rare, but also explains that the human capital resources are not rare too, which only shows that the operations associated with the server layer is a resource that is far from being rare.

On the imitability attribute, it is clear that the latter is not imperfect as the company successfully imitated the resource internally and achieved better levels of performance, according to the vice president of the company's managed services division. Furthermore, as the company decided to diversify the platforms on which to operate, by providing different types of servers, demonstrates that the human capital resources associated with this are also not imperfectly imitable.

Finally, imperfect substitutability is also very low in this case due to the wide homogeneity of the resource in the market.

6.4 THE NETWORK LAYER

According to the explanation given in Chapter 2, the network layer is the element through which remote users access the data as well as the applications offered by the ASP.

6.4.1 A TCE Perspective

On asset specificity, all the studied firms, except CompanyA, found the network layer to be very low in asset specificity. For instance, an interviewed executive at CompanyE stated:

“...in terms of data centres what do I need from a data centre?? I need a big fat pipe coming into it, I need some rack space that is in the right environment, so having light, it’s secure and looked after, anybody can offer that, you can go and start a data centre down the road...”

This clearly demonstrates that for running its solution, CompanyE simply relies on a regular Internet connection that is of a certain standard in terms of speed of data transfer, thus not asset specific.

Furthermore, CompanyB’s managing director of its ASP solution stated:

“...first of all certain support we get from them is 24x365, and is excellent, their support is absolutely superb, and they keep the network up all time and know exactly what is going on, they really are excellent, but that is all we expect from them for the money we ‘re giving them... simple telecom service provision...”

Here again, the case of CompanyB demonstrates that their solution is not based around a specific network layer. They just rely on basic network solution that does not carry any high physical or human asset specificity.

Another good instance here is the case of CompanyF, where the company’s CEO stated:

“...networks... everybody offers a megabyte or gigabyte Ethernet connection, so that’s not a problem, and there’s no differentiator...”

Here again, it is clear that the requirements of CompanyF in terms of network provision is very standardised, and thus no need for investment in assets of high specificity.

In the case of CompanyA, however, the network represents the core skeleton of their ASP proposition. As explained by the vice president of the company’s managed services division (see Chapter 5 for more details), CompanyA faced major challenges with the one-to-many principle behind the ASP concept, and as a result it shifted its business to focus more on one-to-one type of deals. Within this shift, the network element of their business model played an important role, where according to the interviewed executive:

“...it is a shared infrastructure, so we are able to offer people good competitive rates, but they have a separate VN [virtual network] it is called, a separate piece of network where their application sits, and so the hardware and software, the application on it is dedicated to the customer, whereas in a traditional ASP model you put multiple customers on a single box...”

In order to achieve this, CompanyA needed a special technological setting from its network supplier in the form of special technology and special knowledge (specific physical and human assets) around which all the solution was built, and thus it could be interpreted as CompanyA being “locked-into” (Williamson, 1981) this particular transaction. Therefore, the network layer here is indeed an asset of high specificity.

On the uncertainty attribute, only CompanyA and CompanyC found it to be high, whereas the remaining studied cases found it to be low. In the case of CompanyA, as explained before, the company's SLAs given to its customers are deeply based around the performance of its network setting; as seen in Chapter 5, CompanyA advertises its reliability around the very detailed specifications of the performance of their network, making from the uncertainty attribute very high. Therefore, as explained by the company's VP of MSD, it is of major importance to make sure that the network, upon which the solution is built, is constantly available to match the standard expected from their customers.

With regards to CompanyC, the company's managing director described the importance of using the services of a big network player as a major indicator of reliability needs, explaining that the network element is important in guarantying the ultimate level of security of the processes offered by its solution. In this case, CompanyC delivers a solution that is so dependent on the network layer, that guarantying constant availability is not only a must but core to the whole solution; the solution consists in customers sharing M&A's related digital documents using the company's virtual rooms, so the essence of the solution is from the network layer. Again, this is another example of a company's raised uncertainty due to the SLAs offered to its customers.

On the other hand, CompanyF's CEO explained that his company is totally relaxed about the network element, where he stated:

“...data centres are all commodities, and there’s so much bandwidth available now, you don’t have to worry about getting bandwidth as you can get from a big number of people, and they’re usually all good...”

It is clear from this statement that not only the network layer is of low asset specificity, as it is widely available in the market, but also very low in terms of uncertainty; the company’s CEO, here, believes that as the performance of most network providers is of a high standard, behavioural uncertainty is not a major concern.

Similarly, CompanyD finds that the non-mission-critical character of the services they provide makes from their ASP model easy to manage. The network layer is of special interest here, where the company’s CEO stated:

“...if you’ve got to learn about health and safety, whether you do it this morning or next Tuesday doesn’t really matter, so a 98.5% up time, who cares... it doesn’t make any difference...”

It is clear, here, that behavioural uncertainty from the network provider is the lowest possible, where the executive does not find it problematic that the network breaks down and the availability of their service is interrupted.

The network layer is the element through which all connections to the stored data as well as the processing applications have pass, and thus the frequency of the transaction is always high for all the studied cases.

6.4.2 An RBV Perspective

From an RBV perspective, CompanyA considered the network resource, as required by its business, a rare one. Contrary to the remaining studied firms, and as explained above in the TCE-based discussion, CompanyA needed a network resource that was rather special in terms of the required physical capital and human capital resources, although the vice president of the company's managed services division confirmed that their network provider was not the only candidate, he stated that the reputation of the firm as well as previous business relations (organizational capital resources) have affected the decision. Overall, CompanyA considered its requirements in terms of network to be that of a rare resource. Moreover, CompanyC also considered its network resource to be rare. According to the company's managing director, although there are several network providers in the market, the ones that are reliable – what he qualifies as “big players” – and provide the right kind of service, including tight security, are not that many. This makes form the network resource, in the case of CompanyC, a rare resource.

On imitability, CompanyA considered the network resource so socially complex that imitation was beyond their capability, where the company's VP of the managed services divisions stated:

“...[our network provider] is a telecom provider, so their real expertise is around network, so we have outsourced that to them because for us to get the breadth of expertise they have, we have to hire an army of people...”

It is clear from this statement that the company is far from being able to reproduce the same resource level internally, and thus imitability here is imperfect.

Furthermore, CompanyC also found the imitability attribute to be imperfect. Again the company is fully focused on providing a service that is extremely secure for its customers to use, and that level of service cannot be provided inhouse. Here too the organizational capital resource is extremely important, where the company tries to advertise the safety of its services based on who provides the network. According to the company's managing director, success and high level of experience and expertise are key characteristics to sourcing the network layer, and thus imperfectly imitable.

Finally, on the substitutability attribute, only CompanyA and CompanyC considered the network resource to be imperfectly substitutable. CompanyA's vice president of the managed services division explained that while the solution provided by their network provider is not unique in the market, but not necessarily widespread, previous relations the company narrowed the decision down quite substantially. In RBV terms, the imperfect substitutability here combines physical capital, human capital and organizational capital resources, making it very difficult to find an appropriate resource substitute. Furthermore, CompanyC's idea of a big player also has repercussions on the substitutability of the resource, whereby the company's managing director stated that the availability of strategic substitutes to the services provided by their network provider is very low.

	Asset Spec.	Uncert.	Freq.	Rare	Imp. Imit.	Imp. Subst.	Actual	Expected (TCE)	Expected (RBV)
CompanyA	High	High	High	Yes	High	High	Alliance	Inhouse	Alliance
CompanyB	Low	Low	High	No	Low	Low	Market	Market	Market
CompanyC	Low	High	High	Yes	High	High	Alliance	Market	Alliance
CompanyD	Low	Low	High	No	Low	Low	Market	Market	Market
CompanyE	Low	Low	High	No	Low	Low	Market	Market	Market
CompanyF	Low	Low	High	No	Low	Low	Market	Market	Market

Table 6.3: The sourcing modes of the Network layer in the studied cases

6.5 THE APPLICATION LAYER

The application layer represents the software applications offered by the ASP, and thus represents the core proposition of the business. Analysing the application layer as done with the previous layers, was not possible here for all the cases. Among the cases studied, CompanyB, CompanyC and CompanyE could not be included in the analysis because their businesses are built around their own application; the application represented the starting point of their ASP-based business, therefore the application layer is an inhouse capability, and thus no decision will be taken regarding the sourcing of this. As a result, only CompanyA, CompanyD, and CompanyF will be discussed in this section.

6.5.1 A TCE Perspective

From a TCE perspective, only CompanyA considered some parts of the application layer to be of high asset specificity. In the early years of the business, CompanyA acquired two consultancy firms in order to insource Lotus and Siebel skills. By doing this, CompanyA considers its core competencies to be in software implementation. As a result, software packages on which the company has acquired specific human assets become assets of high specificity themselves as a result of CompanyA being locked into transactions involving these packages. In other words, their specific software implementation skills would not be useable outside these transactions, because these are not transferable to other software packages.

CompanyD offers e-Learning packages to its customers which is only the content of what should be provided to the customers. About building the software application

that manages the e-learning content, and integrating this with the already produced content, the company's CEO stated:

“...we use Flash, we use ASP on an SQL database, the guys note it's not particularly rocket science, there's no complicated Perl scripts or C++ or Java, you don't need to do that... and also in terms of the online store, we looked at a couple of products out there, you can buy that for £400 and set an online store...”

This confirms that the application layer in this case is of low asset specificity.

Finally, in the case of CompanyF, the application layer is composed of three main elements; the 3D user interface, the content bundled with the interface, and the database element. According to the company's CEO, the interface they provide, which is the unique value-creating element of their service, is transparent in that it can be bundled with any content. Moreover, the database element of their software is very important but not unique. Therefore, the asset specificity of the application layer in the case of CompanyF is low.

On uncertainty, the case of CompanyA shows that the software application they provide through their ASP delivery is standard, though asset specific. According to the company's VP of their managed services division, the behavioural uncertainty is at the level of the implementation not the software itself, because the latter is already tried and tested and is guaranteed not to cause any problems.

Similarly, the case of CompanyD also shows that uncertainty at the level of the application layer is very low. As the company relies on fairly simple technology to develop its applications, and more importantly as the software layer handles data of non-mission-critical character, the company's CEO explained that minor problems

with the software should not affect the service too much. Thus, the measurement problems associated with the transaction are not very serious.

Lastly, CompanyF found the uncertainty associated with the application layer to be relatively high. The company's CEO stated:

"...I knew I was going to world class database, it was obvious because of my past experience, so I was always on the lookout for a world-class database provider..."

In fact, as explained by the company's CEO, the previous experience was with a database provider who failed to perform according to the agreed standard, which affected the overall service enormously. Moreover, with regards to the content provider, the company's CEO specifically discussed about the importance of a content aggregator, which is about feeling safe that they have to monitor only one source of content and not several. Although the main application, being the 3D interface, is content independent, making sure that the content is appropriately sourced proved to be of major importance. Thus, this part of the application layer is also considered of high uncertainty.

As the application is mostly the core of the ASP delivery, the frequency attribute of the application layer is always high for all cases.

6.5.2 An RBV Perspective

From an RBV perspective, the application for CompanyA was considered to be rare. As explained above under asset specificity, CompanyA developed special skills in the implementation of some specific software, which are considered the main core competencies of the company. By specialising in such packages, according to the

VP of CompanyA's manages services division, the developed skills – intangible resources – are not fully transferable to other packages, however similar they might be. This makes from these skills idiosyncratic, and thus the sourced application layer rare.

Conversely, ComapnyD and CompanyF demonstrate a totally different situation. CompanyD, for instance, relies heavily on the e-learning content they provide their customers with, but that is what the organization's core capabilities are. However, when it comes to the software part that manages the content in their ASP delivery, the company's CEO explained that the packages for producing that are widely available in the market, and that choosing the right one is only a matter of price and preference. This makes the application layer in question widely available, and thus not rare.

ComapnyF also explained that the content needed for selling their ASP offering is important, due to the low value of their standalone 3D interface; the interface needs to be bundled with content in order to offer any value. However, the company's CEO stated:

“...we could have worked with 50 content organizations, and 500 game suppliers...”

This quote clearly explains the wide availability of the content in question, and thus the resource is far from rare. However, the database skills need, according to the company's CEO, are not widely available. According to him, the company's past experience proved that reliable database providers are not widely available, which makes from this part of the application layer a rare resource.

On imitability, CompanyA found the application layer to be imperfectly imitable. In fact, the amount of knowledge – intangible resources – involved in such software applications (Armour, 2000) are totally impossible for the company to own. Moreover, causal ambiguity as well as the social complexity of developing software of this nature are major barriers for imitability. Thus the application layer in the case of CompanyA is imperfectly imitable.

On the other hand, CompanyD confirmed that the knowledge – intangible resources – involved in developing their online store is far from idiosyncratic. In fact, due to the simplicity of the involved technology, according to the company's CEO, the company is capable of imitating any store design given the right tools, and because, as explained above, the necessary tools are widely available in factor markets, the application layer in this case is perfectly imitable.

Finally, in the case of CompanyF, the company's CEO explained that although the content is widely available, and that the company can aggregate content in the same way as the aggregator. As explained above, all the aggregator does, according to the company's CEO, is to locate content from different sources, and bundle them together to be ready for delivery using the company's interface. This is not to say that the aggregator's task is not valuable, but to say that their service is perfectly imitable.

On substitutability, CompanyA demonstrated that substitutability of the application layer is quite high. Although software packages for any particular area, such as CRM, are widely available in different flavours, and thus the software type itself is not rare, the ones that are suitable according to the company's skills are indeed rare.

Furthermore, in order for other ISVs to offer strategic substitutes to the applications sources by CompanyA, the former will have to make major changes to theirs, which what most ISVs will not do, according to the VP of the company's managed services division.

However, in the case of CompanyD and CompanyF, imperfect substitutability is rather low. The former case explained that software packages used for producing their online store are not rare, and are almost all similar requiring similar technical capabilities. As explained above, choosing the right package is a matter of cost and preference according to the company's CEO, and thus there are several other sources of software, although different, that can fulfil the same purpose.

Initially, in the case of CompanyF, although according to the company's CEO, the right database providers with the appropriate skills are rather rare, among these the company is just happy using anyone. In fact, according to the company's CEO, CompanyF is even ready to make smaller changes to its systems in order to be able to work with a particular database provider. Moreover, in the case of content provision, as several aggregator might offer different types of content, and as the interface offer by CompanyF is content-independent, imperfect substitutability here also low. Thus, imperfect substitutability for the application layer in this case is low.

	Asset Spec.	Uncert.	Freq.	Rare	Imp. Imit.	Imp. Subst.	Actual	Expected (TCE)	Expected (RBV)
CompanyA	High	Low	High	Yes	High	High	Market	Alliance	Alliance
CompanyB	-	-	-	-	-	-	Inhouse	-	-
CompanyC	-	-	-	-	-	-	Inhouse	-	-
CompanyD	Low	Low	High	No	Low	Low	Inhouse	Market	Market
CompanyE	-	-	-	-	-	-	Inhouse	-	-
CompanyF	Low	High	High	No/Yes	Low/High	Low	Inh./Alliance	Market	Market/Alliance

Table 6.4: The sourcing modes of the Application layer in the studied cases

6.6 DISCUSSION

In this section of the chapter, a discussion around the main findings of this research is undertaken. Several findings have emerged from both analysing the cases, as well as the use of TCE and RBV.

