Barriers to E-Customs in an Emerging Economy: The Case of Iran

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E-government is in fashion because of a lot of benefits which it can forgive to every society. One of the sub-systems of E-government is E-customs. So far, a lot of countries around the world have adopted E-customs in their own countries. One of the very latest countries in this area is Iran. The results of this study show that for the implementation of E-customs there are several barriers which should be removed as early as possible in the very near future.

Key words: automated system for customs data, customs effectiveness, Iran

Introduction

In the 21st century, organizations are facing a wide variety of challenges including the trend of globalization, increase of technological changes and revolutions, customer-oriented policies and conditions. Thus, it is a necessity for managers to be ready for managing changes in dynamic environments and also organizations should exercise the required efforts to improve their works towards the changes and modify their affaire. Otherwise, their survival is threatened. The shift of societies towards the information society has had deep effects on numerous economical, social and cultural aspects of human life (Dibrell and Miller 2002). Two forces, i. e. globalization and high technology together with the new challenge of customer-oriented conditions, have forced organizations to pay special attention to their surrounding environment while respecting internal rules and disciplines, which caused to E-commerce. E-commerce accelerates the global commercial trend by removing the boundaries facing international trade (Molla, Taylor and Licker 2006). It benefits from economic advantages such as market expansion, reduction of product source prices, promotion of productivity, reduction of transaction costs and inflation, lowering uncertainty, sharing market information, and aiding in distribution channel efficiency and plays a vital role in endogenous economic growth (Abbasi 2007). The numerous advantages of e-commerce have led not only to developed but

also developing countries as a means towards competition in internal and international areas. At the early stage of e-commerce diffusion both public and private companies play key roles in creating conducive conditions and encouraging and making the spread of e-commerce more energetic and effective (Molla, Taylor and Licker 2006). Therefore, the development of e-commerce requires a series of essential activities in technical infrastructure, legal and regulatory issues, awareness, training and education, private sector protection, and government supports to provide conditions for economic players such as consumers and businesses to play a key role in the application of e-commerce. Cost savings and increased business process efficiencies are other considerable potential impacts of e-commerce which have been recognized by the main industry players. The distribution processes of regulated products are notoriously complex when dependent upon a predominantly paper based system (Littler and Hudson 2004).

In the light of these changes and revolutions, the traditional methods for doing works in organizations are gradually diminishing and mechanized methods are substituting them.

In this aspect, International organizations such as United Nations, conference on Trade and Development, World Trade Organization, World Customs Organizations, etc. have tried to achieve their goals by mechanizing customs through planning, formulating and implementing new plans (Farzin and Teimoori Nezhad 2010).

The automated SYstem for CUstoms DAta (ASYCUDA) and its subprograms is one of the programs suggested to be implemented by countries especially developing ones. It is obvious that if requirements and necessary facilities and resources in order to implement this system are cared for, this system would be more efficient.

ASYCUDA: An Introduction

ASYCUDA system is a computerized customs management system, and regarding the broadness of customs formalities, it covers all customs procedures such as imports and exports, transit, etc.

This system acts towards providing services to customers and operates in UNIX, DOS and Relational Data Base Management (RDBMS). This software also includes a series of open models that can be adjusted according to the special needs of countries using this system.

ASYCUDA software has been designed by UNCTAD in Geneva following the request for help from West African economic society countries in 1981, in preparing and arranging commercial statistics and in order to create a common and uniform language in international trading, the UNCTAD organization created this system with

their aid and suggested it to them. The customs authorities of the Islamic republic of Iran, along with the trend towards better implementation of customs rules and regulations and considering the existing policies in global trade and the World Customs Organization (WCT) relating to simplifying customs formalities and procedures, are considering the use of computerized systems. This is also being done in order to remove problems and bottle necks related with manual methods and in order enhance activities speed and provide timely statistics required by managers in decision making, create capacities and potentials in customs and finally to satisfy the clients.

In this research, in addition to evaluation of the existing competencies of the country, also a general look is taken at the systems being used in developing countries most important of them is ASYCUDA. This system by now used in 70 countries all over the world, has drawn the attention of Iranian customs experts and authorities.

In this regard, Iranian customs authorities contacted with UNCTAD and gathered some relatively systematic information on ASYCUDA capabilities and also studied the administrative contexts of implementation of the above-mentioned system. Briefly and at last, in 1996 a contract was made between Iranian customs and the UNDP agent in Tehran included technical aspects, implementation programs and joint investments towards pilot implementation of ASYCUDA. Following this event, after conducting follow-up studies, the implementation headquarters of the ASYCUDA project was established with direct responsibility of the plan and program vice president (as the national director of the project) in the Iranian customs.

The ASYCUDA project is being implemented in 3 phases described in the following (Voldan 2003).

Phase 1

The first phase, contract of the project approval of state management and planning organization, ministry of foreign affairs and Iranian customs with the aim of initiating and applying ASYCUDA for a pilot customs.

The period of this plan had been estimated as 18 months; it is worth noting that UNDP introduced UNCTAD as the executive consultant of the project through a separate letter of understanding.

Iranian customs drew attention to the project purpose by forming national work groups – and without the presence of resident experts' procedures in Mehrabad commercial customs – in 1997 by taking such measures as:

• Refining and simplifying current procedures;

- Translating the whole system into Persian;
- Converting Christian dates into solar Hegria;
- Designing new customs declaration forms; and
- Adapting the manual operational cycle to the suggested method in ASYCUDA system.

