

The Effect of Electronic Customs Administration on Facilitating the Export Activities of Selected Export Companies in Parañaque City

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Abstract

Export facilitation is integral in sustaining the balance of trade against import in an economy. In promoting export development, the use of value-added service provider (VASP) systems assists with the implementation of electronic customs administration. The simplification and harmonization of customs procedures are crucial in facilitating the flow of goods in an international trade environment. As automation continuous, the Bureau of Customs has been progressively integrating modern technologies to regulate customs operations and transactions efficiently. In line with the manner of a descriptive-correlational research design, quota and purposive sampling techniques were applied to collect quantitative data from the manager, supervisor, and company owner of the thirty (30) selected export companies operating within Parañaque City. A total of one hundred fifty (150) participants were surveyed, five (5) from each company, of which were users of Electronic-to-Mobile (E2M) system. The study mainly concentrated on assessing the perceived effect of electronic customs administration on facilitating the export activities in terms of formalities and procedures pertinent to the degree of competitive advantage and export growth. Based on the six (6) indicators, the findings revealed an overall rating of very high level of agreement and that the participants strongly agreed that electronic customs administration influences the facilitation of export activities. The study further aimed to ascertain the association between the perceived effects and type of participants. Using Pearson correlation coefficient (r), results suggested a very low level correlation and that the relationship found between the perceived effects and type of participants were negligible and insignificant.

Keywords: Electronic Customs Administration, Export facilitation, E2M system

1. Introduction

Over the years, substantial structural changes in the policies and procedures of customs facilitation are visibly observed in response with the evolving trade landscape. The simplification and standardization of customs procedures are regarded to be pivotal in facilitating the flow of goods in an international trade environment through the fluid integration of information and communication technologies (ICTs) to ease transactions with the Bureau of Customs. Katigbak (2020) stressed that the continuous automation of major customs operations nurtures a “cashless, faceless, and paperless environment,” fundamental in ensuring revenue collection and suppressing incidence of corruption. The intensive implementation of

electronic customs administration intertwines with the export facilitation and in espousing the scale of exports development.

Equilibrium in the volume of imports and exports is an integral driving force to sustain economic balance, emphasizing the vital role of a competent export facilitation. Records have consistently cited that the balance of trade in goods mostly favor imports. By June 2022, 65.3 percent of the total external trade accounts for imported goods and the remaining fraction were exports produce (Philippine Statistics Authority, 2022). The emergence of ICTs on export orientation aims to further facilitate export activities and to consequently register a sound growth in export performance.

Faster than anticipated, the world is becoming highly digital in great speed. The incorporation of information and communication technologies (ICTs) redefined how the government and customs administration functions. In order to create a more conducive and contemporary customs dynamic that mirrors the global advancements, automation of every phase of customs systems targets to eradicate paper-based transactions with the introduction of computerized functionalities on a single access point. The services and features of value-added service providers (VASPs) systems suggest a relative influence on customs administration involving international trade facilitation.

In lieu of the modernization initiatives, the Bureau of Customs (BOC) introduced Electronic-to-Mobile (E2M) system that enabled customs authorities to electronically proceed with customs transactions purposely replacing obsolete practices and licensed customs brokers to monitor the status of shipments. The functional operation of the E2M system is linked to the front-end services of the three (3) accredited VASPs of the BOC. The E-Konek Pilipinas, Inc., the InterCommerce Network Services, Inc., and the Cargo Data Exchange Center, Inc. (CDEC) serve as gateways in enabling customs officers and traders to complete several transactions within a single point of date entry. The systems of the following VASPs also provide for the automated calculation of correct duties and taxes due on subject shipments for collection. Simultaneously, E2M system is developed to enhance security and trade efficiency by observing an extensive validation of client or user data input and in increasing compliance measure. Hence, thoroughly supervising the facilitation of customs transactions through electronic customs administration.

The study revolved on the perceived effect of electronic customs administration to export facilitation, in terms of customs formalities and processes that may relatively influence the competitive advantage and exports development. Notably, the elimination of unnecessary procedures and the transition from a massively paper-based practices to an electronic-operated systems assist in streamlining the processes of transactions with the Bureau of Customs (BOC). On that note, the study particularly sought to figure the link between electronic customs administration and facilitation of export activities in selected export companies. Later, aimed to pinpoint the connection of these variables.