6.6.1 Findings Relating to the ASP Model

To begin with, an important finding was related to the predictions discussed in Chapter 3. As stated previously in Chapter 5, the predictions failed to match 47% of the results of the conducted case studies. These differences could be due to the possibility that TCE and RBV are not powerful enough to predict the majority of the sourcing modes of the ASP layers, or some other unknown reasons that have caused this discrepancy.

However, as a result of the within-case analysis in Chapter 5, and the cross-case analysis in the present chapter, it was confirmed that a major flaw with predictions was related to the initial assumptions made regarding the different ASP layers. The assumptions were that the software layer was the most value-adding ASP component, and that the remaining layers were pure commodities, necessary for ASP provision but do not carry extra value. In fact, a lot of the published academic work on ASP share this view point. For instance, Dewire (2000, p. 15) stated that “[a]n ASP provides the application service as its primary business.” Although Dewire (2000) recognises the need for the other layers of the ASP model, she argued that the main source of value for ASPs would be the delivered application. However, Dewire (2000) also predicted that the other ASP layers may start to play a more important role in the future, particularly if the ASP in question owns one or more of

these layers. Similarly, Kern et al. (2002, p. 5) stated that *“the primary product of an application service provider (ASP) is business applications, managed remotely by the ASP.”* This also places great emphasis on the application as being the single most important ASP layer. Kern et al. (2002) also recognise the need for the other ASP layers for successful delivery, but do not cite these as being major value drivers. Additionally, Bennett and Timbrell (2000) also define ASP as focusing mainly on delivery software applications, defining the latter as being the *“scope”* of ASP.

From the analyses presented in Chapter 5 as well as the present chapter, it was confirmed that only part of the assumption is true; indeed, several of the studied organizations found the application layer to be the most important in ASP delivery. For instance, the CEO of CompanyF stated:

“...the software is an absolutely key ingredient in the solution... as I say prefer a relationship with a database provider, who we’re working together very closely, rather than a data centre provider because that’s a commodity...”

Moreover, the managing director of CompanyE also stated:

“... if you own the software you are going to deliver that... I think if you want to set up a business as an ASP and you don’t own the software, you have very little value I think...”

Overall, this is applicable to CompanyB, CompanyD, CompanyE, and CompanyF. As explained in Chapter 5, these were considered the non-value-creating ASPs. In fact, such ASPs do create value, but only limited to those of the ASP model, most importantly cost effectiveness and ease of access.

In the cases of CompanyB and CompanyE, their ASP business proposition was simply to offer their existing software application as an online service. Both companies kept their initial business of selling and maintaining software applications in a traditional way, but used the ASP model as an extra distribution channel. Similarly, although CompanyD produces content only, they thought of using the ASP model as an extra distribution channel for increasing reach, and thus increasing revenues. Finally, CompanyF produces a content-independent 3D user interface, and bundles it with content that is sourced from an external content aggregator. Here, again, the idea of using the ASP model was only natural to the company in order to increase its sale revenues. It is worth mentioning that all these companies – CompanyB, CompanyD, CompanyE, and CompanyF – generate most of their revenues from their non-ASP-based business.

However, the main finding here is that this research has proved that the software being the core of the delivery is not always true. Some other ASPs, such as CompanyA and CompanyC use different other layers in order to create or add value to their businesses. In the case of CompanyA, for instance, the application layer is sourced from external third-party ISVs. Although, initially, the company started its business as a pure ASP aggregator, simply delivering the different software applications in question, using the ASP model on a one-to-many basis. According to the company's VP of its managed services division, the company was not very successful then as it could not distinguish itself in the market, and thus could not attract enough customers to generate acceptable levels of revenues, where he stated:

“...when you are a small company, what you have to do is be flexible, and you have to give customers what they want, and that is what we do...”

It is clear here that the company could not generate enough value from its initial strategy of implementation of the ASP model. As explained in Chapter 5, company rethought its business model in order to find ways to generate value. As a result, the company targeted the network layer as the main source of value; the company kept the same software implementation skills, and the same application layer, but focused on giving customers a unique experience by providing them with services tailor made for them, and delivered via vLANs provided by their network provider. Consequently, the company succeeded in setting its business apart in the market, and thus managed to attract a healthy customer base.

CompanyC also generates its value from more than the application they deliver. The company's main business proposition is a solution that is only realisable using the ASP model. Although the whole solution revolves around the application they have developed for managing and distributing M&As-related digital documents, the actual value that drives its business comes more from the network layer, as well as the hosting parts of the their data storage and server layers. The idea relies on the software application to provide an integrated platform for managing and distributing the digital documents, and thus the software only helps the idea to materialise. However, what is of prime importance to the potential customers, according to CompanyC's managing director, is the security of their documents, and thus the company's focus was mainly on making its network and hosting secure and appealing to customers.

This is a major development in the ASP market, whereby value generating can shift away from the application layer. Moreover, from Table 5.8, it is clear that the partnering strategies of those two clusters of companies was rather different;

Company A and Company C relied more on strategic alliances than the remaining ASP firms. As explained by Kittilaksanawong (2007), strategic alliances are particularly valuable for creating value using resources external to the firm's resources capabilities.

Proposition 1: ASPs that own the application layer will offer value based on the traditional ASP definition;

Proposition 2: ASPs that do not own the application layer will seek to offer value based on the remaining ASP layers;

6.6.2 Findings Relating to TCE and RBV

On the theoretical side of the findings of the present research, there are several important issues that are worth an in-depth discussion. To begin with, from Tables 6.1, 6.2, 6.3, and 6.4, the following was extracted:

- 36% of the overall sourcing modes were not explained by either theory;
- 57% of the overall sourcing modes could not be explained using TCE;
- 36% of the overall sourcing modes could not be explained using RBV;
- All the sourcing modes that were explained using TCE were also explained using RBV;
- 21% of the sourcing modes that were not explained using TCE, were explained using RBV.

From the statistics above, it seems that both TCE and RBV were successful in explaining only a maximum of 64% of the actual sourcing modes of the ASP layers in the studied cases. However, in analysing the different outcomes of the case studies, the two theories were applied independently, and therefore the results are not those of combined explanations. Another important finding here is that RBV seems to have more explanatory power than TCE, where RBV explained 21% more sourcing modes than TCE. However, it is not possible here to confirm that RBV is a more suitable theory than TCE. In a highly acclaimed research conducted by Lacity and Willcocks (1995), where the researchers used TCE to explain IT sourcing decisions, it was found that 87.5% of the cases failed to be explained using TCE. In concluding their research, they stated: *“We hope that this paper serves to stimulate debate among the information technology academic community on the applicability of using transaction cost theory as an explainer of information technology sourcing decisions. We believe this debate is important because adoption of theories from other disciplines needs to be critically examined within our own discipline.”* (Lacity and Willcocks, 1995, p. 241) As a response to this, part of Lacity and Willcocks’ (1995) results were re-analysed by Aubert and Weber (2001) however using RBV. The main finding of this re-analysis was that the same results provided a much stronger support for RBV. In concluding their research, Aubert and Weber (2001) did not claim support for RBV rather than TCE, but valued the fact that the two theories can be differentiated empirically, and thus they compete to explain sourcing decisions.

In this study, some issues have been encountered while analysing the case studies using TCE and RBV. In the following, these issues will be discussed for each theory

independently, then discuss the possibility of gaining even more explanatory power by combining the two.

Findings from TCE

In TCE as defined by Williamson (Williamson, 1975; 1991a), the three main transaction attributes to be considered when analysing sourcing decisions are asset specificity, uncertainty, and frequency of transacting. However, among these three, asset specificity and uncertainty are the main determinants (Williamson, 1989; 1991a; Mahnke et al., 2005). Moreover, among the latter two attributes, asset specificity is the most powerful determinant of sourcing decisions (Williamson, 1981). According to Williamson (1985, p. 55), asset specificity refers to “*durable investments that are undertaken in support of particular transactions, the opportunity cost of which investments is much lower in best alternative uses or by alternative users should the original transaction be prematurely terminated.*” When asset specificity is low, sourcing should always be from the market. The rationale behind this is that in the presence of trivial levels of asset specificity, numerous suppliers should effectively compete. However, when asset specificity is present to a non trivial level, the sourcing decision should include the other TCE dimensions – uncertainty and frequency of occurrence. (Williamson, 1981; 1989; Aubert et al., 1996; David and Han, 2004) Furthermore, according to Mahnke et al. (2005), this overpowering character of asset specificity in TCE has received strong support in internal production vs. external procurement decisions.

Although the application of TCE has been widely in support of the dominance of asset specificity in the ma-or-buy decisions (David and Han, 2004; Mahnke et al.,

2005), some author researchers, though a minority, have attempted to associate more power to uncertainty. Leiblein and Miller (2003), for instance, developed a conceptual model in which they argued that uncertainty would lead to integration for transactions involving both high and low values of asset specificity in the semiconductor industry. However, they failed to prove that empirically, where their results showed that uncertainty leads to integration only in the presence of high asset specificity.

In the present research, an important phenomenon was seen to be repeated very frequently; there is an important number of instances where the studied firms either decided to integrate or ally for transactions of low asset specificity. This is clearly in contradiction with Williamson's (1975) definition of TCE. For instance, CompanyA, CompanyB, CompanyC, and CompanyE all chose to produce data storage- and server-related operations inhouse. All of the interviewed executives from these firms confirmed that the reason for insourcing those transactions was mainly to be able to take control on the ASP delivery, which translates into higher uncertainty. Moreover, CompanyC chose to ally with a network provider, although their network layer is of low asset specificity. According to the company's managing director, that decision was purely to make sure that their network is run properly and securely, thus due to high uncertainty. Finally, CompanyD chose to internalise part of its non asset specific application layer, and CompanyF chose to ally with a database provider in order to avoid the performance problems that were encountered by the company in the past.

It is important to understand here that in all these instances, the decisions to insource or ally were totally based on the uncertainty attribute of the transactions, even though

asset specificity was low. Thus the uncertainty attribute has played an important role in the sourcing decisions. However, what is not understood is the reason why uncertainty is influencing these decisions. In the following subsection, it is believed that RBV might provide the answer.

Findings from RBV

RBV, as defined by Barney (1991), is a theory that focuses on firm resources as a unit of analysis, as opposed to transactions in the case of TCE. It is mainly a theory of competitive advantage as opposed to a theory of economising as in the case of TCE. RBV has, recently, gained tremendous coverage in the strategic management literature (Wernerfelt, 1995; Barney, 2001) and has also attracted some interest from a variety of other disciplines like IS (Mata et al., 1995; Bharadwaj, 2000; Melville et al., 2004; Watjatrakul, 2005) The main tenet of RBV is that in order for a firm to achieve and sustain competitive advantage, it must be capable of implementing unique strategies, which involve the use of strategic resources (Wernerfelt, 1984; 1991). Consequently, resources that are valuable, rare, imperfectly imitable, and imperfectly substitutable are potentially sources of sustained competitive advantage (Barney, 1991). However, as explained by Barney (1991), “*the study of sustained competitive advantage depends, in a critical way, on the resource endowments controlled by a firm.*” (p. 116) Therefore, it is understood that an organization’s strategy depends greatly on the resources it owns, and the strategic value of such resources.

Complexity of products and services in many industries, particularly the technologically-driven ones such as IT, is important to consider. Complexity, according to Tyler and Steensma (1995), refers to the diversity of technologies needed for the development process, where the bigger the variety of these technologies, the greater the complexity becomes. According to Ohmae (1989, p. 145), “[t]oday’s products rely on so many different critical technologies that most companies can no longer maintain cutting-edge sophistication in all of them.” Therefore, an important characteristic of complex products would be the complementarity between the needed technologies. Bharadwaj (2000, p. 172), for instance, discussed the strategic value of IT capability and argued that “[a]lthough the individual components that go into the infrastructure are commodity-like, the process of integrating the components to develop an infrastructure tailored to a firm’s strategic context is complex and imperfectly understood”

In the case of ASP, as explained in Chapter 2, the delivery of services relies on many distinct capabilities (the different ASP layers) that are hardly possible for one single firm to own then all. Therefore, ASP fits perfectly the definition of a complex service. Moreover, the successful delivery of ASP services depends heavily on the performance of each layer, where failure in any layer will affect the entire service, no matter how strategic or non strategic the layer is. Additionally, as explained by Dewire (2000, p. 15), “[t]he ASP is responsible for delivering on the customer’s contract regardless of its structure – sole provider or partnered. If a problem arises, the ASP is responsible for resolving the issue.” In the case of CompanyA, for instance, the main concern was to make sure that the SLAs provided to customers are fully met in order to avoid any financial sanctions. According to the company’s

VP of its managed services division, the reason for internalising data storage and server operations was to be able to take full control on the service, although those elements were not strategic (not rare). This, also, refers back to the fact that uncertainty, under the TCE explanation, where it seems that uncertainty emerges due to the complementarity between the different ASP layers. However, this clearly not perceived by all the studied firms. For instance, CompanyB did not consider hosting for the data storage and the server layers to have any uncertainty linked to it.

An important conclusion to be drawn here is that the choice of the unit of analysis under RBV was not very appropriate. Although under TCE the choice of the unit of analysis, being the transaction for each of the ASP layers was appropriate; each layer needs a sourcing mode, and thus it makes sense to evaluate the production costs and the transaction costs associated with each layer. However, in the case of RBV, although each resource is important in its own right, the complementarity between these resources is even more important, and in the studied cases, this complementarity has greatly influenced the sourcing modes. Therefore, the complementary capability of the different layers exceeds that of the individual resources, which might translate into what could be qualified as an “*ASP capability*”. The ASP capability would be important then to consider in addition to the individual components.

The Complementarity between TCE and RBV

TCE and RBV have both seen successful and unsuccessful uses in explaining different issues in organizations. Most importantly, TCE and RBV are frequently

seen as competing theories (Conner, 1991; Eisenhardt and Schoonhoven, 1996; Combs and Ketchen, 1999; Das and Teng, 2000), where each has a distinctive explanatory power independently of the other. However, several other researchers have praised the complementary nature of the two theories (Foss, 1996; Mahoney, 2001; Leiblein and Miller, 2003; Barney et al., 2001). In fact, even Williamson (1991b) recognised the usefulness of what he calls “strategising” as complementary to “economising”.

