Governments’ Role in the Information Flow of International Trade: Under the Big Data Era

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Abstract
The emergence of the big data era has caused imbalanced usage of information technology in different kinds of companies. Export manufacturer seem to be the one with less benefit from the big data era compared with e-commerce companies. In order to find possible methods for improving the information exchange efficiency, the author investigated into the information flow of international trade in different manufacturers in China, and noticed the decisive role of governments in the whole progress. After analyzing its role as the process participant, the information supplier and the rule maker, the author concluded the future development of the government’s information service for international trade in China.

Keywords: International Trade; Government; Open Access; Information Standard; Information Service


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1 Introduction
Since the beginning of the 21st century, the fast development of technology in the information industry, such as cloud computing, the Internet of Things, and social networking, has made the amount of data increase continuously and accumulate at an unprecedented speed. All these technologies announce the coming of big data (Meng and Ci, 2013). The emergence of an era of big data has already attracted the attention of industry, academics, and government (Cai and Zhu, 2015). People believe that big data is the competitive gold. However, though companies that were born digital, like Google, Facebook, and Amazon, have already gain competitive advantage from big data, other industries are still facing great challenges (McAfee et al., 2012).

This is what happens in the area of international trade. As a matter of fact, international trade starts early in the electronic exchange of business information, which was known as Electronic Data Interchange (EDI). Even before the widespread attention of e-commerce, large companies have started to use EDI since the 1960s (Gale Encyclopedia of E-Commerce, 2002). But when it comes to the big data era, the information flow of international trade in export manufacturers seems little evolvement, compared with those e-commerce companies like Taobao and Amazon.

In order to find possible solution for this problem, the poster decided to investigate into the present information flow of international trade based on the observation of the information exchange process in foreign trade companies in China, and focused on governments’ role in the model. Specifically, the author hope to discover what Chinese government could do to improve the efficiency and accuracy of information exchange in international trade. Finally, the paper discussed trends for governments’ future development in information service for international trade.
2 Information Flow in International Trade

In order to get a thorough understanding of the information flow in international trade process, the author interviewed managers of foreign trade departments and information technology departments in 10 different manufacturers covering industries like car, chemistry, medicine, wheel, spandex, etc.

As a result of the interview, the author found that though the actual information flow differs depending on the choice of transportation and trade terms in a specific order, the core part stays the same. Thus the author figured out the following common model of information flow in international trade.

![Information Flow in International Trade Diagram](image)

Figure 1. Information Flow in International Trade

Obviously, international trade is a kind of process that contains complex information exchange between several stakeholders. It’s true that the development of EDI made standard information transmission possible between different stakeholders. However, according to the interview, only a few of the stakeholders in the international trade activities actually use EDI for information exchange at present. A main reason is that the EDI standards used by different stakeholders are not quite the same with each other, which greatly affect the efficiency of information exchange during business. As a result, a lot of the manufacturers chose the most traditional way for daily work: email plus attachment files.

The author also noticed governments’ important role in this whole process. On one hand, they are decisive to the information flow of the whole process. Customs own the rights to decide whether the export or import is legal or not. Thus the completion of an international trade depends on the decision of customs of two countries. On the other hand, the information owned by the customs are exclusive. No other participants in this activity could gather such complete and detailed information as they do. Thus, governments could actually be treated as the library for foreign trade data. After analyzing the role of each stakeholder in the international trade, the author chose to focus on the government for its irreplaceable position, which is explained as follows.

3 Governments’ Role in Information Flow

3.1 As the Process Participant

To start with, governments are one of the core participants in the information flow of international trade. Nowadays, the advent of the Internet, digital connectivity, the explosion and use of e-commerce and e-business models are all pressuring the public sector to rethink hierarchical, bureaucratic organizational
models (Ndou, 2004). Thus, being part of the whole information exchange process, governments are trying new ways to bring convenience for their partners.

In order to figure out the current information service of local governments’ in international trade, the author investigated all 54 foreign trade ports’ customs in China for their e-business service through telephone and websites. As a matter of fact, above 30% of all these ports offer online data relating to international trades, such as the number and seal for each container of a trade, the exact time of the container entering the port, the customs clearance time, etc. And we saw an imbalance development in the online service between main ports, such as Shanghai Port, Ningbo Port, Qingdao Port, etc., which offer various kinds of information online, and those small ports, which are lack of digital ways for information exchange. This imbalance development actually becomes not only a problem for those manufacturers who have business in several different ports, but also a challenge for those local governments of small ports, because they may face the risk of reducing in foreign trade business in their area due to the bad information service.

![Figure 2. Information Service of Foreign Trade Ports’ Customs in China](image)

3.2 As the Information Supplier

As we discussed above, the international trade information owned by the government are exclusive, which determined the government to be an important information supplier. The author also noticed governments’ efforts in offering online information, since a lot of them have built websites for open access to their information resources. However, when it comes to the standard data, like the exchange of information in standard EDI, we found that few customs (about 9%, in Figure 2) in China offer this kind of service. Besides, usually before using EDI, partners need to enter into specific agreements about the standard and function for transmitting the information (Gale Encyclopedia of E-Commerce, 2002). But those ports offering EDI service in China has different standards for information transmitting, which costs much in time and money for companies to use EDI with the government. Thus, many companies gave up the idea of applying EDI in their international trade business in China, and chose to visit different websites for the information they need. During our interview with managers of different manufacturers, all of them showed great need for a unified platform for information exchange with all ports, especially those exporting goods in several different ports in China.
3.3 As the Rule Maker

Last but not the least, international trade is a kind of activity greatly influenced by the governments of different countries. Their decision could directly affect every aspect of the international trade, from the kinds of goods able to export to the tariff on different products. The advantage as the rule maker is that governments could promote new method of data exchange between countries by working on policies, regulations and standards, which a single company could never do. In fact, a lot of institutions, together with governments, have already created a lot of high quality standards for information exchange in international trade. Developed by the American National Standards Institute (ANSI) in the early 2000s, ANSI X12 was the most widely used North American standard due to its reliability and flexibility. This standard was also used in Australia and New Zealand. In 1987, the United Nations have created a standard called Electronic Data Interchange for Administration Commerce and Transport (UN/EDIFACT) for use in international EDI. Compared to the continuous development of these standards in developed countries, developing countries, like China, have not yet created standards for their own needs. This may be the reason for both the lack of usage and the disunity of EDI standards among Chinese international trade participants.

4 Discussion about Future Development

Based on the investigation about the information need of various export manufacturers and the information service of customs in all Chinese international trade ports, the author believed that governments could take measures to improve the information exchange efficiency under the big data environment. Because one of the advantages of big data era is that it offers various information techniques, which guarantee the possibility of improvement.

The government should first recognize the information need of different stakeholders. Based on their need, it’s better for the government to build a unified platform for data exchanging with the help of modern information techniques. Finally, in order to improve the efficiency and accuracy of information exchange, government in China should work together with other organizations or countries to develop their own standards for exchanging data in international trade.

5 References

About X12. http://x12.org/x12org/about/asc-x12-about.cfm


Introducing UN/EDIFACT. http://www.unece.org/cefact/edifact/welcome.html