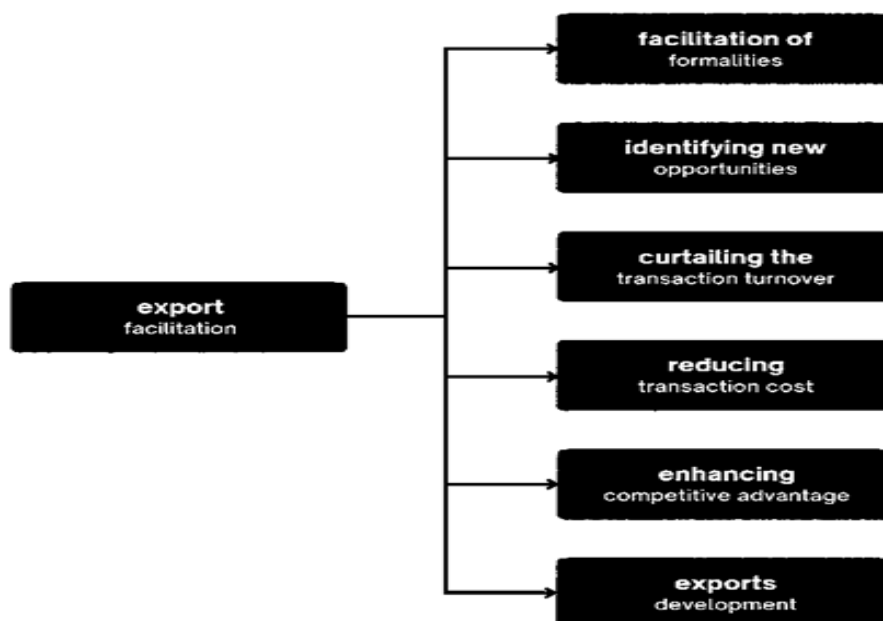
Developing trade facilitation by incorporating the dynamics of modern systems to replace the inefficient conventional ways is claimed to be one of the key measures to augment competitive advantage and volume of exported goods. These advances in trade facilitation are outlined from the framework of international standards. In light of these subject matters, the study further centered on discerning the relationship of electronic customs administration on export facilitation according to the type of participants. Thus, the study is primarily driven to produce in-depth information and insights on the effect of electronic customs administration on the facilitation of export activities of selected export enterprises situated in Parañaque City. The findings of the study sought to present empirical evidence that may be used to evaluate the influence of electronic facilitation on export management. The paper also focused in addressing the gaps

and relevant arenas that are not covered from the previous research works. Moreover, the study aimed to produce significant recommendations as the results may suggest.

1.1 Theoretical Framework

The study focused in discerning the effect of electronic customs administration, particularly of the Electronic-to-Mobile (E2M) system provided by the accredited value-added service providers (VASPs) to the facilitation of export activities of selected export companies in Parañaque City. Specifically, E2M entails Automated Export Declaration System (AEDS) and Automated Export Documentation System (AEDS) for the Bureau of Customs (BOC) and the Philippine Economic Zone Authority (PEZA), respectively. In determination, the association of the variables is substantiated through the six (6) indicators listed in the study entitled “The Effect of Electronic Customs Administration on Facilitating the Export Activities of Export Companies based in Gilan, Iran,” from which the theoretical basis is anchored with. These include “facilitation of formalities, identifying new opportunities, curtailing the transaction turnover, reducing transaction costs, enhancing competitive advantage, and exports development.” The adopted variables are sourced from the theoretical concept furnished in the related undertakings of Elahi and Hasazadeh (2007) and Ramazanipour et al. (2014) as adapted by Shirsavar and Shirinpour (2016) in their study. The theoretical illustration exhibits the linear pattern of electronic customs administration towards exports development, outlining the significance of one variable to the others. Hence, the paper explored the underlying causal link between the implementation of electronic customs administration and export facilitation through the theoretical lenses of the enumerated indicators. Figure 1 indicates that exports development is heavily dependent on the changes in competitive advantage, transaction costs, transaction turnover, new opportunities, and on the improvements in facilitation of formalities (Shirsavar & Shirinpour, 2016). The independent variables show that lowering of transaction costs leads to an evident pull in competitive advantage and on the subsequent growth in the scale of export activities, expounding the implication of electronic customs facilitation on exports development.