This initiation is considered as a great step towards the main purpose of customs, which is decreasing the bureaucracy governing this organization, optimizing and improving clearance procedures and moving towards a paper-less trade.

Phase 2

According to the achievements of phase 1, Iranian customs considered pursuing contract making in relation to phase 2 for active customs of the country, and with approval from the management and planning organization, ministry of foreign affairs and UNDP, succeeded in making a contract for phase 2 in May, 1999.

The aim of this document was to initiate and exploit from the ASYCUDA system in 8 active customs of the country, i.e. west of Tehran, Bandar Abbas (Shahid Rajayee customs), Bandar Abbas (Shahid Bahonar customs), Shahriar of Tehran, Mashhad, Bushehr and Bandar Emam.

The period considered for completion of this phase was 18 months. Iranian customs experts, exploiting from the experience obtained in phase 1, started a wide range of activities in order to achieve project goals and at last succeeded in equipping over 20 customs with the ASYCUDA system, frequently recognized by various countries, UNCTAD and UNDP. One of the significant reasons for realization of the above-said success was the great support from customs chief managers towards implementation of this plan, and in all of the circulars, presentations and instructions, implementation of this plan has been noted as one of the customs priorities and necessities.

It worth saying that the cost of implementation of this plan in the Philippines, Hungary customs were respectively over 10 million USD, about 5 million USD and about 8 million USD and in other countries customs it was similar to these customs but in Iran considering the absence of foreign experts and efforts of national CD-workers it was done with the least cost.

Phase 3

Iranian customs along with state policies towards developing E-commerce and E-government and also according to the recommen-

dations of world customs organization has considered exploiting new Information Technologies in this information era. Iranian customs regarding the visits of respectable president to operational sites of ASYCUDA in customs Mehrabad an also the recognitions and encouragements associated with this plan, decided to follow the third and final phase of ASYCUDA plan. In this regard, after a 6-month study conducted together with agents from management and planning organization, ministry of foreign affairs, the customs and UNCTAD, the contract for phase 3 was made between Iranian customs and UNDP in Aug, 2002.

Results predicted for implementation of phase 3:

• Using Internet platform for remote declaration of goods;
• Providing services on a 24-hour basis and on all days of the week by the customs;
• Decreasing country's customs traffic;
• Using tools for intelligent and intangible control with the aid of secret indices in the declaration path selection system;
• Decreasing paper documents in the customs setting;
• Possibility of electronic data exchange with other business organizations;
• Familiarity of employees with the new culture of information technology.

One of the subjects in this category is electronic signature. It is the data attached to a message so that the message receiver becomes aware of the source identity and makes sure of the accuracy and integrity of the message, which should indicate the unique sender and also whether the message is manipulated or not.

ASYCUDA Structure in Iran

The main core of the ASYCUDA project in Iran consists of the ASYCUDA project director, ASYCUDA secretariat, technical team and custom team.

Members of ASYCUDA technical and customs team are some of the computer and customs specialists and each team is headed by a manager who, in cooperation with other managers and under the supervision of national ASYCUDA project director, have set up this system in the country's customs and support it.

It is necessary to note that Iran is the only country which has succeeded in setting up the ASYCUDA system by domestic forces without the presence of resident experts of UNCTAD in the country in as short a time as possible and at a low cost.

Preliminary Measures for Implementing ASYCUDA

1. *Examination and suitable preparations.* The first stage of the pre-liminary measures for implementing the ASYCUDA system, is to explore existing resources and equipment in the target customs, identifying possible shortages, secondary equipment and tools and also creating a suitable space for installation of hardware devices such as data entry division, computer room in an admin-istrative building which can include sequential stages of customs clearance according to the ASYCUDA method. This examination and study is done by 2 experts dispatched from ASYCUDA's com-puter and customs teams to the target customs (Salehi, Alipour, and Yahyavi 2010).

2. *Network cabling.* After preliminary study, the cabling computer network of customs office is done. Cabling is conducted by con-tracting with valid computer companies' within the country. Of course, these companies conduct cabling and testing operations according to maps prepared by computer and customs team's experts in the previous stage.

3. *Installation of and providing training on software devices.* Having sent software devices and energy storing batteries to the cus-toms office, the ASYCUDA computer team begins installing and operating them, as well as providing, required training on net-worked computers and the main computer (server) to the com-puter supervisor and other staff involved with ASYCUDA system.

Characteristics and Capabilities of the ASYCUDA System

As mentioned earlier, the customs of the Islamic Republic of Iran, in the course of formulating a systematic plan in order to modify cus-toms formalities of the traditional system in cooperation with 'UNDP' and 'UNCTAD,' decided to further facilitate customs formalities relat-ing to releasing of goods as much as possible by creating and pro-moting a customs operational computer system. In order to achieve the above-said goal, exploiting the ASYCUDA system was considered by Iranian customs. This system has certain qualities and advantages compared to traditional methods, as follows:

1. *Supporting all customs procedures and clearance methods.* Ac-cording to the broadness of the system, clearance formalities and all customs procedures and methods such as imports and exports, transit, etc. can be supported, thus reducing the possi-bility of making mistakes.