In the present research, it was explained above that there were issues with both the use of TCE and RBV. Under TCE, 57% of the overall sourcing modes were not explained, however, it was also understood that uncertainty, as a transaction attribute, played an important role in several of the sourcing decisions taken by the different studied firms, particularly those of low asset specificity. Due to the fact that asset specificity overpowers, TCE failed to explain those sourcing decisions. Moreover, under TCE, it was not clear why such uncertainty emerges. Using RBV, it became clearer that the uncertainty is emerging from the fact that the different layers directly affect the overall performance of the ASP delivery, and thus it becomes critical for certain ASPs under certain conditions, to consider the ASP capability as a whole in addition to the individual layers.

According to Leiblein and Miller (2003, p. 842), “[w]hile TCE focuses on the relationship between characteristics of isolated transactions and the likelihood of ex post opportunistic behavior, the RBV emphasizes how the opportunity to create competitive advantage by exploiting unique firm-level attributes affects the value of the incentives, administrative controls, and adaptation mechanisms offered by competing forms of organization.” This is precisely what the present research has

proved; the studied ASPs aim to provide value to their customers. Depending on the source of value in their model, these ASPs will choose different sourcing modes for their remaining layers. By combining TCE and RBV, in the case of the present research, better explanations could be possible. For example, in the case of CompanyA, data storage operations were internalised, despite the fact that asset specificity was low, because of the high uncertainty surrounding the transaction due to the effect of that on the company's ASP capability. Similarly, CompanyB internalised the same layer because of the same reason. However, in the case of CompanyC, for example, they allied with a third-party network provider for the same reasons, not only because internalising that was not possible financially, but also because it is a specialised capability that is not easily accessible.

Conversely, in the case of CompanyA, the application layer was sourced from the market, although it was of high asset specificity. Although this case was unique, it could also be explained using the same logic; the company did not perceive any uncertainty surrounding the application layer because the software applications in question were standardised, but asset specific, packages that are well known to the company, and that have already been tested, and thus unlikely to negatively affect the overall performance of the ASP delivery.

To conclude here, the combination of both TCE and RBV has showed that two parameters play a major role in ASP sourcing decisions: uncertainty, and resource complementarity of the ASP layers (ASP capability), and thus the following propositions can be suggested:

Proposition 3: ASPs will internalise or ally for transactions that are surrounded by uncertainty due to their effect on the ASP capability:

Proposition 3.1: ASPs will internalise the transactions when it is financially possible, and the access to the capability in question is possible

Proposition 3.2: ASPs will ally for transactions when it is financially not possible to internalise it, and the access to the capability is not possible.

Proposition 4: ASPs will use the market for transactions that are not surrounded by uncertainty.

6.7 CONCLUSION

In this chapter, a cross-case analysis was undertaken with the objective of further investigating the reasons why the predictions made in Chapter 3 did not consistently match the actual outcomes of the studied cases. The first step undertaken was to analyse the sourcing decisions of the different ASP layers using TCE and RBV. The results of this analysis showed that the predictions in Chapter 3 were flawed because of inappropriate assumptions. The main assumption was that the application layer is the core of the ASP model. Although this was true for some cases, it was not for some others. As a result, it was concluded that ASPs do not necessarily draw value from the application layer, but could do it from other layers, particularly the ASPs that do not own the application layer.

In the second part of the analysis presented in this chapter, the research focused on the usefulness of the two used theories – TCE and RBV – in explaining the different sourcing decisions. It was found that not one theory could fully explain all the instances, although RBV provided more explanation than TCE. However, the important finding of this research is that the combination of both TCE and RBV to explain the sourcing decisions proved to be more successful than using the theories independently. On this, two main parameters were extracted: uncertainty (from TCE) and resource complementarity (from RBV). This research demonstrated that the presence of uncertainty, due to the complementarity of the different ASP layers, is an important factor in explaining the sourcing decisions. It was concluded that ASPs will tend to internalise or ally for transactions that are surrounded by uncertainty, and source the remaining ones from the market.

CHAPTER 7

CONCLUSION

7

7.1 INTRODUCTION

This chapter aims to conclude the conducted research, as well as suggesting areas of future work. It aims, first, at summarising the different phases through which the research went, summarising, thus, the different conclusions drawn from each phase. Furthermore, it highlights some of the research limitations of the work conducted. Thereafter, the mains contributions of the present research are summarised, and finally some suggestions on areas of further research are presented.

7.2 SUMMARY

In Chapter 1, the main research objectives were presented. It was explained that IT outsourcing was gaining tremendous importance among organizations. As software applications, which are an important part of an organization's IT, have become more complex, and more difficult and costly to implement, accessing them was financially restricted only to large organizations. ERP packages are particularly of interest in this case, where only large organizations seem to be able to access them in a traditional mode of software delivery. ASP, however, offers some real benefits in solving this problem; by sharing the same application among several customers, software end users end up benefiting from the economies of scale that vendors could offer. The ASP solution consists in offering end users the possibility of renting software applications via a wide area network. Among the limited academic

research on this phenomenon – ASP – almost all published studies, such as those by Kern and Kreijger (2001) and Jayatilaka et al. (2003), focus their attention on the end users. Consequently, this research was chosen to focus on the other end of the ASP model, being the ASP vendors. The reason was that, although the customers' side is interesting in that research can look into issues such as how end users can choose an appropriate ASP, or whether ASP offers any real benefits to end users, the vendors' side offers some other interesting issues to look at. As identified by this research, ASP vendors face the challenge of aggregating several technologies in order to be able to offer their services, due to the complex nature of the model. Furthermore, as the technologies needed are essentially different, producing all the necessary components by one single firm is virtually impossible, which led to the idea that ASPs rely heavily on partnerships for sourcing these different components. It was, also, identified that the nature of these sourcing strategies were not clear, particularly considering that firms have the option of making the required component inhouse, buying the component from the market, or allying with a third-party component provider (Faulkner and De Rond, 2000). Therefore, it was important to understand how the ASP model works, first, and then understand how the partnering strategies are formed.

Chapter 2 aimed to research the ASP model. It progressively explained how ASP emerged based on the widely published IT outsourcing literature. In this chapter, it was found that ASP delivery was based on a set of infrastructural layers, as inspired by the model presented by Toigo (2002) on IT service delivery. The four main infrastructural layers were the data storage layer, the server layer, the network layer, and the software layer. Additionally, there is a management layer, which consists in

the management and orchestration of the four previous layers. Furthermore, ASP was identified as being a complex technology (Singh, 1997), for which ASP vendors need to develop multiple capabilities – the ASP layers explained above. It was also found that due to the different nature of these ASP layers, ASP vendors need to have a partnering strategy in place in order to be able to source these layers, and thus it was concluded that strategic alliances are at the core of the ASP model.

Chapter 3 had two main objectives. To begin with, investigating the literature on strategic alliances, and understanding the different types of options that organizations can choose from, was very important. In this part, a wide literature research was conducted, which concluded by presenting the strategic alliance process. It was identified that there are a pre-formation and a post-formation phases in strategic alliances. The second target was to relate the literature on strategic alliances to ASP, where it was concluded that the pre-formation phase of strategic alliances was of more interest in the case of this research. Further focusing on the pre-formation phase of strategic alliances, it was also concluded that the rationale for entering alliances is the main focus of the present study. For studying the rationale for entering strategic alliances, two theories were used; Transaction Cost Economics and the Resource-based View of the firm. From the reviewed literature, it was concluded that, although many researchers found TCE and RBV to be conflicting theories, several others praised the complementarity between them. Furthermore, TCE and RBV are also widely recognised for their abilities to predict as well as explain governance modes. Consequently, the two theories were applied to the different ASP layers in order to understand, according to the transaction as well as

resource attributes of each, the most suitable governance mode – market, inhouse, or strategic alliance – for each layer.

Chapter 4 described the research methodology followed. In this chapter, the methodological issues and considerations were explained, including the followed research approach as well as the used data collection techniques. It was also explained that six SMEs were chosen to be used for collecting the necessary data to carry out this research.

In Chapter 5, a within-case analysis was undertaken in order to induce familiarity with the cases, as well as understand the different modes chosen by the studied firms for sourcing their ASP layers. This within-case analysis was theory free (TCE and RBV were not applied at this level). Under Chapter 5, an important finding was that an important part (47%) of the predictions made in Chapter 3 using TCE and RBV did not match the actual outcomes from the case studies. Although the objective of the within-case analysis was only to extract data from the studied firms, and compare these to the predictions made in Chapter 3, it was also found that two clusters of ASPs were showing distinctively different sourcing decisions. The ASP-dependent firms (those that rely solely on their ASP model to generate revenues) were significantly different from the non-ASP-dependent firms (those that use ASP as an extension to their software and content distribution channels) and their sourcing decisions proved to be more challenging to the predictions in Chapter 3. Furthermore, value-creating firms (those that have used the ASP model to generate more value for their business) and the non-value-creating firms (those that have simply used the ASP because of the benefits it provides) also proved the most challenging to the predictions in Chapter 3.

Chapter 6 aimed to further investigate the results of the case studies in order to explain the surprising mismatches with the predictions in Chapter 3. For this purpose, a cross-case analysis was undertaken in order to focus on the ASP layers across all the cases. At this level, both TCE and RBV were reapplied in order to explain each actual decision for each layer. This analysis presented the resulting ideal sourcing mode, according to TCE and RBV, together with the actual mode for each layer. The findings here were that TCE and RBV, independently, could not explain all the sourcing decisions, with RBV having better explanatory results. In further analysing this matter, it was concluded that the initial predictions were flawed due to inappropriate assumptions based on the literature. In chapters 2 and 3, the assumption was that the core layer for ASP delivery is the application layer. However, from the studied cases, it was found that this assumption is not always true. This is particularly the case for value-creating ASPs. Therefore, it was concluded that ASP vendors that own the application layer will provide value based on that, whereas the ones that do not own the ASP layer draw value from one or more of the other layers. This was an important finding in that the ASP market is maturing, and that ASP vendors look for different ways to strategically differentiate themselves from competitors.

The second part of the cross-case analysis in Chapter 6 reflected on the use of both TCE and RBV. It was found that any one theory, in the case of the present research, cannot explain all the sourcing decisions made for each layer, however, the combination of the two yields more explanatory power. The main findings here were that uncertainty, as a TCE dimension, was the most influential transaction attribute in the sourcing decisions. Contrary to the current definition of TCE, where

asset specificity overpowers the remaining dimensions, uncertainty is found to have a much more important effect. Furthermore, RBV was very useful in explaining the nature of the uncertainty emerging under TCE; the complementarity of the ASP layers proved to be more important than just the layers considered individually (a case of the whole is more important than the sum of the parts). It was also concluded that, the group of layers together – identified as the ASP capability – was a much more useful unit of analysis under RBV than the individual layers.

7.3 RESEARCH LIMITATIONS

Although it is believed that the present research has resulted in some valuable contributions to the field of Information Systems, some of the identified limitations are as follows:

- On the methodology side, although the studied cases presented some more or less rich data on the sourcing decisions, the measurement of the different attributes under TCE and RBV proved to be challenging. According to the research design, as was explained in Chapter 4, the data needed for the present research was on the sourcing decisions of the ASP layers for each studied case. However, it was, early on, identified that semi-structured interviews were more valuable in order to not tightly guide the interviewees in their responses. The objective of the data collection phase was to gather information on how each studied firm went about choosing the sourcing modes for their ASP layers. As it was not in the research benefits to limit the interviewees to discussing the different attributes under TCE and RBV for each layer, which proved very

challenging to communicate and explain to the interviewees, it was preferred to extract the attributes from the answers. This proved to be difficult, especially in differentiating dimensions such as asset specificity and asset specialisation, or imperfect imitability and imperfect substitutability. In fact, such issues have already been raised in several studies, such as Lacity and Willcocks (1995) and Aubert and Weber (2001). Such studies confirmed the confusing, and sometimes blurred, nature of the concepts under TCE and RBV, which generally leads to a difficulty in operationalising them. Such difficulty is also recognised in this study as part of the research limitations;

- The study only considered the decisions made by the different case study firms in sourcing their ASP layers. However, the success of such decisions was not taken into consideration. This is not necessarily a limitation, as the research aimed to identify how the different firms made their sourcing decision as an illustration of real business decisions, and thus to understand the factors that influence such decisions. However, had it been possible, further including the success measurement of these decisions might have added more richness to the study;
- This research has not considered some other explanatory theories for investigating the sourcing decisions. Although TCE and RBV are recognised as the most popular theories, where the former has seen extensive coverage in IS (Gurbaxani and Whang, 1991; Lacity and Willcocks, 1995; Wang, 2002; Watjatrakul, 2005), whereas the latter is gaining more interest from the IS community (Mata et al., 1995; Bharadwaj, 2000; Aubert and Weber, 2001; Melville et al., 2004; Oh and Pinsonneault, 2007), there are other theories that might have provided more or less explanatory power either individually or in

combination with TCE and RBV. IS research has seen the application of several of these theories such as the agency cost theory, the resource dependence theory and several others (Cheon et al., 1995; Kern et al., 2002; Jayatilaka et al., 2003). Due to the limited scope of the present research, potential alternative theories were not considered.

7.4 THE MAIN RESEARCH CONTRIBUTIONS

Although the core contributions of the present research stem essentially from chapters 5 and 6, the different phases, through which this research progressed, have all provided other research contributions. The research contributions of the present study are summarised as follows:

- This research is, to the knowledge of the author, one of the rare studies to focus on the vendors' side of the ASP model. As explained in Chapter 1, most academic studies, published in the IS literature, have focused on the customers' side of the ASP model. Although most of these studies have discussed the vendors' side and some of the challenges these may face, the core of their research was mainly on the customers. Therefore, an important contribution of the present study is the extension of the ASP literature, and thus the IS literature, by complementing the existing customer-focused studies with a vendor-focused perspective.
- From chapters 2 and 3, the ASP model was identified as a complex product, that requires the aggregation of different technologies that are usually not all available inhouse for ASP vendors. Therefore, it was concluded that partnering

is an important element of the ASP model. The investigation of the strategic alliances literature in the context of ASP is also considered as an important contribution;

- Although TCE and RBV have been used, conceptually, in several studies on ASP, such as Jayatilaka (2003) and Kern et al. (2002), none of these studies have applied the theories with the depth of the present research. Furthermore, the theories in those have been applied to study customer adoption of the ASP model, and not the partnering strategies of ASP vendors. Therefore, the use of TCE and RBV in the context of the partnering strategies of ASP vendors is another novelty of this research. Furthermore, on a more general level, the use of TCE and RBV contributes to the IS literature, as a whole, where researchers are constantly calling for more development and use of such theories in the IS field (Lacity and Willcocks, 1995; Aubert and Weber, 2001; Wade and Hulland, 2004);
- From Chapter 5, it was identified that contrary to the predictions made using TCE and RBV, ASP companies did not ally for the application layer only, but for other layers of the ASP model. The main finding here is that, despite the assumptions made in the literature, the core layer driving value in ASP is not necessarily the software layer. Because the core business of ASPs is to deliver applications with all the benefits that the ASP model presents, it was assumed that the application layer should be the core of the model. However, as seen from the analysis in chapters 5 and 6, the other layers have, in some cases, a more value-driving characteristic. The practical importance of this finding is that ASP vendors will seek to differentiate themselves by driving value from any of

the ASP layers, and consequently their partnering strategies will be organised accordingly.