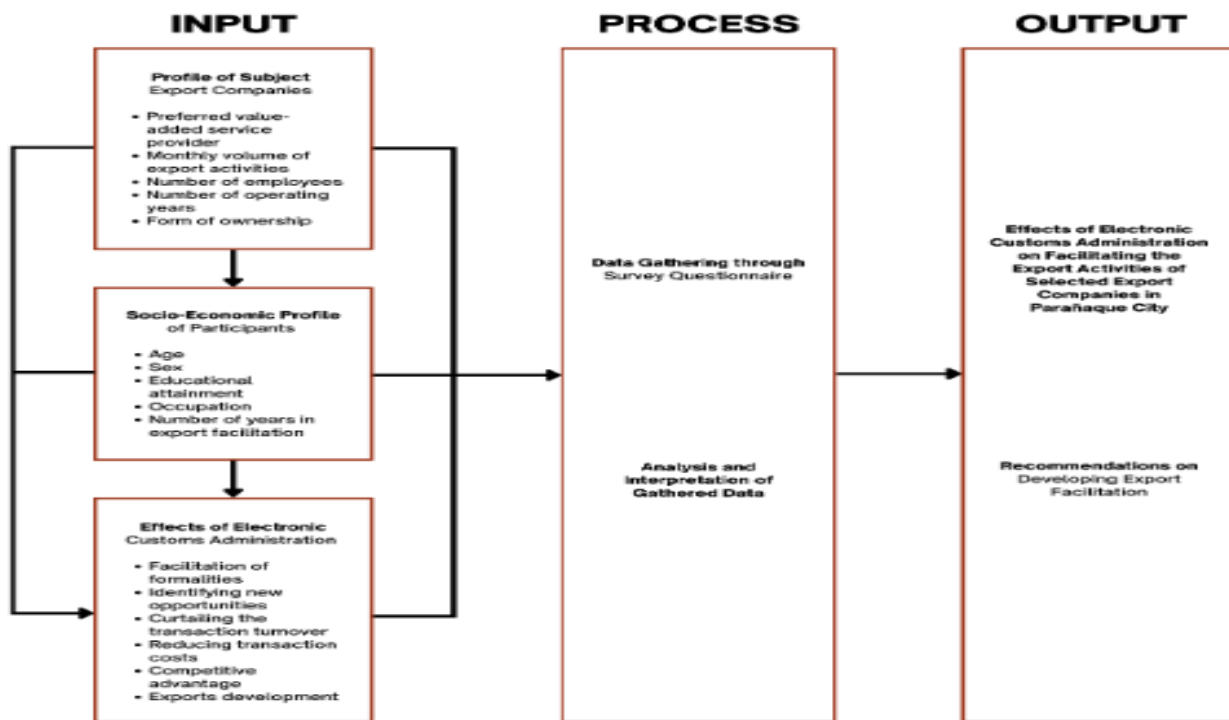
Figure 1. Effects of Electronic Customs Administration on Export Facilitation



1.2 Conceptual Framework

The conceptual framework of the study is presented in Figure 2 using the Input-Process-Output (IPO) method. In order to produce relevant findings, data inputs on the profile of subject export companies, socio-economic profile of the participants, effect of electronic customs administration on export facilitation, and their relationship when grouped according to the type of participants are therefore to be systematically gathered. For the process part, the study will use a researcher-made survey questionnaire to source data from the participants. The data to be gathered are to be analyzed and interpreted to discern the answers to the specific research problems covered in the study. The last section of the below illustration is the output, which shall include the relevant findings and concrete evaluation on the perceived effect of electronic customs administration in facilitating export activities, particularly in their relationship when grouped according to the type of participants.

Figure 2. Conceptual Framework of the Study



1.3 Statement of the Problem

The study aimed to identify the effect of electronic customs administration on facilitating the export activities of selected export companies situated in Parañaque City. The findings of the study seek to provide substantial evidence relevant in evaluating the implication of electronic facilitation on export management. Thereon, render significant recommendations as the results may suggest. Hence, in order to arrive with the results essential to the findings of the study it aimed to answer the following questions:

- 1.3.1. What is the profile of the subject export companies, in terms of:
 - 1.3.1.1. preferred value-added service provider,
 - 1.3.1.2. monthly volume of export activities,
 - 1.3.1.3. number of employees,
 - 1.3.1.4. number of operating years, and
 - 1.3.1.5. form of ownership?

1.3.2. What is the socio-economic profile of the participants, in terms of:

1.3.2.1. age,

1.3.2.2. sex,

1.3.2.3. educational attainment,

1.3.2.4. occupation, and

1.3.2.5. number of years in export facilitation?

1.3.3. What is the perceived effect of electronic customs administration to the facilitation of export activities, in terms of:

1.3.3.1. facilitation of formalities,

1.3.3.2. identifying new opportunities,

1.3.3.3. curtailing the transaction turnover,

1.3.3.4. reducing transaction costs,

1.3.3.5. enhancing competitive advantage, and

1.3.3.6. exports development?

1.3.4. Is there a significant relationship on the perceived effect of electronic customs administration when grouped according to the type of participants?

1.4. Hypothesis

On the basis of the objectives and variables of the study, the below hypothesis was conceptualized to be tested at 0.05 level of significance.

H₀₁: There is no significant relationship on the perceived effect of electronic customs administration when grouped according to the type of participants.

1.5. Scope and Limitation of the Study.

The study concentrated mainly in determining the effects of electronic customs administration to the facilitation of export activities of selected export companies in Parañaque City. Therefore, the study is particularly limited to selected export firms that utilizes the Electronic-to-Mobile Automated Export Documentation System (E2M AEDS) and E2M Automated Export Declaration System (AEDS) of accredited value-added service providers (VASPs) or users of the E2M System. The needed data were obtained using a survey questionnaire. Furthermore, the participants of the study are the users of E2M AEDS in selected export companies, limiting the number of participants to be surveyed at one hundred fifty (150) selected users only. Particularly, the participants of the study are the manager, supervisor, and company owner of the selected export companies, of which are situated and operating their businesses within the vicinity of Parañaque City, the research locale. The participants from selected export firms included in the study are parties or users with adequate experience and knowledge of using E2M AEDS of the accredited VASPs, deducing the exclusion of non-users and import-oriented companies in data gathering. The processors and other employees are neither included as participants of the study. The complete conduct of the study is observed for a duration of four (4) months, starting from September 2022 to December 2022, to scholarly determine the effect of electronic facilitation on export management, particularly to the export activities of selected export companies operating within the vicinity of Parañaque City.

