

# Application Study of E-commerce model on Chinese SMEs

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**Abstract**—Chinese current economic restructuring and rapid development provide a good opportunity for SMEs. Evolution of information technology in the last decade promotes Chinese SMEs adapt to various changes in the external technological environment. So SMEs are actively introducing e-commerce. Just based on this background, this article firstly reviews basic process of Chinese SMEs e-commerce, analyzes some e-commerce models applicable to Chinese SMEs, according to the existing problems, and puts forwards an e-commerce model of ASP which should be widely applicable to Chinese SMEs, which are of great significance for the development of Chinese SMEs. All of these will also have an important reference to the application of e-commerce in developing countries.

**Index Terms**—SMEs; E-Commerce; ASP model

With a rapid popularization of network, communication and Internet, e-commerce is showing a new content and form. It will become a main form of commerce activities in the 21st century.

According to a survey [1], it shows that 37% of Chinese SMEs believe that the cost of building e-commerce is too high, 24% of the enterprises are lack of professional supports from advisory companies, 8% of them believe that quality of internal staff is low and most of the staff are weak in awareness, and 5% of the enterprises think that it will experience a long period. All of the factors above are core elements hindering the implementation of e-commerce effectively in SMEs.

## I. PRACTICAL PROCESSES OF E-COMMERCE IN CHINESE SMEs

### A. Initial understanding in the late stage of 90s

In 1990s late, with a Sustained improvement of computer, communication technologies and bandwidth, Internet has gained a rapid development. Technologies of WWW, hypertext and multimedia are becoming more and more sophisticated, so people can exchange text messages, voice, pictures and videos via Internet. Many enterprises have gradually found that they could collect a lot of information through Internet, especially those with commerce-related information. The emergence of the Internet poses a severe challenge on traditional commerce model but also opens up new market opportunities for the enterprises, thus expanding the scope of transactions between commercees. A number of innovative enterprises begin to publish their enterprise information, product information, supply and demand information on the web,

searching a new source of profits from Internet. According to statistics that in May 1999, the number of global Internet users was 171 million and in July the number of online users in China reached four million. A huge potential demand of network provides commerce opportunities for commercial activities on the Internet.

### B. Actively promoting between the year of 2000 and 2005

By the year of 2000, net of computer, telephone and television was developing rapidly and network infrastructure has also been improving. For example, the number and scale of e-commerce sites are in a highly inflated, such as 8848 and alibaba. The number of people surfing on the Internet increases dramatically. Many companies have started their online marketing and online commerce. Government and sectors of various industries have also shown their great interest in e-commerce. B2B e-commerce gained an unprecedented development and in 2001, the volume of transactions reached 107.7 billion Yuan, and was still growing. Participation of electronics industry reached as high as 35.1%. At this stage, ASP e-commerce model emerged. ASP service providers could provide SMEs with hardware equipment, system support, human resources and solutions, thereby greatly reducing investment risks in the early stage of e-commerce. Further more, national information strategies also created a positive external environment for the development of SMEs. Some laws about e-commerce were being brewed. E-commerce has begun to change some people's thinking and living habits and we are approaching an age of e-commerce.

### C. Deeply application

In 2007, Chinese B2B trade amounted to 24.5 trillion, of which the proportion of SMEs was up to 57.8%. SMEs e-commerce has great potential. Meanwhile, some third-party information service providers provide a basal platform for SMEs to enable them have more choices. Chinese SMEs e-commerce is becoming stronger and has a bright future.

## II. MAIN APPLICATIONS OF CHINESE SMEs E-COMMERCE

### A. Displaying products and services on the Internet

At present, the most extensive application of SMEs e-commerce is to display their products/services on the web in the form of text, picture, and audio-visual. When customers interested in their products/services log on the

website, they may have a demand of shopping and form a desire to buy. As this is the initial stage of e-commerce applications, enterprises create conditions for market development mainly by information sharing, inquiry or release of demanding and supplying information, publicity of enterprise image and so on[1]. Because of relative dispersion of various components, such application can't form a core competitiveness of enterprises. This model is monotonous, and the effectiveness is non-prominent, so it must be consistent with other more in-depth e-commerce applications in order to fully play its role, such as network publicity and network promotion. Only doing this can we establish a web-based enterprise image and form a brand effect.