- From the cross-case analysis in Chapter 6, the main finding was that TCE and RBV, when used independently, do not have enough explanatory power to explain all the decisions taken by the studied firms. Furthermore, by focusing on the complementary characteristics of the two theories, this research has provided a way of combining TCE and RBV in order to better explain the sourcing decisions in the case of ASP vendors. This is considered to be the most important contribution of this study. This finding is not only interesting in studying the ASP model, but also important for the fields of IS and strategic management. Both fields have consistently tried to make use of TCE and RBV to explain organizational issues, and this study has further confirmed the benefits of combining the two. This study effectively complements others, such as the research conducted by Watjatrakul (2005) which took a multiple-theory approach (TCE and RBV) to study IT outsourcing decisions.

7.5 SUGGESTIONS FOR FURTHER RESEARCH

Suggestions for further research are as follows:

- This study has only focused on the pre-formation phase of strategic alliances, within which only the rationale for entering alliances was focused upon. However, the other elements of the pre-formation phase – the partner and the alliance governance choices – need to be investigated too. Moreover, as the ASP market will evolve, ASP vendors will gain more experience with delivering their

services, and thus the post-formation phase also needs to be investigated. For example, the fact that CompanyA considered to end its strategic alliance with the storage service provider proves that the company went through the post-formation phases and re-evaluated the alliance, which then resulted in internalising the whole layer;

- Further consideration of other existing theories of the firm is also an important area for further research. The use of only TCE and RBV yielded some interesting results, where the combination proved to be fruitful. It is believed that further integration of other theories can have the potential of further increasing the predictive and explanatory power in dealing with issues such as make-buy-ally decisions;
- Although the combination of TCE and RBV resulted in more explanatory power than if the theories were considered separately, it would be interesting to see this combination applied to other areas of IS in order to further validate the findings of this research.

LIST OF REFERENCES

- Alexander, M. and Young, D. (1996) Strategic Outsourcing, *Long Range Planning*, **29(1)**, 116-119.
- Allen, G. N., Burk, D. L. and Davis, G. B. (2006) Academic Data Collection in Electronic Environments: Defining Acceptable Use of Internet Resources, *MIS Quarterly*, **30(3)**, 599-610.
- Armour, P. G. (2000) The Case for a New Business Model: Is Software a Product or a Medium?, *Communications of the ACM*, **43(8)**, 19-22.
- Aubert, B. A., Rivard, S. and Patry, M. (1996) A Transaction Cost Approach to Outsourcing Behavior: Some Empirical Evidence, *Information & Management*, **30(2)**, 51-64.
- Aubert, B. A. and Weber, R. (2001) Transaction Cost Theory, the Resource-based View, and Information Technology Sourcing Decisions: A Re-Examination of Lacity et al.'s Findings, *Cahier du GReSI*, **01-08**.
- Bacon, C. J. (1994) Why Companies Invest in Information Technology, In Willcocks, L. (eds.) *Information Management: The Evaluation of Information Systems Investments*, Chapman & Hall, London, pp. 31-47.
- Barney, J. (1991) Firm Resources and Sustained Competitive Advantage, *Journal of Management*, **17(1)**, 99-120.
- Barney, J., Wright, M. and Ketchen, D. J. (2001) The Resource-based View of the Firm: Ten Years After 1991, *Journal of Management*, **27(6)**, 625-641.
- Barney, J. B. (1996) The Resource-based Theory of the Firm, *Organization Science*, **7(5)**, 469.

- Barney, J. B. (2001) Resource-based *Theories* of Competitive Advantage: A Ten-year Retrospective on the Resource-based View, *Journal of Management*, **27(6)**, 643-650.
- Barringer, B. R. and Harrison, J. S. (2000) Walking a Tightrope: Creating Value Through Interorganizational Relationships, *Journal of Management*, **26(3)**, 367-403.
- Barthélemy, J. (2001) The Hidden Costs of IT Outsourcing, *Sloan Management Review*, **Spring**, 60-69.
- Beamish, P. W. (1987) Joint Ventures in LDCs: Partner Selection and Performance, *Management International Review*, **27(1)**, 23-37.
- Benbasat, I., Goldstein, D. K. and Mead, M. (1987) The Case Research Strategy in Studies of Information Systems, *MIS Quarterly*, **11(3)**, 369-386.
- Benbasat, I. and Weber, R. (1996) Research Commentary: Rethinking "Diversity" in Information Systems Research, *Information Systems Research*, **7(4)**, 389-399.
- Benko, C. (1992) If Information Systems Outsourcing is the Solution, What is the Problem?, *Journal of Systems Management*, **43(11)**, 32-35.
- Bennett, C. and Timbrell, G. T. (2000) Application Service Providers: Will They Succeed?, *Information Systems Frontiers*, **2(2)**, 195-211.
- Beulen, E., Ribbers, P. and Roos, J. (2006) *Managing IT Outsourcing: Governance in Global Partnerships*, Routledge, Oxon.
- Bharadwaj, A. S. (2000) A Resource-based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation, *MIS Quarterly*, **24(1)**, 169-196.

- Black, J. A. and Boal, K. B. (1994) Strategic Resources: Traits, Configurations and Paths to Sustainable Competitive Advantage, *Strategic Management Journal*, **15(Special Issue)**, 131-148.
- Bleeke, J. and Ernst, D. (1995) Is Your Strategic Alliance Really a Scale?, *Harvard Business Review*, **January-February**, 97-105.
- Blodgett, L. L. (1991) Partner Contribution as Predictors of Equity Share in International Joint Ventures, *Journal of International Business Studies*, **22(1)**, 63-78.
- Borys, B. and Jemison, D. B. (1989) Hybrid Arrangements as Strategic Alliances: Theoretical Issues in Organizational Combinations, *Academy of Management Review*, **14(2)**, 234-249.
- Broadbent, M. and Weill, P. (1997) Management by Maxim: How Business and IT Managers Can Create IT Infrastructures, *Sloan Management Review*, **Spring**, 77-92.
- Brouthers, K. D., Brouthers, L. E. and Wilkinson, T. J. (1995) Strategic Alliances: Choose your Partners, *Long Range Planning*, **28(3)**, 18-25.
- Bryant, A. (2002) Re-Grounding Grounded Theory, *Journal of Information Technology Theory and Application*, **4(1)**, 25-42.
- Brynjolfsson, E. (1993) The Productivity Paradox of Information Technology, *Communications of the ACM*, **36(12)**, 67-77.
- Brynjolfsson, E. and Hitt, L. M. (1998) Beyond the Productivity Paradox, *Communications of the ACM*, **41(8)**, 49-55.
- Büchel, B. (2000) Framework of Joint Venture Development: Theory-Building through Qualitative Research, *Journal of Management Studies*, **37(5)**, 637-661.

- Buckley, P. J., Glaister, K. W. and Husan, R. (2002) International Joint Ventures: Partnering Skills and Cross-Cultural Issues, *Long Range Planning*, **35(2)**, 113-134.
- Burgers, W. P., Hill, C. W. L. and Kim, W. C. (1993) A Theory of Global Strategic Alliances: The Case of the Global Auto Industry, *Strategic Management Journal*, **14(6)**, 419-432.
- Carr, N. G. (2003) IT Doesn't Matter, *Harvard Business Review*, **May**, 41-49.
- Cavaye, A. L. M. (1996) Case Study Research: A Multi-Faceted Research Approach for IS, *Information Systems Journal*, **6**, 227-242.
- Chan, Y. E. (2000) IT Value: The Great Divide Between Qualitative and Quantitative and Individual and Organizational Measures, *Journal of Management Information Systems*, **16(4)**, 225-261.
- Charmaz, K. (2000) Grounded Theory: Objectivist and Constructivist Methods, In Denzin, N. K. and Lincoln, Y. S. (eds.) *Handbook of Qualitative Research*, Sage Publications, pp. 509-535.
- Chaudhury, A., Nam, K. and Rao, H. R. (1995) Management of Information Systems Outsourcing: A Bidding Perspective, *Journal of Management Information Systems*, **12(2)**, 131-159.
- Chen, W. and Hirschheim, R. (2004) A Paradigmatic and Methodological Examination of Information Systems Research from 1991 to 2001, *Information Systems Journal*, **14(3)**, 197-235.
- Cheon, M. J., Grover, V. and Teng, J. T. C. (1995) Theoretical Perspectives on the Outsourcing of Information Systems, *Journal of Information Technology*, **10**, 209-219.

- Cherry Tree & Co. (1999) Application Service Providers, *Spotlight Report*, CherryTree & Co., Accessed: January, 2001
- Cherry Tree & Co. (2000) 2nd Generation ASPs, *Spotlight Report*, CherryTree & Co., Accessed: January, 2001
- CherryTree & Co. (1999) Application Service Providers, *Spotlight Report*, CherryTree & Co., Accessed: January, 2001
- Child, J. and Faulkner, D. (1998) *Strategies of Co-operation: Managing Alliances, Networks, and Joint Ventures*, Oxford University Press, New York.
- Clark, T. D., Zmud, R. W. and McCray, G. E. (1995) The Outsourcing of Information Services: Transforming the Nature of Business in the Information Industry, *Journal of Information Technology*, **10**, 221-237.
- Clarke-Hill, C. M., Robinson, T. M. and Bailey, J. (1998) Skills and Competence Transfers in European Retail Alliances: a Comparison between Alliances and Joint Ventures, *European Business Review*, **98(6)**, 300-310.
- Coase, R. H. (1937) The Nature of the Firm, *Economica*, **4(16)**, 386-405.
- Columbus, L. (2000) *Realizing e-Business with Application Service Provision*, Sams.
- Combs, J. G. and Ketchen, D. J. (1999) Explaining Interfirm Cooperation and Performance: Toward a Reconciliation of Predictions from the Resource-Based View and Organizational Economics, *Strategic Management Journal*, **20(9)**, 867-888.
- Conner, K. R. (1991) A Historical Comparison of Resource-based Theory and Five Schools of Thought within Industrial Organization Economics: Do We Have a New Theory of the Firm?, *Journal of Management*, **17(1)**, 121-154.
- Courtney, H., Kirkland, J. and Viguerie, P. (1997) Strategy Under Uncertainty, *Harvard Business Review*, **November-December**, 67-79.

- Cronk, J. and Sharp, J. (1995) A Framework for Deciding What to Outsource in Information Technology, *Journal of Information Technology*, **10**, 259-267.
- Cross, J. (1995) IT Outsourcing: British Petroleum's Competitive Approach, *Harvard Business Review*, **May-June**, 94-102.
- Cross, J., Earl, M. J. and Sampler, J. L. (1997) Transformation of the IT Function at British Petroleum, *MIS Quarterly*, **21(4)**, 401-423.
- Currie, W. (2000) The Supply-Side of IT Outsourcing: the Trend Towards Mergers, Acquisitions and Joint Ventures, *International Journal of Physical Distribution & Logistics Management*, **30(3/4)**, 238-254.
- Currie, W. and Willcocks, L. (1997) *New Strategies in IT Outsourcing: Major Trends and Global Best Practice*, Business Intelligence, London.
- Currie, W. L. and Seltsikas, P. (2000) Evaluating the Application Service (ASP) Provider Business Model, *Executive Publication Series (Brunel University)*, **CSIS2000/004**.
- Currie, W. L. and Seltsikas, P. (2001) Exploring the Supply-Side of IT Outsourcing: Evaluating the Emerging Role of Application Service Providers, *European Journal of Information Systems*, **10(3)**, 123-134.
- Currie, W. L. and Willcocks, L. P. (1998) Analysing Four Types of IT Sourcing Decisions in the Context of Scale, Client/Supplier interdependency and Risk Mitigation, *Information Systems Journal*, **8(2)**, 119-143.
- Dacin, M. T., Hitt, M. A. and Levitas, E. (1997) Selecting Partners for Successful International Alliances: Examination of U.S. and Korean Firms, *Journal of World Business*, **32(1)**, 3-16.

- Darke, P., Shanks, G. and Broadbent, M. (1998) Successfully Completing Case Study Research: Combining Rigour, Relevance and Pragmatism, *Information Systems Journal*, **8(4)**, 273-289.
- Das, T. K. and Rahman, N. (2001) Partner Misbehaviour in Strategic Alliances: Guidelines for Effective Deterrence, *Journal of General Management*, **27(1)**, 43-70.
- Das, T. K. and Teng, B. S. (1996) Risk Types and Inter-firm Alliance Structures, *Journal of Management Studies*, **33(6)**, 827-843.
- Das, T. K. and Teng, B. S. (1997) Sustaining Strategic Alliances: Options and Guidelines, *Journal of General Management*, **22(4)**, 49-64.
- Das, T. K. and Teng, B. S. (1998a) Between Trust and Control: Developing Confidence in Partner Cooperation in Alliances, *Academy of Management Review*, **23(3)**, 491-512.
- Das, T. K. and Teng, B. S. (1998b) Resource and Risk Management in the Strategic Alliance Making Process, *Journal of Management*, **24(1)**, 21-42.
- Das, T. K. and Teng, B. S. (2000) A Resource-Based Theory of Strategic Alliances, *Journal of Management*, **26(1)**, 31-61.
- Das, T. K. and Teng, B. S. (2001) A Risk Perception Model of Alliance Structuring, *Journal of International Management*, **7(1)**, 1-29.
- Das, T. K. and Teng, B. S. (2002) The Dynamics of Alliance Conditions in the Alliance Development Process, *Journal of Management Studies*, **39(5)**, 725-746.
- David, R. J. and Han, S. K. (2004) A Systematic Assessment of the Empirical Support for Transaction Cost Economics, *Strategic Management Journal*, **25**, 39-58.

- Denzin, N. K. and Lincoln, Y. S. (Eds.) (1998) *Collecting and Interpreting Qualitative Materials*, Sage Publications.
- Devlin, G. and Bleackley, M. (1988) Strategic Alliances - Guidelines for Success, *Long Range Planning*, **21(5)**, 18-23.
- Dewan, S. and Kraemer, K. L. (1998) International Dimensions of the Productivity Paradox, *Communications of the ACM*, **41(8)**, 56-62.
- Dewett, T. and Jones, G. R. (2001) The Role of Information Technology in the Organization: A Review, Model, and Assessment, *Journal of Management*, **27(3)**, 313-346.
- Dewire, D. T. (2000) Application Service Providers, *Information Systems Management*, **Fall**, 14-19.
- Dewire, D. T. (2001) ASPs: Applications for Rent, In the Proceedings of *Seventh Americas Conference on Information Systems (AMCIS)*,
- Dibbern, J., Goles, T., Hirschheim, R. and Jayatilaka, B. (2004) Information Systems Outsourcing: A Survey and Analysis of the Literature, *The DATA BASE for Advances in Information Systems*, **35(4)**, 6-102.
- DiRomualdo, A. and Gurbaxani, V. (1998) Strategic Intent for IT Outsourcing, *Sloan Management Review*, **Summer**, 67-80.
- Domberger, S., Fernandez, P. and Fiebig, D. G. (2000) Modelling the Price, Performance and Contract Characteristics of IT Outsourcing, *Journal of Information Technology*, **15(2)**, 107-118.
- Drucker, P. F. (1999) *Management Challenges for the 21st Century*, Butterworth-Heinemann, Oxford.