2. Methodology

A research design is considered as a structured set of rational decision-making selections that assist in developing accurate and reliable research outcomes (Creswell & Creswell, 2018). A research design may interfere with the validity and reliability of the findings as it acts as a blueprint in conducting a study.

Thus, it affects the quality and direction of the findings. The study employed a descriptive research design to explain the nature of the variables. Abutabenjeh and Jaradat (2018) stressed that a descriptive research method entails gathering information to systematically describe the qualities of a phenomenon, situation, or a population. In this study, the effect of electronic customs administration to the facilitation of export activities were determined and analyzed by describing the correlation between the variables. Moreover, the study utilized the correlational method to ascertain the relationship between electronic customs administration and facilitation of export activities. A correlational design seeks to examine the association between two or more variables to test the degree of association or the influence of one to another using the statistical procedures of correlational analysis (Creswell & Guetterman, 2018). Correspondingly, this study intended to determine the type of interactions taking place enabling the analysis and interpretation of findings based on the relationship to be found. The selected locale of the study is Parañaque City in Metro Manila, Philippines. The researchers surveyed the managers, supervisors, and company owners of selected export companies, all of which are currently based in and conducting businesses within the vicinity of Parañaque City. The area of Parañaque City is surrounded with actively operating import- and export-oriented enterprises, particularly focusing on the selected export companies to determine the implication of electronic customs administration to the facilitation of activities. In this study, there are two major sources of data that were used, namely: The primary data of the study was obtained by the researchers from the selected participants through the use of a validated researcher-made survey questionnaire, of which was formulated based on the variables adopted from the adapted theoretical framework of Shirsavar and Shirinpour (2016); and the secondary sources of data were derived from a selection of academic resource relevant to the context of the study, which include related literature, published books, journals, articles, and other scholar works espousing a rich database.

In order to guarantee the accuracy of the results and presentation of the findings, the researchers applied descriptive statistics and Pearson linear correlation coefficient. Descriptive statistics was used to summarize the data in an organized manner describing the profile of the subject export companies and the socio-economic profile of the participants. A percentage frequency distribution indicates the percentage of the observations that exist for each data point. This statistical treatment was used to present the results for problem 1.3.1 and 1.3.2, while arithmetic weighted mean is the computed average of individual values that holds distinct weights. This was observed for the problem 1.3.3. The Pearson's correlation coefficient was used to assess the statistical association or relationship between two continuous variables for Problem 1.3.4.

3. Results and Discussion

Table 1:P Profile of the Subject Export Companies

Profile	Category	Frequency n = 30	Percentage (%)	Rank
Preferred value-added service provider	E-Konek Pilipinas, Inc.	13	43.33	1
	Cargo Data Exchange Center, Inc.	11	36.67	2
	InterCommerce Network Services, Inc.	6	20.00	3
Monthly volume of export activities	Less than 50	8	26.67	2
	50-99	13	43.33	1
	100-199	6	20.00	3
	Over 200	3	10.00	4

Number of employees	1-9	5	16.67	3
	10-49	12	40.00	1
	50-99	9	30.00	2
	Over 100	4	13.33	4
Number of operating years	Less than 3 years	6	20.00	3
	3-5 years	10	33.33	1
	6-10 years	9	30.00	2
	Over 10 years	5	16.67	4
Form of ownership	Sole Proprietorship	5	16.67	3
	Partnership	7	23.33	2
	Corporation	18	60.00	1

Preferred value-added service provider. Table 1 presents the distribution of the preferred value-added service provider of the thirty (30) subject export companies. From the data provided, E-Konek Pilipinas, Inc. recorded the largest size distribution that consist of thirteen (13) export companies or 43.33 percent followed by the Cargo Data Exchange Center, Inc. with eleven (11) export-oriented firms or 36.67 percent, while the InterCommerce Network Services, Inc. accounts for six (6) export companies or 20.00 percent, which was the lowest number of export firms or the least preferred value-added service provider by the subject export companies as the results suggest.

Monthly volume of export activities. Table 1 shows the distribution of the monthly volume of export activities of the subject export companies. The result reveals that on a monthly basis, the volume of export activities that most of the subject export companies encounter ranges from 50-99. Out of thirty (30) export-oriented companies, thirteen (13) export firms or 43.33 percent has a monthly volume of export activities between 50-99 followed by less than fifty (50) monthly volume of export activities with eight (8) export companies or 26.67 percent. A monthly volume of export activities between 100-199 consisted of only six (6) export companies or 20.0 percent, while over two hundred (200) accounts for three (3) number of export-oriented firms out of the 30 or 10.0 percent of the total, which was the least in terms of the number of export firms.

