E-BUSINESS CONCEPT AND INDUSTRIAL STRUCTURE APPROACH: AN EXAMPLE OF TELCO'S E-BUSINESS STRATEGY

Moon Soo Kim

*Electronics and Telecommunications Research Institute, mskim@etri.re.kr
KOREA*

This paper is a pilot study that expands the definition of e-Business from the perspective of suppliers and constructs a strategic framework, in particular, for telecommunications provider. For this purpose, a structural stratum of the market-demanded e-businesses will be scrutinized first followed by the major strategies of providers, and will be illustrated using diagram of structure-service and product mapping. Furthermore, some conditions in the success of those strategies will be proposed.

1. INTRODUCTION

Recently, the rapid diffusion of e-Business has been accompanied by the dissemination of the Internet. Companies need to integrate their internal information systems with Internet-based external networks to meet the demand of customers and to communicate with other ones. This realization of external networking through the Internet is subsequently entailed with the reduction of business process cost and also creates new demands and profits in the market. Accordingly, many companies have been introducing the Internet-based intranet and extranet establishment as well as real-time communication with customers. A variety of research, as a result, has been carried out to devise new ways to apply e-Business models to traditional businesses effectively. However, there are not abundant studies on the e-Business with respect to suppliers, covering areas such as service providers, hardware and software providers and consulting companies. This study expands the concept of e-Business from the perspective of suppliers. And this performs an industrial structure approach to e-Business as well as proposes more concrete strategies by using a diagram of structure-service and product mapping for suppliers, in particular, telecommunication providers (Telcos).

The original version of this chapter was revised: The copyright line was incorrect. This has been corrected. The Erratum to this chapter is available at DOI: [10.1007/978-0-387-35585-6_68](https://doi.org/10.1007/978-0-387-35585-6_68)

2. THE EXPANSION OF E-BUSINESS CONCEPT

The mostly cited definition of E-Business by IBM in 1997 is “the transformation of key business processes through the use of Internet technologies” (Tracy, 2000). It is also defined as “the online system of information and transactions between a company and customers, communications between subdivisions within a company and communications between colleagues or companies” (Mckendrick, 1999) or as “the optimization of key business processes using digital technologies based on Internet” (Kalakota & Robinson, 1999; Smith, 2000). The heart of the concept of e-Business is to minimize the business cost by achieving transparency of internal and external process through the use of the Internet and Information Technology.

In order to establish e-Business it must be necessary not only the Internet infra, but also various service and products: consulting, network and system integration providers for integration of internal process and with external process, and the cost-effective hardware and software. In this respect, many IT equipment providers, consulting companies and Telcos are expanding their business into those areas mentioned above. For example, Qwest, an American Internet provider (merged with US West in November 1999), has established Cyber Solutions in coalition with software companies such as SAP, PeopleSoft, Siebel and Oracle, which is a joint venture with KPMG, an IT provider. They made this company as a base of providers with comprehensive e-Business services (<http://www.qwest.net/>). Thus, this definition is a little too narrow to include those businesses such as hardware providers, software vendors, NI/SI providers, and telecommunication providers.

It is now necessary to introduce a wider concept of e-Business to those vendors and service providers, which develop their business in the e-Business of other companies. Therefore, a new definition of e-Business including the existing concept is proposed in this study in relation to e-Business products and its service providers as shown in Figure 1. The definition of e-Business illustrated in figure 1 consists of three major elements. Fundamentally, there is an aspect of service-using company introducing e-Business in their infrastructure of business. Another aspect is that of service-providing company including their products.

Figure 1 An expansion concept of e-Business

Tracy (2000) defined the extent of e-Business as the automation of three processes based on Extranet and Intranet. The extranet includes the automation of supply chain, the automation of interactions with other companies (coalition in designing and devising products), and the automation of interactions with customers (sales, training, customer services and marketing). It is represented as “e-Bization” – transforming into an e-Business –either between corporations or between a corporation and customers in figure 1. The intranet consists of the online cooperation and coalition between geographically disparate colleagues, online internal administration, for example to provide business trips and reservations, and the publication of knowledge and information in a variety of business activities. It is also represented as the e-Bization of internal corporation system in figure 1.

e-Business from the viewpoint of supply includes the internal/external online business solution among companies, hardware and software network infrastructure, and communication services. These suppliers also have the aspects of service-user e-Businesses as mentioned above.

The third element of e-Business is the Internet frame. It provides not only online marketplaces like B2B, B2C and B2C to exchange various products and services between suppliers and users but also can be a good like e-Hub, e-portal and related S/W and H/W etc. What is important here is the fact that a group of companies can develop their own Internet based business for their internal e-Business and the providers can also supply those businesses at the same time. For example, GM and Ford, the American automobile companies, have established the system of Trade exchange and Auto Xchange, and provide the e-Marketplace to their affiliated parts companies, resulting in more than a 10% reduction of transaction costs. Likewise, AT&T provides American automobile companies with ANX (automotive Network exchange), a instance of the latter example which plays a role of the B2B Marketplace platform in American Automobiles.

