A CONCEPTUAL MODEL OF THE ASP INDUSTRY DEVELOPMENT: LESSONS FROM KOREAN CASE STUDIES

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ABSTRACT

The ASP(Application Service Provider) industry provides essential infrastructure for the Internet-based e-business transactions, thereby accelerating corporate e-transformation. First introduced is the current status of the industry together with brief industry analysis focusing on the driving forces shaping the evolution path. Emerging ASP business models are classified and analyzed in order to assess their viability in the market based on the economies of scale on the supply side. With the proposed framework, we analyze the Korean ASP market and explore key dimensions of the industry development.

Keywords: IT outsourcing, Application Service Provider(ASP), Value chain analysis, Industry dynamics, Korean case study

INTRODUCTION: ENTERPRISE INTELLIGENCE AND THE ASP INDUSTRY

The enterprise intelligence through e-transformation will be one of the cornerstones of the next generation e-business era where the Internet constitutes the core business resource. The competitive landscape of the e-business is changing from the head-to-head competition between companies to one between network organizations formed around the competing value chains. Accordingly, firms are forced to focus on their core capability and tend to farm out staffing functions such as IT. Under this circumstance, enhancing intelligence and synergy through e-transformation will be accomplished by IT outsourcing via ASP(Application Service Provider).

However, there is also a pessimistic view on the future of the ASP industry. As a matter of fact, the industry is faced with many challenges that should be overcome for the ASP business models to survive and prosper. Success of an ASP first depends on the extent to which its client companies streamline their business process and leverage outsourcing to reduce costs. In addition, the technical factors in building seamless value chain like SLA(Service Level Agreement) and security concerns will become another key success factors.

The purpose of this study is to present a systematic view point on the ASP industry. We first review the ASP industry in its early stage of the development, its expected roles as one of the most important service industries in the e-business era. In the next section we introduce various types of the ASP business models and their dynamic evolution process around the value chain of the industry. Then, provided is a conceptual model to analyze the industry evolution, which focuses on the required understanding of the dynamic market mechanisms. Lastly, leveraging this conceptual framework, presented are some observations and lessons from the Korean ASP market. We also provide the analysis and implications of the observations and lessons regarding the industry development and strategy issues. With the proposed framework and lessons from Korean cases, organizations on e-transformation will be able to gain deep insight into ways to improve their intelligence and performance through ASPs.

INDUSTRY DEVELOPMENT TRENDS

The Value Chain of the ASP Industry

An ASP is generally defined as a 3rd-party service firm which deploys, manages, and/or remotely hosts a software application through centrally-located servers in lease agreement. ASPs started their business with providing online application programs such as ERP(Enterprise Resource Planning) and CRM(Customer Relationship Management) solution packages to corporate customers. The first customers were small companies or local branches of multi-national companies where IT outsourcing was the only option to deploy IT resources due to financial or regional constraints. As seen in these cases, the biggest merit of employing ASPs is the fact that corporate customers no longer should own the applications and take responsibilities associated with initial and ongoing supports and maintenance. Subsequently, ASPs are differentiated from the existing IT services in that ASPs provide IT resource to multiple corporate clients on one-to-many basis with standardized service architecture and pricing scheme.

