

Impact of E-Commerce on International Supply Chain Management in Shanghai Custom Department

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Abstract

After China's accession to WTO, with an increasing growth of international trade in China, the importance of international supply chain has accepted a huge attention. Undoubtedly, effective international supply chain management will contribute to improving free trade with globalising trend. In this instance, facing fierce challenges outside, in order to ensure high-quality operation of international supply chain, the extent to which the performance of Custom Department in China is extremely important. The more effectively Chinese government performs, the more profits the international and domestic business will be generated. In addition, China is becoming a "world wide manufactory". Local government in China has to establish a good business environment for organisations. As an important port city in China, the performance of Shanghai Custom Department (SCD) will directly influence the business environment in China. Thus, the introduction of E-commerce, which is positive factor to improve the development of international supply chain, has been explored and integrated into the service of Custom Department to meet the increasing demand of export and import.

Considering all kinds of factors concerned above, the paper aims to explore the research about whether the application of E-commerce plays an important role to improve the implementation of international supply chain in SCD. This paper is combined the methods of literature review and primary research including questionnaire and telephone interview to ensure the effectiveness of research. By analysing the information gained, a result about the extent of E-commerce to affect the operation of supply chain will be found. Based on the negative issue of E-commerce, which results in a low improvement to operate supply chain in organisations, this research offers a series of recommendation to enhance the use and impact of E-commerce.

Keywords

E-commerce, International Supply Chain, Shanghai Custom Department

1. Introduction

With the development of the international trade, how to master business timely to keep customer satisfied and meanwhile to be against all competitors in the market has received amounts of focuses among all kinds of organisations. In this instance, with some absolute advantages of supply chain management, which include "*the security of products availability, inventory management and just-in distribution and delivery*" (Gattorna and Walters 1996), the supply chain management has become an extremely important arm to assist companies to do business effectively. However, in practice, despite that the importance of supply chain management has been realised, it is still difficult to find an approach complete the optimisation of supply chain

management for most of organisations. This, in turn, results in the introduction of advanced and effective technology, called E-commerce.

According to the statement by Bocil, *et al* (1999), E-commerce can be defined as “*a broad technology platform to exchange of business data between two or more organisation's or firm's platform*”. In fact, as a technological tool to promote the communication among people, E-commerce has been integrated into supply chain management in the process of doing businesses, which contributes to lowering amounts of costs involved in the international transactions for all of organisations.

As a result of China accessing into the world trade organisation (WTO), with a purpose of globalisation and liberalisation to trade, broad attentions have been focused on the international trade in China. In this instance, it is necessary to establish and offer an effective and fair business environment towards all kinds of international organisations for Chinese government. Facing these challenges and opportunities concerned above, therefore, this paper puts more insight into SCD, which is which is a key window to do international business towards outsiders in China. Presently, SCD, undoubtedly, has applied with the technology related to E-commerce to operate custom clearance with many companies.

Hence, combined with these factors mentioned earlier, this report will aim to explore the research about the extent to application of E-Commerce on supply chain management from the aspect of SCD. During the research, primary methods including questionnaire and telephone interviews will be conducted.

2. Background

Lardy (2002) pointed out that, after November 2001, China has been a member of the WTO, which means the evolution of the trade related investment, non-tariff barriers, very specific market access benefits in goods and services. Thus, huge opportunities have been provided to foreign investors and overwhelming possibility to do international trade has been bridged. According to the survey of statistics, Fewsmith (2001) stated that Chinese tariffs on imports of industrial goods are dropping from average of 24.6% to 9.4% between 1997 and 2005. In the future, foreign firms will be authorised to sell, distribute and market industrial goods, such as steel industry. That is to say, the Custom Department will have to face a big challenge.

Under these circumstances, Shanghai has received widespread attention in terms of the huge amount of the Foreign Direct Investment (FDI) and soaring international trade. Therefore, Shanghai government has to provide an excellent logistics service to build good business environment and meanwhile reduce the supply chain risks when doing international trade. There is no doubting that SCD, in this instance, plays an essential and inevitable role to take responsibility for establishing a high-quality logistics service. (easipass.com 2001)

News.xinhuanet.com (2002) reported that in order to build a good logistics service successfully and effectively, in 1998, China Custom Department boosted a positive plan regarding the introduction of E-commerce. In practice, several modern cities in China were selected to test the effectiveness of E-commerce. Naturally, Shanghai became one of the experimental units. After that, by a series of evaluation and test of using E-commerce, SCD and some relative research institutions eventually, implemented the E-commerce system on the basis of EDI technology in 2002.

Li (2005) presented that, by using the E-commerce technology, the performance of operating the process of custom clearance in SCD has been improved rapidly. This phenomenon can be shown in the following table 1, which shows the distinct advantage of saving time cost due to using the E-commerce technology compared with the time cost occurred with manual customer clearance.