2. *Controlling transit of goods at their sources and destinations through computers*. Using this system, information on transited goods is collected at the source customs and sent to the destination customs for inspection and control via telecommunication lines. In this way, transit of goods is done in the shortest time, permits are provided, and finally saving in time and costs results from this process.

3. *Using the international Single form*. The single administrative Document is a declaration form that can accept all goods declaration procedures by indicating the code specific to each procedure. This results in using a single form for different customs declarations. The SAD declaration was created by the European Union Council on 1 January 1988 in order to standardize customs procedures.

4. *Printing declarations and all reports*. In this system all affairs (except for measures that should be taken by individuals and need decision making such as assessment) including tariff determination of declaration, all reports, receipts and journals are printed by printers, and also assigning numbers and assessment numbers is done by computers.

5. *Using international codes*. In global trade and international relations, there are some codes and abbreviations are known to and to all countries such as Hs codes, country codes, currency codes, etc. have been defined in this system and are easily accessible.

6. *Using local codes*. Except for international codes, there are other codes known at national level and are locally applied such as bank codes, customs codes, business card codes and individuals specifications all of them are also definable for the system and leads to identifying individuals and can be reported with high speed and accuracy.

7. *Possibility of coding permits and keeping them up-to-date*. Presence of different permits regarding their numbers, importance and validity period results in problems for customs which using this system, after coding permits through Tariff are printed in customs declaration and owner of goods or the commission worker are required to provide that permit(s). In addition, possible changes in permits can be updated easily and by this procedure, the latest information can always be available.

8. *Possibility of remote declaration using E-mail and telecommunication equipment*. The presence of a computer and a connection line makes it possible for the commission worker to declare

his/her goods to the customs in the shortest time possible and then take measures for its clearance which this procedure avoid physical reference of commission workers to customs office.

9. *Possibility of paying customs duties through electronic banking system.* Using the ASYCUDA system capabilities, after calculation of customs duties of declaration, in the case that there is an electronic connection with banks, calculated funds are automatically deducted from the bank account of the goods owner and deposited to the bank account of the customs. In this way, referring of owner of goods to the bank and exchanging the related fund are eliminated from goods releasing process.

10. *Elimination of traditional statistical and financial offices.* According to the fact that the system automatically determines all operational numbers such as entry numbers, evolution numbers and receipt numbers and keeps them separate lists, in effect traditional statistical and financial offices are no longer exist and in this way there offices are eliminated from the customs operational cycle.

11. *Customs income accounting and automatic receipt issuance.* In this system all received amounts are carefully calculated and receipts are automatically printed by computers and there is no need to write or calculate and other affairs about accounts by individuals. In addition, reports of financial affairs performed during a day or shift can be received at the end of the official time or shift.

12. *Possibility of using credit accounts and prepayments in the accounting plan.* Commission workers can take a measure to perform their customs affairs by depositing an amount in the customs banking accounts as guarantee and creating credit. In this case, in declaration of goods, respective amounts are automatically taken from their accounts and deducted from it.

13. *Possibility of converting information in the declarations existing in the system into EDI codes and enabling electronic exchange of information.* Along with other electronic data exchange with other organizations, ASYCUDA system uses UN/EDIFACT standards (Salehi, Alipour, and Yahyavi 2010).

14. *Possibility of using the declaration path selection method on the basis of existing information in the system (red, blue, yellow and green channels).* ASYCUDA, in addition to accelerating of clearance operations such the newest concepts applied in advanced customs of the worlds and information technologies such as se-

lection of declaration path automatically, using that and creating red, yellow and green paths for customs declaration, their processing is done rapidly. Selection of declaration path is fully automatic and is performed using secret indices defined and approved by special committees in the customs.

15. *Possibility of having all information on and measures taken in relation to the declaration.* In this system in each stage that the customs experts or president want to obtain information about the quality of doing works, they can observe the measures taken via computer screen. For example they can see one declaration being evaluated is in which stage and what is its state.

16. *Controlling goods values.* Using this system, goods values also can be controlled. This is done by assigning 8-digit tariff codes, defining goods with related name and value in the computer and keeping them as a record which after encountering with an item with the same name and tariff code, the value of item is controlled by system and with the related definitions.

17. *Providing correct and timely statistics to various statistical units.* All activities done in one customs can become available statistically and carefully and by this information, in addition to statistics as various tables statistics relating to the number of declarations or financialzed declarations, etc. also can be prepared.

18. *Calculation of customs.* Via computer with maximal required accuracy and speed.

19. *Providing various types of statistical, economic, commercial, and customs reports in as short a time as possible.*

20. *Possibility of determining assessors through the system and dividing declarations between them.*

21. *Possibility of creating a systemic relationship with commission workers, banks, insurance companies and transportation institutions and preparing a ground for creating a Trade point and accessing to paperless trade.*

22. *Eliminating redundant work stations.*

23. *Possibility of creating suitable facilities for importers and exporters.*

Review of Literature

Considering the subject of the present study, some investigations in this regard have been done by researchers, some more related with the present subject are presented below:

Schmidt (2000) a large-scale study to assess e-business value in small, medium and large companies across the US and Europe was conducted. Results showed that to maximize benefits, a company should invest in and commit resources to all eight drivers; system integration; customer orientation of IT; supplier orientation to IT, informational (quality, supply continuity and relationship management) and transactional; internal orientation to IT; customer-related processes; supplier-related processes; customer e-business readiness; and supplier e-business readiness (Barua et al. 2000). Another research about e-business and e-commerce in developing countries showed that lack of awareness and understanding of the value of e-business, lack of ICT knowledge and skills, financial costs, insufficient infrastructures and security are the main barriers to increased uptake of information technology and e-commerce (Andam 2003).

