ANALYSIS OF THE SLOW ADOPTION OF APPLICATION SERVICE PROVIDERS

ABSTRACT

This research uses supplier focused, user focused and fads and fashions perspectives as a theoretical base to analyse the causes of the slower than expected rate of adoption of ASPs. It places an emphasis in the limitations of frameworks to study innovations under strong evolutionary processes such as ASPs. It has been found that many simplistic assumptions were made in the ASPs design and that unexpected complexity was discovered when unpacking the ASP 'black box'. It also analyses the problems in finding attributes for the ASP concept as it is mixed with the technology, software or system that it delivers. The role of professional organisations and the communications media in setting a fashion for ASPs is studied. It is found that media created an excellent start for a strong fashion but this did not translate in high adoption rates for the technology. The main causes for this are the errors in the underlying assumptions of the first wave of ASPs. The research also identifies the possible influence of the lack of support by professional organisations in triggering a second stage in the fashion setting process that could have lead to higher adoption rates. Finally, due to significant interests dependent on the eventual success of ASPs, the general concept has not been abandoned. Fashion setters have been successful in preventing the ASP brand from acquiring a bad reputation as a failed innovation. This may give a newer and improved version of ASP the change to succeed.

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1. INTRODUCTION

Information technology (IT) and information systems (IS) outsourcing has grown to become a multi-billion dollar industry in the nineties, ever since the Eastman Kodak Company made headlines by outsourcing the company's data centre operations in a 10-year, $250 million deal with IBM Corp., Digital Equipment Corp. and Businessland Inc. in 1989 (Field 1999; Goo, Kishore and Rao 2000). Before the Kodak agreement, it was natural for large companies to provide their own IT support (Field 1999).

The 'traditional' drivers for IT/IS outsourcing during the nineties were factors such as cost savings, access to cash (Lacity and Hirschheim 1993), gaining IS efficiency (Goo, Kishore and Rao 2000), predictable IT expenses and access to the scarce IT expertise, and operational freedom to focus critical resources on core business function (The Supply Chain Magazine). More recently the reasons for IT/IS outsourcing have shifted towards factors more related with strategic issues such as gaining competitive advantage (Pounds, Osbom and Allen 2001), improving competitiveness, time-to-market, innovativeness, round-the-clock customer service, flexibility, and access to world class technology and skills (Goo, Kishore and Rao 2000). Application Service Providers (ASPs) emerged in the nineties from large software suppliers and promised several of the aforementioned advantages in IT/IS outsourcing.

ASPs[1] are defined as third-party entities that manage and distribute software-based services and solutions to customers across a wide area network from a central data centre (Peter Farizs. Director Sales and Marketing. HostLogic ASP. 2001). In essence, ASPs are a medium for companies to outsource some or almost all aspects of their information technology needs (Webpedia 1999). The vision of ASPs is to treat Information Systems and software as a standard commodity, which should be identical for each client, in the same way as conventional mail sent to competing firms is delivered by the same UPS delivery person or water going to different companies comes from the same reservoir. For this reason, they are sometimes referred to as 'apps-on-tap' (The Supply Chain Magazine 2001). This one-to-many standard solution idea was the basis of the first generation ASPs.

As with other new technologies, there have been considerable promises about the advantages offered by the ASP model. The ASP concept initially seems to have most of the characteristics (Rogers 1962,1983,1995) that should create a fast adoption and diffusion of an innovation. However, as with many other innovations, several unexpected factors emerged and the market did not take off at the rate needed by many ASPs to stay on the market. Today, there seems to be an almost unanimous consensus that the first wave of ASP services fell short of the initial expectations (Mathewson 2001; Mears 2001). Despite this, it is still claimed that a significant amount of money is being made[2]. It is hard to evaluate these claims as the definition of ASPs sometimes varies and many of the relatively successful ASPs have significantly changed their original model. The pure, first generation ASPs, which for simplicity will be referred to as 1.0, that have succeeded to date are those delivering services such as email, billing,

[1] Sometimes also known as NSP (Network Solution Provider), TSP (Total Solution Provider).

[2] According to IT market analysts International Data Corporation (IDC) the ASP market reached $986m worldwide in 2000. The US is the largest market. In Europe worth $93m. Overall, growth has revenues increasing at a compound annual growth rate of 89%, which, according to this market analysis, should propel the market to $24bn in 2005 Moran, N. (2001). After early hype, ASP market proves hard to crack. Finacial Times. FT IT Review of Information and Communications Technology. London**:** 1.

online backup or automatic virus checking. This solutions are easy to implement and use, and one size can indeed fit all. Others have done well by focusing on tight vertical markets where they have specialist knowledge (Moran 2001).

Despite the disappointing adoption rate of first generation ASPs, traditional outsourcing has grown in the year 2000 and continues to grow in 2001 (Moran 2001b). In fact, eighteen very large deals were signed, with a value of more than US$1bn each, which is roughly equal to the entire ASP market (Moran 2001b). Even companies that have had serious difficulties with ASPs have not generally lost their faith in outsourcing (Atanasov 2001), and some software vendors, including Oracle and Microsoft, still see the ASP model as their primary software distribution route in the future. For example, Microsoft has agreements with ASPs, but its overall ambition, as set out in the Microsoft *NET.* (*dotnet*) strategy, is to deliver all its software over the internet (Moran 2001).

The purpose of this dissertation is twofold. First, the generic models and perspectives describing the adoption and diffusion of new technologies in academic literature are reviewed. The second objective is to use these frameworks as a reference to explain the causes of the lower than expected adoption of ASPs. Consequently, this work will also examine how these frameworks hold in the specific case of ASPs and whether the factors identified by them are considered important by the non-academic actors involved in ASP industry; clients, consultants and software vendors.

2. LITERATURE REVIEW

The adoption and diffusion of innovations in organisations has been widely covered in academic literature. These theories attempt to be universally applicable. This section sets the theoretical basis that will later be used in analysing the adoption of ASPs.

Perhaps the most often quoted work in modern diffusion literature is Rogers (1962,1983,1995). Although some of his ideas have been criticised, this work remains the basic point of reference for many of the concepts involved in the adoption and diffusion of innovations and therefore his basic definitions are used here.

Basic definitions

Rogers (1962,1983,1995) defines innovation as an idea, practise, or object that is perceived as new by an individual or other unit of adoption. Similarly, Van de Ven (1986) defines innovation as a socially constructed process involving the development of new ideas. Damanpour and Evan (1984) add that innovations are responses to environmental change or means of bringing about change in an organisation. Thus, innovations are adopted to improve performance or to eliminate a performance gap that might be caused by changes in the external environment such as changes in the demand for the output of the organisation (Downs 1966).

Diffusion is defined as ‘the process by which an innovation is communicated through certain channels over time among the members of a social system’ (Rogers 1962,1983,1995). Therefore, it is a

special type of communication[3] in that the messages are concerned with ideas perceived as new (Rogers and Scott 1997; Rogers 1962,1983,1995). When new ideas are invented, diffused, adopted or rejected leading to certain consequences, social change occurs (Rogers 1962,1983,1995).

We can see that innovations have to do with perceptions (intrinsically subjective), social change and human responses. This leads us away from the idea of innovation as a simple technical artefact. Furthermore, diffusion depends on communication which is, by itself, a very complex subject of social studies. As a result, the study of the diffusion of the diffusion of innovations becomes a complex social problem.

The rate of adoption is the relative speed with which an innovation is adopted by members of a social system (Rogers 1962,1983,1995) and is usually measured as the number of members of the system that adopt the innovation in a given time period. Cumulative adoption over time has often been depicted by an S-shaped curve (Claude S. Fischer and Carroll. 1988; Rogers 1962,1983,1995) indicating that for various reasons, primary information transfer and uncertainty reduction adoptions breed adoptions until a saturation point is reached (Rogers and Scott 1997). However, there are many exceptions to the S-shaped curve, and it is not known when or why the curve does apply (Wolfe 1994). Despite its many limitations, the diffusion curve research has made limited contributions to the understanding of the diffusion of innovations (Mohr 1987; Wolfe 1994).

Innovativeness is the degree to which an individual or other unit of is relatively faster in adopting new ideas in relation to other members of a social system. Rogers identifies five adopter categories, or classifications of the members of a social system on the basis on their innovativeness: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards[4] (Rogers and Scott 1997; Rogers 1962,1983,1995).

[3] Communication is defined by Rogers as "a process in which participants create and share information with one another in order to reach an mutual understanding. This definition implies that communication is a process of convergence (or divergence) as two or mire individuals exchange information in order to move toward each other (or apart) in the meanings that they give to certain events" Rogers, E. M. (1962,1983,1995). Diffusion of Innovations, The Free Press.
Furthermore, Rogers and Kincaid (1981) consider communication as a two way process of convergence, rather than a one-way, linear act in which one individual seeks to transfer a message to another in order to obtain certain effects Rogers, E. M. and Lawrence Kincaid (1981). Communication Networks: Toward a New Paradigm for Research. New York, Free Press. and Rogers, E. M. (1962,1983,1995). Diffusion of Innovations, The Free Press.

[4] *Innovators* are the first 2.5 percent of the individuals in a system to adopt an innovation. They are revolutionaries, at least to the others, who feel threatened by change and risk-taking, While an innovator may not be respected by the other members of a social system, the innovator launches the new idea in the system by importing the innovation from outside of the system's boundaries.

Early adopters are the next 13.5 percent of the individuals in a system to adopt an innovation. This adopter category, more than any other, has the greatest degree of opinion leadership in most systems. Potential adopters look to early adopters for advice and information about the innovation. This adopter category is generally sought by change agents as a local missionary for speeding the diffusion process. They are respectable opinion leaders, they serve as a role-model for many other members of a social system. The early adopter decreases uncertainty about a new idea by adopting it, and then conveying a subjective evaluation of the innovation to near-peers through interpersonal networks.

Decision process

The innovation-decision process is the mental process through which an individual ,or other decision-making unit, passes from first knowledge of an innovation to forming an attitude toward it, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision (Rogers 1962,1983,1995).

