A Case Study: Thailand Customs Electronic System (TCES)

In Aranyaprathet Customs House

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Abstract

The Thailand Customs Electronic System (TCES), formerly known as “e-Customs”, has been used since 2007. In order to gauge the effectiveness of the system, data was collected between August 2012 to June 2013 from 40 customs officers and 15 customs brokers through simple random sampling. They were asked to answer questions using a rating scale assessing the performance of TCES. That data was analyzed using descriptive statistics by arithmetic mean, and showed the following: (1) an average of 4.13 (high level) and S.D. 0.60, (2) those persons sampled are knowledgeable about the system at a “moderate” level yet show expertise for the job they are assigned, and (3) that age, responsibility (custom officers), category, duties of the position, import – export form (Customs Broker), etc. do not affect the system’s performance.

Keywords: effectiveness; custom electronic system; quantitative research

1 Introduction

The world has entered an era of globalization and rapid change perfect for the advancement of technology and innovation. The current system of global trade relations has linked the domestic economy and the global economy. Organizations like the Free Trade Area (FTA) have intensified economic competition and are now major factors linking the economies of most countries. Thai Customs has implemented TCES to facilitate international trade and it is an important tool for processing international shipments smoothly, conveniently, and quickly. Therefore, it is crucial to study the opinions and feedback of the employees which run the TCES, in order to correct problems and implement more efficient solutions in a timely manner.

Recently, Peerada Yuyuyenong and Sanon Chimmanee studied the comparison between usages of the PC computer/laptop and the tablet for officers of the Thai E- Customs department [1]. The result found that the usage of the PC computer/laptop is preferred than the tablet in the function of importing and exporting up to 11 % because the PC computer/laptops is more effective than tablet e.g., typing, memory, displaying.

In [2], Manoch Rodsom studied of Paperless system for Thai Customs and results in more efficient, responsive to customer’s needs, and to establish a transparent system of government.

Walaiporn Rukkhachart [3] observed an implementation of Paperless System in Public Agency at The National Health Security Office [3]. It is found that the response of those staff members has been extremely positive according to surveys.

This paper investigates opinion on the efficiency of TCES Aranyaprathet Sakaeo province from Custom officers and brokers. From experimental result of Custom officers, it can be seen that the efficient international standard is the highest while the efficient in reducing the operating costs of enterprises is the lowest. From experimental result of Custom brokers, it is found that the efficient transparency is the highest while the efficient of facilitation of international trade is the lowest.

The rest of this paper is organized as follows. Section 2 presents literature reviews. Research methodology is stated in the section 3. Experimental result is presented in the section 4. Section 5 gives conclusion to the paper.
2 Literature Review

2.1 Thai Government Has Focused on the Use of Information Technology.

Manoch Rodsom stated that the policy of reforming the Thai government has focused on the use of information technology to provide accurate input for making tangible improvements quickly. Government agencies must expedite research in the area of information technology to reform management systems to achieve efficiency and effectiveness. Customs is one such government agency that advances information technology applications in the development and reformation of management systems. A perfect example of these major reforms was the implementation of the “Electronic Data Interchange (EDI)”, which has resulted in improved times for customs clearance by eliminating unneeded procedures and created greater transparency. According to the Rodsom study, Customs developed EDI to be paperless, more efficient, responsive to customer’s needs, and to establish a transparent system of government.

2.2 Paperless Systems within the Process.

In 2003, Walaiporn Sukchat found that using paperless systems reduces processing time and the workload of the staff. In addition, it vastly improved internal communication, plus reduced the cost of printing, copying, and the working hours of staff. The response of those staff members has been extremely positive according to surveys.

On February 13, 2012 Customs Department modified the e-Customs system to be the Thailand Customs Electronic System (TCES) in order to integrate all of the electronic systems of the Customs Department. The goal was to prepare for liberalization of trade within the ASEAN Community and facilitate international trade benefiting entrepreneurs with competitiveness, low cost, convenience, speed, accurate performance, and efficiency.