The revolution in information technology has exploded into the new knowledge economy, and new information technologies are changing the ground rules for information flow in societies. The importance of using new technologies to provide information access is of great significance in the global economy (Thomson 2005). In other words, information technology is the focal point of electronics, data processing and telecommunication. This convergence has two aspects:

1. The elimination of distances through providing linkage among separate computers in the world-wide web.
2. The computerization of systems and telecommunication which results in new capacities to transfer sounds and images.

This mutual convergence has provided human beings with a new tool to collect, store, process, organize, transfer, and represent information. The computer has facilitated the collection, processing and transfer of information and therefore has resulted in cost reduction, productivity, quality, and efficiency improvement in all industries (Samuelson and Varian, 2002). Information technology has numerous applications ranging from tax collection to bank organization, from oil excavation to creating energy systems, from document management to the analysis of complex scientific problems etc (Seresht, Fayyazi, and Simar Asl 2008).

A study was carried out by Ayati (2007) under the title of efficiency of ASYCUDA in the customs of Iran from customs staff and commission workers point of view; this is a field research performed by many staff, managers and commission workers of west Tehran and Mehrabad customs, and in order to gather information, in addition to

laboratory resources, a kind of questionnaire was also used. Findings of this research showed that from the staff view point, the ASYCUDA system had only been effective above the medium level in relation to increase in easiness and volume indices, and has been effective under the medium level in relation to increase in services and job skills and decrease in violations, also it has been effective under the medium level in relation to indices for increase of speed, easiness, customs services and decrease in costs and customs violation from the staff point of view (Salehi, Alipour, and Yahyavi 2010).

Another study was done by Gholami (2002) which this research was also of surveying type has been performed across all employees and clients of West Tehran Customs. In this research such indices as accuracy, speed, and facilitation of customs formalities have been considered. The results of this research from the staff and commission worker point of view show that implementing the goods releasing path selection method has been effective above the medium level in relation to increasing satisfaction of commission worker and the rate at which customs formalities are performed and has been effective a little above the medium level on decreasing customs costs and capital sleep. Implementation of the goods releasing path selection method has increased staff satisfaction under the medium level and has been along with present rules and regulations under the medium level.

Increasing complexity of cultural, political, economic and social relations of organizations and also managing them towards achieving their aims has made using information very necessary. Managers in order to perform their managing tasks the most important part of it is decision making need information. Formation and creation of management information system is possible by exploiting from various sciences (Salehi, Alipour, and Yahyavi 2010).

In another research performed by Samsami (2001) which statistical population of this research included all employees of west Tehran customs has a diploma or a higher degree and the whole population has been studied as the sample.

The research method is a descriptive surveying one.

The results obtained from it are as follows: Mechanized system leads to increase of accuracy, precision, speed, satisfaction, income and finally efficiency in relation to doing works.

Research Done in Other Countries

A research with title: 'Evaluation of a System for Computerizing Customs Procedures and Information for Improving Receipt of Cus-

toms Incomes in Jordan' by a 3-person Evaluating Team (Consultants of UNCTAD and UNDP and a Domestic Consultant from Jordan) performed from August 11th to August 13th 1999.

First phase of the project had started since September 1995 as a pilot project for computerizing 3 projects known as: 'Customs Headquarters in Oman, Prince Alia International Airport and Oman Customs Office' (Salehi, Alipour, and Yahyavi 2010).

At first evaluating, group in Oman customs headquarters and in the project of airport, started the operations since September 1999 according to the plan. According this plan all commission workers submit customs declarations to the customs electronically.

The aim of this study was improvement of the country's economy by enhancing the capacity of government for creating customs income via providing trade society with efficient services.

The effects of the project include 5 immediate and visible purposes as follows:

1. For ensuring collection of customs income and improving efficiency and effectiveness of customs activities through ASYCUDA.
2. For promoting governmental capabilities in facilitating and standardizing dynamic economy and financial policies by providing in time and accurate information.
3. For enhancing applied capabilities of customs offices.
4. For increasing capabilities of customs offices in providing correct information to the traders.
5. For preparing and presenting standard information from ASYCUDA in order to apply in management information on international trade.

Some findings of the evaluating teams are: During the implementation of the project a series of tools were used for facilitating and simplifying information, documents and customs procedures for automatic adjustment in ASYCUDA (Salehi, Alipour, and Yahyavi 2010).

A few examples of these tools are: Smooth customs tariff, single administrative document (SAD), using risk management technique, minimizing the connection between commission worker and customs executive experts.

Success indices various indices representing success of plan and realization of planners' expectations are briefly as follows:

1. Clearance time: On green path, declaration tasks about two hours.
2. Incomes collection: Incomes, in spite of reduction in customs duties remained as before.

3. Business statistics: Business statistics are more complete, up-to-date and accurate.

4. Simplification and enhancement of transparency in: Smooth and single customs tariff, single administrative document, risk management techniques, direct commercial information, separating commission workers from customs staff and considering preferential taxes.