Several stage models to describe the innovation process have been presented (e.g. Zaltman, Duncan and Holbek 1973; Ettlie 1980; Tornatzky, Everland, Boylan, Hetzner et al. 1983; Meyer and Goes 1988; Cooper and Zmud 1990; Rogers 1962,1983,1995) . Richard Wolfe (1994) identifies a general pattern from these models: *awareness*, the decision making unit becomes aware of an innovation's existence; *matching*, a problem or opportunity is matched to the innovation; *appraisal*, the innovation's costs and benefits are appraised; *persuasion*, sources of support and/or opposition attempt to influence the process, the adopter becomes persuaded to form a favourable attitude; *adoption* (or rejection), decision to adopt or reject the innovation; *implementation*, the innovation is implemented putting it to appropriate use; *confirmation*, the innovation decision is confirmed by continuing to benefit from the use or reversed; *routinisation*, the innovation becomes accepted as a routine, and *infusion*, where the innovation is applied to its fullest potential.

There is evidence that indicates identifiable innovation stages do occur (Wolfe 1994) but the degree to which they occur in a predictable order is dependent upon the nature of the innovation being studied and its source (Ettlie 1980; Wolfe 1994).

An innovation is often not linear but rather a complex iterative process having many feedback and 'feedforward' cycles (Schroeder, Ven, Scudder and Polley 1989; Tornatzky and Fleischer 1990). In these cases, stages tend to be muddled and overlapping (Pelz 1983; Wolfe 1994; Rogers 1962,1983,1995). For this reason they are sometimes referred to as episodes 'episodes' rather than 'stages' as they are seen as a iterative, overlapping and inherently political (Rogers 1962,1983,1995) (Pfeffer 1981; Swan and Clark 1992; Newell, Swan and Galliers 2000).

Early majority is the next 34 percent of the individuals in a system to adopt an innovation. The early majority adopt new ideas just before the average member of a system. The early majority are one of the two most numerous adopter categories, making up one-third of the members of a system.

Late majority is the next 34 percent of the individuals in a system to adopt an innovation. The late majority adopt new ideas just after the average member of a system. Like the early majority, the late majority make up one-third of the members of a system. Adoption may be the result of increasing network pressures.

Laggards are the last 16 percent of the individuals in a system to adopt an innovation. They possess almost no opinion leadership. Decisions are often made in terms of what has been done previously. Laggards tend to be suspicious of innovations and change agents. Their resources are limited and they must be certain that a new idea will not fail before they can adopt.

Rogers, E. M. and K. L. Scott (1997). The Diffusion of Innovations Model and Outreach from the National Network of Libraries of Medicine to Native American Communities, National Network of Libraries of Medicine, Pacific Northwest Region, Seattle.

PERSPECTIVES OF STUDY OF INNOVATION DIFFUSION

Different perspectives have been used to try to understand the diffusion and adoption of new ideas. Following Newell, Swan and Galliers (2000), supplier focused, user focused and fads and fashions perspectives are accepted in this dissertation as a viable way of analysing the adoption and diffusion of application service providers. The Knowledge Focused Perspective (Newell, Swan and Galliers 2000) creates a framework for explaining the diffusion of IT-based technologies using these three perspectives. This framework also places a particular emphasis in the user-lead networking activities, formal and informal and in the role of professional associations as networks that are used in the active search process done by the users (Newell, Swan and Galliers 2000). The Knowledge Focused Perspective is used in this research, as moving away from previous deterministic explanations, it considers a large range of factors to explain the diffusion and adoption phenomenon.

Supplier focused perspective

The supplier-focused perspective (Rogers 1962,1983,1995) is dominated by Rogers' models and centred around communication. As its name indicates, it is aimed at helping technology suppliers to promote more rapid diffusion of best practice innovations to potential adopters (Newell, Swan and Galliers 2000). This perspective considers that attributes of an innovation, as perceived by the members of a social system, determine its rate of adoption (Rogers and Scott 1997). Several classifications of attributes have emerged (e.g. Zaltman, Duncan and Holbek 1973; Daft and Becker 1978; Rogers 1962,1983,1995). According to Rogers (1983) these attributes explain from 49 to 87 percent of the variance in rate of adoption. However, there has not been an agreement to find a universally accepted set of attributes (Wolfe 1994).

Rogers's attributes include the characteristics of the innovation, such as complexity, observability or communicability, relative advantage, trialability or divisibility, and compatibility [5] (Rogers

[5] *Relative advantage* is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social prestige, convenience, and satisfaction are also important factors. It does not matter so much if an innovation has a great deal of objective advantage. What does matter is whether an individual perceives the innovation as advantageous. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption will be.

Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is incompatible with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system, which is a relatively slow process.

Complexity is the degree to which an innovation is perceived as difficult to understand and use. Some innovations are readily understood by most members of a social system; others are more complicated and will be adopted more slowly. New ideas that are simpler to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.

Trialability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the instalment plan will generally be adopted more quickly than innovations that are not divisible. An innovation that is trialable represents less uncertainty to the individual who is considering it for adoption, who can learn by doing.

1962,1983,1995 p.207) (Rogers and Scott 1997). In summary, innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, observability, and less complexity will be adopted more rapidly than other innovations.

Rogers (1995) also adds another four more variables: (a) *type of innovation decision* (optional, collective, authority); according to this, adoptions requiring and individual-optional innovation decision tend to be adopted more rapidly than when an innovation is adopted by an organisation; (b) *communication channels*, remembering that diffusion is a form of communication; (c) *nature of the social system* also the social networks though which ideas about technology are communicated (Wolfe 1994; Newell, Swan and Galliers 2000); and (d) extent of the *change agents* promotion efforts.

The supplier-focused perspective has contributed to understanding some of the factors that predict the rate of adoption of innovation over time and space (Newell, Swan and Galliers 2000). However, supplier focused models assume that there is a single technically efficient best practice. Moreover, it is assumed that these best-practice technologies can be identified by some central supply agency. Diffusion is then approached as a broadcaster-receiver problem, that is, to broadcast information that will persuade essentially passive users to adopt these best practises (Newell, Swan and Galliers 2000). However, this is rarely the case as most IT/IS-based innovations are heavily dependent on the context of application and therefore there cannot be a universally applicable best practice that fits every situation (Clark 1987; Swan, Newell and Robertson 1996; Newell, Swan and Galliers 2000).

Supplier focused models of diffusion have also highlighted the role of social networks in allowing communication of new ideas and technology innovations across organisations (Wolfe 1994), in particular the links between technology suppliers and users (Newell, Swan and Galliers 2000). However, supplier focused models also tend to underestimate the active role of users in the communication of a given innovation through this wide range of social networks (Robertson, Swan and Newell 1996), often ignoring the importance of strong and ‘weak ties’ (Newell, Swan and Galliers 2000).

Complexity

Complexity associated to social systems

Researches differentiate innovations in administrative vs. technical (Daft and Becker 1978), radical vs. incremental, product vs. process (Ettlie and Bridges 1984; Damanpour 1988; Damanpour 1991) adopted vs. borrowed, routine or radical, central or peripheral (Nord and Tucker 1987). Innovations have also been classified on pervasiveness, magnitude, innovativeness, and duration (Beyer and Trice 1978). These categorisations seem quite limited as they only consider one dimension to differentiate innovations (Wolfe 1994). Nevertheless, complexity seems to be an underlying property of all these classifications and can arise for many different reasons. This study concentrates on the administrative

Observability is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt it. Such visibility stimulates peer discussion of a new idea, as friends and neighbours of an adopter often request innovation-evaluation information about it. Ibid.

vs. technical (Daft and Becker 1978) companion as an acceptable way of identifying the level of complexity involved in ASPs.

Technical innovations, as distinguished from technological innovations, are not merely a result of the use of technology. They are defined as innovations that occur in the technical system of an organisation and are directly related to the primary work activity of the organisation (Damanpour and Evan 1984). They are a means for changing and improving the performance of the technical system of an organisation (Damanpour and Evan 1984).

Administrative innovations are defined as those that occur in the social system[6] of an organisation (Damanpour and Evan 1984). They comprise innovations in organisational structure and in the management of people (Knight 1967). An administrative innovation can be the implementation of a new way to recruit personnel, allocate resources, and structure tasks, authority and rewards (Evan 1966). Complexity mainly arises from social systems whereas technical complexity is, comparatively, a simpler problem. Therefore, more complexity will be associated with administrative innovation due to their higher social impact. Consequently, Evan (1966) introduced the idea of a lag of administrative innovation with respect to technical innovations. This agrees with Rogers' relationship between the attributes of innovations and their rate of adoption (Rogers and Shoemaker 1971; Rogers 1962,1983,1995). Technical innovations will benefit from the attributes that favour innovation while administrative innovations will be perceived as being more complex to implement (Daft and Becker 1978; Aiken, Bacharach and Frence 1980; Damanpour 1983; Damanpour and Evan 1984).

Encapsulation and packaging of complexity

Newell et al. (2000) argue that in order to understand the diffusion of complex information systems, it is necessary to understand how a new technology is packaged by the supply side in order to encourage its more rapid adoption. In order to make systems more appealing to potential customers, IS suppliers (software suppliers and consultants) present highly simplified and codified visions of such systems. They emphasise systems implementation and technical advantages and downplay the degree of organisational change that is often needed to implement such systems (Leonard-Barton 1988; Clark and Staunton 1989; Swan 1996). Complex technologies may be presented as a singular 'best-practise' technology, relatively unproblematic and wholly applicable to all firms in all situations (Newell, Swan and Galliers 2000). Often, complex ideas which may not necessarily be innovations by themselves are bundled together to create solutions that can be presented by suppliers as simple 'black box' solutions (Scarborough 1996; Newell, Swan and Galliers 2000). Although these tactics can indeed encourage diffusion, they also make implementation more problematic with unexpected problems that arise when the encapsulated knowledge is unpacked and integrated in a particular organisational context (Newell, Swan and Galliers 2000). As summarised by Mitroff (1987):

> By definition, simple formulas cannot cope with complexity, and complexity is what today's world is about (Mitroff and Mohrman 1987)

[6] Social System here refers to the relationships among people who interact to accomplish a particular task or goal Cummings, T. G. and S. Srivastva (1977). Management of work: A SocioTechnical Systems approach. Kent, OH, Kent State University Press. In Damanpour, F. and W. M. Evan (1984). "Organizational innovation and performance: the problem of "organizational lag"." Administrative Science Quarterly **29**: 392-409. It also includes those rules, roles, procedures and structures that are related to the communication and exchange among people and between the environment and people Ibid.