2.3 Thailand E-Customs and Tablet

In [4], Peerada Yuyuenyong and Sanon Chimamanee studied of abilities, expectations and attitudes of applying of the tablet in the E-Customs i.e., paperless system in 2012. A study of comparison between usage of the computer/laptop and the tablet for officer of the E-Customs department was also investigated. The simple size of 203 was drawn from 397 officers of the Laem Chabang Port Customs of officer in Chonburi province. The results show that 1) approximately 65 % of customs officer can use the web and e-mail service via the tablet to perform the functional import and export. 2) The expected and attitudes of the tablet usage in E-Customs is high about 70% for helping them in working with E-Customs. 3) The usage of the computer/laptops is preferred than the tablet in the function of importing and exporting up to 11 % because the computer/laptop is more effective than tablet e.g., typing, memory, displaying.

2.4 Effects of e-Customs

In [5], Panida Peetiboonpaiboon found that the effects of the use of e-Customs are as follows: 1) amount of time spent in dealing with exports and import was lessened. 2) Paper used for documents decreased by 50%. 3) Information provide can now be verified even after goods have been released. In conclusion, the use of e-Customs in customs procedures facilitates trading, aids in economic development, and accommodates exporters, thereby contributing to the expansion of international trade.

In [6], Hataiporn Inta indicated that functionality, usability, efficiency, maintainability and portability were at a high level. Product operation, product revision and product transition also were rated highly. 23 criteria such as assess auditing, access control, communication commonality etc. were all rated highly. Opinion on the level of importance the key success factors for implementing the e-Customs system in finance and accounting were exclusive policy, software, manual user, technology, people, internal control and data. Few problems were found for implementing the e-Customs system in finance and accounting.

3 Research Methodology

3.1 Conceptual framework

To study the efficiency of TCES within two groups: a) the customs officers have the factors 1) responsibility 2) age, and b) the customs brokers 1) category 2) position 3) the average
monthly entry clearance and 4) the average monthly export clearance. Review of literature can establish the following concepts (see figures 1).

![Conceptual framework of a figure](image)

**Figure 1.** Conceptual framework of a figure.

### 3.2 Hypotheses

It is summarized in 5 hypotheses (see Table 1).

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<tbody>
<tr>
<td>1.</td>
<td>The facilitation of international trade is efficient.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Reducing the operating costs of enterprises is efficient.</td>
<td></td>
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<tr>
<td>3.</td>
<td>The international standard is efficient.</td>
<td></td>
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<td>4.</td>
<td>Increasing trade competitiveness is efficient.</td>
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<td>5.</td>
<td>Transparency is efficient.</td>
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### 3.3 Methodology

Quantitative research (questionnaire) as well as qualitative (interview) was used to study the opinions and problems in depth.

### 3.4 The questionnaire

The questionnaire about the efficiency of TCES is tested by reliability (α) 0.85 of Cronbach’s Alpha Coefficient. There are 3 parts as

- General Information of samples consists of age, responsibility, etc.
- Opinions from open-ended questions that have rating scale by Likert for 5 ranking therefore as $4.51 – 5.00 = $Highest$, $3.51 – 4.00 = $High$, $2.51 – 3.00 = $Moderate$, $1.51 – 2.00 = $Low$ and $1.00 – 1.50 = $Lowest$.

### 3.5 Data Analysis

Data analysis used descriptive statistics about the effectiveness of the TCES by arithmetic mean ($\bar{x}$). After collecting all information, our evaluating method used the one way analysis in term of variance ($s^2$) = 0.05 and compared their results with least significant difference (LSD).

### 3.6 Selecting Samples for Research

This study used survey methodology (questionnaire) for 2 groups of random samples. First group is 40 samples from a population of 60 customs officers at Aranyaprathet Customs House. Second group is 15 samples from a population of 150 people who are serviced by officers. In addition, a structural insights pattern (interview) was used. Two groups were separated for the interview. One is 5 samples from the 40 customs officers at Aranyaprathet Customs House and the other is 10 samples from the 15 Customs Brokers.