- Dubé, L. and Paré, G. (2003) Rigor in Information Systems Positivist Case Research: Current Practices, Trends, and Recommendations, *MIS Quarterly*, **27(4)**, 597-635.
- Dussauge, P. and Garette, B. (1995) Determinants of Success in International Strategic Alliances: Evidence from the Global Aerospace Industry, *Journal of International Business Studies*, **26(3)**, 505-530.
- Dyer, J. H. and Singh, H. (1998) The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage, *Academy of Management Review*, **23(4)**, 660-679.
- Earl, M. J. (1996) The Risks of Outsourcing IT, *Sloan Management Review*, **Spring**, 26-32.
- Eisenhardt, K. M. (1989) Building Theories from Case Study Research, *Academy of Management Review*, **14(4)**, 532-550.
- Eisenhardt, K. M. and Schoonhoven, C. B. (1996) Resource-based View of Strategic Alliance Formation: Strategic and Social Effects in Entrepreneurial Firms, *Organization Science*, **7(2)**, 136-150.
- Erber, G. and Sayed-Ahmed, A. (2005) Offshore Outsourcing: A Global Shift in the Present IT Industry, *Intereconomics*, **40(2)**, 100-112.
- Farrell, D. (2004) Beyond Offshoring: Assess Your Company's Global Potential, *Harvard Business Review*, **December**, 82-90.
- Faulkner, D. and De Rond, M. (Eds.) (2000) *Cooperative Strategy: Economic, Business, and Organizational Issues*, Oxford University Press, Oxford.
- Feeny, D. F. and Willcocks, L. P. (1998) Core IS Capabilities for Exploiting Information Technology, *Sloan Management Review*, **Spring**, 9-21.

- Finkelstein, S. (1997) Interindustry Merger Patterns and Resource Dependence: A Replication and Extension of Pfeffer (1972), *Strategic Management Journal*, **18(10)**, 787-810.
- Forrest, J. E. (1992) Management Aspects of Strategic Partnering, *Journal of General Management*, **17(4)**, 25-40.
- Foss, N. J. (1996) Knowledge-based Approaches to the Theory of the Firm: Some Critical Comments, *Organization Science*, **7(5)**, 470-476.
- Galliers, R. D. (1991) Choosing Appropriate Information Systems Research Approaches: A Revised Taxonomy, In the Proceedings of *Proceedings of the IFIP*, Copenhagen, Denmark
- Gartner Group (2001) Sanity Check on the ASP Opportunity, *Gartner Group's Research Brief*, Accessed: November, 2001
- Geringer, J. M. (1991) Strategic Determinants of Partner Selections Criteria in International Joint Ventures, *Journal of International Business Studies*, **22(1)**, 41-62.
- Grant, R. M. (1991) The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation, *California Management Review*, **Spring**, 114-135.
- Grover, V. and Teng, J. T. C. (1993) The Decision to Outsource Information Systems Functions, *Journal of Systems Management*, **44(11)**, 34-38.
- Guba, E. G. and Lincoln, Y. S. (1994) Competing Paradigms in Qualitative Research, In Denzin, N. K. and Lincoln, Y. S. (eds.) *Handbook of Qualitative Research*, Sage Publications, pp. 105-117.

- Gulati, R. (1995a) Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliances, *Academy of Management Journal*, **38(1)**, 85-112.
- Gulati, R. (1995b) Social Structure and Alliances Formation Patterns: A Longitudinal Analysis, *Administrative Science Quarterly*, **40(4)**, 619-652.
- Gulati, R. (1998) Alliances and Networks, *Strategic Management Journal*, **19(Special Issue)**, 293-317.
- Gulati, R. (1999) Network Location and Learning: The Influence of Network Resources and Firm Capabilities on Alliance Formation, *Strategic Management Journal*, **20(5)**, 397-420.
- Gulati, R. and Singh, H. (1998) The Architecture of Cooperation: Managing Coordination Costs and Appropriation Concerns in Strategic Alliances, *Administrative Science Quarterly*, **43(4)**, 781-814.
- Gupta, A. and Herath, S. K. (2005) Latest Trends and Issues in the ASP Service Market, *Industrial Management + Data Systems*, **105(1)**, 19-25.
- Gurbaxani, V. (1996) The New World of Information Technology Outsourcing, *Communications of the ACM*, **39(7)**, 45-46.
- Gurbaxani, V. and Whang, S. (1991) The Impact of Information Systems on Organizations and Markets, *Communications of the ACM*, **34(1)**, 59-73.
- Hagedoorn, J. (1993) Understanding the Rationale of Strategic Technology Partnering: Interorganizational Modes of Cooperation and Sectoral Differences, *Strategic Management Journal*, **14(5)**, 371-385.
- Hamel, G., Doz, Y. L. and Prahalad, C. K. (1989) Collaborate with your Competitors - and Win, *Harvard Business Review*, **January-February**, 133-139.

- Henderson, J. C. (1990) Plugging into Strategic Partnerships: The Critical IS Connection, *Sloan Management Review*, **Spring**, 7-18.
- Hill, C. W. L. (1990) Cooperation, Opportunism, and the Invisible Hand: Implications for Transaction Cost Theory, *Academy of Management Review*, **15(3)**, 500-513.
- Hitt, L. M. and Brynjolfsson, E. (1996) Productivity, Business Profitability, and Consumer Surplus: Three Different Measures of Information Technology Value, *MIS Quarterly*, **20(2)**, 121-142.
- Hitt, M. A., Dacin, M. T., Levitas, E., Arregle, J. L. and Borza, A. (2000) Partner Selection in Emerging and Developed Market Contexts: Resource-Based and Organizational Learning Perspectives, *Academy of Management Journal*, **43(3)**, 449-467.
- Hitt, M. A., Tyler, B. B., Hardee, C. and Park, D. (1995) Understanding Strategic Intent in the Global Marketplace, *Academy of Management Executive*, **9(2)**, 12-19.
- Hoffmann, W. H. and Schlosser, R. (2001) Success Factors of Strategic Alliances in Small and Medium-sized Enterprises - An Empirical Survey, *Long Range Planning*, **34(3)**, 357-381.
- Holstein, J. A. and Gubrium, J. F. (1994) Phenomenology, Ethnomethodology, and Interpretive Practice, In Denzin, N. K. and Lincoln, Y. S. (eds.) *Handbook of Qualitative Research*, Sage Publications, pp. 262-272.
- Iliff, M. (1994) The Real Value of Strategy Formulation for Information Technology, In Willcocks, L. (eds.) *Information Management: The Evaluation of Information Systems Investments*, Chapman & Hall, London, pp. 113-131.

- Inkpen, A. C. (1996) Creating Knowledge through Collaboration, *California Management Review*, **Fall**, 123-140.
- Inkpen, A. C. (2000) Learning through Joint Ventures: a Framework of Knowledge Acquisition, *Journal of Management Studies*, **37(7)**, 1019-1043.
- Inkpen, A. C. and Beamish, P. W. (1997) Knowledge, Bargaining Power, and the Instability of International Joint Ventures, *Academy of Management Review*, **22(1)**, 177-202.
- Ives, B. and Learmonth, G. P. (1984) The Information System as a Competitive Weapon, *Communications of the ACM*, **27(12)**, 1193-1201.
- Jayatilaka, B., Schwarz, A. and Hirschheim, R. (2003) Determinants of ASP Choice: An Integrated Perspective, *European Journal of Information Systems*, **12(3)**, 210-224.
- Jorde, T. M. and Teece, D. J. (1989) Competition and Cooperation: Striking the Right Balance, *California Management Review*, **Spring**, 25-37.
- Jurison, J. (1995) The Role of Risk and Return in Information Technology Outsourcing Decisions, *Journal of Information Technology*, **10**, 239-247.
- Kakabadse, N. K., Kakabadse, A., Ahmed, P. K. and Kouzmin, A. (2004) The ASP Phenomenon: An Example of Solution Innovation that Liberates Organization from Technology or Captures It?, *European Journal of Innovation Management*, **7(2)**, 113-127.
- Kanter, R. M. (1989) Becoming PALs: Pooling, Allying, and Linking Across Companies, *Academy of Management Executive*, **3(3)**, 183-193.
- Kanter, R. M. (1994) Collaborative Advantage: The Art of Alliances, *Harvard Business Review*, **July-August**, 96-108.

- Kaplan, B. and Duchon, D. (1988) Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study, *MIS Quarterly*, **12(4)**, 571-586.
- Kay, N. M. (1992) Markets, False Hierarchies and the Evolution of the Modern Corporation, *Journal of Economic Behavior and Organization*, **17(3)**, 315-333.
- Kern, T. and Kreijger, J. (2001) An Exploration of the Application Service Provision Outsourcing Option, In the Proceedings of *33rd Hawaii International Conference on System Sciences (HICSS)*,
- Kern, T., Kreijger, J. and Willcocks, L. (2002a) Exploring ASP as Sourcing Strategy: Theoretical Perspectives, Propositions for Practice, *Journal of Strategic Information Systems*, **11(2)**, 153-177.
- Kern, T., Lacity, M. C. and Willcocks, L. P. (2002b) *Netsourcing: Renting Business Applications and Services Over a Network*, Financial Times Prentice hall, New Jersey.
- Kern, T. and Willcocks, L. (2002) Exploring Relationships in Information Technology Outsourcing: The Interaction Approach, *European Journal of Information Systems*, **11(1)**, 3-19.
- Kern, T., Willcocks, L. P. and Lacity, M. C. (2002c) Application Service Provision: Risk Assessment and Mitigation, *MIS Quarterly Executive*, **1(2)**, 113-126.
- Ketler, K. and Walstrom, J. (1993) The Outsourcing Decision, *International Journal of Information Management*, **13(6)**, 449-459.
- Kishore, R., Rao, H. R., Nam, K., Rajagopalan, S. and Chaudhury, A. (2003) A Relationship Perspective on IT Outsourcing, *Communications of the ACM*, **46(12)**, 87-92.

- Kittilaksanawong, W. (2007) Governance Choices for External Technology Sourcing: Taiwanese Firms in Global High-Tech Industries, *Journal of American Academy of Business*, **10(2)**, 246-251.
- Klein, H. K. and Myers, M. D. (1999) A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems, *MIS Quarterly*, **23(1)**, 67-94.
- Klepper, R. (1995) The Management of Partnering Development in I/S Outsourcing, *Journal of Information Technology*, **10**, 249-258.
- Kogut, B. (1988) Joint Ventures: Theoretical and Empirical Perspectives, *Strategic Management Journal*, **9(4)**, 319-332.
- Koza, M. and Lewin, A. (2000) Managing Partnerships and Strategic Alliances: Raising the Odds of Success, *European Management Journal*, **18(2)**, 146-151.
- Kulkarni, S. P. and Heriot, K. C. (1999) Transaction Costs and Information Costs as Determinants of the Organizational Form: A Conceptual Synthesis, *American Business Review*, **17(2)**, 43-52.
- Kumar, R. and Andersen, P. H. (2000) Inter Firm Diversity and the Management of Meaning in International Strategic Alliances, *International Business Review*, **9(2)**, 237-252.
- Lacity, M. and Hirschheim, R. (1993a) Implementing Information Systems Outsourcing: Key Issues and Experiences of an Early Adopter, *Journal of General Management*, **19(1)**, 17-31.
- Lacity, M. C. and Hirschheim, R. (1993b) The Information Systems Outsourcing Bandwagon, *Sloan Management Review*, **Fall**, 73-86.

- Lacity, M. C. and Hirschheim, R. (1993c) *Information Systems Outsourcing: Myths, Metaphors and Realities*, Wiley, Chichester.
- Lacity, M. C. and Hirschheim, R. (1999) Information Technology Outsourcing: What Problems are we Trying to Solve?, In Galliers, B. and Currie, W. (eds.) *Rethinking Management Information Systems : an Interdisciplinary Perspective*.
- Lacity, M. C. and Willcocks, L. P. (1995) Interpreting Information Technology Sourcing Decisions from a Transaction Cost Perspective: Findings and Critique, *Accounting, Management and Information Technology*, **5(3/4)**, 203-244.
- Lacity, M. C. and Willcocks, L. P. (1998) An Empirical Investigation of Information Technology Sourcing Practices: Lessons from Experience, *MIS Quarterly*, **22(3)**, 363-408.
- Lacity, M. C., Willcocks, L. P. and Feeny, D. F. (1995) IT Outsourcing: Maximize Flexibility and Control, *Harvard Business Review*, **May-June**, 84-93.
- Lacity, M. C., Willcocks, L. P. and Feeny, D. F. (1996) The Value of Selective IT Sourcing, *Sloan Management Review*, **Spring**, 13-25.
- Landry, M. and Banville, C. (1992) A Disciplined Methodological Pluralism for MIS Research, *Accounting, Management & Information Technologies*, **2(2)**, 77-97.
- Lasher, D., Ives, B. and Jarvenpaa, S. L. (1991) USAA-IBM Partnerships in Information Technology: Managing the Image Project, *MIS Quarterly*, **15(4)**, 551-565.
- Lee, A. S. (1989) A Scientific Methodology for MIS Case Studies, *MIS Quarterly*, **13(1)**, 33-50.

- Lee, A. S. (1991) Integrating Positivist and Interpretive Approaches to Organizational Research, *Organization Science*, **2(4)**, 342-365.
- Lee, A. S. (1994) Electronic Mail as a Medium for Rich Communication: An Empirical Investigation Using Hermeneutic Interpretation, *MIS Quarterly*, **18(2)**, 143-157.
- Lee, H., Kim, J. and Kim, J. (2007) Determinants of Success for Application Service Provider: An Empirical Test in Small Businesses, *International Journal of Human-Computer Studies*, **65**, 796-815.
- Lee, J. N., Huynh, M. Q., Chi-Wai, K. R. and Pi, S. M. (2000) The Evolution of Outsourcing Research: What is the Next Issue?, In the Proceedings of 33rd Hawaii International Conference on System Sciences (HICSS),
- Lee, J. N. and Kim, Y. G. (1997) Information Systems Outsourcing Strategies for Affiliated Firms of the Korean Conglomerate Groups, *Journal of Strategic Information Systems*, **6(3)**, 203-229.
- Lee, J. N. and Kim, Y. G. (1999) Effect of Partnership Quality on IS Outsourcing Success: Conceptual Framework and Empirical Validation, *Journal of Management Information Systems*, **15(4)**, 29-61.
- Leem, C. S. and Lee, H. J. (2004) Development of Certification and Audit Processes of Application Service Provider for IT Outsourcing, *Technovation*, **24**, 63-71.
- Lehman Brothers (2000) Servers in the Sky: The Application Service Provider, *Lehman Brothers Publications*, Accessed: April, 2001
- Lei, D. (1993) Offensive and Defensive Uses of Alliances, *Long Range Planning*, **26(4)**, 32-41.
- Lei, D. and Slocum, J. W. (1992) Global Strategy, Competence-Building and Strategic Alliances, *California Management Review*, **Fall**, 81-97.