User-Focused perspective

The recognition of the active role of users in the innovation process overcomes some of the limitations of traditional supplier focused perspectives (Tushman and Scanlan 1981; Clark, Newell, Burcher, Bennett et al. 1992; Flerk 1994; Robertson, Swan and Newell 1996). According to the user focused perspective, innovations are not simply pushed onto users (Newell, Swan and Galliers 2000). Rather, managers and decision makers actively look for new techniques that will help them to respond to performance gaps (Newell, Swan and Galliers 2000) or to increase their competitive advantage.

The decision episode framework (DEF) (Clark, Newell, Burcher, Bennett et al. 1992; Robertson, Swan and Newell 1996) highlights the important role of users in the boundary-spanning role. Boundary spanning individuals are active in penetrating inter-organisational networks where they can learn about the latest technologies (Tushman and Scanlan 1981; Robertson, Swan and Newell 1996). However, in order to be truly effective, boundary spanners also need to be internally well connected in order to be in a position to assimilate this knowledge into innovation processes within their own firms (Newell, Swan and Galliers 2000). Unlike supplier focused perspectives, the user focused perspective does not assume that there is a universally applicable best practice, but rather a range of possible solutions that depend on the context of the application. These solutions are communicated via different kinds of networks in which users are also actively involved (Newell, Swan and Galliers 2000).

Fads and Fashions perspective

Another perspective for explaining the diffusion process are the fads and fashion perspectives (Abrahamson 1991). The idea is summarised by Abrahamson (1996):

> When a management technique becomes fashionable in a collectivity, it will tend to diffuse rapidly and extensively across organisations on this collectivity (Abrahamson 1996).

Management fashions are defined as ‘relatively transitory collective beliefs that certain management techniques are at the forefront of management progress’ (Abrahamson 1996). Abrahamson (1996) presented a general supply and demand model of management fashion setting. It is not, then, a separate perspective to the supplier and user focused perspectives but a perspective that studies a particular form of relationship between these two groups.

There is a distinction between the concepts of fads and fashion. The fashion perspective assumes that organisations in a group imitate other organisations, such as management consulting firms, that reside outside that group (Abrahamson 1991). The fad perspective assumes that the diffusion of innovations occurs when organisations within a group imitate other organisations within that group (Abrahamson 1991). Although different, both concepts are related, fads can trigger fashions and vice versa (Abrahamson 1991). The faddish diffusion of technically inefficient innovation may persuade fashion-setting networks to back this diffusion (Abrahamson 1991). Alternatively, a fashion prompted innovation may give a higher reputation to the organisations that adopt it, prompting lower reputation organisations to imitate them, which will tend to promote a faddish diffusion (Abrahamson 1991).

These perspectives recognize the interests both of suppliers and users and the impact of the environment and context on diffusion and help to explain the rapid diffusion, which are unproven or

questionable in terms of efficiency gains for users (Newell, Swan and Galliers 2000). Several factors and forces are involved in the adoption or fads and fashions.

Socio-psychological forces

These explanations are the oldest and were first used to explain aesthetics fashion. Beyond the norms of rationality and progress there is a variety of explanations that suggests fashions are also in demand because they satiate individuals psychological needs (Abrahamson 1996), in this case, the need among managers to adopt the latest techniques (Newell, Swan and Galliers 2000). According to Shapir (1937), fashions gratify competing psychological drives for individuality and novelty, but also conformity and traditionalism. This suggests that managers demand management fashions to appear individualistic and novel, relative to the mass of managers who are out of fashion. They maintain some measure of conformity and traditionalism, however, by using techniques used by other managers who are in fashion (Abrahamson 1996).

Non-academic literature has attributed demand for management fashions to certain socio-psychological forces, such as childlike excitement (Business Week 1986) or mass conformity (Wall Street Journal 1993). Abrahamson (1996) strongly criticises this literature. This study agrees that management fashions are not, unlike aesthetic fashions, based only on socio-psychological forces; but, as Abrahamson (1996) also recognizes, both socio-psychological forces and norms of rationality. That is, 'socio-psychological forces compete with technical and economic forces to shape the demand for management fashions' (Abrahamson 1996, p.255). I therefore consider that without being a deterministic cause, the reasons mentioned in the non-academic literature could easily be included as valid socio-psychological causes for the adoption of fashions.

Imitation

Simmel (1957) suggested that fashions serve not only to reveal who is in fashion, but also to distinguish high-status from low-status individuals. Extended to management fashion this means that the managers of higher reputation organisations adopt management fashions to distinguish their organisations from lower reputation organisations (Abrahamson and Fombrun 1994, Abrahamson 1996). It has also been argued that organisations imitate the adoption decisions of organisation that have reputations higher than their own (Mohr 1969; Walker 1969; DiMaggio and Powell 1983; Fombrun and Shanley 1990; Abrahamson 1991). As summarised by Field (1999) using the Eastman Kodak example:

> Kodak was not the first nor the biggest[7] IT outsourcing deal. But it was the first well-known, successful enterprise to designate as "strategic" this notion of hiring vendors to run the company's computer systems (Field 1999).
>
> What Kodak did for outsourcing is akin to what IBM did for PCs: It authenticated the marketplace. Peter Bendor-Samuel[8] in (Field 1999).

[7] Enron Corp. was one of the first with a 1989 deal worth $750 million. Field, T. (1999). Ten years that shook IT. CIO Magazine. October 1 1999.

[8] Peter Bendor-Samuel was a sales executive at Electronic Data Systems Corp. (EDS) in Plano, Texas, which lost the Kodak deal to IBM. Bendor-Samuel is now president and CEO of Everest Software Corp a Dallas-based outsourcing consultancy. Ibid.

Organisations also experience 'bandwagon pressures' (Abrahamson 1991) to adopt innovations. This increases with the number of organisations adopting that innovation (Mansfield 1961; Granovetter 1978; Katz and Shapiro 1985) creating a positive feedback loop. There are also a negative feedback loops which create 'counterbandwagons', that is, pressures to reject an administrative technology when it is perceived that too many other competitors are adopting that technology and therefore it no longer provides a competitive advantage (Nystrom and Starbuck 1984; Carrol and Hannan 1989). Rogers (1962,1983,1995) identifies two 'immunizers' against these external influences. The first one is 'heterophily'[9] which is 'the degree to which pairs of individuals who interact are different in certain attributes' (Rogers 1962,1983,1995). Heterophyllous organisations are less receptive to each other's communications and therefore more immune to imitation each other (Rogers 1962,1983,1995). The second one is 'disconnectedness', which refers to the degree to which an organisation is not linked to other in a communications network and therefore will learn less from adopters making it more immune to imitation by others (Abrahamson 1991; Rogers 1962,1983,1995).

Rationality and Management Fashions

Management fashions are greatly related to the *appearance* of rationality and progress (Abrahamson 1996). Meyer and Rowan (1977) asserted that organisational stakeholders expect managers to manage their organisations and employees rationally. They also suggested that managers create the *appearance* of rationality by using or *appearing* to use management techniques that are generally believed by organisational stakeholders in a specific context to be rational ways of managing organisations and employees.

The efficient-choice perspective (Abrahamson 1991) suggests that a rational adopter never decides to adopt a technically inefficient administrative technology that was diffusing or to reject a technically efficient administrative technology that the organisation had adopted. This perspective is based in the assumption that organisations within a group can freely and independently choose to adopt an administrative technology and also that organisations are relatively certain about their goals and their evaluation on the effectiveness of new technologies in achieving them (Abrahamson 1991). However, organisations often have unclear goals. The newness of the innovation implies a high degree of uncertainty[10] about the technical efficiency of new administrative technologies (March and Olsen 1976; Rogers 1962,1983,1995). Under these conditions of uncertainty, organisations may imitate other organisations as explained before (Thompson 1967; DiMaggio and Powell 1983; Abrahamson 1991; Christensen 2001) or adopt models promoted by fashion setters such as consulting firms or business mass media (Hirsch 1972).

[9] As Rogers (1983, p.18) points out, the concepts of *heterophily* and its opposite, *homophily*, were first called into scientific attention by Lazarsfeld and Merton Lazarsfeld, P. F. and R. K. Menton (1964). "Friendship as a social Progress: A Substantive and Methodogical Analysis". In Monroe Berger and others (eds.), Freedom and Control in Modern Society, New York, Octagon, pp.23,63. In Rogers, E. M. (1962,1983,1995). Diffusion of Innovations, The Free Press.".

[10] Uncertainty is the degree to which a number of alternatives are perceived with respect to the occurrence of an event and the relative probability of these alternatives being beneficial for the organization Rogers, E. M. (1962,1983,1995). Diffusion of Innovations, The Free Press.p.6.

Technical-economic forces

Techno-economic explanations are also used to explain fads and fashions. However, this does not mean that there is a powerful technical determinism (Abrahamson 1996). Rather, technical and economic environmental changes create preferences among fashion followers for certain types of management techniques. A variety of technical-economic forces could influence fashion demand. For example, Barley and Kunda (1992) state that expansionary periods, there should be a demand for types of management techniques that stress the efficient use of stricture and technologies as a means of increasing labour productivity. During periods of contraction, however, both the supply and the returns on capital investment decline, managers gain interest in labour as a factor of production, and there should be a demand for types of management techniques that stress employee relations as a means of increasing labour productivity (Barley and Kunda 1992).

Fashion setters

Administrative models do not only become fashionable through direct popular demand. Instead, fashion setters play an active role in selecting a few administrative models and develop organisations' awareness and tastes for these models (Blumer 1969). Abrahamson defines fashion setters as 'organisations and individuals who dedicate themselves to producing and disseminating management knowledge' (Abrahamson 1996, p. 256). Fashion setters include management gurus, consultants, mass media business publications (Mintzberg 1979; DiMaggio and Powell 1983; Hirsch 1986; Abrahamson 1991; Meyer 1992; Abrahamson 1996) and business schools (Abrahamson 1996).

During the creation stage, fashion setters sense incipient preferences guiding fashion demand and create many management techniques (Abrahamson 1996). For example the strong outsourcing market, added to the need of new start ups and SMEs to get access to IT with small capital and the increase in the number these companies in the 'dotcom' boom, seem as significant factors that may have created the belief in ASPs by fashion setters. These beliefs are articulated in the form of powerful rhetorics by fashion setters creating, for example, acronyms such as ASPs, BPR (Business Process Reengineering) (Newell, Swan and Galliers 2000), B2B (Business to Business), TQM (Total Quality Management), JIT (Just-in-Time), ERP (Enterprise Resource planning), CRM (Customer Relationship Management) etc. ; or terms such as New Economy. Fashion setters by definition have strong networks which they use to spread these rhetorics.