5. Structural capacity: Conveying training and technology and technical knowledge was realized.

Results: Before everything, the policy of supporting high levels and commitment to these types of projects is necessary. Since the system is fully new, this can be realized by customs choosing to appoint efficient and qualified employees for managing ASYCUDA plan, operational posts and project management. Secondly, it is necessary for other ministries associated with international commerce sector to do their best in order to reduce commercial barriers for trade unions. This leads to maximal exploitation of simplified procedures of trading by national economy and this is a part of the ASYCUDA plan.

Third, in such a complex project, full examination before implementation and initiation of the ASYCUDA system should be performed. Fourth, training time and supportive activities should carefully be planned so that the host country can make the best use from resources.

Fifth, in planning projects aimed at fundamental and structural changes in commercial methods of organizations, all efforts should be made in order to understand the intended or unwanted outcomes of these changes. Also all agents who would be affected by the changes should be prepared so that they can implement the project more successfully.

Research Problem

Word economic and social revolutions in recent decades have forced countries' customs to acquire necessary readiness for undertaking new responsibilities in addition to revising their traditional state, tasks and roles. Today the mission and tasks of countries' customs are far beyond such tasks as earning incomes, supporting domestic products and industries and enforcing customs rules, and include a wide variety of national and international obligations relating to international transactions and foreign trade.

In recent years, international organizations such as world customs organizations, have always emphasized the creation of trade pos-

sibilities and decrease of customs barriers (whether tariff or non tariff ones). On the other hand exercising border controls in order to prevent contraband and customs violations, supporting customers through preventing entry of dangerous, counterfeit and contaminant items and protecting society's security against structured crimes have been on the top of the task list of the country's customs. Briefly, it can be said that customs deal with the problem by creating trade possibilities and control.

Iranian customs took measures for establishing a mechanized customs information CASYCUDAS system in cooperation with UNCTAD (United Nations, Conference on Trade and Development) and UNDP (United Nations Development Program) in order to unify, accelerate and facilitate customs formalities, eliminate redundant bureaucracies and increase the effectiveness and efficiency of customs.

The ASYCUDA System has very high capabilities and incorporates all customs formalities including imports, and one of its subprograms for clearance (releasing of goods from customs house) is the method of clearance path selection or selectivity. Implementing this program implies identifying various risk types in importing goods and classifying them according to the degree of risk (low, middle, high) and defining national regulations and parameters (Salehi, Alipour, and Yahyavi 2010).

Some important points can be considered here: First, ASYCUDA has been prepared out of this country and by foreign experts, thus by identification of deficits and barriers to effective implementation of this system and removing them, it is expected that this system would work more efficiently. Second, ASYCDA has frequent capabilities, one of which is the capability of remote declaration which its implementation can lead to many results such as decrease of client physically references to customs. But in practice it is observed that customs formalities are still possible by physical referring of clients and by various controls in different bureaus which are against ASYCUDA purposes.

Also, in the process of performing customs formalities, it is observed that there is not enough confidence in this system. The changing path of declarations and various controls supports these comments.

Importance and Necessity of the Study

Customs play an important role in future global economy so that obtaining a greater part of international trade and attending global markets depends on effective performance of customs in the field

of imports and exports and transit. Therefore, customs should be directed to a way that while obtaining governmental income and facilitating trade, also promote transactions with other countries which in turn includes providing facilities to importers so that they can communicate with new commercial environment easily(Salehi, Alipour, and Yahyavi 2010).

Official bureaucracy along with complexity of regulations lead to increase of costs and decrease of speed, accuracy and precision of the stages of realizing goods for customs house and unusually name and symbol of customs recalls this idea that a collection of barriers and limitations under dominance and governance of inflexible and tight rules and regulations is under way and because of some problems, mechanizing clearance methods and modifying and revising rules and regulations are necessary for accurate and immediate responding, facilitating and reducing customs formalities and eliminating redundant official bureaucracies.

E-government is a way before governments in order to use IT (Information Technology) providing necessary facilities for proper access to public services and information, service quality improvement and more opportunities for involvement and participation.

In E-government, by using computers, citizens can connect to intended organizations without physically referring to state organizations and offices and receive their required services without physical presence in a certain place (namely office) and at a certain place (namely official time) on 24-hour basis and on all days of the week which this leads to realization of virtual organizations.

But it should be noted that establishing new systems replacing older ones often done at high costs and by targeting long-term aims. So in order to establishing new systems with proper performance it is necessary to identify the barriers in front of their way (Salehi, Alipour, and Yahyavi 2010).

Removing these barriers leads to more efficient implementation of system and promotion of the organization efficacy.

Research Hypotheses

ASYCUDA system has been enforced since last few years by providing some possibilities in order to mechanize customs and realize paperless trade and it has also specific capabilities have not been practiced yet.

The subject considered here is that customs formalities are still being done with physical presence of goods owners and by performing some paper work which this condition could be due to shortage of

resources and possibilities and weaknesses in current situation. So, in order to implementing this system more efficiently and enhancing the efficacy of customs services and activities compared with current situation, it is necessary to identify the barriers in front of it.