Number of employees. The data reveals that twelve (12) from thirty (30) export companies or 40.00 percent of the subject export companies operate with a total number of employees between the range of 10-49 followed by the scale of about 50-99 hired employees that represents for the nine (9) export-oriented firms or 30.00 percent of the total. The lowest percentage belongs to the number of employees that exceeds over one hundred (100) with only four (4) export firms or 13.33 percent, while the range between 1-9 number of employees tally a close score of only five (5) export companies or 16.67 percent of the total.

Number of operating years. Table 1 discloses that more than one-third (1/3) or ten (10) export firms from the total sample size of thirty (30) export companies has been operating for years between three to five (3-5) years long, representing the largest fraction of 33.33 percent. On the other hand, nine (9) subject export companies or 30.0 percent has an operating year between the range of six to ten (6-10) years followed by six (6) export firms or 20.0 percent from the total subject export companies with less than three (3) years of operating life. An operating year of over ten (10) receives the lowest percentage of 16.67 percent only or five (5) export companies out of the total.

Form of ownership. Based on the data gathered by the researchers, the findings display the relative distribution of the different form of ownership. Eighteen (18) export firms or majority are in the form of

corporation at 60.0 percent of the total subject export companies. Sole proprietorship and partnership share a small margin of gap with five (5) export companies or 16.67 percent and seven (7) or 23.33 percent, respectively.

Table 2: Socio-economic Profile of the Participants

Profile	Category	Frequency n = 30	Percentage (%)	Rank
Age group	21-30	104	69.33	1
	31-40	37	24.67	2
	41-50	9	6.00	3
	51 and above	0	0.00	4
Sex	Male	76	50.67	1
	Female	74	49.33	2
Educational attainment	High School	7	4.67	4
	Vocational	12	8.00	2
	College	122	81.33	1
	Postgraduate	9	6.00	3
Occupation	Manager	53	35.33	1
	Supervisor	48	32.00	3
	Company Owner	49	32.67	2
Number of years in export facilitation	Less than 3 years	60	40.00	1
	3-5 years	47	31.33	2
	6-10 years	27	18.00	3
	Over 10 years	16	10.67	4

Age. Table 2 reveals that the majority of the one hundred fifty (150) participants were within the age group of 21-30. It accounts for 69.33 percent, the largest number of participants with one hundred four (104), while ages between 31-40 consists of thirty-seven (37) participants or 24.67 percent followed by the nine (9) participants or 6.0 percent within the age group of 41-50 out of the total. Moreover, Table 6 suggests that the participants are of younger age bracket with no individuals in the data set within the ages 51 and above.

Sex. The data expresses that the distribution of participants in terms of their sex are relatively fair. Out of one hundred fifty (150) total participants, seventy-six (76) were male. At 50.67 percent, the number of males was marginally higher than of the females, with only seventy-four (74) participants or 49.33% of the total.

Educational attainment. Data above shows that more than four-fifths (4/5) or 81.33 percent from the total are college graduates comprising the one hundred twenty-two (122) participants. In contrast, the lowest percentage was collected from the seven (7) high school graduates or only 4.67 percent of the total number of participants. The vocational takers and postgraduate completers accounts for the twelve (12) participants or 8.0 percent and nine (9) participants or 6.0 percent, respectively.

Occupation. As indicated in Table 2, distribution of the participants according to their occupation is fairly dispersed. Manager has the largest number of participants in this study with fifty-three (53) participants or 35.33 percent, while company owners and supervisors follow a close lead at forty-nine (49) participants

or 32.67 percent and forty-eight (48) participants or 32.0 percent, respectively.

Number of years in export facilitation. As shown in Table 2, majority of the participants has less than three (3) years of experience in export facilitation. Out of one hundred fifty (150) participants, sixty (60) of them or 40.0 percent accounts for this majority. Meanwhile, 31.33 percent or forty-seven (47) participants have an experience in export facilitation for about 3-5 years. On the other hand, twenty-seven (27) from the total or 18.0 percent has been involved in export facilitation between the duration of 6-10 years. A number of years in export facilitation for over ten (10) years only has sixteen (16) participants or is at 10.67 of the total was the lowest percentage in range.