- Leiblein, M. J. and Miller, D. J. (2003) An Empirical Examination of Transaction- and Firm-level Influences on the Vertical Boundaries of the Firm, *Strategic Management Journal*, **24**, 839-859.
- Lockett, A. and Thompson, S. (2001) The Resource-based View and Economics, *Journal of Management*, **27(6)**, 723-754.
- Loebbecke, C. and Huyskens, C. (2006) What Drives Netsourcing Decisions? An Empirical Analysis, *European Journal of Information Systems*, **15**, 415-423.
- Loh, L. and Venkatraman, N. (1992) Diffusion of Information Technology Outsourcing: Influence Sources and the Kodak Effect, *Information Systems Research*, **3(4)**, 334-358.
- Lorange, P. and Roos, J. (1993) *Strategic Alliances: Formation, Implementation and Evolution*, Blackwell Publishers, Oxford.
- Lorange, P., Roos, J. and Brønn, P. S. (1992) Building Successful Strategic Alliances, *Long Range Planning*, **25(6)**, 10-17.
- Lorenzoni, G. and Baden-Fuller, C. (1995) Creating a Strategic Center to Manage a Web of Partners, *California Management Review*, **Spring**, 146-163.
- Ma, Q., Pearson, J. M. and Tadisina, S. (2005) An Exploratory Study into Factors of Service Quality for Application Service Providers.pdf, *Information & Management*, **42**, 1067-1080.
- Madhok, A. (2000) Transaction (In)Efficiency, Value (In)Efficiency, and Inter-Firm Collaboration, In Faulkner, D. and De Rond, M. (eds.) *Cooperative Strategy: Economic, Business, and Organizational Issues*, Oxford University Press, Oxford, pp. 75-95.
- Madhok, A. (2002) Reassessing the Fundamentals and Beyond: Ronald Coase, The Transaction Cost and Resource-Based Theories of the Firm and the

- Institutional Structure of Production, *Strategic Management Journal*, **23(6)**, 535-550.
- Mahmood, M. A. and Mann, G. J. (2000) Special Issue: Impacts of Information Technology Investment on Organizational Performance, *Journal of Management Information Systems*, **17(1)**, 3-10.
- Mahnke, V., Overby, M. L. and Vang, J. (2005) Strategic Outsourcing of IT Services: Theoretical Stocktaking and Empirical Challenges, *Industry and Innovation*, **12(2)**, 205-253.
- Mahoney, J. T. (2001) A Resource-based Theory of Sustainable Rents, *Journal of Management*, **27(6)**, 651-660.
- Marshall, C. and Rossman, G. B. (1999) *Designing Qualitative Research*, Third Edition, Sage, California.
- Mason, J. (2002) Qualitative Interviewing: Asking, Listening and Interpreting, In May, T. (eds.) *Qualitative Research in Action*, Sage Publications, London, pp. 225-241.
- Mason, J. C. (1993) Strategic Alliances: Partnering for Success, *Management Review*, **May**, 10-15.
- Mata, F. J., Fuerst, W. L. and Barney, J. B. (1995) Information Technology and Sustained Competitive Advantage: A Resource-Based Analysis, *MIS Quarterly*, **19(4)**, 487-505.
- McCutcheon, D. and Stuart, F. I. (2000) Issues in the Choice of Supplier Alliance Partners, *Journal of Operations Management*, **18(3)**, 279-301.
- McFarlan, F. W. and Nolan, R. L. (1995) How to Manage an IT Outsourcing Alliance, *Sloan Management Review*, **Winter**, 9-23.

- McLellan, K., Marcolin, B. L. and Beamish, P. W. (1995) Financial and Strategic Motivations Behind IS Outsourcing, *Journal of Information Technology*, **10**, 299-321.
- Medcof, J. W. (1997) Why Too Many Alliances End in Divorce, *Long Range Planning*, **30(5)**, 718-732.
- Melville, N., Kraemer, K. and Gurbaxani, V. (2004) Information Technology and Organizational Performance: An Integrative Model of IT Business Value, *MIS Quarterly*, **28(2)**, 283-322.
- Miles, M. B. and Huberman, A. M. (1994) *Qualitative Data Analysis*, Sage, California.
- Miley, M. (2000) Reinventing Business: Application Service Providers, *Oracle Magazine*, **November-December**, 48-52.
- Mingers, J. (2001) Combining IS Research Methods: Towards a Pluralist Methodology, *Information Systems Research*, **12(3)**, 240-259.
- Mingers, J. (2004) Paradigm Wars: Ceasefire Announced Who Will Set Up the New Administration?, *Journal of Information Technology*, **19**, 165-171.
- Mockler, R. J. (1999) *Multinational Strategic Alliances*, Wiley, Chichester.
- Mohr, J. and Spekman, R. (1994) Characteristics of Partnership Success: Partnership Attributes, Communication Behavior, and Conflict Resolution Techniques, *Strategic Management Journal*, **15(2)**, 135-152.
- Mukhopadhyay, T., Kekre, S. and Kalathur, S. (1995) Business Value of Information Technology: A Study of Electronic Data Interchange, *MIS Quarterly*, **19(2)**, 137-156.
- Murray, E. A. and Mahon, J. F. (1993) Strategic Alliances: Gateway to the New Europe?, *Long Range Planning*, **26(4)**, 102-111.

- Nair, K. G. K. and Prasad, P. N. (2004) Offshore Outsourcing: A SWOT Analysis of a State in India, *Information Systems Management*, **Summer**, 34-40.
- Navarrete, C. J. and Pick, J. B. (2002) Information Technology Expenditure and Industry Performance: The Case of the Mexican Banking Industry, *Journal of Global Information Technology Management*, **5(2)**, 7-28.
- Nohria, N. and Garcia-Pont, C. (1991) Global Strategic Linkages and Industry Structure, *Strategic Management Journal*, **12(Special Issue)**, 105-124.
- Nooteboom, B. (1999) *Inter-Firm Alliances: Analysis and Design*, Routledge, London.
- Nooteboom, B., Berger, H. and Noorderhaven, N. G. (1997) Effects of Trust and Governance on Relational Risk, *Academy of Management Journal*, **40(2)**, 308-338.
- Oh, W. and Pinsonneault, A. (2007) On the Assessment of the Strategic Value of Information Technologies: Conceptual and Analytical Approaches, *MIS Quarterly*, **31(2)**, 239-265.
- Ohmae, K. (1989) The Global Logic of Strategic Alliances, *Harvard Business Review*, **March-April**, 143-154.
- Oliver, C. (1990) Determinants of Interorganizational Relationships: Integration and Future Directions, *Academy of Management Review*, **15(2)**, 241-265.
- Orlikowski, W. J. and Baroudi, J. J. (1991) Studying Information Technology in Organizations: Research Approaches and Assumptions, *Information Systems Research*, **2(1)**, 1-28.
- Osborn, R. N. and Baughn, C. C. (1990) Forms of Interorganizational Governance for Multinational Alliances, *Academy of Management Journal*, **33(3)**, 503-519.

- Osborn, R. N. and Hagedoorn, J. (1997) The Institutionalization and Evolutionary Dynamics of Interorganizational Alliances and Networks, *Academy of Management Journal*, **40(2)**, 261-278.
- Park, S. H. and Russo, M. V. (1996) When Competition Eclipses Cooperation: An Event History Analysis of Joint Venture Failure, *Management Science*, **42(6)**, 875-890.
- Park, S. H. and Ungson, G. R. (1997) The Effect of National Culture, Organizational Complementarity, and Economic Motivation on Joint Venture Dissolution, *Academy of Management Journal*, **40(2)**, 279-307.
- Parkhe, A. (1991) Interfirm Diversity, Organizational Learning, and Longevity on Global Strategic Alliances, *Journal of International Business Studies*, **22(4)**, 579-602.
- Pekar, P. and Allio, R. (1994) Making Alliances Work - Guidelines for Success, *Long Range Planning*, **27(4)**, 54-65.
- Peteraf, M. A. (1993) The Cornerstones of Competitive Advantage: A Resource-based View, *Strategic Management Journal*, **14(3)**, 179-191.
- Pfeffer, J. (1987) A Resource Dependence Perspective on Intercorporate Relations, In Mizruchi, M. S. and Schwartz, M. (eds.) *Intercorporate Relations: The Structural Analysis of Business*, Vol. 1, Cambridge University Press, Cambridge, pp. 25-55.
- Phillips, J. T. (2000) ISPs and ASPs Create New Record Issues, *Information Management Journal*, **34(4)**, 61-63.
- Porra, J., Hirschheim, R. and Parks, M. S. (2005) The History of Texaco's Corporate Information Technology Function: A General Systems Theoretical Interpretation, *MIS Quarterly*, **29(4)**, 721-746.

- Porter, M. E. (1980) *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, The Free Press, New York.
- Porter, M. E. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York.
- Porter, M. E. (1990) The Competitive Advantage of Nations, *Harvard Business Review*, **March-April**, 73-93.
- Porter, M. E. (1991) Towards a Dynamic Theory of Strategy, *Strategic Management Journal*, **12(Special Issue)**, 95-117.
- Porter, M. E. (1996) What is Strategy?, *Harvard Business Review*, **November-December**, 61-78.
- Porter, M. E. (2001) Strategy and the Internet, *Harvard Business Review*, **March**, 63-78.
- Powell, W. W. (1987) Hybrid Organizational Arrangements: New Form or Transitional Development?, *California Management Review*, **Fall**, 67-87.
- Powell, W. W. (1998) Learning from Collaboration: Knowledge and Networks in the Biotechnology and Pharmaceutical Industries, *California Management Review*, **Spring**, 228-240.
- Powell, W. W., Koput, K. W. and Smith-Doerr, L. (1996) Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology, *Administrative Science Quarterly*, **41(1)**, 116-145.
- Prahalad, C. K. and Hamel, G. (1990) The Core Competence of the Corporation, *Harvard Business Review*, **May-June**, 79-91.
- Prasad, A. and Prasad, P. (2002) The Coming of Age of Interpretive Organizational Research, *Organizational Research Methods*, **5(1)**, 4-11.

- Quinn, J. B. (1999) Strategic Outsourcing: Leveraging Knowledge Capabilities, *Sloan Management Review*, **Summer**, 9-21.
- Quinn, J. B. and Hilmer, F. G. (1994) Strategic Outsourcing, *Sloan Management Review*, **Summer**, 43-55.
- Rao, H. R., Nam, K. and Chaudhury, A. (1996) Information Systems Outsourcing, *Communications of the ACM*, **39(7)**, 27-28.
- Remenyi, D., Williams, B., Money, A. and Swartz, E. (1998) *Doing Research in Business and Management: An Introduction to Process and Method*, Sage, London.
- Ring, P. S. (2000) The Three T's of Alliance Creation: Task, Team and Time, *European Management Journal*, **18(2)**, 152-163.
- Ring, P. S. and Van De Ven, A. H. (1992) Structuring Cooperative Relationships Between Organizations, *Strategic Management Journal*, **13(7)**, 483-498.
- Ring, P. S. and Van De Ven, A. H. (1994) Developmental Processes of Cooperative Interorganizational Relationships, *Academy of Management Review*, **19(1)**, 90-118.
- Robey, D. (1996) Research Commentary: Diversity in Information Systems Research: Threat, Promise, and Responsibility, *Information Systems Research*, **7(4)**, 400-408.
- Robins, J. A. (1987) Organizational Economics: Notes on the Use of Transaction Cost Theory in the Study of Organizations, *Administrative Science Quarterly*, **32(1)**, 68-86.
- Ross, J. W., Beath, C. M. and Goodhue, D. L. (1996) Develop Long-Term Competitiveness Through IT Assets, *Sloan Management Review*, **Fall**, 31-42.

- Ross, J. W. and Weill, P. (2002) Six IT Decisions Your IT People Shouldn't Make, *Harvard Business Review*, **November**, 84-91.
- Rottman, J. W. and Lacity, M. C. (2006) Proven Practices for Effectively Offshoring IT Work, *Sloan Management Review*, **Spring**.
- Sandberg, J. (2005) How Do We Justify Knowledge Produced within Interpretive Approaches?, *Organizational Research Methods*, **8(1)**, 41-68.
- Schwandt, T. A. (1994) Constructivist, Interpretivist Approaches to Human Inquiry, In Denzin, N. K. and Lincoln, Y. S. (eds.) *Handbook of Qualitative Research*, Sage Publications, pp. 118-137.
- Singh, K. (1997) The Impact of Technological Complexity and Interfirm Cooperation on Business Survival, *Academy of Management Journal*, **40(2)**, 339-367.
- Smith, M. A. and Kumar, R. L. (2004) A Theory of Application Service Provider (ASP) Use from a Client Perspective, *Information & Management*, **41**, 977-1002.
- Smith, M. A., Mitra, S. and Narasimhan, S. (1998) Information Systems Outsourcing: A Study of Pre-Event Firm Characteristics, *Journal of Management Information Systems*, **15(2)**, 61-93.
- Spekman, R. E., Forbes III, T. M., Isabella, L. A. and MacAvoy, T. C. (1998) Alliance Management: a View from the Past and a Look to the Future, *Journal of Management Studies*, **35(6)**, 747-772.
- Spekman, R. E., Isabella, L. A., MacAvoy, T. C. and Forbes, T. (1996) Creating Strategic Alliances which Endure, *Long Range Planning*, **29(3)**, 346-357.
- Stafford, E. R. (1994) Using Co-operative Strategies to Make Alliances Work, *Long Range Planning*, **27(3)**, 64-74.

- Steensma, H. K. and Corley, K. G. (2001) Organizational Context as a Moderator of Theories on Firm Boundaries for Technology Sourcing, *Academy of Management Journal*, **44(2)**, 271-291.
- Sulej, J. C. (1998) UK International Equity Joint Ventures in Technology and Innovation: an Analysis of Patterns of Activity and Distribution, *European Business Review*, **98(1)**, 56-66.
- Susarla, A., Barua, A. and Whinston, A. B. (2003) Understanding the Service Component of Application Service Provision: An Empirical Analysis of Satisfaction with ASP Services, *MIS Quarterly*, **27(1)**, 91-123.
- Tafti, M. H. A. (2005) Risks Factors Associated with Offshore IT Outsourcing, *Industrial Management + Data Systems*, **105(5)**, 549-560.
- Takac, P. F. (1994) Outsourcing: A Key to Controlling Escalating IT Costs?, *International Journal of Technology Management*, **9(2)**, 139-155.
- Tao, L. (2001) Shifting Paradigms with the Application Service Provider Model, *Computer*, **October**, 32-39.
- Teng, J. T. C., Cheon, M. J. and Grover, V. (1995) Decisions to Outsource Information Systems Functions: Testing a Strategy-Theoretic Discrepancy Model, *Decision Sciences*, **26(1)**, 75-103.
- Timmers, P. (1999) *Electronic Commerce: Strategies and Models for Business-to-Business Trading*, Wiley, Chichester.
- Tirole, J. (1989) *The Theory of Industrial Organization*, MIT Press, Cambridge.
- Toigo, J. W. (2002) *The Essential Guide to Application Service Providers*, Prentice Hall, New Jersey.