In this research, it is tried to identify effective factors related with enhancement of ASYCUDA efficiency. The hypotheses are as below:

HYPOTHESIS 1 *In compatibility of customs rules and regulations with implementing ASYCUDA system has prevented effectiveness of Tehran's customs activities and services.*

HYPOTHESIS 2 *Lack of required infrastructure in implementing ASYCUDA system has prevented effective services and activities of Tehran's customs.*

HYPOTHESIS 3 *Inadequate familiarity of employees and clients with ASYCUDA system has prevented effectiveness of Tehran's customs services and activities.*

HYPOTHESIS 4 *lack of presenting correct documents and information as inputs to ASYCUDA system has prevented effectiveness of Tehran's customs activities and services.*

Research Methodology

In this research surveying method was used for identifying barriers in front of implementing ASYCUDA effectively in customs. In this research effects of factors derived from 4 independent variables, i. e. customs rules and regulations, necessary infrastructures, adequate familiarity of staff and clients with ASYCUDA system and also providing documents and information (system inputs) were studied on optimal implementation of ASYCUDA system. Also in this research laboratory method was used for gathering research literature and correlation method was used for studying the relationships between variables and testing research hypotheses.

Statistical community of this research consists of employees working in Tehran customs and is related with and familiar with ASYCUDA system in some way.

In this research, field method was used for gathering information. For supplying research literature Internet and library method (documents and records) and in order to gather information on variables, observations and questionnaires were used.

The questionnaire related with this research include a main question with 34 factors for both clients and employees groups. This questionnaire has designed in line with research purposes and considering research variable using five point Likert's scale and the

choices related with those questions rated from 1 to 5. The purpose of this questionnaire is to identify the factors which lead to more successful implementation of the ASYCUDA system and the lack of which is considered as a preventive factor, inhabiting the optimal implementation of the system and increase of its effectiveness.

In this questionnaire, effectiveness is considered as effective implementation of ASYCUDA system, being an integration of speed, accuracy and precision of performing customs formalities. Distribution of the questionnaires was done by physical reference to the customs and via direct distribution.

Questionnaires for the present research are based on previous studies and standardized questionnaires in the same field and considering has been designed considering hypotheses and aims of the research. In order to evaluate the validity, at first a questionnaire including factors affecting on optimal implementation of the ASYCUDA system was distributed among customs expert professionals and also became available to supervisors and advisors and the results obtained by this questionnaires was above the intermediate level and experts opinions related with it was positive.

Results of the Study

In the first step, we address the frequency and frequency percentage of gender in the sample according to the collected data. As it can be seen in table 1, out of 530 participants, 40 were female and 92.50 per cent were male.

As the table 1 shows, the frequency and frequency percentage are indicated for participants which the most ones belong to subjects between 35–44 years old with a frequency of 230 from total 530 and frequency percentage of 43.4% and the least ones belong to subjects between 45 and 54 years old with a frequency of 120 and frequency percentage of 22.6%. Table 1 shows the frequency and frequency percentage of education levels of the subjects which the most ones belong to bachelor's degrees with a frequency of 281 from total 530 and frequency percentage of 52.8% and the least ones belong to diploma degrees with a frequency of 49 and frequency percentage of 9.4%. It should be noted that education level doctorate has a frequency of among the subjects.

Above mentioned table also shows the frequency and frequency percentage of subjects posts which the most ones belong to 12–17 years with a frequency of 151 and a frequency percentage of 28.32% and the least on belong to below 6 years with a frequency of 19 and frequency percentage of 3.79%.

TABLE 1 Descriptive statistic results of the study

Item		Number	Percentage
Gender	Female	40	7.50
	Male	490	92.50
Age	25–34	180	34.00
	35–44	230	43.40
	45–54	120	22.60
Educational Record	Diploma	49	9.40
	Associate Diploma	141	26.40
	BA	281	52.80
	MA	59	11.40
Experience	Below 6 years	19	3.79
	6–11 years	131	24.51
	12–17 years	151	28.32
	18–23 years	100	20.79
	24–30 years	120	22.60
Job position	General Director	9	1.88
	Vice-director	21	3.82
	Technical Expert	271	50.94
	Administrative Expert	79	15.04
	Assessor	150	28.30

Table 1 shows frequencies and frequency percentages of subject's tenures which the most ones belong to technical experts with a frequency of 271 and frequency percentage of 50.94% and the least ones belong to general directors with a frequency of 9 and a frequency percentage of 1.88%.

HYPOTHESIS 1 *In compatibility of customs rules and regulations with implementing ASYCUDA system has prevented effectiveness of Tehran's customs activities and services.*

In order to examine the type and degree of relationships between variables correlation coefficient and analysis of it can be used.

H_0 *In compatibility of the customs rules and regulation with implementing ASYCUDA system has not prevented effectiveness of Tehran's customs activities and services.*

H_1 *In compatibility of the customs rules and regulation with implementing ASYCUDA system has prevented effectiveness of Tehran's customs activities and services.*

Because sig. (significant level) = 0 is below the significant level of 0.05 so H_0 is rejected and H_1 is supported at confidence level of 95% (total = 530, sig. = 0.000, p = 0.856, t = 11.828).

It means that incompatibility of the customs rules and regulations with implementing ASYCUDA system and effectiveness of customs services and activities are significantly related to each other and $t = z = 11.828$ also confirm this conclusion (t does not fall between +1.96 and −1.96 and $H_1: p \neq 0$ is approved).

Pearson correlation coefficient, $p = 0.856$ shows that the strength of the relationship between variables is 86 per cent and because this value is positive they have a direct relationship, i.e. as incompatibility between the customs rules and regulations with implementing ASYCUDA system increases, prevention of effective customs activities and services increases and in fact the customs effectiveness decreases.