Abrahamson (1996) states that fashion setters not only select certain management techniques based on the demand for new types of management fashions that they sense, but they also shape and focus this demand by articulating for fashion followers the particular techniques that fit the types followers prefer.

> If there exist unmet demand for a certain type of management technique, then one or more techniques belonging to this type will become fashionable if they are created, selected, processed, and disseminated by the management fashion setting community (Abrahamson 1996).

Mass Media as a Fashion Setter

Business publications such as the Harvard Business Review, the Financial Times technology specials or The Economist along with other magazines such as Fortune, Business 2.0 or RedHerring; technology magazines such as Wired and technology oriented websites such as News.com[11], play an important role in communicating innovations.

Rogers (1986) claims that mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject a new idea. According to Rogers, most individuals evaluate an innovation, not based on scientific research by experts, but through the subjective evaluations of near-peers who have adopted the innovation (Rogers 1986). However, media has an important and ever increasing influence and opinion shaping power and therefore a powerful fashion setter. Media also overcomes Rogers' '*immunizers'* against imitation described before. Mass media often depicts success stories of higher reputation organisations, providing the perfect breeding ground both for competitors to get concerned about another companies gaining competitive advantage, and lower reputation firms which would potentially be interested in imitating the higher reputation firms. Furthermore, media has an enormous reach, beyond that of any other fashion setter group. For this reason traditional fashion setters such as consulting firms or technology suppliers also use media as a vehicle to increase their reach, in the form of commercial advertisement. Therefore, media is both a fashion setter by itself, and a vehicle for the communication for other fashion setters.

Critics to fads and fashions

Fads and fashions had been criticised by some and accused of sometime harming organisations (Abrahamson 1991). First, it has been argued that fads or fashions harm companies by facilitating the diffusion of technically inefficient administrative technologies (Mitroff and Mohrman 1987). Others argue that fads or fashions fulfil only symbolic functions such as projecting an image of innovativeness, but do not actually help the organisation's performance (Abrahamson 1986; Fombrun and Shanley 1990). It has also been argued that that fads and fashions prompt rejection or administrative technologies that had the potential to become technically efficient for their adopters as technologies become effective only through gradual, careful and sustained implementation process that provide organisations with tacit knowledge and the skills necessary to implement these technologies efficiently (Polanyi 1967; Teece 1977). In some cases, fads and fashions cause organisations to leap rapidly from one technology to the next, so that no technology has enough time to mature (Hackman 1975; Lawler and Mohrman 1985).

Networks and Professional organisations

Each of the perspectives gives a view of the importance of networks in the diffusion process. However, each does it from it's point of view (suppliers, users or fashion setters). Several authors (e.g. Clark and Newell 1992; Swan and Newell 1995; Robertson, Swan and Newell 1996; Swan 1996; Swan, Newell and Robertson 1997; Newell, Swan and Galliers 2000) identify professional associations as one

[11] Part of CNET.com . Has published multiple articles on ASPs.

particular network that can be a rich source of new ideas and important channels for communication of ideas in Europe and North America. The aim of a professional association is to provide its members with access to information about the latest technological developments in a particular knowledge area (Lynch 1989; Swan and Newell 1995; Newell, Swan and Galliers 2000). Processional organisations are a good meeting point for suppliers, users and fashion setters and provide an opportunity for formal or informal and personalized knowledge transfer (Kunzel and Dadowsky 1989) as well as a forum for the development weak relationships or 'ties' that are important for the diffusion of new ideas (Granovetter 1973; Newell, Swan and Galliers 2000; Rogers 1962,1983,1995). According to Newell et al. (1996) users themselves see professional organisations as 'perhaps the most important source of external knowledge about new technologies' (Newell, Swan and Clark 1996). However, research has demonstrated that professional organisations are often not neutral and are often dominated by technology suppliers (Swan and Newell 1995; Newell, Swan and Galliers 2000) which use professional associations to disseminate rhetorics about the best practice tools and techniques to managers in industry. As Newell et al.(2000) state that "users seeking new ideas through a 'pull' process may therefore be as likely to encounter the black-boxed knowledge, in much the same way as they do when knowledge is 'pushed' to them directly from the technology suppliers themselves".

3. RESEARCH METHODOLOGY

This study uses a qualitative research method associated with an interpretivist and relativist position (Cornford and Smithson 1996). The slow adoption of ASPs is considered a social phenomena which is inappropriate for study using quantitative methods (Cornford and Smithson 1996, Archer 1998).

An important aspect of this research was interviewing subject matter experts in order to obtain the necessary information. A series of interviews were conducted over the telephone and in person with clients, vendors and consultants related with the implementation of ASPs. The interviews were conducted between the 12th of July and the 20th of August 2001 and span throughout Europe including companies the UK, France, Germany, Spain and Hungary. Most of the companies represented also have business outside their boundaries and span all over Europe (EU and non-EU countries) and in some cases globally. However all the interviewed people work in the European market. Some interviews were also conducted with ASPs providers and clients in Argentina.

During the interviewing process the importance of the role of communication media as fashion setters for ASP emerged. Therefore, it was decided to interview representatives of the mass media and look at business publications to study the message that was being sent by media and its influence in the ASP adoption. Strategic management consultants and decision makers not necessary related with IT/IS innovations or ASP were also interviewed. This provided a better insight on the aspects that influence decision makers and in particular the influence of media on their decisions.

Semi-structured interviews were performed to clients, vendors and consultants. The first part of the interview was an open question where the interviewee was able to identify the factors that he/she believes are the most important to explain de adoption rates of ASPs. This was followed by questions covering specific aspects which the interviewee had not heard or read before the open question. This questionnaire can be found in Appendix 2. Some of the questions were more general than the aspects covered in the final work. These questions were intended to gain a more general understanding of the ASP adoption phenomenon and raise new issues related with other questions. Some of the most

interesting comments were obtained in this way. Mass media representative interviews were completely unstructured. They expressed their views on the influence of general interest media, specific interest media and advertisement in the fashion setting process.

4. RESULTS AND DISCUSSION

The first aspect observed in this research is the widespread confusion of the ASP definition. In particular, they are often confounded with hosted applications. All the interviewed people[12] agreed that there is a certain level of general confusion among decision makers about the original definition of ASPs. However, the confusion is somehow justified as the ASP model has been quickly mutating to adapt itself to the market needs in an attempt to overcome the initially low adoption rates. Companies which started as pure ASP and are offering services that differ considerably from the original one-to-many idea and some have indeed moved to the hosting business.

It is too early to have a clear view of how the ASP concept will develop as an innovation in the long term. However, the beginning does not seem to conform to the classical simplistic representations such as the S-curve and stage models of adoption. Classical models do not generally consider how an innovation could be changed, modified or adapted though more innovation over the original to make it conform to the needs of the real world. There is an underlying assumption that an innovation is a fixed non-evolving entity. Therefore, these models have very limited use in the study of the adoption of ASPs due to the process of adjustment and mutation currently affecting the model. Recalling Downs' (1996) definition of innovation, innovations are adopted to improve performance or to eliminate a performance gap[13] that might be caused by changes in the external environment (Downs 1966). It must be remembered that the environment generally changes steadily and smoothly and only in rare occasions, does it have more discontinuous changes. Therefore, in most cases, a breakthrough innovation is not necessary to close the performance gap and an evolution of an existing idea will be sufficient. This existing idea may be an old established practise but may also still be the innovation stage. Therefore, an existing innovation may need to be modified by adding more innovation or alternatively coming back to some of the features of the system used before the innovation. It could then be argued that besides certain breakthroughs, there is not such a thing an innovation, just evolution of exiting ideas. Furthermore, the ever changing environment and the uncertainty associated with it increases the chances that the initial perception of the environment was not totally accurate. Consequently, some readjustment and iteration is needed in the design of the innovation to conform with the actual environmental conditions. The initial attempts to introduce the innovation will first empirically prove whether the assumptions about the perceived performance gap characteristics were accurate or not; and second, whether the innovation was indeed well designed to close that gap. This research shows that for ASPs there seems to be a combination of failures in both aspects. For example, in assessing the environment, there was a mis-appreciation of the revenues that could be obtained from SMEs, the market demand to outsource applications and the acceptability of one-to-many solutions. These misconceptions about the environment lead to an error in the creation of suitable technology.

Once the size of the gap and the mistakes building 'the bridge' to save it have been better assessed, the existing innovation (the existing bridge) can be amended without the need to build a new bridge.

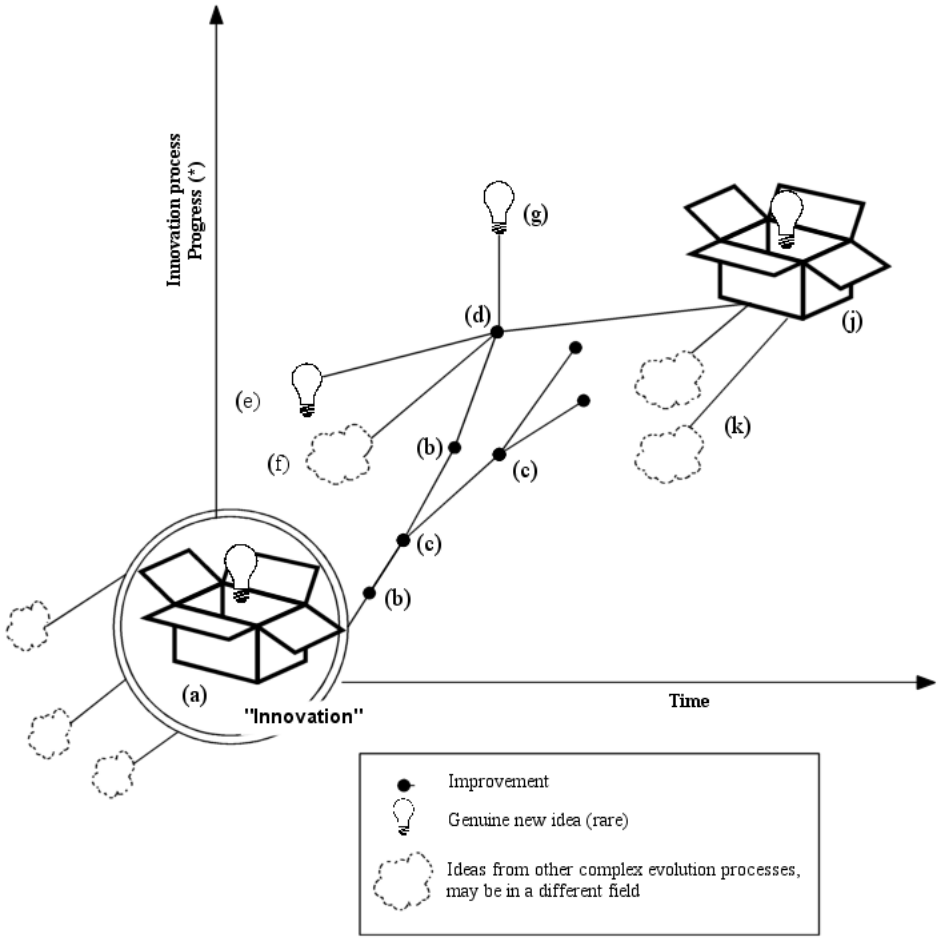
[12] This excludes journalists and communications media representatives which were not asked about this topic.
[13] The term 'gap' is considered here as the difference between what is currently done and a certain performance target. It does not necessarily imply that there is a need to catch up with a competitor.

