Application Service Provision for Intelligent Enterprises

Matthew W. Guah
Warwick University, UK

Wendy L. Currie
Warwick University, UK

ROAD TO ASP

Several historical shifts in information systems (IS) involved strategies from a mainframe to a client server, and now to application service provision (ASP) for intelligent enterprises. Just as the steam, electric, and gasoline engines became the driving forces behind the industrial revolution of the early 1900s, so the Internet and high-speed telecommunications infrastructure are making ASP a reality today. The current problem with the ASP model involves redefining success in the business environment of the 21st century. Central to this discussion is the idea of adding value at each stage of the IS life cycle. The challenge for business professionals is to find ways to improve business processes by using Web services.

It took mainframe computers a decade or two to become central to most firms. When IBM marketed its first mainframe computer, it estimated that 20 of these machines would fulfil the world's need for computation! Minicomputers moved into companies and schools a little faster than mainframes, but at considerably less costs. When the first computers were applied to business problems in the 1950s, there were so few users that they had almost total influence over their systems. That situation changed during the 1960s and 1970s as the number of users grew. During the 1980s the situation became even tighter when a new player entered the picture—the enterprise (McLeord, 1993). In the 21st century, information systems are developed in an enterprise environment (see Diagram 1).

Beniger (1986) puts forth a seemingly influential argument that the origin of the information society may be found in the advancing industrialisation of the late nineteenth century. The Internet is simply a global network of networks that has become a necessity in the way people in enterprises access information, communicate with others, and do business in the 21st century. The initial stage of e-commerce ensured that all large enterprises have computer-to-computer connections with their suppliers via electronic data interchange (EDI), thereby facilitating orders completed by the click of a mouse. Unfortunately, most small companies still cannot afford such direct connections. ASPs ensure access to this service costing little, and usually having a standard PC is sufficient to enter this marketplace.

The emergence of the ASP model suggested an answer to prevailing question: Why should small businesses and non-IT organisations spend substantial resources on continuously upgrading their IT? Many scholars believed that outsourcing might be the solution to information needs for 21st century enterprises (Hagel, 2002; Kern, Lacity & Willcocks, 2002; Kakabadse & Kakabadse, 2002). In particular, the emergence of the ASP model provided a viable strategy to surmount the economic obstacles and facilitate various EPR systems adoption (Guah & Currie, 2004). Application service provision—or application service provider—represents a business model of supplying and consuming software-based services over computer networks. An ASP assumes responsibility of buying, hosting, and maintaining a software application on its own facilities; publishes its user interfaces over the networks; and provides its clients with shared access to the published interfaces. The customer only has to subscribe and receive the application services through an Internet or dedicated intranet connection as an alternative to hosting the same application in-house (Guah & Currie, 2004). ASP is an IT-enabled change, a different and recent form of organisational change, evidenced by the specific information systems area (Orlikowski & Tyre, 1994). ASP has its foundations in the organisational behaviour and analysis area (Kern et al., 2002).

The initial attempt—by the ASP industry to take over the business world—was fuelled by the belief that utility computing offered a new business model to customers, similar to electricity, gas, and water. The commercialization of the Internet meant that, as network traffic increased in a firm's data centre, IT architecture would trigger other resources into action, including idle servers, applications, or pools of network storage. The firm would pay only for the amount of time it used the services. Thus, the concept of 'software-as-a-service' was created

(Kakabadse & Kakabadse, 2002). Accessing IT resources in this way would result in reduced up-front investment and expenditure, enabling firms to buy services on a variable-price basis (Dewire, 2000). This fuelled opportunities in the late 1990s for service providers to offer software applications and IT infrastructure on a rental, pay-as-you-go pricing model (Bennet & Timbrell, 2000). An ASP could be a commercial entity, providing a paid service to customers (Dussauge, Hart & Ramanantsoa, 1994) or, conversely, a not-for-profit organisation supporting end users (Currie, Desai & Khan, 2003).

ASP AREAS OF CONCERN

As evidence relating to the reality and basic features of the ASP market continues to grow, there begins to be less concern about confirming that any structural economic shift has continued historically, and more concern about understanding how the ASP industry is performing, and its impacts on productivity, investment, corporate capital formation, labour force composition, and competition.

The ASP business model is premised on the formation of strategic alliances and partnerships with technology and service providers (Ferergul, 2002). Telecommunications firms entering the ASP market with large IT infrastructures needed to partner with ISVs and hardware manufacturers. One of the significant strategic alliances was between Cable & Wireless (IT infrastructure), Compaq (hardware manufacturer), and Microsoft (ISV). Pure-play ASPs without a large investment in IT infrastructure needed to form strategic alliances with data centre and co-locator firms (telcos) and ISVs. Some of the major reasons for businesses to implement an ASP business model are list in Table 1.

The ASP model was highly volatile, dynamic, and immature. A recent review of the ASP industry concluded that technological factors like scalability, the managerial aspects of speed and focus, and the behavioural aspects of price and flexibility were the key drivers of the model. The inhibitors of the model were poor connectivity, lack of trust in the model, reluctance to be locked into long-term contracts with suppliers, lack of customisation, poor choice and suitability of software applications from ASPs, and few opportunities to integrate disparate applications across technology platforms and business environments. These factors and others led Hagel (2002, p. 43) to conclude:

"ASPs in many respects represented a false start in the efforts to break out of the enterprise straitjacket. In particular, few of them adopted Web services architectures as their technology platform. Instead, they attempted to build businesses on the Internet using traditional technology architectures...this proved to be a significant flaw in the early ASP model and explains many difficulties these businesses experienced."

The business environment for intelligent enterprises (see Diagram 1) includes the enterprise itself and everything else that affects its success, such as competitors; suppliers; customers; regulatory agencies; and demographic, social, and economic conditions (Guah & Currie, 2004). As a strategic resource, ASP helps the flow of various resources from the elements to the enterprise, and through the enterprise and back to the elements.

THE FUTURE OF THE ASP MODEL

According to Forester Research, the proportion of ASP business in the outsourcing market peaked at about $800 million in 2000 and was projecting for $25 billion by 2005. However, it actually declined by the year 2002 (due partly to the effect of stock market collapse) and currently is being projected at $15 billion by 2006. The overall business interests in the ASP model will continue to rise, with proportionally higher rates of investment by vendors

Table 1. A list of motivational factors to implement an ASP strategy

- To take maximise the capabilities of the Internet's latest technology
- To increase sales of products and services
- To reach a highly desirable demographic market
- To stay on top of competition
- To make changing information available quickly
- To test new products and services on the market
- To boast morale among staff and customers
- To experiment with an Internet model to business IT outsourcing

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