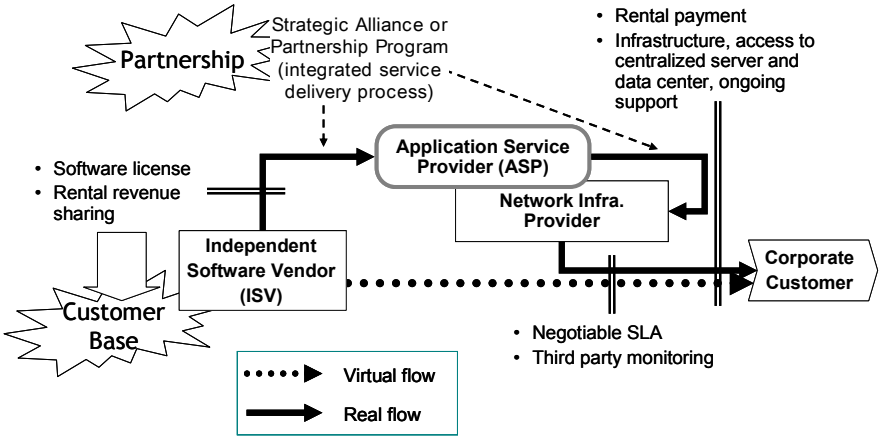

Figure 1: The Internet-based e-business value chain around the ASP industry

Figure 1 shows how ASPs provide a way to redesign the value chain and thereby, enabling virtual integration and cooperation. The industry value chain does not allow a single service provider to control the entire service delivery process. Even if we confine our attention to the software delivery process in the value chain, the complexity does not reduce significantly. In order to deliver applications over the Internet, we need a mechanism to establish and maintain collaboration among independent functional divisions. This study will focus on this nature of the value chain to show how the industry is likely to evolve and to interpret the strategic meaning of special types of convergence. In particular, we should point out two critical aspects of the value chain, which are required to survive in the market: large customer base and stable relationship with other functional divisions. For example, a survey result([7, 8, 9]) shows that an ASP should provide ERP package to more than 20 clients to reach the breakeven point; this number is quite a challenging target to many ASPs under the current sever competition for market share. And the structure of partnership among the players in the value chain is one of the major elements to classify emerging ASP business models. These features to be discussed later constitute essential ingredients of the conceptual model to be presented in the following section.

Market Drivers and Challenges

There are a number of factors that are frequently cited as fueling or dashing the growth of the ASP market. Though there has been a little ASP-related literature, most of them deal with market drivers and challenges: for example, [3, 5]. Thus, in this study we present only the survey results rearranged from the perspective of our research objectives to construct an analytical conceptual model to capture the industry dynamics. More detailed and somewhat different views on the industry can be found in [3, 5, 8]. Table 1 gives a summary of market drivers and challenges which are classified into three categories: 1) technical factors, 2) market/economic factors, 3) other business environment factors including institutional/regulation issues.

Table 1: The drivers and challenges of the ASP industry

Category	Drivers	Challenges
Technology	◆ Reduce risk of technological obsolescence due to rapidly changing IT ◆ Provide a chance to utilize best-of-breed applications ◆ Avoid IT staffing shortage	◆ Unsolved security concerns ◆ Emerging new technological requirements from the clients: e.g., SLA with client participation ◆ Unproved service reliability: e.g., network problems, system scalability and performance
Market	◆ Minimize up-front TCO(Total Cost Ownership) ◆ Provide predictable cash flows	◆ Unproved client momentum ◆ Failure in giving clients sufficient trust due to unstable ASP industry
Other business environment	◆ Standardized IT supports around the world due to increasing global competition	◆ Economic downturn etc.

One of striking characteristics observed so far is that immaturity of the industry is the most representative challenges in terms of the market factor. In particular, the uncertainty as to whether existing and emerging ASPs are winning enough customers to validate the basic ASP delivery model for highly sophisticated enterprise applications. For instance, while some ASPs are gaining momentum with early adopters, there are many client companies that are unwilling to rent ERP applications due to the lack of trust in the industry itself in Korea([4, 6]). Moreover, it is security control and remote monitoring systems, SLA management, and global standardization process that should be further developed to support the proliferation of ASPs. We will revisit this facet in the discussion section.

EMERGING ASP BUSINESS MODELS AND INDUSTRY DYNAMICS

The Emerging ASP Business Models

The industry's short history raises the following questions. What changes will happen and who will be the winners and the losers? To answer these questions, this section will clarify different types of the ASP business domains that are currently emerging. This classification will play a key role in identifying and analyzing the collaborative networking structure in the ASP value chains. With the analysis of the emerging ASP business models, we also identify dynamic capacity of each business model. Table 2 represents the simplified version of the classification in alignment with the research objective, where the diverse provider types are rearranged based on the relationship among the key players in the value chain.

Table 2: Strategy/capability profiles of the ASP business models

Basic Types	Characteristics	Value-added Components	Dynamic Capability
H-ASP (Horizontally-specialized ASP)	◆ Develop deep expertise within a given functional area (as opposed to one-stop shop) ◆ ISVs' need of partnership with systems integration and distribution companies ◆ Should be web-based software provider	◆ Either own the software or develop proprietary integration in a specific field ◆ Substantial consulting services	◆ Well positioned to expand customer basis quickly ◆ Hard to copy the domain-specific knowledge
V-ASP (Vertically-specialized ASP)	◆ Industry-specific applications (in contrast to one-stop shop)	◆ Vertically-oriented, template methodology: easily deploy across multiple clients in the same industry	◆ Strong advantage in customized solutions (e.g., lead time) ◆ Hard to copy the industry-specific knowledge
AIP (Application Infrastructure Provider)	◆ Originated from telecommunication company that owns networks and has operations experience ◆ Provide infra management to ASPs	◆ Provide system management services including SLA ◆ Alleviate client concerns regarding network reliability, etc.	◆ High investment costs as an entry barrier: easy to protect their market share
XSP (eXtended Service Provider)	◆ Provide total services from front-end to back-end with systems integration consulting ◆ Create new business process by rearranging suppliers and customers ◆ Help customers and even other service providers enter new markets, deploy services, and improve profitability easily while minimizing risk	◆ Build and integrate customized applications ◆ Enable clients to avoid the need to handle multiple ASP solutions ◆ Has its own IDC	◆ Going back to one-stop-shop idea: Improved flexibility will be the core competitive edge for XSP