Kinds of Customer Clearance for export	Manual Average Total Time Cost	E-commerce Average Total Time Cost
Shopping	96 hours	30hours
Air	72 hours	14hours

Table 1: Comparing Manual system and E-commerce system (Li, 2005)

3. Research Design

In order to explore the research about the impact of E-commerce on supply chain management in SCD, in the first place, a questionnaire with the form of e-mail was conducted to collect primary data. Saunders *et, al* (2003) said that the principle of questionnaire design is to get the validity and reliability of the data collection. According to these rules, a questionnaire in Chinese was designed to email to 200 companies, which can be seen as a sample of the questionnaire.

During designing questionnaire, the questions were divided into five distinct parts for each respond. The table 2 displays the different part.

Part	Question No.	Description
1	1—4	General information about the respondents
2	5—8	To examine the extent of acceptance of E-commerce in SCD
3	9—13	To identify and evaluate current situation of E-commerce in SCD
4	14—16	To find out the problems of current situation of E-commerce in SCD
5	17—19	To discuss possible development of E-commerce in SCD in the future

Table 2: Main objectives of questionnaire

After that, all of responding was collected eventually, which occupied for 21% of respondents rate, and then a further analysis was conducted to test hypotheses related to the questionnaire.

In addition, it needs to note that because of the low respond rate, apart from the first method of questionnaire to collect primary data, the telephone interviews also were conducted further. By using the telephone interviews with five interviewees in different companies, including one people working in SCD and four people working in the domestic and international companies, more detailed information has been obtained so that contributes to doing research more clearly and deeply.

4. Results and Analysis

This research selected three main objectives to do survey, which includes the acceptance, current situation and the future development of E-commerce in SCD, First of all, considering the extent to accept E-commerce in SCD, the result showed 66.7% (exactly yes) and 21.4% (generally yes) of respondents who indicated the concept of E-commerce in SCD is accepted. That is to say, there are around 88% of respondents who voted positive opinion about the acceptance of using E-commerce in SCD and E-commerce does have impacted on the operation of customer clearance in SCD.

In order to display the reason why there is the acceptance of using E-commerce in SCD, a special question was designed and offered several reasons to lead to the use of E-commerce in SCD. As a result, the respondents have given the quite high rates for cost reduction, service improvement and competitive ability improvement, there are 4.51, 4.37 and 4.02, respectively (5 is the highest rate), which can be realised that cutting cost is the most important reason and advantage related to using E-commerce.

Secondly, considering the current situation of using E-commerce in SCD, unfortunately, there is an important issue negatively influencing the growth of E-commerce. In general, depending on the different company size, the rate to use E-commerce with SCD is dramatically different, which obstacles the dramatic progress of using E-commerce. As shown in figure 1, the percentage of the small business and middle size firms using E-commerce in SCD (20%) were rather lower than the percentage of large and supper-large companies to use (60%). That is to say, the bottleneck existing in the operation of small and middle size companies forms a issue of applying with E-commerce widely.

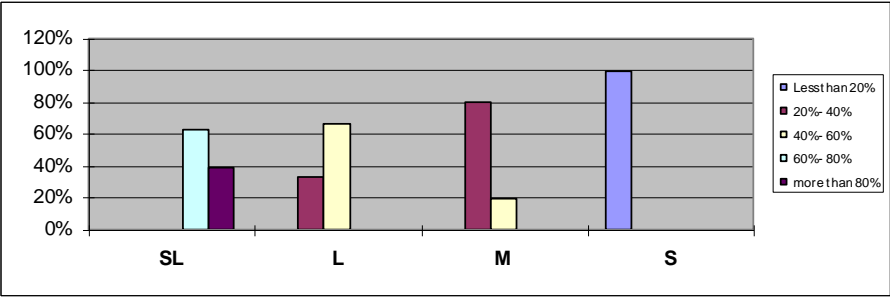


Figure 1: Different Size organisation of Using E-commerce in SCD

By using questions designed from the disadvantage of E-commerce, it could be found that there are many reasons resulting in the phenomenon that the small and middle size company unable to use E-commerce technology when doing operation with SCD. Table 3 showed these reasons and ranking these reasons with different importance to concern for companies.

	Means of Groups				<i>f</i> statistic	Compare with <i>f</i> 0.025≈3.30
	S	M	L	SL		
Internet Security	4.35	4.13	4	3.95	1.18	<
High Interface Cost	4.64	4.31	3.75	3.19	6.95	>
High Maintain Cost	4.56	4.46	3.92	3.02	3.54	>
Re-Training or Recruitment Cost	4.46	4.31	3.63	3.32	3.21	<
Legal Issues	4.00	4.04	3.90	3.47	1.14	<
Network Facility Problems	3.50	3.38	3.29	3.21	0.25	>

Table 3: ANOVA of reason for rejecting of using E-commerce in SCD

As can be seen from table 3, *F*-test in ANOVA indicated that respondents in different groups have great dissidence on criteria of high maintain cost and re-training or recruitment cost. In fact, the factor of high interface cost could be considered as the most important part to affect the decision to disuse E-commerce in SCD for most of small and middle size companies (group **S** with mean 4.56 and group **M** with 4.46), whilst large and supper-large size companies have rated it at 3.92 and 3.02 respectively, which was a relative lower rate compared with that in small and middle size companies. Similarly, this phenomenon could be found in the factor about re-training or recruitment cost.