Table 3: Effect of Electronic Customs Administration to the Facilitation of Export Activities in Facilitation of Formalities

Facilitation of Formalities	Mean	SD	Verbal Interpretation
Electronic customs administration facilitates the clearance process of our company involving lodgment of export declarations to permit loading of export shipments on board the vessel or aircraft (e.g. remote filing and electronic data submission through E2M AEDS).	3.46	0.57	Very high level of agreement
Electronic customs administration enhances compliance level and cooperation between our company or of other traders and the Bureau of Customs with ease in exchange of information.	3.31	0.63	Very high level of agreement
Electronic customs administration promotes simplification and harmonization of our company’s export procedures in accordance with international standards.	3.31	0.68	Very high level of agreement
Electronic customs administration eliminates unnecessary processing steps and onerous formalities to streamline export procedures of our company.	3.29	0.69	Very high level of agreement
Electronic customs administration improves transparency, predictability, and consistency in export formalities of our company.	3.26	0.66	Very high level of agreement
Grand Mean/Subtotal	3.33	0.65	Very high level of agreement

Remarks: 4.0-3.25 Strongly Agree 2.50-3.24 Agree 1.75-2.49 Disagree 1.00-1.74 Strongly Disagree

As revealed in Table 3, the statement “Electronic customs administration facilitates the clearance process of our company involving lodgment of export declarations to permit loading of export shipments on board the vessel or aircraft (e.g. remote filing and electronic data submission through E2M AEDS).” got the highest mean score of 3.46 with a standard deviation of 0.57. In contrast, the statement “Electronic customs administration improves transparency, predictability, and consistency in export formalities of our company.” had the lowest mean score of only 3.26 and a standard deviation of 0.66. All of the statements for the facilitation of formalities were interpreted as “very high level of agreement,” while the subtotal mean score for this indicator is 3.33 and a standard deviation of 0.65. The results suggest that the participants perceive that the implementation of the electronic customs administration influences the facilitation of export activities in terms of streamlining the clearance process involving lodgment of export declarations and in simplifying formalities to enhance the level of compliance of traders respective with the

exchange of information. Duval and Mengjing (2017) assert that electronic customs administration help streamline and systematize international trade processes to simplify customs procedures. In effect, this eliminates barriers and irrelevant customs procedures reducing complexities in formalities (Vorotyntseva et al., 2020). Based on the findings, the participants view that the electronic customs administration improves transparency allowing real-time exchange of data and guarantees predictability and consistency with the prescribed export formalities.

Furthermore, the above findings imply that the majority of the participants share similar level of perception on the effect of electronic customs administration to facilitate formalities through simplified export processes and documentation.

Table 4: Effect of Electronic Customs Administration to the Facilitation of Export Activities in Identifying New Opportunities

Identifying New Opportunities	Mean	SD	Verbal Interpretation
Electronic customs administration addresses modernization initiatives of our company in streamlining export management.	3.38	0.56	Very high level of agreement
Electronic customs administration integrates multiple functions of our company in a single system to provide seamless operations and enable strategic planning for continuous modernization.	3.25	0.64	Very high level of agreement
Electronic customs administration utilizes existing technologies to improve smart exchange of information for broader and faster connectivity.	3.33	0.70	Very high level of agreement
Electronic customs administration identifies new opportunities for our company towards diversification of exports and new export contracts or transactions.	3.25	0.67	Very high level of agreement
Electronic customs administration establishes and enhances a risk management system to optimize use of our company’s resources (e.g. selectivity criteria).	3.31	0.69	Very high level of agreement
Grand Mean/Subtotal	3.31	0.65	Very high level of agreement

Remarks: 4.0-3.25 Strongly Agree 2.50-3.24 Agree 1.75-2.49 Disagree 1.00-1.74 Strongly Disagree

Table 4 reveals that the statement “Electronic customs administration utilizes existing technologies to improve smart exchange of information for broader and faster connectivity.” obtained the highest mean score at 3.33 with a standard deviation of 0.70, which implies that the participants perceive the effect of electronic customs administration as instrumental in delivering fluid exchange of data for a faster completion of export transactions. On the other hand, the statement “Electronic customs administration integrates multiple functions of our company in a single system to provide seamless operations and enable strategic planning for continuous modernization.” acquired the least mean score of 3.25 together with the other statement, “Electronic customs administration identifies new opportunities for our company towards diversification of exports and new export contracts or transactions.” Despite tallying the lowest mean score, the value maintained an interpretation of “very high level of agreement,” signifying that the users agree with significance of electronic customs administration on generating opportunities to improve and increase

export activities. In general, the rest of the statements under identifying new opportunities were interpreted as “very high level of agreement” with a subtotal mean score of 3.31 and a 0.65 standard deviation. Therefore, emphasizing that electronic systems are capable in materializing potential in shaping a more modern customs administration through the aid of innovation and technology.