Guiding Principles in the Industry Dynamics

Abstracted here are the fundamental principles which shape the major trend of the ASP market evolution. We will confirm this guiding principles with Korean case studies.

First, it is the economies of scale or increasing return that serves as the core economic guiding principle for ASPs. A survey on the Korean IT outsourcing market reveals that, in terms of the TCO(Total Cost Ownerships) of a typical ERP package, IT outsourcing through ASPs enables clients to save roughly 20% of their up-front license fee and 80% of the implementation and maintenance service costs([6]). Accordingly, ASPs that host these applications basically seek to lower this 80% portion of the TCO upon the notion of a one-to-many relationship between an ASP and its clients. An ASP is usually able to leverage standardized solutions across multiple clients. Attaining client momentum and reducing the overall costs per client are the major economic motivation for ASPs to compete each other, thereby creating a positive feedback mechanism through network externality on the demand side. In sum, the competition keeps going for expansion of customer base or market share which provides a good surrogate measure of profit for this case.

Second, the competitive landscape is also defined by the unique nature of a service system market where independent hardware and software resources are combined and reorganized into a new package in alignment with partners over the value chain and even customer's business process([2]). These offerings aim at designing a seamless and proprietary service delivery process to sharpen the competitive edge while raising the entry barrier. This essential feature of integration in the service delivery process makes the various possible business models reduce into the different types of service product combinations along the value chain as presented in table 2. However, the integration should be verified by achieving overall cost savings though it is not easy to measure the amount of cost reduction by a certain partnership structure. Accordingly, the cut throat competition fueled by business domain integration not only drives down the price at an acceptable market price but also creates diverse market segmentations based on the service product differentiation.

For the above reasons, ASPs' common value proposition to improve total benefits from IT outsourcing has been giving rise to various trials in designing the service delivery processes, each of which corresponds to a business model suggested in table 2. The guiding principles of this experiment are summarized into 1) economies of scale through positive feedback from the market and 2) integration over the value chain for attaining cost reduction and differentiation.

CONCEPTUAL MODEL AND CASE STUDY OF THE KOREAN ASP MARKET

The Conceptual Framework for Analysis of the Industry Dynamics

The capability and strategy profiles of ASP business models(see table 2) and the underlying mechanism in the competitive landscape derived from the evolution guiding principles will constitute the fundamental ingredients of our framework. Figure 2 depicts the skeleton to conceptualize the industry dynamics and evolution. This conceptual model highlights the substance that has led the industry to face proliferation of ASP business models; however, in the end will survive only a few successful kinds that adapt themselves to the market requirements and take the most advantage of the competitive landscape. Subsequently, the resulting competition can be characterized by large customer switching costs and high barrier to entry.