In addition to these reasons concerned above, the issue about the developing phase of E-commerce cannot be ignored. Since 1998, the E-commerce was spent just 8 years on developing by government in China. As a result of limitation of developing E-commerce in China, therefore, there is the fact that the government had to put more attentions on the development of E-commerce in the large and supper-large companies to gain huge benefits rather than that of small and middle size companies gaining relative low benefits.

In order to explore this reason in detail, the telephone interview was further conducted and thus the problem influencing small and middle size firms to use E-

commerce in SCD could be achieved. By interviews, it could be found that in SCD, because most of small and middle size firms still were not asked strictly to use the E-commerce system (EDI system) to connect with SCD for dealing with the transactions of export and import in the process of customer clearance. Hence, these kinds of firms not having E-commerce technology have to go to the SCD branch to deal with such transactions manually. Alternative, for the some of non-EDI users, they prefer to choose the agency, called KESIDA, (www.ksdinfo.com) which has been authorised by Shanghai Custom Department, to do export and import E-transactions for companies.

At last but not least, most respondents strongly believed the development of E-commerce in SCD in the future will be a great development. The following figure displayed the fact obviously.

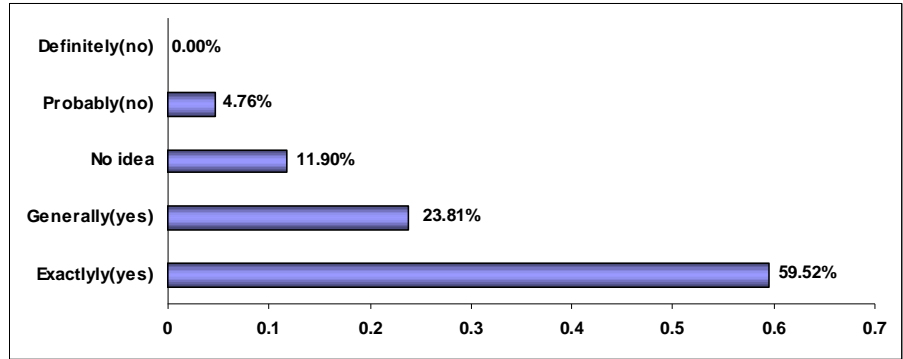


Figure 2: Percentage of Idea on Development of E-commerce in SCD

As shown in figure 2, there are 59.52% (exactly yes) and 23.81% (generally yes) of respondents who indicated the idea on development of E-commerce in SCD is accepted. That is to say, there are around 83.33% of respondents who voted positive opinion about the E-commerce in SCD would have a great development in the future.

5. Conclusion

At present, the use of E-commerce has made a great contribution in various fields and given remarkable profits for its users. According to the theory, the application of E-commerce can equip small companies to compete with large and supper-large organisations. However, by research, it cannot be denied that the development of E-commerce still exited unbalance in practical work between large and small size companies. This paper has reported that the cost of the E-commerce and some barriers (such as Government Issue) have lead to the unfair situation of E-commerce in SCD at present.

In order to solve this problem concerned above, some recommendations could be concluded. Firstly, SCD has to take urgent measures to lower the cost related to E-commerce as quick as possible, such as the interface, maintain and security cost. In

addition, currently, each E-transaction is cost \$2.36, which appears to be higher cost for small size company to apply. Therefore, these kinds of firms should look some kinds of technologies to then reduce the cost. Undoubtedly, the introduction of XML could be the best measure to solve the problem. The advantage of the XML is described as a text-based format which is extensibility, universal and easy to understand.

Although there are lots of problems existed in the current E-commerce system in SCD, such as the limitation of use for small and middle companies, the system in SCD should take some measures to overcome these issues timely and so that help users, including small and large size companies, to make more benefits against the cost of E-commerce.

Summing up all the analysis, it could be safely concluded that despite that there are some E-commerce technology which have lagged behind the development of E-commerce in western countries, the positive advantages to support the progress of E-Commerce still exists among people' awareness. This, in turn, contributes to establishing a good environment to develop and promote E-commerce and then offering more opportunities to gain overwhelming profits for all kinds of organisations.

In the further research, author thinks that the sample of companies should be more. Also, there should be a big sample size for the interviews. If possible, face-to-face interview could be the best way to do depth survey and get more information through open questions. Moreover, the E-commerce in China is a developing period. Therefore, this area of research should provide more and more recommendations for development of E-commerce in China.

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