- Tyler, B. B. and Steensma, H. K. (1995) Evaluating Technological Collaborative Opportunities: A Cognitive Modeling Perspective, *Strategic Management Journal*, **16(Special Issue)**, 43-70.
- Ulrich, D. and Barney, J. B. (1984) Perspectives in Organizations: Resource Dependence, Efficiency, and Population, *Academy of Management Review*, **9(3)**, 471-481.
- Van De Ven, A. H. and Poole, M. S. (1995) Explaining Development and Change in Organizations, *Academy of Management Review*, **20(3)**, 510-540.
- Venkatraman, N. (1994) IT-Enabled Business Transformation: From Automation to Business Scope Redefinition, *Sloan Management Review*, **Winter**, 73-87.
- Venkatraman, N. V. (2004) Offshoring Without Guilt, *Sloan Management Review*, **Spring**, 14-16.
- Wade, M. and Hulland, J. (2004) The Resource-based View and Information Systems Research: Review, Extension, and Suggestions for Future Research, *MIS Quarterly*, **28(1)**, 107-142.
- Walsham, G. (1995a) The Emergence of Interpretivism in IS Research, *Information Systems Research*, **6(4)**, 376-394.
- Walsham, G. (1995b) Interpretive Case Studies in IS Research: Nature and Method, *European Journal of Information Systems*, **4(2)**, 74-81.
- Walsham, G. and Waema, T. (1994) Information Systems Strategy and Implementation: A Case Study of a Building Society, *ACM Transactions on Information Systems*, **12(2)**, 150-173.
- Wang, E. T. G. (2002) Transaction Attributes and Software Outsourcing Success: An Empirical Investigation of Transaction Cost Theory. *Information Systems Journal*, **12(2)**, 153-181.

- Ward, J. and Peppard, J. (2002) *Strategic Planning for Information Systems*, Wiley.
- Watjatrakul, B. (2005) Determinants of IS Sourcing Decisions: A Comparative Study of Transaction Cost Theory Versus the Resource-based View, *Journal of Strategic Information Systems*, **14(4)**, 389-415.
- Weber, R. (2004) The Rhetoric of Positivism Versus Interpretivism: A Personal View, *MIS Quarterly*, **28(1)**, iii-xii.
- Weill, P. and Olson, M. H. (1989) Managing Investment in Information Technology: Mini Case Examples and Implications, *MIS Quarterly*, **13(1)**, 3-17.
- Wernerfelt, B. (1984) A Resource-based View of the Firm, *Strategic Management Journal*, **5(2)**, 171-180.
- Wernerfelt, B. (1995) The Resource-Based View of the Firm: Ten Years After, *Strategic Management Journal*, **16(3)**, 171-174.
- Willcocks, L. and Choi, C. J. (1995) Co-operative Partnership and 'Total' IT Outsourcing: From Contractual Obligation to Strategic Alliance?, *European Management Journal*, **13(1)**, 67-78.
- Willcocks, L. and Fitzgerald, G. (1993) Market as Opportunity? Case Studies in Outsourcing Information Technology and Services, *Journal of Strategic Information Systems*, **2(3)**, 223-242.
- Willcocks, L., Fitzgerald, G. and Lacity, M. (1996) To outsource IT or not?: recent research on economics and evaluation practice, *European Journal of Information Systems*, **5(3)**, 143-160.
- Willcocks, L. P. and Feeny, D. (2006) IT Outsourcing and Core IS Capabilities: Challenges and Lessons at Dupont, *Information Systems Management*, **23(1)**, 49-56.

- Willcocks, L. P. and Lacity, M. C. (1995) Editorial: Information Systems Outsourcing in Theory and Practice, *Journal of Information Technology*, **10**, 203-207.
- Williamson, O. E. (1975) *Markets and Hierarchies: Analysis and Antitrust implications*, Free Press, New York.
- Williamson, O. E. (1981) The Economics of Organization: The Transaction Cost Approach, *American Journal of Sociology*, **87(3)**, 548-577.
- Williamson, O. E. (1985) *The Economic Institutions of Capitalism*, Free Press, New York.
- Williamson, O. E. (1989) Transaction Cost Economics, In Schmalensee, R. and Willig, R. D. (eds.) *Handbook of Industrial Organization*, Vol. 10, Elsevier Science, Amsterdam, pp. 135-182.
- Williamson, O. E. (1991a) Comparative Economic Organization: The Analysis of Discrete Structural Alternatives, *Administrative Science Quarterly*, **36(2)**, 269-296.
- Williamson, O. E. (1991b) Strategizing, Economizing, and Economic Organization, *Strategic Management Journal*, **12**, 75-94.
- Williamson, O. E. (1992) Markets, Hierarchies, and the Modern Corporation: An Unfolding Perspective, *Journal of Economic Behavior and Organization*, **17(3)**, 335-352.
- Williamson, O. E. (1996) Economics and Organization: A Primer, *California Management Review*, **38(2)**, 131-146.
- Yin, R. K. (2003) *Case Study Research: Design and Methods*, Third Edition, Sage Publications, California.

APPENDIX A: GUIDELINES USED FOR THE SEMI-STRUCTURED INTERVIEWS

Before the start of each semi-structured interview, the interviewees were briefed on the nature of the research, and presented with the different points cited below. The reason behind this was to set guidelines for the interview process, and thus give the interview some idea on the research intentions. The theoretical concepts derived from TCE and RBV were not included in the material presented to the interviewees in order to avoid any confusion, and restriction to the answers.

The main points discussed in the semi-structured interviews are as follows:

1. Background of the company: the objective here was to obtain familiarity with the case in question. Although this would have been already done from reviewing the company's details online. This proved to be an important point, particularly when events that happened in the past were discussed, which could not be found online;
2. The ASP approach used within the company: this was important for understanding the main incentives that led the company to adopt or build its business around ASP;
3. The applications offered by the company: this gives further support to understanding the company's business;
4. The different components of the ASP model: this is a core part in the interviews. The interviewees were asked to elaborate on how they deliver their ASP services. Later, the interviewees were presented with the ASP layers model, from Figure 2.8, and were asked to comment on the different layers;

5. The general partnering considerations within the firm in question: the interviewees were asked to elaborate on the company's approach to partnering for their business. Depending on the cases, such strategies were not necessarily linked to their ASP model;
6. Partnering strategies with regards to the ASP model: similarly to the previous point, the interviewees were asked to elaborate on their partnering strategies, however now with regards to the different ASP layers
7. Justification for the partnering strategies: the interviewees, here, were asked to elaborate on the rationale for their sourcing decisions for each of the ASP layers;

INTERVIEW WITH THE VICE PRESIDENT OF THE MANAGED SERVICES DIVISION AT COMPANY A

Sofiane: Good morning, as a beginning, I want to have a general overview of the background of the company, so what is [CompanyA]... I know it has been created in 1999... so what is [CompanyA]?

Paul: Emmm... [CompanyA] is a specialist company which is focused on the front office... so CRM systems, and workforce management... the way we organize this, that we have a model where we go to market with consultancy services, that they are doing consultancy services, so they are not just doing a strategic study for someone and delivering a report, they are helping a customer to work through what he is trying to achieve, then using delivery resources to build them a system based on the software products, ready to go live, and then my party organization then offers a managed service from ASP around that application that we have built... so that is one proposition then that is split into the three practices, one is around CRM, which is predominantly Siebel-based, the second is really on the IBM sphere... web sphere products and e-business, but we also got BroadVision... and then the third one is around a piece of software called Varianet, which is all about workforce management, so if you have got workers that are in trucks and you need to schedule and go and fix the area, to utilities type of activities, and you have a central schedule and a software package and you optimise and use mobile technologies to do all the contacts... and then in addition to working of the back of vertical consultancy projects, we are also going to the install-based let's say of Siebel and of ASP

managed services, or support services... so the four chunks of the business are around the managed service piece, predominantly the front office, and specialist niche builds around that, with outsourcing those applications if that is what the customer wants.

Sofiane: So... in some ways [CompanyA] has tried to change its path...

Paul: yeah... originally, it was setup to be a pure traditional ASP one-to-many model, setup early near the peak of the technology bubbles... two things happened really; one is nobody really bought the ASP model, and two we started being successful in offering a one-to-one managed service to people, now we actually do get a lot of benefits that are in the traditional ASP model because all of our infrastructure is shared across all the services, so the people, the help desk, the network, the stack... etc, is a shared infrastructure, so we are able to offer people good competitive rates, but they have a separate VN, it is called, a separate piece of network where their application sits, and so the hardware and software, the application on it is dedicated to the customer; in a traditional ASP model, you put multiple customers on a single... application on a single box, which we do not do.

Sofiane: ... is there any reason why you do not do it?

Paul: ... because up to now, the commercial model has not worked, and we are very much at the enterprise level; now, it is... you can see the market moving, and going for a circle, back to where it starts to be quite attractive, we are seeing new entrants like Salesforce.com, starting to offer something similar to the old ASP model, and we will all move back that way, but when you are a small company what you have to

do is, you have to be flexible, and you have to give customers what they want, and that is what we do.

Sofiane: ... so you think that mainly the failure... I do not really want to say failure because it is not the case maybe, but...

Paul: ... I do not think the model has been proven... I just do not think the model has been proven from an economics point of view

Sofiane: ... so ... you think it is coming from customers who are reluctant...

Paul: ... yeah ... and ... I think it is all a question of timing, maturity of... at the moment the completely prevailing factor in the marketplace is cost, so... the financial directors are kings, and anything that has costs associated with it that is not core to the business it is a very tough environment, at the moment... now if ASP can come up with a proposition, that is cheaper ... then

Sofiane: ... and if it has to be cheaper, then it has to be technology backing that...

Paul: ... it is much more than technology though, because in the managed service business, as much products is about service levels, because you are effectively outsourcing, as it is about the actual application, and then you very quickly get into debate on customisation, does this application fit my business needs, and what that means is that you need applications that are verticalised, i.e. they are industry specific, so for CRM the way that sales force in a pharmaceutical company is totally different to the way it works in a financial company... so if you come up with a generic CRM product, it may give 60% of functionality the people want, but it does not fit their business model, and so you start to get people that put niche vertical

applications together, and start to sell those, so ... by definition, your market has just shrunk hugely, and so the macroeconomics of lots and lots of people signing up to your ASP model becomes very difficult to achieve, so you get into a cycle of being a niche provider of a single application, which is customisable... so that is... you know... it is quite a complex dynamic around what does and what does not work.

Sofiane: ... in your opinion, just as a brief statement, what is the ASP business model, what are the main components of an ASP business model?

Paul: ... the model that we would sell would be... an always-on application, which we will put service level agreements around that will be available, against the 24x7 measurement criteria, that we will tell customers how much bandwidth they are using, how much storage they are using, how quickly we will fix a problem if one comes up, how quickly we will respond to them in terms of picking up the phone or answering an e-mail, so there is a whole set service levels, there is a whole set of management reporting and letting people know what has happened with the application, there is a whole set of procedures that are in place if somebody wants to enhance the system or add a piece of functionality, so that is another process around that, and then typically the business model will be that we will run that on a contract to place this for 3 years, and then you have to make payments on a monthly basis... we may ask for some cash upfront... so if you are purchasing the application, then... yes you have to pay the license costs, and maybe you have to pay the development cost, but certainly for running it you can pay in incremental steps, but also we offer a package where you can take all the license costs... and implementation costs, and the running costs, bundle it up, and divide that cost by 36, and say pay for it over 3 years... so this is the way we approach it... is that what you mean?

Sofiane: ... it is what I meant, it is just that the idea I had was slightly different, because I thought that customers were initially interested in licensing, because I thought licensing is the most expensive part of the software...

Paul: ... we find that it is a third, a third, a third... so the application is a third, then the customisation and implementation to get it to run people's business process is a third, and then the operating, setting up the hardware infrastructure and running it is a third over a 3-year-period... but that is because the software we are dealing with needs customisation and adjusting, you know if you just took somebody who is outsourcing e-mail, then it would not be like that... we are not a lot into the scale at the moment...

Sofiane: ... we move to the partnering arena... you are obviously partnering with a lot of companies... IBM...

Paul: ... I think from where you are coming from, we partner with a lot less companies than you would think... so in terms of providing the managed service, the people that we actually partner with are Cable & Wireless, who are the providers of the data centre and the hosting environment... and we sort of have partnerships, but really they are suppliers rather than partners, with the hardware... so let's say if we buy a Sun hardware box, we have to take out a maintenance contract on that piece of hardware, so if the fan breaks they replace it as long as we have paid them the maintenance... likewise with Siebel on the software side, when you buy a Siebel software there is a maintenance contract you have to buy as part of the license, so if we would resell that software then we work with Siebel through their sort of

customer support portal, with an engineer, if we have a problem, so... it depends what you mean by partners; for us, my view would be, for a day to day running of the operation, we really only have one partner, and that would be Cable & Wireless, but we have quite a few suppliers, that by definition we would sort of have to have risk backed off to that... Now if we use the partnering in a broader context, if we take Siebel for instance, it is in their interest for us to sell projects which contain Siebel, from a sales point of view, then we do work as partners and we will share leads and we will go to market together, but that is not what is underlining our ASP offering in terms of making it work...

Sofiane: ...but ... in your point of view, how do you define the term partner then... you mentioned it twice now about Cable & Wireless... why do you see them as a partner?

Paul: ... yes ... I would see them as a partner... I think there is a couple of criteria... one is where your dependency on them becomes critical, so I would say the word dependency comes in now... would be a big definition, because if you only have a supplier relationship, you are missing a trick from the business point view...

Sofiane: ... in what sense?

Paul: ... in as much as, if you only have a very formal "*let's work around the contract*" type approach, they will not get as much business out of you, and you will not get that extra mile of service from them when you need, so you are better off having a good relationship with them, ... which above and beyond the contract, although you always go back to the contract in terms of how much you are paying... you know... if we have an outage during the night, we want to know the guy we are

phoning up personally, and say that help, we have got a really serious customer, we do not want him saying well you have only got cover up to 8 o'clock and it is 10 past 8... you know that is a supplier relationship, you need a partner relationship... so that would be one definition, would be the criticality of dependency. I think the second one is if there is a two way flow of commercial transaction going on, so I would call it a partnership when we are getting a phone call from a customer, we cannot do it but we know that Cable & Wireless can, and so we say now go and talk to this guy because... and they mutually get back to us, then we have something more than them supplying us a service, we have a sort of ... you know... we are looking after each other's situation. In the situation with Cable & Wireless, we are actually dealing with two different parts of the organization; one is them supplying us a service, but then there is another case that we have worked with that group to say is there anywhere else in Cable & Wireless where you have a go to a market proposition that could benefit from what we do, because every time they sell us, they just sold you as well, because if we have more customers you have to buy more from me... it is a virtual circle... so that is what I mean by mutual benefits situations.