The e-Business agents, user companies and supplier companies, also form a traditional offline market where they build a user-supplier relationship including logistics and distribution, etc, or enable to feedback of users' needs.

In this wider definition of e-Business, this study will focus on the e-Business strategies of those suppliers in the implementation of general e-Business, particularly related to e-Business strategies of telecommunication service providers, rather than such strategies within a company or between a business and customers.

3. Industrial Structure Approach to e-Business

3.1 The Necessity of Industrial Structure Approach to e-Business

In this study, industrial structure is defined as the dispersion of industries with supply-demand relation to the completion of certain industrial goods or services. This hierarchical pyramid is considered to be the industrial structure.

The Telecommunication operators, who made their profits through the business model based on voice and data communication service, have difficulty in creating new profits from a different e-Business model. In the current situation where e-Business models are incorporated into the traditional business activities, there is a

good opportunity to supplement them with Internet-related technologies and services.

This opportunity itself demands that the Telcos adopt new strategies and approaches to e-Business. New products for e-Business development, not just communication lines, should fit into the solution concept of comprehensive communication, which is deduced from the application and demand of user-based e-Business (Keiho et al, 1998).

The indispensability of e-Business strategy through industrial structure approach by telcos is based on the four aspects – demand, technology, provider's capability and environment aspects. To begin with, the industrial structure approach with a view to demand is required to make it easy to grasp what consumer companies wants systemically from industry. It is also needed because there are usually some specific practices of transactions, supply, and technology in each industry.

Second, the industrial structure approach on the technological aspect is apt to realize the B2B e-Business satisfying specific requirements in similar industries while there is a lack of general flexibility in its application. It also enables the provider to accumulate the technological flexibility to adapt to the changes and evolutions of e-Business due to the demand of corporate consumers. Therefore, it is easy to accumulate the e-Business technology for a company to change from the traditional telecommunication business to Internet business.

Third, the industrial structure approach on the essential capacity of Telcos is needed in the information area rather than in the communication area. It is because the telecommunication provider focuses on providing general service instead of supplying specialized information and service products, hence there is increased risk in e-Business targeting for all industries. Therefore, the providers should consolidate their fundamental ability targeting for a certain group of industries.

Finally, on the environmental aspect, vertical B2B model of e-Business is expected to have more marketability as implied in its application of overseas markets. It has the similar application in domestic markets and is facilitated by e-Commerce and e-Business led by the government in each industry. International B2B Marketplaces are also structured by industry so that the industrial structure approach can respond to the domestic and international changes of e-Business environments more flexibly.

The market of relevant upper-tier industries such as electricity/electronics and info-communication are quite large for the telecommunication provider. The possibility of its growth and the wide adaptability of e-Business are regarded as the primary target that the telecommunication provider should consider in their e-Business strategies.

3.2 A simple e-Business Strategic Framework Based on Industrial Structure

Telecommunication providers, on the aspect of supply, should target the differentiated strategies of e-Business by tier, which are based on the demand and strategy of e-Business on each tier of industry, after considering the structural and hierarchical characteristics of a separate industry.

A systematical scheme for e-Business strategies is suggested on the basis of its framework in Figure 2 so as to reflect the industrial structural characteristics and to establish the most flexible e-Business strategy. Structure-Service/Product Mapping

Diagram is made on the basis of the relations of an industry within a tier and between tiers, using the data of both the structural characteristics and demands of user companies and the product and service information of telecommunication providers. The diagram will help create the mixed item of product and service to fulfill the demand of each tier of industry and the change of the industrial structure for it is regarded as the core of e-Business strategy.

Figure 2 - Telco's e-Business Strategy Framework based on Industrial Structure

4. AN EXAMPLE OF TELCO'S E-BUSINESS STRATEGY

4.1 Structure-Service/Product Mapping Diagram.

This study includes an attempt to grasp the e-Business related work of a certain domestic industry, to analyze its organizational structure, relevant services and product information and to make a comparison with a group of proper industry within the same tier of the industry. The services for the development of e-Business by tier are also mapped with these distinctive departments in Telco's organization. An example of the Structure-Service/Product Mapping Diagram is shown in Figure 3.

The targeted Korean Telco has the organizational structure by function under the head quarter in charge of the whole e-Business. Each business department has set or is setting up technically similar services to provide them for corporate or individual consumers. For instance, 'A'-Department takes charge of the corporate network service based on a variety of hosting services and group-wares. Hosting services are classified not only by the capacity and quality of its supply but also by the industrial tier or its user company. Co-location, for instance, is the form that the user company consigns the control of their server to the telecommunication provider, while Server Hosting is the form of the lease of telecommunication provider's server that enables them to construct their own homepages, Internet and Extranet. Notes Hosting

provides the homepage support and the internal group-ware and solution, while Web Hosting only provides the homepage (see http://www.kt.co.kr/eng/kt_service/ for further services).