#### *B. Networking of traditional commerce*

It means that some traditional commercees will become electronic, and we will deal with related commercees via Internet. Such as electronic orders and marketing via Internet. But this does not mean that traditional commercees will be directly transferred to Internet. We should make full use of the interactive platform-Internet to integrate various systems which are originally independent. We will significantly reduce costs after introducing network into some complex departments. For example, marketing carried out in the traditional market requires a lot of manpower, material resources. However, we could save costs in the form of online advertising through Internet. It has certain relevance on the target customer. The advantages are very clear.

#### *C. Electronic tools and technologies are widely used in enterprises*

Nowadays, development of e-commerce has not entirely confined to online transactions, but also the integration of commerce with all kinds of information technologies such electronic supply chain management, e-CRM, ERP, Web 3.0 and so on to realize e-commerce and e-management. With various types of electronic information tools used in the field of e-commerce, e-commerce is developing rapidly.

### III. CHARACTERISTICS OF CHINESE SMES E-COMMERCE

Because of Chinese specific historical conditions and imbalance of economic, technological development, application of Chinese SMES e-commerce has its own unique characteristics:

#### *A. Regional differences*

Compared to large firms, SMES are small-scale, start late and show a clear regional difference. In the south-east coastal economically developed areas, as enterprises have a relatively higher level of information technologies and infrastructure, they have a basically mature environment for the application of e-commerce. So they can develop e-commerce better. However, in the central and western regions, enterprises are poor in technology and conception. What's worse, commerce leader does not attach importance to e-commerce. So it shows a distinct regional

difference in Chinese SMES e-commerce. It has a great difference throughout the country.

#### *B. Website building is imperfect and lack of technical content*

Many SMES consider that setting up their own e-commerce site can be e-commerce, and their traditional commercees are arbitrarily moved to the website. An excellent e-commerce site should have advanced technical support; be able to analyze information of the customers who have browsed the website; collect customers' preferences, purchasing habits, buying cycles and analyze sources of the customers. Due to various aspects of conditions, construction of many Chinese SMES' website is far from perfect. SMES are usually weak in technology, so they can only carry out some simple online transactions, which greatly affect the promotion of Chinese SMES e-commerce.

#### *C. There is a large difference in various industries within Chinese SMES e-commerce application*

Because various industries have different characteristics, so their levels of e-commerce are different. For example, in the industry with a high degree of information technology such as electronics, high-tech and trading, e-commerce develops rapidly. However, in the construction industry, e-commerce only takes a small proportion, which leads to a clear difference between industries in Chinese SMES.

#### *D. A lack of professional talents*

Competition in 21st century, in the final analysis is the talent competition. Human resources are indispensable for in-depth development of e-commerce, Enterprises need to update, maintain and promote their sites; they also need to conduct consumer analysis and professional logistics to serve e-commerce. All of these need professional services provided by professional talents. Because of SMES' own limitations, it is difficult to hold a comprehensive professional talent system, which is detrimental to the development of Chinese e-commerce. Further more, SMES can not afford to spend a lot of resources to carry out professional training for staff. Therefore, the issue of talent is a serious problem during the development of Chinese SMES e-commerce.

### IV. CURRENT PROBLEMS

Due to weakness of Chinese SMES' own foundation, they will encounter all aspects of problems while actively using e-commerce:

#### *A. Management*

E-commerce is a complex process integrated information, capital and logistics together. With the launching of e-commerce, enterprises' external environment is also changing significantly. So the concept of enterprise management should also advance with the times. It's especially important for emerging industry such as e-commerce. E-commerce has changed the traditional way of information exchanging, gradually developing a flat and netty organizational structure.