Continuing with the bridge metaphor, the London Millennium Bridge was closed three days after its opening when lateral vibrations large enough to cause pedestrians to stop walking or to hold onto the balustrades to regain their balance were found. The initial design assumptions were checked and a mistake was discovered in the dynamic load calculations. The bridge's problems raised significant controversy about its design. But the bridge is currently being modified, not rebuilt, and after the repairs are completed it may have a long useful life. The same can be applied to ASPs; they may have been unsuccessful initially but modifications introduced could allow the concept to meet market needs. If indeed it does, with time, the initial bad fame may be forgotten (Tower Bridge also failed to open the first time). However, and this is were the bridge analogy breaks down, ASPs may not have the same time as a bridge to recover its reputation before fashion forces bring a new idea into play. This research indicates that ASPs which can survive the adaptation period will still be given the chance to prove their value.

The evolution of an innovation is not linear, continuous or unique. It will never be represented by a single line in a x-y graph. ASPs are a perfect example of this as they come from bringing together different ideas and because its evolution to adapt to the real market needs. ASPs 1.0 and ASPs 2.0[14] will generally placed under the same umbrella and therefore included in the same innovation curve. This model is too limited to represent this evolution. It is very important to note that the widespread confusion in the definition of ASPs is also due to this attempt to keep everything under the same innovation umbrella. Figure 1 presents a more accurate qualitative description of the innovation process. An innovation will emerge from the addition of many other ideas with are themselves product the combination and packaging together of other previous innovation process (a). Innovations will change and improve with modifications to adapt to the varying conditions (b). An innovation my split in two or more variants (c) of the same innovation. It may also change and improve when other new ideas (e), ideas created ad hoc to complement the innovation (g), and/or other previous ideas (f) are added. Finally (j) an innovation may be combined with other concepts (k) and repackaged as a new innovation.

[14] By using the terms ASPs 1.0 and 2.0 I am falling into the same mistake I am pointing to, as there is a theoretically infinite number of intermediate variation between and beyond the range [1.0, 2.0]. However using just two of these variations (i.e. 1.0 and 2.0) is sufficient to explain the idea and necessary in order to provide a simple explanation.

Figure 1



(*) This is an abstraction, rather than a measurable property, used to explain the advance of a technology. It could be considered as being equivalent to the capacity to perform its function more efficiently in a given environment.

Supplier focused perspective

ASPs can be seen as an innovative method for deploying other kinds of innovations or practises associated with software packages in an outsourcing context. Therefore, it is easy to mistake the adoption attributes of the ASP concept with the attributes of the applications it delivers. However, it is also dangerous to try to completely separate ASPs' attributes from those of the delivered applications as attributes of both will interact with each other. Thus, a non-favourable attribute of ASP added to a non-favourable attribute of the delivered application will decrease the chances of adoption even further. Furthermore, the relationship emerging from the interaction is not easy to define (addition, multiplication, exponential et cetera), and will obviously be innovation and context specific. In addition, an attribute that inhibits adoption from one of the two (ASP and delivered technology) may decrease the likeness of adoption due to that attribute category. Another factor to have present is that the technologies delivered by ASP may be in different adoption stages[15], which will complicate ever further

[15] Although the stages of innovation have been previously regarded as simplistic in this study the term is used here as the stage model still provides a general idea of an innovation evolving from its early stages to the point where it is not longer considered as an innovation for being a common practise. In addition, the stages terminology

the estimation of the interaction with the ASP innovation. Therefore, in order to classify ASPs according to these attributes it is necessary to divide ASPs together with the applications provided into simple and complex. Simple applications include email, word processing or spreadsheet software. More complex applications would include ERP or document management systems, for example. Although this division may be somewhat simplistic and ambiguous in some cases, it provides enough support to classify the attributes of ASPs.

When delivering complex applications, the ASP model can be considered complex due its own complexity, the complexity of the delivered application and the synergies that may arise from their interaction. In this case, ASPs will clearly fall under both administrative and technical innovation categories described above and in previous literature (e.g. Evan 1966,Knight 1967,Daft and Becker 1978). If the technology delivered implies strong organisational change it will be incompatible with current practises (e.g. a new ASP SAP implementation). If it also implies larger amounts of data transfer and conversion, have an effect on how resources, people and budget are allocated for IT/IS; or change how responsibilities are distributed; it will be hard to test it in a small part of the organisation and therefore it will have a low triavility. It will have a high observability in terms of the ease of estimation of IT/IS costs (if the SLA is good for the client) and the reduction of the internal IT department. However, if the SLA does not benefit the client it may actually make the deficiencies of the ASP contract visible and inhibit ASP diffusion. In the case of complex and radical new technologies delivered in ASP form (e.g. ERP systems), the relative advantage of using ASPs, is not perceived as being extremely high, at least for large companies, and it is eclipsed by the promises of competitive advantage offered by the other technology. For SMEs the relative advantage of ASPs can indeed be very significant as it may suppose the difference between being able to access a given technology or not. This partially explains why ASPs were initially targeted to these companies and agrees with the stronger ASP adoption rates by SMEs.

When ASPs deliver simple applications, complexity is kept low. Compatibility seems to be high as the difference between accessing a word processor or an email system hosted by an ASP compared to the traditional way is very small. Triablity is excellent as it can easily be tested in small parts. For example, a small group of people can start running word processors hosted by an ASP and it is not necessary to make significant organisational changes to test it. Observability is good again in terms of accurate calculation of costs and the reduction of the internal IT department. This coincides with the higher rates of adoption of ASPs for these types of applications. Relative advantage is once again higher from SMEs, and this again reflects the current situation of higher adoption rates by this market sector.

As expected, the supplier focus perspective and Roger's attributes alone seem to fail to accurately predict the slow adoption of ASP in the same way it seems to fail to predict the rate of adoption of other innovations, for example the fast adoption of BPR in Newell, Swan and Galliers (2000), and would also predict strong barriers to diffusion for the widely successful ERP systems. However, business process re-engineering and ERP systems promised far more ambitious organisational improvement than ASPs, so they were in a stronger position to overcome those barriers. IT outsourcing as a whole concept also offers a stronger motivation to overcome barriers than ASPs. ASPs are only a subset of outsourcing

naturally come to mind when trying to express the evolution of anything, from an innovation to the universe or the human species, through time.

(Anonymous consultant A. Outsourcing division. Leading Global Consulting Firm 2001) for large companies it may not be strong enough by itself.

Although, as previously stated, separating ASPs from the delivered technology[16] must be done with care; this research shows what seems to be an underlying complexity associated only with the ASP model. The complexity in the ASP concept was very well encapsulated in the ASP acronym, ideas such as hosted applications, outsourcing and even aspects of old mainframe computing were brought together under the ASP 'black box'. It is then a 'black box' of 'black boxes' and further conceals the underlying complexity which otherwise would expose barriers against diffusion. This complexity was neglected in the initial projections for the first wave ASPs. Technical problems with data conversion and data transfer, problems with more or less serious security glitches and software bugs are all sources of complexity. However, this research clearly identifies the three main sources of initially ignored complexities in ASPs as being the most important problems affecting the diffusion of the model.

Customisation problems

The original ASP model of one-to-many solutions has proven flawed due to the higher than expected levels of customisation that the client required and demanded. ASPs were not prepared for this, and the technical infrastructure and software packages required to provide this customisation were not available. Every company is different and these differences are greater among large companies. This again relegated ASP to the more simple applications such as email and to SMEs where the internal structure is smaller and can adapt itself better to new arrangements. ASPs are currently changing their original model to accommodate these facts and are moving from the multi-user idea to a multi-customer approach (P.Vazquez. Comercial Director.Filenet. Argentina. 2001). These recent changes mean that many ASP (2.0) are actually an even newer innovation. This second wave of ASP may be more successful than the first as it builds from the lessons learned. This is the trial and error, feedback and feed forward iterative development , that traditional diffusion models fail to include explicitly.

Service Level Agreement[17] *(SLA) problems*

The service level agreement (SLA) has been identified in this research as the major social problem and the major overall problem in the diffusion of the ASP innovation. It becomes a political problem of mixed and opposed interests. SLAs have strong administrative implications. This is, of course, common to all kinds of outsourcing agreements. However, it seems unclear at this stage of ASP development if a good model of SLA that provides a win-win situation for both the client and the service provider can indeed be created.

[16] I do not refer to these technologies as innovations as they can be relatively old (e.g. accounting systems) or comparatively old technologies (email, databases etc) and the term innovation will have implications pointing to the technology being new. ASPs are the innovation in which this study concentrates and therefore I reserve the term in this case for ASPs to differentiate it from other technologies which, using Rogers terminology, have gone beyond the early/late majority adoption.

[17] A Service Level Agreement (SLA) is an agreement between the support service and the user quantifying the minimum acceptable service to the user. They may be complex and lengthy or simple one-page documents, but they are frequently seen as indispensable to providing good service and sound relationships between vendor and customer. Hiles, A. (2000). Service-Level Agreements in Business Continuity Management, Nextsml.org. 2001.