Table 5: Effect of Electronic Customs Administration to the Facilitation of Export Activities in Curtailing the Transaction Turnover

Curtailing the Transaction Turnover	Mean	SD	Verbal Interpretation
Electronic customs administration optimizes our company’s export management to expedite completion of transactions in export industry.	3.26	0.69	Very high level of agreement
Electronic customs administration secures flexibility of our company in terms of functionalities and data set exchange requirements.	3.31	0.70	Very high level of agreement
Electronic customs administration increases accuracy and efficiency in completing export transactions of our company.	3.29	0.69	Very high level of agreement
Electronic customs administration tracks status of our company’s shipments real-time, providing increased transparency and predictability.	3.21	0.72	High level of agreement
Electronic customs administration prevents input errors and operational delays of our company to complete multiple export transactions using electronic systems.	3.21	0.64	High level of agreement
Grand Mean/Subtotal	3.25	0.69	Very high level of agreement

Remarks: 4.0-3.25 Strongly Agree 2.50-3.24 Agree 1.75-2.49 Disagree 1.00-1.74 Strongly Disagree

As illustrated in Table 5, the statement “Electronic customs administration secures flexibility of our company in terms of functionalities and data set exchange requirements.” recorded the highest mean score at 3.31 with a standard deviation of 0.70, construed as “very high level of agreement.” This connotes that the participants agree that electronic customs administration is essential in performing multiple functionalities and data set exchange, pivotal to sustain the fluid facilitation of export activities. On the other hand, the statements “Electronic customs administration tracks status of our company’s shipments real-time, providing increased transparency and predictability.” and “Electronic customs administration prevents input errors and operational delays of our company to complete multiple export transactions using electronic systems.” both gathered the lowest mean score of 3.21 interpreted as “high level of agreement.” which infers that despite resonating the perception of the participants, there are areas or aspects to improve for customs in terms of enhancing the electronic services. The rest of the statements for indicator “curtailing the transaction turnover” were interpreted as “very high level of agreement” with a subtotal mean score of 3.25 and a standard deviation of 0.69. Hence, the findings of the study establish the influence of electronic customs administration on stressing the efficiency and speed of completing a full export cycle. The quick release of cargoes improves the different facets of services, reducing complexities and discouraging time-

consuming customs procedures to allocate resources for a growth in total export value. In terms of turnover value, exports declared electronically provides an increase in total export value (Kim & Kim, 2020).

Table 6: Effect of Electronic Customs Administration to the Facilitation of Export Activities in Reducing Transaction Cost

Reducing Transaction Cost	Mean	SD	Verbal Interpretation
Electronic customs administration eliminates costs from paper-based procedures and other unnecessary formalities in export processing of our company.	3.31	0.68	Very high level of agreement
Electronic customs administration reduces the time, cost, and implication of high-risk input error of our company from complexities in international trade.	3.20	0.67	High level of agreement
Electronic customs administration simplifies our company’s export processing, allowing ease of transaction and reduction of overall transactions.	3.28	0.70	Very high level of agreement
Electronic customs administration guarantees reduced and accelerated computation for low-cost transactions of our company by simplifying complex export procedures.	3.31	0.68	Very high level of agreement
Electronic customs administration optimizes export facilitation and lowers overall costs in completing export transactions of our company.	3.31	0.76	Very high level of agreement
Grand Mean/Subtotal	3.28	0.70	Very high level of agreement

Remarks: 4.0-3.25 Strongly Agree 2.50-3.24 Agree 1.75-2.49 Disagree 1.00-1.74 Strongly Disagree

Table 6 shows the perception of the participants on the effect of electronic customs administration to the facilitation of export activities in terms of reducing transaction cost. From the findings, three statements got the highest mean score of 3.31. Two of these statements share the same standard deviation of 0.68 and the statement with the highest mean score and a greater standard deviation at 0.76 states that the “Electronic customs administration optimizes export facilitation and lowers overall costs in completing export transactions of our company.” This indicates that majority of the participants perceive the implication of electronic systems as useful in cutting the overall transaction costs. In the elimination of heavily paper-based procedures and face-to-face customs compliance, export activities can be performed with minimal level of transaction costs. As a result, reduction of transaction cost optimizes the use of resources and translates to a cost-effective export facilitation. Tang (2021) stressed that by implication of electronic systems, overall costs can be managed. The subtotal mean score is 3.28 and a standard deviation of 0.70. Meanwhile, the statement “Electronic customs administration reduces the time, cost, and implication of high-risk input error of our company from complexities in international trade.” got the least mean score of 3.20 with 0.67 standard deviation interpreted as “high level of agreement.” The data suggests that the participants strongly agree that electronic systems aid in reducing time and costs to complete an export transaction, but the existing services requires reform to eliminate high-risk input errors to ensure that the trade complexities are curtailed at optimal rate.