Management in e-commerce refers to internal manpower, operation and marketing. It should also take into account the SCM, so we can take full advantage of other enterprises for our own development to achieve a mutual complement each other and improve the whole supply chain synergies.

### B. Technology

Using the most advanced technologies, we can enable e-commerce transactions operate smoothly and efficiently. They can not only save the cost of their own enterprises, but also improve customers' satisfaction and achieve a win-win situation. Because SMEs are weak in independent R&D, their technical strategy has always been a follower which leads to a weak position in the fierce competition. E-commerce is entirely an Internet-based virtual model, and the establishment of such a virtual platform is completely dependent on computers, networks, telecommunications and other technologies. So if SMEs want to gain a favorable development, they must break through the technical bottleneck.

### C. Institution

Chinese e-commerce is still in its initial stage, relevant institution and legal norms are still imperfect. Although, in August 2004 we issued the "Electronic Signatures Act of People's Republic of China", which, to some extent, resolved the legal effect of electronic signatures. But it's not enough for the entire e-commerce system. Currently, China has not formed a set of standardized e-commerce system. Internet is a completely open environment; absence of unified norms will lead to a mess of each online transaction. So our government should try to introduce some relevant policies and regulations to control and supervise the whole e-commerce.

## V. MODELS OF SMES E-BUSINESS

Huang, Leong (2003) [2] investigated the websites objectives of SMEs. They found that SMEs' owners /managers set up their websites for a number of objectives, especially for promoting company images, improving customer services and enhancing product/services awareness. Rai, Patnayakuni (1996) [3] insisted that top management could ensure that resources and capabilities required for adopting and implementing innovation would be readily available when they were needed.

Turban, King[4] argued that adopting and implementing e-commerce innovation requires organization to possess a bundle of IT-related skills and knowledge such as telecommunication knowledge(TCP/IP, HTTP protocol), security management knowledge(SSL, public Key Infrastructure), and Internet application environment(HTML coding, JAVA technology).

Midori Takao, Masao J. Matsumoto (2004) [5] pointed out that we build a model for commerce process only to understand and master the basic operations. And at the same time they also pointed out that e-commerce model is to reform commerce activities and improve commerce performance in a certain situation with some information technologies.

Midori Takao inspected e-commerce model from the perspective of consumable market. With the popularity and development of Internet, some consumable manufacturers begin to set up their own online shop which can make people all around the world shop at any time he wants with any scruples. Its e-commerce model is described as follows (Figure 1) :

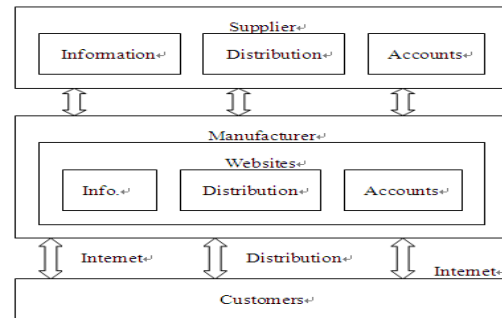


Figure 1. E-commerce model I

Stephen B Chau, Paul Turner (2003) [6] Considered various external factors, such as the level of external service providers and government. They fully stressed government's role in e-commerce applications. They thought that government should provide SMEs with necessary technologies and services develop standards and norms in order to make their own e-commerce development better. The e-commerce model they advocated is as follows (Figure 2):