### 4 Experiment Result

Sample of 55 participants at Aranyaprathet Customs House are in their 50s (45% majority age than 50 years). They are mostly responsible for good inspection (65%). 60 percent of the customs Broker are agents. 73% of the customer files the entry declaration for about 1-50 copies, whereas 47.60% files the exit declaration about 151 copies on average. Research results of the second part in the questionnaire (see Table 2).

<table>
<thead>
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<th>No.</th>
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<th>$\bar{x}$</th>
<th>$S.D.$</th>
<th>Level</th>
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<tbody>
<tr>
<td>1.</td>
<td>The facilitation of international trade is efficient.</td>
<td>4.06</td>
<td>0.59</td>
<td>High</td>
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<tr>
<td>2.</td>
<td>Reducing the operating costs of enterprises is efficient.</td>
<td>3.85</td>
<td>0.73</td>
<td>High</td>
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</table>
From table 2. Custom officers’ opinions about efficiency in 5 aspects of TCES are in high level in average of 4.06 and 0.596 S.D. level (4.19), followed by trade competitiveness (4.13), the facilitation of international trade (4.06), transparency (4.05) and reducing the operating costs of enterprises(3.85), respectively.

Most of the staff members interviewed showed consistency with the data obtained from questionnaires. It appears TCES is very effective in all 5 aspects, but the linkage between government agencies to approve the import – export products through One Stop Service (both facilitation of international trade and international standard) is not perfect, and efficiency suffers because some the government agencies and banks can connect to the system. The system is still evolving, and more agencies are being integrated.

In addition, most officials only have a moderate understanding of TCES due to their limited knowledge of the system as a whole. The Customs Department should organize a seminar concerning the theory and practices of TCES to enhance knowledge and skills of the officials and staff.

Research results of the third part in the questionnaire (see Table 3).

Table 3: Opinion on the efficiency of TCES in Aranyaprathet Sakaeo Province from Customs Broker

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<th>No.</th>
<th>Table Column Head</th>
<th>(\overline{x})</th>
<th>S.D.</th>
<th>Level</th>
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<tbody>
<tr>
<td>1.</td>
<td>The facilitation of international trade is efficient.</td>
<td>4.12</td>
<td>0.62</td>
<td>High</td>
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<tr>
<td>2.</td>
<td>Reducing the operating costs of enterprises is efficient.</td>
<td>4.17</td>
<td>0.67</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4.21</td>
<td>0.59</td>
<td>High</td>
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</table>

From table 3. Customs Brokers’ opinions average 4.21. After considering each aspect we found that transparency is highest average level (4.29), followed by trade competitiveness (4.27), reducing the operating costs of enterprises (4.17), and the facilitation of international trade (4.12), respectively.

Most of the customs brokers’ interviews are consistent with the data obtained from questionnaires. TCES is very effective in all 5 aspects, but the linkage between the government, bank, and entrepreneur to approve the import – export products through One Stop Service (both facilitation of international trade and international standard) is not perfect, and efficiency suffers because some the government agencies and banks can connect to the system. Many are still connecting to the system and legislation is being updated to support applications, so officers still use paper documents for customs clearance and time is wasted filing these Customs entries. Most brokers have a better understanding about TCES, but this comprehension is still just moderate despite the private sector organizing the seminar about TCES. The more people involved in the process that attend these seminars, the better the understanding will be.

In addition, the various factors related to the samples do not differentiate opinions about the efficiency of TCES.

In this study, it was used as the guidelines to help improve and develop Customs system, especially TCES to be modern, convenience and efficiency as well. Moreover, it has completed the goal of Customs to increase its competitiveness.
5 Conclusion

Although customs officers and customs brokers at Aranyaprathet Customs House have positive opinions about the performance of TCES, problems still exist. These include lack of knowledge about information systems, the system still not being completed, and issues with integration, amongst others. Customs and other relevant departments should solve these problems in a timely manner to prevent future problems. They should also resolve the inadequate linkage of information between government agencies, and adjust the relevant laws to provide consistency in facilitating customs clearance. Finally, more training and seminars providing more information to those involved with TCES will enhance their operational ability even more.

References