Thus presence of appropriate rules and regulations in order to activate the blue path (inspection after clearance), presence of appropriate rules and regulation regarding electronic documents, electronic signature, copy right, electronic payment and presence of appropriate rules regarding violations in 3 clearances paths, presence of uniform and fixed entry duties sources for goods, enacting laws suitable for ASYCUDA system and revising present rules. Related to imports are effective in better implementation of ASYCUDA system and lack of these factors is a barrier in front of the customs effectiveness increase.

HYPOTHESIS 2 *Lack of required infrastructure in implementing the ASYCUDA system has prevented effective services and activities of Tehran's customs.*

In the following correlation, the coefficient showing the type and degree of relationship between variables is presented.

H_0 *Lack of required infrastructure in implementing thwASYCUDA system has not prevented effective services and activities of Tehran's customs.*

H_2 *Lack of the ASYCUDA system has prevented effective services and activities of Tehran's customs.*

Because Sig = 0.000 which is below the significant level of $\alpha = 0.05$, so H_0 is rejected and H_2 is supported at confidence level of 95% which $T = Z = 14.75$ also confirms this fact (total = 530, sig. = 0.000, $p = 0.900$, $t = 14.75$).

This means that lack of required infrastructure has prevented effectiveness of Tehran's customs activities and services.

$p = 0.900$ shows the strength of the relationship between required infrastructure for implementing ASYCUDA and effectiveness of the customs activities and services being about 90% and the relationship

is direct lack of infrastructure prevents enhancement of the customs effectiveness.

Thus the presence of each of the following factors can contribute to the customs effectiveness and lack of them is considered as a barrier. These factors include: easy access to high-speed Internet and enjoyment of users from specialized Internet services of Informatics companies, presence of complete telecommunication networks between organizations related with trade affairs (such as banks, customs, health care), availability of international credit card and their usage culture, existence of special centers for meetings of traders and related organizations, presence an atmosphere of alignment with organizational changes, creating an atmosphere of trust in using computer systems, presence of complete and dependable communication networks among traders, customs and associated organizations.

HYPOTHESIS 3   *Inadequate familiarity of employees and clients with* ASYCUDA *system has prevented effectiveness of Tehran's customs services and activities.*

In order to study the type and degree of the relationship between variables, correlation efficient and analysis of it can be used (total = 530, sig. = 0.000, $p = 0.912$, $t = 15.827$).

HYPOTHESIS 3   *Inadequate familiarity of employees and clients with* ASYCUDA *has prevented effective activities and services of Tehran's customs.*

Because Sig = 0.000 which is below the significant level of $\alpha = 0.05$, thus H_0 is strongly rejected and H_3 is supported at confidence level of 95% which $t = z = 15.827$ also confirms this fact (t does not fall between +1.96 and −1.96 and H_3: $p \neq 0$ is unsupported) i. e. lack of clients with ASYCUDA system prevents effective services and activities of Tehran's customs.

$p = 0.912$ shows the strength of the relationship between the familiarity of employees and clients with ASYCUDA and customs services and activities effectiveness which is 91% in this case the relationship between variables is direct i. e. lack of familiarity of clients and employees with ASYCUDA system prevents increase of the effectiveness of Tehran's customs services and activities.

Thus more familiarity of employees, commission workers and declaration officers with ASYCUDA system and the capabilities of it, availability of more training related to electronic commerce and also electronic documents, more familiarity of clients and employees with Internet and it's capacities and also with English, and French, pro-

viding required training in the field of international conventions, raising awareness of Iranian traders towards scientific comers, more familiarity of employees from information unit with commercial information and document, all can be effective in better implementation of ASYCUDA system and lack of those leads to prevention of enhancing customs effectiveness.

> HYPOTHESIS 4 *Lack of presenting correct documents and information as inputs to ASYCUDA system has prevented effectiveness of Tehran's customs activities and services.*

Correlation coefficient and the related analysis shoeing the type and degree of relationship between variables have provided in the following (total = 530, sig. = 0.000, p = 0.883, t = 13.45).

> H_0 *Not presenting correct information and documents as inputs to ASYCUDA system has not prevented effectiveness of Tehran's customs activities and services.*

Because Sig = 0.000 which is below the significant level of α = 0.05, thus H_0 is rejected and H_4 is accepted at confidence level of 95% which $t = z = 13.45$ also confirm this fact (t does not fall between +1.96 and −1.96 and H_4: $p \neq 0$ is accepted).

This means that not presenting correct information and documents as inputs to ASYCUDA system has prevented effectiveness of Tehran's customs activities and services.

Pearson correlation coefficient, p = 0.883 shows the strength of the relationship between presenting correct information and documents as inputs to ASYCUDA system and customs effectiveness of services and activities which in this case is about 88 percent. Here there is a direct relationship between not presenting correct documents and information and decrease in customs activities and services effectiveness.

Thus presence of each of the following factors can be effective in raising the effectiveness of the customs and lack of them is considered as a barrier.

These factors include: presence of clear and transparent information on circulars and guidelines, providing valid purchase documents upon declaration, reducing the number of documents required for declaration, up-to-dating information on debt and obligation of Article 14 of customs affairs Act, accessibility to information on domestic and foreign firms goods, presenting complete and correct information on goods upon declaration, complete preparing of declaration draft by declaration officers.

