Original Contribution

COMPUTERIZATION OF FOREIGN TRADE TRANSACTIONS: A CASE STUDY OF TURKEY

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Abstract
In the last decade, Turkish Customs has introduced various e-customs applications as a key component of customs modernization program. One of the main objectives of these applications was to simplify and speed up the foreign trade transactions. The aim of this study is to assess the current situation about the success of these applications at national level and identify the factors that may influence on the use of e-customs applications. Identifying the factors that hamper the deployment of e-customs applications may lead to more successful implementation of computerisation of foreign trade transactions at national level.

Key Words: customs automation, e-customs, electronic data interchange

INTRODUCTION

This study aims to review computerization reforms of Turkish customs undertaken by Turkish Customs Administration since 1993. In the beginning of 1990s, a consensus regarding an unsatisfactory situation of Turkish customs led to general agreement on the need for overall reform. The reform aimed at a total redesigning of the custom organization and procedures. The objective of this paper is to review the brief history of the computerization efforts and explain the current level of computerization in Turkish customs.

COMPUTERIZATION IN CUSTOMS

Customs plays a crucial role in trade operations and revenue collection and directly affects obligations of citizens (1). Therefore, modernization of customs is essential to cope with the increasing demand for better services. Reduced cargo clearance times, closer cooperation with other agencies, increased transparency, reduced officer discretion, more efficient revenue collection and accounting, more accurate and timely statistics are some of the benefits of computerization in customs (2).

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The benefits of computerization in customs depend on many factors such as standardization, consolidation, and simplification of processes and procedures. In the absence of such simplification, the inefficient manual system will be replaced by an inefficient computerized system (2). Successful implementation of computerization projects also requires conceptualization and commitment of customs administrations. Computerization is likely to bring about the full benefits only if customs administrations have strategic goals and make appropriate institutional reforms. Failure to incorporate to these reforms prevents computerization from fully achieving its role.

ELECTRONIC DATA INTERCHANGE (EDI) SYSTEM

EDI (Electronic Data Interchange) refers to the computer-to-computer interchange of strictly formatted messages that represent documents other than monetary instruments (3). The parties who exchange EDI transmissions are being called as trading partners. By using EDI, organizations can send documents directly from their internal computer system to computer systems of their trading partners without any human intervention.
The EDI process provides many benefits that requires substantially less human intervention

to transmit the information than paper-based process. Therefore, EDI transactions between organizations are much faster than paper based transactions. Also, fewer errors occur because of data is not being re-keyed. On large volumes of transactions, these errors can be enormous. Communication delays are eliminated through EDI than information sent via mail. As a result expenses are reduced which gives companies a competitive advantage over non-EDI users.

With all benefits, implementing an EDI system would cost a considerable amount of money which can be difficult to finance for small and medium sized enterprises (SMEs). Some companies using EDI may have to keep their old system to deal with non-EDI customers which may result in extra record keeping costs.

EDI STANDARDIZATION

In the early 1960s, organizations in the business world began a cooperative effort to develop EDI standards to minimize costs and increase their competitiveness. There was a need for a cross-sector standard to replace paper documents. Naturally, a standard set of rules for how to set out documents was required. Then, the American National Standards Institute (ANSI) committee has developed a standardized transaction set that are primarily intended to meet North American needs. The standard was called ANSI-X12. It provided a single standard with a single architecture, producing a common, uniform language for electronic communications.

In 1986, the United Nations Economic Commission for Europe (UN/ECE) developed an internationally approved standard structure for transmitting information between trading partners. It was called United Nations Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) intended to have worldwide applicability in international trade.

ANSI-X12 and UN/EDIFACT co-existed as a first EDI standards for many years. A huge number of trading partners uses one or both of these EDI standards. A number of different standards have been developed over the years such as Uniform Communication Standard (UCS), Voluntary Inter Industry Commerce Standards (VISC) and Warehouse Information Network Standard (WINS).