Figure 3. Structure-service/product mapping diagram (Korean Telco's Example)

Such a functional organization is constructed on the basis of the services supplying similar technological functions. Since the informational level of each tier of industry and the demand and strategy of its e-Business are different on the aspect of industrial structure, the integrated service supplying the e-Business solution on each tier and the infrastructure network can have more flexibility to various demands of different consumer groups. Furthermore, the companies, which demands more than B2B e-Business, are in need of not only the establishment of simply exclusive communication lines or private network but also the extra/intra net and the solution for the establishment of SCM, e-Procurement and CRM between upper- or lower-tier industries in structure. This should also be accompanied with the services and products from the various departments of telecommunication providers.

4.2 Telco's e-Business Strategy

Telcos should equip themselves with the strategies responding immediately to the e-Business demands of user companies and the characteristics of each industry, as shown in Figure 4. The e-Business strategies of Figure 4 can be summarized in three groups.

First, there is a need to develop the service or product for the new e-Businesses which are not corresponded to each tier of departments (marked with ? in Figure 4). This requires not the business area of the current Telcos but the solution or consultancy services for the internal information process. It can be accomplished by

the strategic coalition such as that of Qwest or the take-over of a relevant company to achieve the core capacity of products and services.

Second, the package and e-Business solution with a mix of traditional services and products can be another strategy. This combination strategy can be achieved through the utilization of current services and products and also be flexible to the demand of each tier of industries. Likewise, it can respond more effectively to the level of the information process of each user company by structural tier and its future e-Business strategy. Figure 4 illustrates the examples of Service/Product Mix of five departments on each tier. The higher tier of industry needs more mixes of product and service and also the service strategy for the coalition of technology, business transaction and marketing as well as for the simple business with big companies on the higher tier. This strategic task of Product/Service Mix can be more effectively achieved not by the strategic performance of a separate department but by a group of three or four exclusive departments. Or it can be achieved by the organization management of matrix form that utilizes the function of each established department temporarily for the demand of different mixes and packages.

Figure 4. An example of Telco's e-Business strategy construction

Finally, there is a strategy to set up a model covering the whole vertical structure of industry. It includes the sub-network (i.e. VPN) among three tiers for the e-Business covering all the tiers of industries from the lower to the upper tier. It also includes the development of the solution for general business work and the service of customer management.

The three e-Business strategies for Telcos are predicated on the current state of e-Business on each tier of industry, the relation structure of providers, and the supply of products and services. One of the biggest problems in pursuing these strategies is the possibility of conflicts between internal departments of the provider. However, these strategies can be the systematic and useful ways of industrial structure approach in that the e-Business of telecommunication provider has been recently

launched without any previous experience and know-how unlike other traditional telecommunication businesses.

5. CONCLUSION

This study has focused on the wider definition of e-Business from Telcos' point of view based on the Internet and the analysis of e-Business models under the definition. The industrial structure approach was adopted to establish the e-Business strategy for the industry as consumers. That approach was applied to derive the Telco's e-Business strategies. The e-Business strategies proper to the structural characteristics of user companies can be mapped out, based on the Structure-Product/Service Mapping Diagram, which relate the service and product of the Korean Telco with the structural and strategic characteristics of user companies.

Three major strategies for Telco were driven. First, it is the development of new products and services for the demand from user companies in each tier of industries. And there is the strategy of the establishment of e-Business covering the whole hierarchical tiers of industry as well as the strategy of developing service-product mixes for the demand on each tier. Particularly the change of the organization itself was suggested so as to pursue the e-Business strategies of service-product mixes with more flexibility and effectiveness.

However, these strategies should be applied with response to the capacity of e-Business technology, marketing and management of Telco. Furthermore, the business plan for the current telecommunication provider should be focused on the creation of the most profits and sales separately from these strategies (Porra, 2000). Therefore, these strategies can be valued as a sort of benchmarking for Telco's the e-Business development.

6. REFERENCES

1. Kalakota, R., M. Robinson, *E-Business-Roadmap for Success*, Addison-Wesley, 1999
2. Keiho, H.J., H.J. Koivisto, H.V. Jaakkola, "A New Business Strategy For Teleoperators: Opportunity For Modern Broadband Access Technologies", *Technological Change Management Issues & Challenges Conference '98(IEMC'98)*, San Juan, Puerto Rico, 1998, pp.399-402.
3. Mckendrick, J., *Electronic Business: Overview*, Gartner Group, 1999.
4. Porra, J., "Electronic Commerce Internet Strategies and Business Models-A Survey", *Information Systems Frontiers*, 1:4, 2000, pp. 389-399.
5. Smith, D., "Risk Management E-Business Strategy Risk Management", *Computer Law & Security Report*, Vol. 16, No. 6, 2000, pp.394-396.
6. Tracy, K.W., "What's the deal with 'e-Business'", *IEEE Potentials*, Vol.19, Issue 1, 2000, pp.34-35.
7. <http://www.att.com/>
8. http://www.entum.com/service_info/office/
9. <http://www.ipservices.att.com/brochures/ipedi.pdf>
10. http://www.kt.co.kr/eng/kt_service/
11. <http://www.mocie.go.kr>
12. <http://www.qwest.net/>