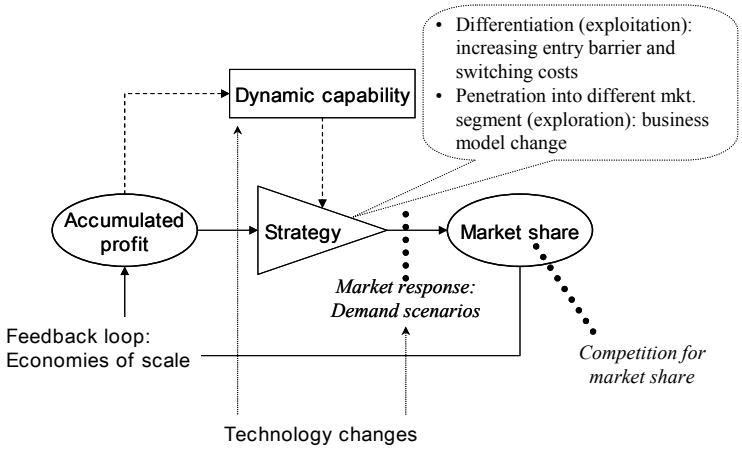

Figure 2: Conceptual model of the industry dynamics and evolution

Case Study of the Korean ASP Market: Observations and Lessons

Presented here are some observations and lessons from the Korean ASP market, which are further refined based on the explanatory research in figure 2. First, we start with overview of the general trend that the total number of ASPs in the industry is reducing since the customer base is not large enough to keep all the incumbent ASPs alive. Cash flows generated from the market give winners resilience to possible occasional failures and allow them to better manage risk by diversifying a portfolio of value components to open a new market niche. It is this kind of positive feedback loop, or economies of scale that accelerates the exit of losers from the market and shapes the industry structure.

Secondly, despite the reduced number of ASPs, consolidations of different business models will not occur on a large scale. It is hard to guarantee that only some specific types of the ASP business models will survive in the end. Two basic phenomena regarding the competitive landscape, increasing switching costs and rising entry barriers are common to all the business models defined in the previous section. As a result, efforts to penetrate into a different market segment and build new customer relationship at the niche will inevitably run into strong resistance from the incumbents. Some events like technological breakthroughs will be required in order for a specific ASP model to consolidate another. Therefore, various business models will thrive over a long period of time before some giant players in each business model emerge.

However, the market is concentrating more around horizontally- and vertically-specialized ASPs(i.e., H-ASPs and V-ASPs) than around the pure ASPs(that is, a simple partnership with ISV). According to the conceptual model, the primary concern of the emerging ASPs is to build some value-added components to the service architecture, thereby making it hard for competitors to replicate their business model and for customers to replace the current provider. However, reliance on third-party ISVs could make it more difficult to resolve underlying performance issues that have been the subject of customer scrutiny. On the other hand, looking up the capability profiles of the ASP business models, we can conclude that both H-ASPs and V-ASPs hold a dominant position from this standpoint. If some technical constraints such as SLA and security requirements come to rise to the surface, AIP will gain technological competitiveness.

Furthermore, ASPs that originally developed their proprietary solutions will be better positioned in terms of ultimate performance and scalability. They will increase the chance to succeed in the market irrespective of how critical a given solutions is to their client's day-to-day operations. For example, the application delivery process may be much more critical to success than the level of sophistication of the service product. This assertion is substantiated by the current trend that many companies are conducting a test-driver with non-mission critical applications before signing with an ASP to host large scale enterprise applications. We have also seen that many ISVs have been withdrawing from the IT outsourcing market. This trend will sharpen the competitive edge of AIPs which have a strong position in assuring network security, scalability, and other performance related concerns. Delegating the control of core enterprise applications to an external provider requires ASPs to prove their capability of reliable and stable operations. In these regards, the AIP model clearly increase the chance to join the top ranks as technological leadership is being scattered along various dimensions in the service delivery processes. As a result, we will see a unique coexistence of diverse ASP business models.

Lastly, we predict that the rate of demand increase will affect the industry structure: the pattern of market segmentation, market share of each ASP type, etc. The speed of the market expansion will affect ASPs' selection of competitive priorities. For example, success of the XSP model which is the most cost sensitive among other types of ASPs, should presume the rapid proliferation of the ASP services in an overly complex market. If we observe a trend of steady but slow adoption of the ASP services across a wide spectrum of corporate functions, XSPs will be in a financial crunch since the costs to provide total solution cannot be covered from cash inflows. In this case, XSP will emerge only after the market demand for the ASP services become sufficient enough and the number of XSPs will not be significant. However, if the ASP service demand grows explosively in a short period of time, the XSP model will debut in the market earlier on, increasing the possibility of XSPs dominating the industry as they have scale advantage in terms of cost. This will result in other ASP business models concentrating on relatively small market niche.

CONCLDING REMARKS

The ASP industry will shape the future e-business transactions, providing a great flexibility in redeploying firm's resources. Although the industry is currently at its early stage of the industry life cycle, much attention is now paid to vertical or domain specific expertise and flexible capabilities in addition to the basic offerings. Provided in this paper was an explanatory approach and conceptual model to capture and analyze the essential features around the industry evolution. The framework was developed from and supported by thorough examination of the Korean ASP market. The analysis disclosed that 1) capability of an ASP model hinges on differentiation of service products to a large degree and 2) economies of scale plays a key role in the dynamically evolving market mechanisms. Lastly, some technical factors that may affect the evolution path(for example, SLA regulation and security) will be considered in the future research.

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