In the 1980s, the adoption of EDI by pioneering countries meant lowering transaction costs and shortening the business order cycle. In time, EDI became a pre-requisite without which it could be difficult to conduct international trade (4). In other words, implementation of a national EDI program was mainly forced by a strategic necessity related to lowering transaction costs and shortening business cycle order. The authors (4) give the example of Hong Kong that clearly highlights the role of government in successful deployment of EDI. They argue that Singapore has been enjoying the strategic benefits of being a "fist mover" in the region for several years. In other words, Singapore has been maintaining a comparative advantage for several years because its initial vision in foreseeing the strategic implications of EDI for international trade.

According to the authors, the role of governments in conceptualization of EDI was crucial because of the large-scale nature of EDI programs.

A modern customs administration depends on computerisation that enables better revenue collection. Customs' collection still represents a large portion of government revenue in many developing countries (5). Delays in the processing of import and export transactions can cause significant losses. Thus, the World Bank considers computerisation projects as an important element of capacity building in revenue administration (6). In the 1990s, 33 the World Bank projects included partial or complete computerisation of tax and customs. Better revenue collection is not a sole objective of computerisation projects of customs administrations. Computerisation of customs administrations can also increase the transparency of customs administrations and reduce corruption (5). Computerization in customs can also improve public services that may result in faster payment and refunding processes. To cope with the increasing foreign trade volume also is another incentive for customs administrations. All these factors give birth to EDI wherein all documents relating to exports and imports are being processed on-line. One of the biggest benefits of implementing EDI is the reduction of physical contact between customs officials and exporters/importers. This means a better and faster processing of documents which reduce cycle time of clearance as well as creating and transferring statistical data in a timely and reliable manner.

COMPUTERIZATION OF TURKISH CUSTOMS

Computerization projects can be seen in a broader context of public sector reforms in Turkey aimed a greater integration into the world economy, specifically into the European Union (6). Besides Customs Union with the European Union, Turkey signed free trade agreements with some countries including Israel, Romania, and Czech Republic and entered into European Free Trade Area (EFTA). Turkey also participated to a lot of activities to facilitate international trade and enrolled to a number of organizations. Turkey is a member of the World Customs Organization (WCO) since 1953. The World Customs Organization is the only intergovernmental organisation focused on the simplification and harmonisation of customs procedures. Turkey also became a member of the World Trade Organization (WTO) in 1994. The Customs Union with European Union in 1996 was one of the main incentives for changes in customs organization.

The computerization efforts of Turkish customs were initiated a customs automation project in 1993. The efforts were initiated as a result of both external and internal factors (7). The computerization project of Turkish customs was a subcomponent of Public Financial Management Project. A loan of $62 million was signed with the World Bank (2).

The technical assistance to the project was also provided to automate customs procedures during the years between 1996-1999.

When Turkey entered to Customs Union with the European Union in 1996, the Turkish government removed all customs duties and restrictions on industrial products imported from EU countries. Turkey also harmonized codes, descriptions and the classifications of goods with the EU's system (8).

In 1997, 73 customs administration were closed due to the low efficiency (8). In 11.02.1999, new customs procedures were determined for the computerized customs offices. In 27.10.1999, new custom law comprised of 254 articles was discussed and passed from the Parliament. In 05.02.2000, customs regulation comprised of 891 articles and 81 appendices came into force. To consolidate the various updates, Turkish customs administration published new customs regulations consisting of 756 articles in May 2002 (7). According to this new import procedures, the cargo manifest and declaration data has to be entered into the computerized customs management system through a kiosk or EDI. Before new rules came into effect, customs declaration formalities had to be completed in 45 days in case of sea freight or 20 days in case of by other means (7). Today, this declaration needs to be made within 24 hours after the arrival of goods. Traders and brokers submit their declarations by using their user codes and passwords. The computer system verifies the declaration and assess the risk of errors. After this verification, customs officials may ask for additional documents when needed. The computer system calculates duties and risk analysis of the cargo, and gives a registration number. Goods are assigned to different clearance channels according to their risk analysis results. These channels are red, yellow, blue and green: red for physical examination, yellow for documentary checks, blue for goods under post-release control and green for immediate release. The risk rating is performed through a risk analysis module of the computer system. According to the Customs Code, the companies with clean records may benefit from simplified procedures. The simplified procedures mean clearance of goods without the usual documents needed for clearance such as certificates of origins, invoices and so on.