On the SLA will depend how easy it is to estimate IT expenditure. If the SLA is well crafted, ASPs will make it easier for companies to estimate how much money they save and the contact should make it stick to those costs (Anonymous consultant B. Leading Global Consulting Firm. Technology Division 2001). For this reason, the SLA must be very carefully crafted by both parties. This has traditionally been a problem of outsourcing. In traditional outsourcing there are standard contracts and the same has been applied to ASP. But in the same way it is recommended to discard the standard contracts and built a context site-specific contract (Lacity and Hirschheim 1993), it seems important to tailor ASPs SLAs to the specific needs of the client. However, building entirely satisfactory SLAs for ASP outsourcing has proved unsuccessful. In part, this seems to be caused by the novelty of ASPs. Other factors have also been identified. In particular, it seems difficult to craft contracts for cross-national deals, which must consider different regional modes of operations, country laws and culture. This has limited the growth of ASP in the profitable large company market which has pan-continental or global operations.

Large companies vs. SMEs

It has proven very difficult to make enough money from selling simple applications to SMEs (Peter Farizs. Director Sales and Marketing. HostLogic ASP. 2001). Larger clients would be needed to make these services profitable and achieve important economies of scale.

Complex ASP solutions such as ERP systems have a higher price tag per seat and if problems with customisation can be addressed in an acceptable manner (which should be possible for small companies) a profit can be made. Therefore, in order maximise revenues it is necessary to sell complex solutions to small clients and ideally to large clients. ASPs that cannot penetrate large companies will have difficulties to survive. There seems to be a slow movement in this direction, for example larger companies such as J.P. Morgan Mortgage Capital Inc. Enporion Inc[18], Nissan North America[19] , EFTC Corp[20] and Redback Networks Inc.[21](Maselli 2000) are contracting ASPs for certain operations. Nevertheless, is still small compared with traditional IT/IS outsourcing. Furthermore, many of these large companies are hosting several applications themselves for internal use but also for their networks of partners and suppliers embracing some of the ASP ideas and competing with pure ASPs.

User focused perspective

This research shows that many of the ASP adopters fit the innovator profile. There are always innovators, which will always search for innovations for the sake of innovations. Some large companies will actively search for these innovations and try to experiment with them. The size of these companies

[18] Enporion Inc. is a consortium of 17 large energy companies launching an Internet exchange with the potential to handle $6 billion in transactions annually. Emporion has a deal with Corio Inc. to host marketplace applications from Commerce One Inc. and SAP Maselli, J. (2000). ASPs gain ground. Information Week.com. October 9, 2000.

[19] Nissan North America Inc. uses Interrelate Inc. to host E.piphany Inc.'s customer-relationship management applications and software vendor and hosting provider ECCustomer Solutions Inc. to manage an application for sending lead-generation data to 450 Infinity auto dealers Ibid.

[20] EFTC Corp. is a $222 million provider of electronic manufacturing services. EFTC contracted with Nupremis Inc. to host Oracle 11i applications for 650 users Ibid.

[21] Redback Networks Inc., a $230 million network equipment maker, signed with Qwest Cyber.Solutions to host Oracle and Siebel applications for 800 employees Ibid.

gives them the resources to experiment, minimising the chances that an innovation which can bring competitive advantage is discovered and adopted before by a competitor. For example:

> Citibank will try every new technology […] it increases the chances of not missing out anything […] in this way, for example, we introduced the first ATM machines.
> Gustavo Vazquez. Citibank. Argentina.

Innovators will also make the people get used to a new idea and uncertainty will be lower. This is where the ASP market seems to be now. It is the second wave coming because people have become comfortable on how it could work for them.

> There are always innovators […] the first wave will take the hit, the second wave may take advantage of the lessons learned from the first ones. (Anonymous consultant B. Leading Global Consulting Firm. Technology Division 2001)

The influence of Fashions in the diffusion of Application Service Providers

Fashion setters were very successful in creating a promising start for a strong fashion for ASPs. The concept was widely discussed and highly publicised. However, it did not reach the point of becoming a real fashion in terms of adoption. This makes ASPs a particularly interesting case for the study of fashion setting. This research shows some evidence that indicates that the initial ASP model was actually not a good model and that fashion setters made it more successful that it should have been based only on the value of the innovation itself. They were successful in promoting a flawed technology which quickly fell by its own weight. It derives from the expert interviews that it was a case of rational thinking winning over fashion. Most of the interviews showed strong reactions indicating the flaws of the original ASP model discussed before in this paper. Even ASPs themselves identify flaws in the initial idea (and claim to have solved them). It could also be argued that fashion setters are trying to blame ASPs' lower than expected adoption rate on the ASP model rather than their fashion setting abilities. This seems unlikely due to the good start in the fashion setting process, but it raises the question of why were ASPs pushed if they were initially so flawed. It seems that fashion setters, including the software companies that created ASPs, pushed the concept because they were the ones that made the incorrect assumptions previously described.

Imitation

Traditional IT outsourcing and in principle ASPs do not generally carry any connotations of prestige. A company will not gain or lose prestige for outsourcing its IT operation. In an IT outsourcing agreement, clients always keep a core IT department within the firm to run the contract and at least in Europe, people are comfortable with this idea of the core IT department (Anonymous consultant B. Leading Global Consulting Firm. Technology Division 2001). It is therefore accepted that a company can be equally successful having outsourced or having kept it internal IT capabilities.

A problem for creating strong imitation forces that would push the adoption of ASPs comes from marketing ASP towards SMEs. This type of company cannot provide the same kind of publicity as a large company. A precedent of a large, well known and successful company, as in the case of Kodak's IT outsourcing, could encourage ASP adoption by creating a syllogism that connected the idea of a successful company to that of the company adopting a given innovation and therefore associating the

innovation with the idea of success and prestige. Although, as previously mentioned, some large companies have recently adopted ASPs, this has only been done for a limited number of seats in only certain parts of the company. This problem, added to the fact that ASPs are more of an evolution of IT outsourcing rather than a revolution, gives this innovation a smaller public profile. This seems to be an important limiting factor in the adoption ASPs by imitation forces.

Technical economic fashion forces

ASPs still promise lower IT expenses as well as making it simpler to estimate a company's IT expenditure more accurately. This is very appealing in times where cost reductions are necessary. Therefore, ASPs and integrators believe that economic recession could be a catalytic start for people looking at ASPs in more detail. This may provide more incentives to find better SLAs that create a win-win situation both for clients and providers and may boost ASPs' appeal; even among larger companies and trigger some real fashion for ASP related innovations. In contrast, the recession period along with the longer than initially expected time needed for ASPs to be widely adopted, is already affecting start-up companies including ASPs which may disappear due to lack of funding. This may somehow harm the reputation of the ASP concept. However, the most important effect will be that software providers and consultants with outsourcing capabilities will have an even bigger role in the development of ASPs.

Another factor identified in this research is the power of investment banks in setting up and sometimes artificially maintaining fashions. Investment banks will sometimes use their position as opinion leaders to protect their investments in companies selling innovative solutions.

The influence of Communication Media as a fashion setter for ASP

This research has identified communication media as having a particularly important role in the creation of the ASP fashion. In general, media influence has been found to be strong in innovation adoption process not only as a way of spreading knowledge of the available innovation choices but also as an opinion shaping tool. Furthermore, media has an enormous reach beyond that of any other fashion setter group. For this reason traditional fashion setters such as consulting firms or technology suppliers also use media as a vehicle to increase their reach, in the form of commercial advertisement. Therefore, media is both a fashion setter itself, and a vehicle for the communication of fashions.

Commercial Advertisement and Brand building

The large presence of advertisement space pushing technology related innovations with management implications is observed in both special and general interest publications. For example, Sun Microsystems regularly advertises its e-business solutions on the back cover of *The Economist*[22]. In a single random number of *Time Magazine*[23], there were three advertisements oriented to decision makers about some technological innovation[24]. This is a general interest publication, but one which is assumed to be potentially read by decision makers. These kind of ads cannot be found in tabloids. The number of ads in special interest magazines such as *Fortune* is, of course, much larger. A random issue

[22] As for 2001.
[23] Time Magazine. April 30, 2001.
[24] From HP (2 adds), NTL and Ericsson.

of this magazine[25] [26] featured twenty-two advertisement spaces[27] [28] about technology related practises, an eight page paid advertisement about e-procurement along a thirteen page article on Oracle's CEO with could easily be mistaken with an advertisement for Oracle 11i and even its competitor Peoplesoft 8. Surprisingly, a considerable number of these advertisement spaces had some relation with ASP related ideas which shows how the media is still pushing the general concepts involved. The objective of this research is not to provide a comprehensive analysis of the number of technology innovation related and ASP related advertisement spaces in business and non-business publications. However, the large amount of this kind of advertisement targeted to decision makers indicates how suppliers and fashion setters consider media as a useful, powerful and effective tool in the diffusion process of innovations and in particular of the ASP concept (Glossner 2001). Communication experts sometimes refer to decision makers as 'opinion leaders', that is, a kind of fashion setter. They are also called 'gatekeepers', as they filter specific information and pass it on to others (Glossner 2001).

Traditional media advertisement aims to spread knowledge about a new product and tries to directly influence purchasing decisions. However, the most important function of most commercial advertisement is creating strong brand names which will influence purchasing decisions in the long term. The rules for brand creation that apply to jeans or detergent will be similar to those applied to company purchasing decisions. For example, in the 80s there was the saying that "Nobody ever got fired for choosing IBM" and the same phrase was sometimes said in the nineties about Cisco Systems. Although decisions are unlikely to be taken based on this alone, it is clear that anyone would like to have their company's name in that position.

The influencing power of brands does not affect only manufactured goods or company names; it can be perfectly be applied to management techniques or technologies. Advertisement is designed to influence people to buy a certain product. Decision makers may consider their decision more carefully than the average shopper, but are not except from being prey of many of same influences as the person choosing jeans or a detergen. Therefore, fashion setters will want this brand recognition for the innovation they are promoting.

Non-advertisement influence

Business specific publications also shape the general perception of an innovation and also have a strong influence in creating brand names for technology. They do this first merely by creating knowledge about an innovation, but also embedding in their readers' minds strong options and other preconceptions or sympathies towards certain innovations. In some cases, readers (which may include decision makers) may even create some kind of trust relations with a given business publication or particular writer creating a special type of weak ties. The readers of *Fortune* could be seen as a pseudo-network of receivers.