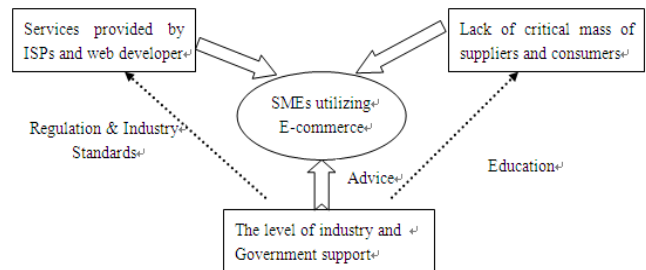


Figure 2. E-commerce model II

Midori Takao mainly analyzed SMEs e-commerce from the perspective of the whole supply chain. However, Stephen paid attention to every factor from enterprises' external environment. In particular he emphasized government's central role. However, both of the two models have their shortcomings. For examples: Midori Takao requires an exchange platform for e-commerce. The difficulty is considerable. Stephen did not figure out specific e-commerce processes.

## VI. E-COMMERCE MODELS FOR CHINESE SMES

### A. ASP model

Major problems of most Chinese SMEs are: a low level of information technology, and a shortage of funds. So the best model adapt to Chinese SMEs is the ASP model[7], that is, customers will entrust part or all of the commerce to the service provider based on the

outsourcing agreement or contract. Its specific model is as follows (Figure 3):

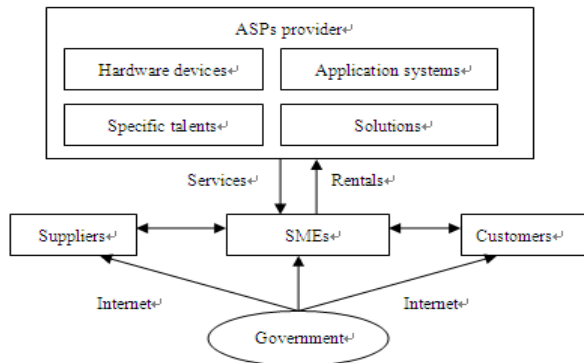


Figure 3. an ASP E-commerce model

In fact, ASP model is a kind of leasing commerce model. ASPs provide SMEs with technology, hardware equipment, application systems, specific talents, solutions and so on. Then SMEs will pay rentals to ASPs. This model can greatly reduce operation cost of SMEs and avoid the risk of early development. It's especially potential for Chinese SMEs. Its advantages lie in: (1) Less capital investment: costs of system software, hardware and system updating will be borne by ASPs. It greatly reduces the IT capital investment. (2) Quick: ASPs have a self-contained information system, so SMEs could take a model of rental directly. (3) It could resolve the problem of being a lack of talents: As the ASPs are responsible for a unified system development, maintenance and management. Therefore, SMEs do not need a lot of technological talents. (4) A reduction of management costs: it could save a lot of training cost for SMEs and SMEs could share a high level of ASP services, so they could concentrate their attention on the core issues to be resolved. (5) It is relatively cheap: Multiple clients could share hardware, software and human resources which reduces fixed investment.

ASPs could provide a good solution to all the traditional problems such as: looking for customers, expanding markets, production planning, sales and inventory information management and so on. However, ASPs could also resolve the issues which are difficult in traditional method such as: multi-site management, multi-branch, expansive application and updating. Compared with traditions methods, ASPs could provide more convenience and reliable solutions for the issues above.

Combined with network operators, consulting companies, public service companies, as well as applicable software supplier, ASPs can form a stable, strong service alliance to provide SMEs with an applicable software platform without any geographical and temporal restrictions.

### B. Establishing their own e-commerce websites

Establishing their own e-commerce website makes many SMEs have a fair chance to compete with large enterprises; it's of great significance for the vast majority of SMEs in China.

### C. Affiliate program

Affiliate program refers that enterprises divide the users into a club form of organization according to users' interests or enterprises' services. It obtains its profits by propagating, marketing, promoting, providing needed services to associators and some other activities.

## VII. CONCLUSION.

In China, SMEs plays a vital role in the development of the economy, and the level of e-commerce in SMEs determines the level of e-commerce applications of Chinese enterprises. SMEs of China should choose a suitable model to improve operational efficiency, and make it well-known, in order to profit better.

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