Export declarations must be first approved by the association of exporters which is a non-governmental organization. Once declarations are made, they are submitted to customs administration. A computer generated registration number is issued and the cargo is directed through green, yellow or red channel except blue channel which is different than import procedure. After controls, goods are cleared for export.

Similar to simplified import procedure, companies can earn certified exporter status and qualify for a simplified export procedure. These certificates are issued by trade associations not by customs administrations contrary to import procedures.

Clearance times reduced significantly that represents a clear sign that the reform has eased the burden on traders between the years 1996-2000 (7). From the year 2000 to the end of 2006, 109 of customs directories and 16 regional directories were automated. Currently, almost 100% of all foreign trade transactions are under automation. 2500 customs officers and 14000 traders were trained under this

project (8). As a result, Turkey has modern custom laws and much better equipped customs administration compared to the 1990s. Currently, advanced risk analysis are being used with an emphasis on selective inspection approach in customs offices.

BILGE SYSTEM

Turkish Customs has a computer system named SOFIX/BILGE (**Bil**gisayarli **G**umruk **E**tkinlikleri in Turkish) which was a derivative of the French customs administration SOFI system (2). The first pilot implementation was launched at Istanbul Airport in August 1998. One year later in August 1999, the pilot implementation of CUSTOMS/EDI started. As January 2000, the international bid for the deployment of BILGE system signed. Between 2000 and 2002, BILGE was installed at 59 customs offices throughout Turkey. A Wide Area Network (WAN) linked all localities with a centre customs headquarters in Ankara. Thousands of customs officers and traders were trained throughout the country under this project (8).
BILGE is a client/server application based on an Oracle database. It supports full range of customs operations such as integrated tariff, accounting clearance, inspection, temporary admissions and trade statistics. These operations are executed in real time. Now, traders can submit their transactions through three different methods : a kiosk, EDI or the internet. Until mid-2002, about 99 percent of all customs declarations were processed through BILGE system (9).
Currently, lack of coordination among different agencies results in delays at borders. Therefore, one-stop service clearance/release facilities through inter-agency coordination, plus remote filing and local clearance facilities are crucial (10). Turkey has already started an "e-Document Project in Foreign Trade" as a "Single Window" approach. "Single Window" is a facility that allows parties involved in international trade to lodge standardized information and documents with a single entry point to fulfill all import and export regulatory requirements (10). In this context, a free trade zone was determined as a pilot zone.

CONCLUSION

Customs reform projects of Turkey are a part of a broader process of modernizing public sector management. These projects are basically successful, and resulted in significant outcomes although there are still some constraints on implementations. Some regional custom offices lagged in implementing the new computerized system due to the lack of hiring qualified personnel and some specific problems.
The lack of coordination among governmental agencies is also responsible for delays and inefficiencies in customs. These kinds of problems tend to lower the benefits that could be brought about through automated customs. Resistance to change among custom personnel and traders is still another problem to be solved. Now, almost 100 percent of Turkish foreign trade transactions are processed by computerized system. The level of computerisation of Turkish customs can be rated as satisfactory. This computerization process was accelerated with the establishment of the Europe-Turkey customs union in 1996. According to Customs Union with Europe, Turkey obligated to harmonize its legislation which was the main incentive for computerization efforts.
This paper focused on computerization efforts in Turkish customs. More research is needed to understand the specific problems of computerization and identify relevant institutional arrangements needed to improve standards of customs organization.

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