[25] Fortune Magazine. Time Warner Publishing. vol. 142 no.11. 20th November 2000.
[26] This refers to the European Edition of the magazine. The are some variations with the contents of the US version.
[27] Ads from Sun, BCM software, PSinet, Infowave (2 pages), Sterling Commerce, Secure Computing , Kpn quest, Siemens , eBreviate (EDS company), Level8, Ericsson, Arthur D. Little, PriceWaterHouseCoopers (4 pages), AspernTech, Oracle, Infonet, Documentum and CapGemini Ernst & Young.
[28] This is a count of the ads featuring some kind of innovation with some administrative implication. Hardware advertisements such as servers are not included in this count.

In general, media presents extremely attractive cases of successful (or unsuccessful) companies and management and technical innovations. The nature of media, that is, writing interesting stories to sell more magazines or newspapers, makes them present strong opinions on cases of either great success or failure. These articles will have a strong effect on the opinion of competitors on a given innovation. Not only because they will learn about the innovation but also because they will see how it is affecting its competitors. A well-written article in Fortune magazine of a competitor being widely successful thanks to a need innovation will indeed be a very strong fashion-setting tool. Sometimes media does not necessarily reflect reality about the value of an innovation but rather creates a new one (Glossner 2001). Overall, media seems to have a significant power in affecting adoption by imitation. Vendors are aware of this power. Even this dissertation can be considered an opinion shaping tool and it was clearly treated as such by the ASP vendors that have been interviewed.

Special interest media has the biggest effect in decision makers, especially for technologies that lack interest for the general public. The number of the special interest publications is increasing and there seems to be a demand for them (Glossner 2001).

Media can also quickly change the meaning of diffusion rhetorics and give a bad reputation to a powerful brand, backfiring on other fashion setters. This change in the meaning of rhetorics will affect how innovations are adopted as companies will not want to be associated with an innovation that has a poor image. In the case of ASPs there has been a move from "ASPs are the future" vs. "ASPs are unsuccessful". However, media has usually placed a strong emphasis in that those were the first generation ASPs and that problems are being solved every day.

Even non-business specific media can give a bad name to certain innovations, lowering the prestige of adopting it to unacceptable levels. Media shapes both the opinion of the decision makers and the opinion of the general public. However, the opinion of the general public can affect the decision makers. Therefore, media has a double angle of influence. The effect of the general public opinion is of particular importance for companies that are in direct contact with clients. For example an article explaining new robot assisted surgery in the Mayo clinic will not only help diffuse the robot surgeon innovation, but will also increase the reputation of the Mayo Clinic as a health institute. This will push competitors to adopt robotic surgery to prevent the Mayo clinic form obtaining a very strong competitive advantage, but also because it will give them a high reputation to adopt these new techniques. In this case it will not be for some psychological explanation about the decision process in the hospital's managers but because they understand the psychological impact in their client and therefore they can adopt the rational decision of implementing the innovation to project this high reputation image of themselves.

The "Kodak is always trying to improve" idea will remind hidden in people's mind when buying a digital camera or film; they will associate Kodak with innovation. ASPs are in a position where they have some, but not excessive, interest for the general public and is in general not a particularly attention-grabbing innovation for people not involved in the management of technology in the professional world. However, Microsoft's .NET initiative regardless of whether it is successful of not, will take some of the ASP ideas to the masses. It is unlikely that the public will develop and interest on the management of IT in a company. Nevertheless, the failure or success of the .NET initiative will provide some first hand exposure to ASP related concepts to decision makers (though home use for example) and this may influence their opinions when taking corporate decisions.

ASPs have been widely covered in every major special interest technology/business publication and Internet sites such as CNET.com or Internet.com have ASP specific interest sections. The ASP acronym has become widely known, although as previously stated, it has not translated into high adoption rates. Media initially built a very strong brand for the ASP concept. However, after its initial failure, the problems presented by evolving innovations also affected the way fashion setters and in particular media, has dealt with this problem. The ASP brand found itself at a crossroad. When dealing with the new forms of ASPs fashion setters had the choice of discard the ASP 'brand' to distance the evolved forms of the concept from the a failed first wave. Alternatively, it could made been clear that something has changed and keep the existing brand. It seems that a compromise solution is being applied, some evolved and modified forms of ASPs have changed the terms to, for example, MAP (Managed Applications Providers) or MSP (Managed Service provider) reflecting more closely the new models that emerged from the original ASP, and some evolutions have adopted the term ASP 2.0. The first seems to acknowledge the changes in the business model as well as to distance itself from the ASP term. MAPs, MSPs and others have received somewhat less media attention as it is a repackaged technology of a innovation which is already a repackaging of other concepts, which makes it too much of a small incremental innovation to enjoy the same level or media coverage as more original innovations. The term ASP 2.0 tries to use the ASP brand while indicating that this is a new, improved version of an idea which had good points and the bad points have been solved. The idea promoted by fashion setters is "only the first ASPs were bad" and the ASPs related concepts still have a strong future.

Role of Professional organisations

The role of professional organisations seems to be initially ignored by all of the interviewees in the ASP case and never mentioned when answering an open question about factors of adoption of ASPs. Interviewees do not identify any particular professional associations as having an effect on the ASPs adoption and it can be drawn from the experts' opinions that in the case of ASPs professional organisations are eclipsed by the media.

When specifically asking about professional organisations they were found to be an important point of communication which allows members to adopt innovations more or less at the same time, minimising the risks of being the only ones adopting a technology that may fail, or allowing competitors to adopt a new technology alone as it could provide them with a competitive advantage that the rest of competitors want to avoid. This will promote the creation of industry standards , if formally agreed , or de facto standards and industry trends otherwise. Standards in turn encourage the creation of positive feedback loops for the adoption of a given technology (Shapiro and Varian 1999; Cuadriello 2001). Therefore, the communication channels made possible by professional organisations generate confidence in the new innovation and create de facto standards which also reduce the amount of uncertainty and therefore promote adoption.

Media has been found to have had a more important role in the innovation process for the case of ASPs than professional organisations. However, as previously explained, ASPs did not pass the 'proto-fashion' stage. It is unclear whether the lack of influence of processional organisations in the ASP case has been a cause for ASP not to go past the early fashion stages or a product of the failure of ASP to get to a point where it can be promoted by the effect of professional organisations networks. It is then possible that professional organisations can have a more important role past the early stages of an innovation. It is too early to test this hypothesis with ASPs. Therefore, the study of the influence of

different fashion setters at different stages of evolution of an innovation and in particular ASPs, is left for further research.

Importance of network relations

Many ASPs were start-ups companies, due to their novelty on the market, their network of clients and contacts was significantly smaller that the network of the larger established companies such as large software companies or IT consulting firms. Although most of the people that created ASP start-ups had experience in related businesses and had brought with them some personal contacts, this cannot be compared with the connections of bigger competitors. Large companies have a broader spectrum of business lines and a longer operating history allowing them to have established relations and agreements in with many companies in may sectors. IBM for example, in an attempt to tie in customers their existing customers to this new offering, offered to set up the systems using their knowledge of the company infrastructure and receive no payment for the first year, trying to eventually get he cost back in the maintenance agreement. IBM promised too much and has not been able to deliver on the contract (Anonymous consultant B. Leading Global Consulting Firm. Technology Division 2001). However, IBM can afford to take this risk and have a larger trial and error experimentation process while the model is perfected than any start-up company. Small companies cannot offer this kind of experiment particularly after the *dotcom* burst and the scarce venture capitalist money to unproven businesses.

Competition going against collaboration pushing the innovation.

As previously stated there are still high expectations for ASPs or related concepts although it is generally assumed that it will take longer than initially expected. This confidence in the eventual success of ASP-related ideas is taking many large companies from different areas of the outsourcing business to converge part of their operations into the same space. Different types of companies are approaching from different perspectives. Companies originally in the infrastructure or software business and moving into the services business. Large consulting companies are increasing their IT outsourcing operation. They all compete with traditional outsourcing companies and ASP start-up in the business on managed applications. This is confusing for clients which may be part of the network of consultants and software vendors at the same time. It increases confusion about the best approach for ASP outsourcing witch adds to the complexity extensively explained previously in this study.

5. LIMITATIONS

This work is not to aim to offer a comparative study of different industries.. Neither does this study concentrate in adoption and diffusion of ASPs in a single organisational form (e.g. Pelz 1983 cities; Rappaport 1978, hospitals). Instead, it concentrates in the study of the adoption and diffusion of a given innovation (ASPs) for across many organisations. Multiple organisational types are contemplated and conclusions are drawn for them. The study of how different industries and/or company cultures affect the diffusion of ASP could be a topic for further research but initially there seems to be a general tendency for low adoption. Although some differences have been found between manufacturing companies and investment banks for example, this study does not concentrate in these differences and are neglected for simplicity. The only distinction considered is between SMEs, and large companies as this is a well-known significant factor in the adoption of ASPs.

The limitations inherent to the subjectivity of the experts' opinion analysis must be remembered. Interviewed ASPs vendors' answers are expected to be biased. These vendors are the surviving ASPs and therefore, their perspective of the ASP model is obviously more favourable that those who have failed. Furthermore, vendors willing to give interviews are likely to be successful. It was not possible to reach former ASPs employees from failed companies. Moreover, when interviewing consultants, vendors or clients with positions of responsibly the answers will always tend to protect the interest of the company. Even when the interviewee remains anonymous, there is still a certain identification of the person with the company and this increases with the degree of responsibility of the interviewee. As a result admitting that the company may have taken the wrong direction would imply acknowledging a personal failure. However, by asking different people from different groups (vendors, clients, consultants and media) which have a different perspectives of the ASPs adoption and comparing their views it should be possible to overcome, at least in part, this limitation.

This study concentrates in European countries and also includes some interviews with Argentinean companies. National differences inside these boundaries are neglected. Many authors (e.g. Kluckhon and Strodtbeck 1961; Hofstede 1980; Abrahamson 1996; Swan, Newell and Robertson 1999) have identified differences in management practises in different countries with will reflect in adoption decisions. This may indeed be a limitation of the study but it is assumed that at least for ASPs it is, comparatively, a minor variable. ASPs have fallen short of expectations in every country and therefore it seems reasonable to assume that there maybe universal causes for it, instead of different reasons in different countries. Furthermore, in the case of ASPs each country measures success relative to their expectation and IT market and therefore it is easier analysis the causes independently of the scale of the country's IT market. This assumption has being reinforced after the empirical research by the fact that there does not seem to be any significant difference in the opinions of the interviewed people regardless of the country.