Sofiane: ... is it just Cable & Wireless with which you have a strong relationship...

Paul: ... in that respect... now... that is from my perspective, from the managed service perspective. [CompanyA] as a whole, we would call Siebel, IBM, Verianet, BroadVision partners, but that statement would be much more in the laps of thing I have just described, which is mutual selling, and go to market model, so IBM for instance we are setting up a division really, which is all around WebSphere, so it is a major technology... their strategies, they have business partners out in the big wide world selling their software for them, and so... you know... we are part of that

partner program, and as part of that they release marketing funds to us, we are going and if we see a CRM opportunity in a vertical, we will sell web services under line software, so it is very much a sales partnership model in this case...

Sofiane: ... so you mean both companies see the partnership in a different way...

Paul: ... yes...

Sofiane: ... so they see it as a more important partnership because...

Paul: ... they see it as a strategy for spreading sales, and we see it as a very small company no brand, so for us we are technology experts but we can rely on the branding of IBM, they are a big brand... so there is a mutual shark and the little fish coming back... that is all about the front end, all about the selling...

Sofiane: ... which is a win-win relationship...

Paul: ... exactly...

Sofiane: ... now because of the Internet, because of the globalisation thing, we do not see companies competing with other companies, we see more of a network competing against a network, so how do you see [CompanyA] in your own network?

Paul: I think it is interesting because, you are right, it is a network, but you are wrong in as much as you do compete... you know every time a tender comes out, or we go into battle, and it is a battle, over a project, typically, let us say there is an average of 6 people bidding for that piece of work, you are in a fight, it is a competitive situation, your price gets driven down in that bid, the cost of the purchase they use is an advantage, and the level of service you offer goes up, so costs are down, the service offered, which has a price attached to it, goes up, until

you win the bid. So, anybody who thinks there is no competition is ... sorry to be hard on that, but... there is a lot of competition, having said that, somebody that we can be competing with on Monday, the next day we will be set around the table with them saying, OK we are going to do a joint bid on this particular proposal, let us work together, so you get that situation along...

Sofiane: ... is there any reason for that... do you think you are pushed towards these situations where ...

Paul: ... I think if you are going to survive, and it is all about now really in terms of what the market is like, I think 5 years ago this would be a very difficult conversation, but you have to have a mind set that we will do whatever we have to do to generate business, and sometimes that means that within the customer their preferred consultancy supplier is Accenture, because they have got all the contacts with them, or PWC or whatever it is, but PWC do not have the implementation skills to actually do a managed service, on this particular application we have, so there is a fit there, we are going to get this joint proposition, I will take half of the deal, I will generate some revenue; but on the next one, they could be giving something that we do exactly and we go head to head, and we have qualification meetings around what we are going to do on the project, and sometimes we make the decision are we going to go this alone or are we going to go, usually with a bigger player... and it just comes down to commercial... which one is going to win... at the end of the day, the customer will buy what the customer wants, so you have to try to guide, and you have to change spots and colours to say yes I am what you want, even if your start point is not what they want, you have to stretch yourself... sometimes that means putting partners in, and sometimes it will not.

Sofiane: ...[CompanyA], do you see it more as a hub in your network, or more as an independent company that...

Paul: ... I think for you to say it is our network, I think we are the hub in some networks, we are on the edge of other networks... it is more like a universe, with points in multi-dimension, and it is too simplistic for the model to say that it is two-dimensional... obviously, we are by definition the centre of our network because we are looking at it from earth... the rest of the universe is around you, but if you are on another planet, it would be very insignificant, so it just depends on your perspective...

Sofiane: ... I really believe in that, it just that sometimes... an organization when it wants business, it just does not matter whether their aim is to be the hub... in my opinion, I think it is a reality, in any kind of relationship that any firm develops, we have two separate phases, you have the pre-formation phase and then the post-formation phase, for me for the ASP model at the moment, it is very helpful to focus on the pre-formation phase, because I think a lot of ASPs have failed because of wrong choice of partners, wrong business model, so it is still at the premature level, and it is still the pre-formation phase that is very important, and that consists of the choice of partner, and the choice of the type of the relationship... so when it comes to the choice of partners, how do you go about choosing a particular partner over another set of valid partners, or potential partners...

Paul: ... it is probably a list, just rain drop the list and then they do look at the priority... we would look at the quality of the service they offer, capability i.e. can they do the breadth of what we need, longevity in terms of are they going to be

around, when it comes to Cable & Wireless that has not been... if you pick the biggest company and you are the biggest company as well, then that is a risk... the support infrastructure and service levels they offer, the cost, and probably one that people forget is personal contacts, they are very, very important because you phone up your friend before you phone up a stranger, so I mean I could not tell you what the price... at the end of the day cost is very important but not the price of everything, because you are trying a reputation that you are pinning on the partner, so it is a complex combination of all those things, and then once you get into her is the list of people, if you are in a partnership mode you are then going to a cycle of negotiation in effect, and then I think a bit of chemistry will come in board, so how do I get on with you, and when I look at you in the eyes, are you someone I can trust in business, and are you going to be there, in my judgement, are you going to be there at 9 o'clock at night when I have got a crisis, so I think it is a very human thing actually...

Sofiane: ... and it could be a disappointment later on, and then you reconsider the whole relationship, has this happened to the company?

Paul: ... well, to be honest, we are in a continuing cycle of re-evaluation, both in terms of the service we get and the price we get, so if a company like Cable & Wireless is going through problems, so you get to see it is making a loss... then from a business point of view, you reassess what other options do I have, and at the same time you look at whose on the ground, they are still in, how are they behaving and are they worried about their jobs and not focused on the customer etc... so it is very complex. In terms of... your base premise in terms of ASPs failing because they picked the wrong partners, I do not agree with that... it is an important element, but

pulling together a proposition, I think the key reasons that ASPs have not taken off are customer acceptance of the fundamental model, you know... there is always like Ovum's or Gartner's theoretical view of what is achievable with technology, that is irrelevant compared with will customers let go their control, so that is number one... number two, I think the Internet e-business space is completely nuked by the hype bubble, and varied models got swept away with everything else, and I am still to be convinced that the business model works in terms of the price benefit, which is much lower because you are sharing the infrastructure, versus I do not want that to mean a degradation in service or customisation to my business needs, and actually that is the most fundamental reason for the ASP failure, because the customers start pointing I want exactly the same I have got now with a hand cranked customised my system, and I want that at half the price, but I do not want to lose any service or functionality, and the supplier is saying for me to get this half price, you have to get a standardised product, that has no customisation, and has very little spot around it, and they just completely add up, so there are some drivers, maybe it is technology that brings this up, or maybe it is the need to drive down the cost that forces these people into doing that model, that equality has got to arrive before that ASP model works... and the partnership element, yes it is important here, but it is not the critical factor that determines whether ASP survives or not...

Sofiane: ... what I mean by... there is quite a famous report by Gartner, released in 2001, I think... which says 60% of ASPs will fail by 2003, and ... there is a famous case of Pandesic, if you have heard of, it is back in 1997, it was created as a joint venture between Intel and SAP, and it failed because the communication between SAP and Intel did not work, so they did not do anything at all...

Paul: ... if it is that... yes... one of the things which we have not touched on really, is when you look at all the elements in the service we offer, it is a physical data centre, it is a network, it is racks-based, it is hardware, operating system, database, application, support... now many ASPs will offer just one or two of the top layers, what we found is that we gradually taken control ourselves of all those layers...

Sofiane: ... without actually performing them, you just control them...

Paul: ... no we do it, my people are responsible for it, so our model has changed over time to... OK we are experts in the application, but we need to have control of the database, so we hire DBAs because it is such an integral part of the application, but the operating system has to be tuned to this application and you have to know what you are doing, so actually we are going to hire Unix specialists and OS specialist... now hardware to be hard into security so we have got hardware experts, and we now own all the stack in terms of hand on engineering and monitoring, and so we have pushed partners... potential partnership areas away so that we have got control over house service levels...

Sofiane: ... what is the reason... you are lacking a sort of resource, so instead of going and buying them from the market or partnering with other companies to actually perform these or get these resources, you just won them internally... is there any reason why... because it is extra control for you and it is extra hassle for you as well...

Paul: ... I disagree... I think it is less hassle, because I, as the person in charge of our managed services, can now walk around some desks and say why haven't you fixed that problem... if we had a stack... if I want to buy... we do actually outsource

this at the moment, so we have a supplier that provides us with storage, but we are in a contract that we signed two years ago, and it is now extortionate, because a) it was a hype to the bubble, b) hardware costs within have gone to the floor, so we are trying to get out of that and we will take on storage ourselves as well...

Sofiane: ... was Exodus involved in this?

Paul: ... not really, no, that is another supplier called Storage Networks.

Sofiane: I think Exodus did have an effect on you when they went out of business...

Paul: ... yes! So if I bought DBAs, let's say I bought them from Logica, I am just making this up... let's say I bought OS and hardware specialists from Computer Centre, and network I bought from C & W as an extra service; the day rates on these people would be, DBA two years ago it would £1,300, but let's say it is £900 a day, here (OS) this would have been £600 a day, and here (network) I know it would have been at least £1,100 a day... for me to employ somebody, let's say I have got 2 people everyday as DBAs, for me to employ someone, fully loaded costs let's say £360, so every layer somebody is taking a cut of the margin, so they have got make money, they have got make money, they have got make money, and you see the business dynamics of this, everybody is taking a cut, so for me to get a much lower cost here to the customer, if all of that is gone out, my margin on this is this much, a cost I do not have to pay anybody...

Sofiane: ... so it is mainly cost-driven then...

Paul: ... it is not only cost-driven, truly, that is a very big factor, and this I called back-ups, where we actually did a piece of analysis, we were paying somebody to do

back-up services via Cable & Wireless, and we set down, we did the spreadsheets, we did the sums, and we could justify hiring somebody and it was the same price, but we went with them because we have control, a customer asked us if could take the back-up before 9 o'clock in the morning, and this outsourced system could not, but we have to a part of the contract, so there is a big factor on the SLAs as well, because service level agreements if we make financial commitments, if we do not hit them we have to pay somebody back credit in terms of money, so I want to be in control of that... so, yes we have a partnership here because the capital cost of building a data centre is huge, and in fact all these hosting companies are going out of business because of that...

Sofiane: ... just quickly, what intentions do you have behind an alliance, or a partnership?

Paul: ... I would say, at the end of the day it is mutual benefits out of the agreement in terms of the supplier element of it, so that we get the service we want and they make profit on it, and then somehow we are both developing business together so we are increasing the number of customers we are talking to, the breadth of that product, or we are mutually growing something new so that business continues to expand... I think that is the sign of a healthy relationship...

Sofiane: ... and when it comes to the governing structure between you and Cable & Wireless, how do you choose the type of the relationship, does it come from you, from them, is it mutual...

Paul: ... well... in the case of Cable & Wireless, it was initiated by myself... usually it gets initiated by the smaller partner, the bigger one is looking in different areas, so you have, as the smaller player, you have to raise the flag and say we can really add value, once we persuaded them, then you start getting their machine getting the momentum behind it, and you do not have the resources to keep up with them, because they have spare resources, so it goes in a sort of cycle really... I think anyway...

Sofiane: ... isn't it difficult for you... well you are not small anymore, or you are not as small as you used to be...

Paul: ... no, no...

Sofiane: ... was it difficult for you... because you always see it as a win-win relationship, but it is very difficult for them to see it as a win-win, they could easily see it as a win-loose...

Paul: ... not... it will not work if they see it that way...

Sofiane: ... yes, that is true, but you have to persuade them it is a win-win...

Paul: ... absolutely... and the way we always end-up in all business development meetings is you go around the table, you establish what one company does, what the other company does, you establish how much overlap there is in the middle, if they hugely overlap, and then try to find specific accounts or customer situations where you can work together, and to be honest if you have not found a customer situation where you can work together within a month, you might have to forget the whole thing, because it is the only chance... at the end of the day, what always comes up is

sales compensation plan... trust me, I have been in this loads of times, and the thing that actually... the person selling through the company is the sales man, and the sales man main character is I will sell whatever gets me personally my commission... so the truth behind all this is to say, is there a proposition where the Cable & Wireless sales person says it is easier, less hassle, and I do not loose control of my accounts by bringing the account manager from that company in, and I get rewarded on it, if you cannot come up with a model that does that, you will not succeed in the partnership, you will at least IBM and Microsoft macro-level, you can give details of the companies that are now partners, but if you want to do real business, you have to throw out the sales plans for both companies, I promise you... it is all about personal money and measurements... so you can have internal business development people, theorists, ... and you can make launches and announcements... but at the end of the day, if the two sales guys do not see that they are both making money out of it, it is due to fail... I promise you... I promise you... it is very very important... and I have been in so many business developments meetings, where you have to invite sales people to, if you do not, it is all theoretical, that is if we are talking about partnership it is about going to marketing model, they both think they sort out commission...

Sofiane: The type of alliance that you have, does it really affect the end result? I know you have said that before, you said that is the reason why you have a sort of strong relationship with Cable & Wireless, and not with other companies...

Paul: ... I mean our relationship with Siebel at the front end of the business is key to us, it is very important, in terms of how do we get to market model, and so yes, it can have a huge effect, especially for a company like this where we have chosen some

technologies, some software packages, you better be sink with these people if you are going to sell the back of their product, so it can be very critical.

Sofiane: ... now I am listening to you, and looking at it from the academic point of view... and I see that you are more interested in capabilities, and acquiring the capabilities, than in following the dependency on certain organizations... you have said that before concerning Cable & wireless, but you do not have that same feeling concerning other resources and other organizations...

Paul: ... on that stack thing, Cable & Wireless is a telecom provider, so their real expertise is around network, so we have outsourced that to them, because for us to get breadth of expertise they have, we have to hire an army of people, but what do they know about databases... I said I go to Logica... but it is so close to the application, and we have to have those skills anyway, we will do that ourselves, so it is really about expertise and capability...

Sofiane: ... and the human factor, is it very important when it comes to why Cable & Wireless and not BT...

Paul: ... emmm...

Sofiane: ... is very human or... a contact thing???

Paul: ... yes... I think the selection thing it would have been, and then in terms of relationship... why not BT, because we have just not gone down that root, with the start of is it cheaper or is it more reliable, and then you gradually discover if you had the same view from a human point view... which is a bit difficult...

Sofiane: ... thank you very much for your time.