TABLE 2   Prioritizing factors effective in better implementation of ASYCUDA from employees' perspective

(1)	(2)	Variable description
1	Q19	More familiarity of customs employees with ASYCUDA and its capabilities.
2	Q7	Lack of contradictory and multiple circulars and regulations.
3	Q33	Providing correct and complete information on goods upon declaration (in order to better management and risk assessment).
4	Q4	Presence of appropriates rules and regulations relating to violations in 3 paths of declaration (red, yellow, green).
5	Q21	Presence of clear and transparent information on guidelines and circulars.
6	Q20	More familiarity of commission workers and declaration officers with ASYCUDA and its capabilities.
7	Q10	Presence of complete telecommunication networks between organizations related with trade in Iran including banks, customs transportation, and health care.
8	Q22	Presence of more training in relation to electronic commerce.
9	Q28	Providing valid purchase documents upon declaration (such as invoices).
10	Q34	Preparing declaration draft completely and without mistake by declaration officer.
11	Q6	Easy access of users to high-speed Internet.
12	Q9	Enacting appropriate rules related to ASYCUDA and revising present rules related to imports.
13	Q8	Presence of uniform and fixed entry duties sources for goods and without significant changes.
14	Q30	Updating information on debt and obligation of Article of customs affairs Act.
15	Q31	Presence of required training relating to electronic documents.
16	Q11	Presence of appropriate rules and regulations related to electronic payment.
17	Q23	More familiarity of employees and clients with Internet and its capabilities .

Continued on the next page

Prioritizing Effective Factors Using the Friedman Method

Using the Friedman method, prioritizing factors effective in better implementation of ASYCUDA system and in turn enhancement of Tehran's customs effectiveness was performed in table 2.

Table 2 shows the results of the Friedman test on each of the questions in the questionnaire. According to this table question No. 19 is the most important variable in this study and question No. 13 rated as the last question as the least important in this study. The above mentioned table shows the details of every questions contains questionnaire. In prioritizing performed using Friedman's av-

TABLE 2 *Continued from the previous page*

(1)	(2)	Variable description
18	Q2	Presence of rules and regulations related to and suitable for electronic documents.
19	Q17	Presence of complete and reliable networks among traders, international organizations and vendors.
20	Q27	More familiarity of information unit staff with documents and information.
21	Q15	Creating a trust atmosphere towards using computer systems
22	Q25	More familiarity of employees and clients with French and English languages.
23	Q3	Presence of appropriate rules and regulations in relation to electronic signature.
24	Q12	Availability of international credit cards.
25	Q32	Accessibility to information of foreign and domestic firms.
26	Q18	Creation of a culture of using credit cards and comprehensive usage.
27	Q26	Awareness of Iranian traders of scientific commerce.
28	Q29	Reducing documents necessary for declaration
29	Q24	Providing required training about international conventions.
30	Q16	Exploiting specialized internet services of Iran-based informatics companies.
31	Q1	Presence of appropriate rules and regulations in order to run the blue path.
32	Q14	Creation of the culture of alignment with organizational changes.
33	Q5	Presence of appropriate rules and regulations related to copyright.
34	Q13	Presence of special centers as a place for meetings of traders.

NOTES (1) priority, (2) variable.

erage method it was indicated that familiarity of staffs with ASYCUDA system and also providing accurate and complete information upon declaration are considered as factors with high priority and improving them plays a significant role in more effective implementation of ASYCUDA system.

Conclusion

In relation to the first hypothesis, the value of the correlation coefficient related to the variables of the first hypothesis stood at 0.0856 and this shows that the statistical population believe that changing the present state and creating and establishing some appropriate rules and regulations can be effective in better implementation of ASYCUDA system and raising the effectiveness of the customs and it is necessary to remove the incompatibility between customs rules and regulation and ASYCUDA system. In fact, in order to optimal use of ASYCUDA system and capabilities of it, it is necessary to provide more

suitable conditions and possibilities related to it. The value of correlation coefficient related to the variables of first hypothesis stood at 0.856 which such a high effect shows this fact that by changing and modifying the present state of customs rules and regulations, ASYCUDA is also implemented more efficiently and finally the customs effectiveness is also increased.

In relation to the second hypothesis, regarding the average value obtained from the answers (3.83), it was demonstrated that by creating necessary infrastructure, ASYCUDA system and its capabilities are better implemented and in the case of not creating appropriate infrastructure it can not be expected that ASYCUDA system is influential in raising the effectiveness.

In relation to third and forth hypotheses, also similar results were obtained. The high value of average data (above 4) and also high correlation coefficient values and positive of them show this fact that the statistical population above the average level believe that for better implementation of ASYCUDA there is a need for more familiarity of staff and clients with this system and also the more accurate system inputs, results in the more successful process of the system. In fact lack of adequate familiarity of staff and clients with ASYCUDA system and not providing accurate documents and information, have now resulted in raising of system effectiveness and in turn the customs.

In prioritizing performed using Friedman's average method it was indicated that familiarity of staff and clients with ASYCUDA system and also providing accurate and complete information upon declaration are considered as factors with high priority and improving them plays a significant role in more effective implementation of ASYCUDA system. The authors become to conclusion that although Iran has very high capacity in costumes section, the function of Iranian customs should be up-to- dated as early as possible. Regarding this importance, ASYCUDA system should be impalement in very near future. Further, all barriers should be removed by governmental section as well as the private sector.

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