6. CONCLUSION

ASPs were expected to have a quick and spectacular impact in the way business software applications were delivered to clients. With the exception of some strongly biased opinions, there is no question that they have fallen well below the initial predictions. There is a unanimous consensus that part of the concepts in which the first generation ASP were based were flawed and not even the best efforts by fashion setters could push the technology. The underlying complexity of ASPs had been initially neglected due to series of incorrect assumptions about the clients' need for customisation, the difficulty of creating viable SLAs and the revenue potential of the targeted market. The strong encapsulation of concepts into the ASP 'black box' helped to further conceal these complexities. These problems appeared soon in the actual attempts of implementation of the technology.

Adoption and diffusion frameworks attempt to give general explanations of the adoption process. However, there are multiple exceptions to the explanations provided by these frameworks. Frameworks are models of the real complex world and therefore just simplifications for easier understanding. They are based on assumptions of what can be neglected and accuracy of these assumptions can vary depending on the innovation. However, despite their limitations, adoption and diffusion frameworks

have proven adequate for identifying the different perspectives which point at the critical points for analysis.

The innovation process is an evolving continuum rather than unconnected solutions emerging to close performance gaps. An idea, which is given a name and designated as an innovation, is itself an evolving entity. Furthermore, evolutionary innovations and repackaging of older concepts are far more common that radical breakthroughs. Therefore, it is an extremely complex task to evaluate the diffusion of innovations when there are not fixed targets to lock-on to. The innovation process is better depicted as a web of intersecting lines of so-called innovations, ideas and repacked technologies. Innovations are usually considered as point stops for analysis in this continuum, however this is only done for simplicity and in the case of ASPs this assumption must be handled with extreme care. ASPs due to their newness, their initial flawed assumptions and their attempt to meet expectations, provide a good example of an evolving innovation. ASPs are struggling to adapt and are mutating to match the market needs, sometimes transforming themselves into variants of the original idea. If fashion setters chose to assign these variations a new name, the would be considered as a new innovation themselves. In the same way ASPs are just a repackaging of previous concepts, they can be repackaged themselves with other ideas to create other innovations.

ASPs have also been found to be an interesting case study for the understanding of management fashions. Media fashion setters created what seemed to be the beginning of a strong fashion. However, this could not overcome the fatal flaws in the original idea and the fashion created by media did not initiate a chain reation that could have materialised in a real fashion in terms of actual ASP adoption. This research indicates that professional organisations could have been a catalyser in provoking this chain reaction. However, they seem to have had a small role in pushing the ASP fashion. Further research would be needed to analyse the cause-effect relation of the role of professional organisations in this case.

ASPs were, and to some extent still are, more fashionable as a topic for business publications than a true fashionable innovation in terms of use. However, the ASP term has generally escaped acquiring a bad reputation. This may be due, in part, to the fact that there have not been highly publicised stories of companies being severely harmed by them. Fashion setters, and in particular the media, seem to be keeping a positive disposition towards ASPs and the concepts evolved from them. They generally still maintain the opinion that they have a promising future and are strongly pushing the idea that going in the general direction set by ASPs is eventually unavoidable. Fashion setters such as consultants, large software vendors (e.g. Microsoft's .NET , Siebel, Oracle etc.) and investment banks have strong interest in making the ASPs concept work. Some to protect their investments and others to obtain a significant increase in revenue flow by providing services, creating important switching costs for clients and combating software piracy among others. However, this extra time supplied by the continuous support of fashion setters may give the ASPs the opportunity to improve and create more adequate versions of the initial idea, which may indeed be highly beneficial for the customers. Whether new unexpected issues will emerge from upcoming innovations derived from ASPs and whether these innovations will be the future of application delivery is uncertain at this stage.

Finally, the lack of academic literature on ASPs contrasts with the large number of business articles and consultants reports on the subject. In addition, the factors considered by academic literature and business literature seems to considerably differ in most cases. Many aspects of ASPs are common to

other kinds of IT/IS outsourcing which is widely covered in academic literature. However, the ASP idea has some particular characteristics that make it an interesting topic for further academic research. In particular, as it is interesting example of evolving and adapting technology and an excellent case study of how management fashions start and what makes them be ultimately successful.

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APPENDICES

APPENDIX 1. INTERVIEWS

VENDORS

Peter Fariz
Director Sales and Marketing.
HostLogic ASP.
Hungary

Ana María Darder Navarro
Sub director Technical department,
Edicom
Valencia. España.

Pablo Vazquez Conde
Commercial Director
Filenet.
Buenos Aires. Argentina

Victor D. Pareja
eBusiness Solution Architect
HewlettPackard Company
Germany

ASP CLIENTS

Gustavo Vazquez
IT project leader.
City Bank, Buenos Aires, Argentina.

CONSULTANTS

Anonymous senior consultant A. Leading Global Consulting Firm. Technology Division
Further details kept confidential by request.

Anonymous senior consultant B. Leading Global Consulting Firm. Technology Division
Further details kept confidential by request.

Severing de Valence de Minardiere.
Strategy Consultant.
LEK consulting.
London. United Kingdom

MEDIA

Christian Glossner
Former journalist for CNN, N24 (Germany) and PRO7 (Germany). Currently a Strategic management consultant for Burlington consultants in London, UK.

Peter Littger
Editor and Journalist
Die Zeit
Germany

Ramon Garcia Moreno
CIA
London, UK / Barcelona, Spain

APPENDIX 2. INTERVIEW QUESTIONS

Javier Cuadriello-Rodríguez
London School of Economics and Political Science
Department of Information Systems
Houghton Street
London WC2A 2AE, U.K.

QUESTIONNAIRE

If this questionnaire is answered over the telephone the conversation will be recorded for further study. The recording and its transcription will be kept strictly confidential; they will not be heard or read by any third person nor included in the dissertation. However, some quotes from the conversation may appear (they can anonymous if you wish) in the main text. If you would prefer the conversation not to be recorded please let me know.

General open question

1. The adoption of Application Service Providers (ASPs) seems to have fallen short of expectations.

a. Do you agree with this statement?

b. If so, why do you think the ASP model is not being adopted at the expected rate while other forms of outsourcing have continued to grow considerably in the last two years?

Questions covering specific topics

2. Who created ASPs? Was there a customer demand for the ASP model?

3. What are in your opinion the mayor advantages of ASPs?

4. What do you think about the current state of technology for providing APS solutions (e.g. bandwidth issues, security protocols)?

5.

a. According to you, how important are professional organizations in the adoption of ASPs (or innovations in general)?

b. What professional organization, if any, has supported the adoption of ASPs?

6.

a. Considering that many ASPs are startup *dotcomp* companies, how do you think the general downfall of the *dotcom* companies (ASP related or not) has affected the ASP sector?

b. Do you believe the problem with failing ASP start-ups is due to lack of success of the ASP model? or is this due to other problems (independent of the ASP model and not studied here) which also fuelled the failure of many other *dotcom* companies.

7.

a. How would you compare the rate of success of established companies vs. start-ups in selling ASP solutions?

b. Do you see any differentiating factor between the usual disparity in the success of start-ups versus large established companies in selling other new technologies?

8.

a. Do you think that the relative lack of a strong network of relations with potential clients of new ASP start-ups compared with more established software companies or IT/IS consulting or outsourcing organizations has slowed down development of the ASP model?

b. Do you think that direct ASP offerings by bigger vendors (e.g. SAP, Siebel, EDS, Accenture etc.) will increase the adoption of the ASP model? for example attracting more large clients rather than mainly SMEs. If so, why? And do you see any relation with the network of this larger ASP companies?

9. Do you think the general concept of renting instead of buying application is, in general, a good idea?

10. Do you believe that ASPs are an administrative or a technical innovation (or both)?

11. How do you think companies, managers and decision takers in general learn about the ASP concept?

12. I assume that ASPs can be divided into simple applications (e.g. mail systems, word processing) and more complex applications (e.g. ERP systems, document management systems).

a. Do you believe there is a different *perception* of the complexity in implementing a complex system, for example an ERP system, between a conventional implementation compared to a ASP implementation? In other words, are potential implementation issues and problems *perceived* as being less serious if the ERP solution is in the form of an ASP?

b. Or are there, *in fact*, less implementation issues and complexity using the APS model?

13.

a. Were ASPs fashionable among organizations in terms of, at least, considering them as an option or showing interest in the concept? Or were they only fashionable in terms of media attention?

b. If ASPs were in fact fashionable form of IT/IS outsourcing in any of these ways, why did this fashion did not translate into a higher rate of adoption?

14. Do you believe the economic slowdown has had an impact in the adoption of ASPs? If so, what kind of impact and why?

15. ASPs (and outsourcing in general) could be interpreted as a serious attempt to focus on core capabilities and reduce costs. However, ASPs have sometimes being marketed as a low cost option, at least for initial set-up cost. They also promise to bring IT expertise to a company that does have it. Although these are common characteristics to all kinds of IT outsourcing, the ASP model seems to be a very radical (complete) form of IT outsourcing. Is there certain lack of glamour or perception of low prestige in adopting and ASP solution, in particular for established companies with high reputation?

16. Do you believe that there are significant national differences affecting the adoption of ASPs? Can you explain why or why not?

17.

a. Do you believe that there is a competition between consultants vs. ASPs vendors wanting to do the implementation task usually associated with IT consulting firms?

b. If so, is it seen as a significant threat to big consulting firms? In particular when competing with traditional large software vendors (such as Microsoft and it's .net strategy).

c. May this create a certain tendency among big consulting and outsourcing firms not to support the ASP model?

Administrative questions

18. Do you want to remain anonymous? (*yes/no*)

19. Do you want your company to remain anonymous? (*yes/no*). If not, please provide the description of your company you would prefer (e.g. ASP start-up company, Big-five consulting firm, Fortune500 company, IT consulting firm, French SME, large IT solution provider)

Thank you for your help.

Javier Cuadriello-Rodríguez
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APPENDIX 3. GLOSSARY OF ACRONYMS

ASP Application service providers. Not to be confounded with Active Server Pages (also ASP)

TQM Total Quality Management

MAP Managed Application Provider

SSP Storage service provider

MSP Managed Service providers

ERP Enterprise Resource Planning System

JIT Just-in-Time

SME(s) Small and Medium Enterprise(s). Not to be confounded with Subject Matter Experts (SMEs)

SLA Service Level Agreement

BPR Business Process Re-engineering

PC Personal computer

IDC International Data Corporation

CRM Costumer relationship management