Table 7: Effect of Electronic Customs Administration to the Facilitation of Export Activities in Enhancing Competitive Advantage

Enhancing Competitive Advantage	Mean	SD	Verbal Interpretation
Electronic customs administration ensures the balance between facilitation and security in the international supply chain to provide our company and other traders a more competitive edge in the global market.	3.37	0.63	Very high level of agreement
Electronic customs administration builds increased trade capacity in export industry in line with the goal of gaining proactive competitive success for our company and other interested parties.	3.30	0.64	Very high level of agreement
Electronic customs administration augments the value of services provided by our company and other export-oriented companies.	3.19	0.75	High level of agreement
Electronic customs administration establishes distinctive and core competencies for our company and other operating firms in the export industry.	3.21	0.72	High level of agreement
Electronic customs administration strengthens stakeholder/ client relationship and improves our company’s quality of performance.	3.39	0.66	High level of agreement
Grand Mean/Subtotal	3.29	0.68	Very high level of agreement

Remarks: 4.0-3.25 Strongly Agree 2.50-3.24 Agree 1.75-2.49 Disagree 1.00-1.74 Strongly Disagree

Table 7 illustrates the perception of the participants on the effect of electronic customs administration to export facilitation in terms of enhancing competitive advantage. The statement with the highest mean score of 3.39 and a standard deviation of 0.66 states that “Electronic customs administration strengthens stakeholder/client relationship and improves our company’s quality of performance.” The findings of the study suggest that the participants regard the effect of electronic systems as a tool to strengthen the relationship among the key stakeholders while guaranteeing the development of the performance quality. Moreover, grand mean for the statements under “enhancing competitive advantage” is 3.29 with a standard deviation of 0.68, interpreted as an overall “very high level of agreement.” Likewise, the rest of the statements are combination of strongly agree and agree ratings from the participants. Thus, the results imply the effect of electronic customs administration in establishing competitive advantage and recognizing arenas to sustain added value to improve trade capacity. According to the study of Olyanga et al. (2022), export facilitation is an integral determinant in increasing competitiveness and trade flows, including in reinforcing competitive advantage through harmonization of goods in an international trade environment.

Table 8: Effect of Electronic Customs Administration to the Facilitation of Export Activities in Exports Development

Exports Development	Mean	SD	Verbal Interpretation
Electronic customs administration ensures visible growth in volume of transactions in our company and in the export industry.	3.38	0.63	Very high level of agreement
Electronic customs administration reduces trade risks and balances growth in export.	3.30	0.64	Very high level of agreement
Electronic customs administration expands the market of our company and accelerates the pace of global expansion.	3.18	0.74	High level of agreement
Electronic customs administration integrates digital trade and opens up a huge number of new markets for our company and other parties to modern economies.	3.21	0.72	High level of agreement
Electronic customs administration improves process of export declaration and documentation of our company with faster transaction cycle.	3.40	0.67	Very high level of agreement
Grand Mean/Subtotal	3.29	0.66	Very high level of agreement

Remarks: 4.0-3.25 Strongly Agree 2.50-3.24 Agree 1.75-2.49 Disagree 1.00-1.74 Strongly Disagree

Table 8 reveals that among the statements, “Electronic customs administration improves process of export declaration and documentation of our company with faster transaction cycle.” received the highest mean score at 3.40 and a standard deviation of 0.67, which was interpreted as “very high level of agreement.” These values suggest that overall, electronic customs administration has been reliable to simplify procedures on export declaration and documentation by streamlining stages of export facilitation. This results to faster transaction cycle and turnover responsible to observe growth in export volume. However, the statement “Electronic customs administration expands the market of our company and accelerates the pace of global expansion.” got the lowest mean score of 3.18 and a standard deviation of 0.74. This suggests that e-systems are indeed vital in facilitating formalities, delivering new opportunities, optimizing transaction cycles and turnovers, reducing overall costs, and ensuring competitive edge but requires more attention in its effect on global scale respective to its value in positioning the place of the export-oriented firms in the market, as well as to actively respond with the pace of global expansion in the age of modern technologies. The findings firmly express that there are areas in customs electronic services that can be reformed to achieve export growth. As cited by Modenov et al. (2018) in the study of Nejad and Sabzikaran (2017), export facilitation is crucial in sustaining the economic balance and progress, largely influenced by the implementing customs procedures. Overall, the grand mean of the statements is 3.29 and 0.66 standard deviation with the rest of the statements interpreted as “very high level of agreement” and “high level of agreement.”

Table 9: Relationship Between the Perceived Effect of Electronic Customs Administration and the Type of Participants

Factors/Indicators	Critical Value	Rltn	Computed Value (t)	Pearson Value	Interpretation	Results
Perceived effect of electronic customs administration and age	1.984	>	-0.02	0.00	No correlation/negligible correlation	Accept H ₀
Perceived effect of electronic customs administration and sex	1.984	>	0.17	0.01	Very low (+) correlation	Accept H ₀
Perceived effect of electronic customs administration and educational attainment	1.984	>	0.79	0.07	Very low (+) correlation	Accept H ₀
Perceived effect of electronic customs administration and occupation	1.984	>	-0.15	-0.01	Very low (-) correlation	Accept H ₀
Perceived effect of electronic customs administration and number of years in export facilitation	1.984	<	2.02	0.16	Very low (+) correlation	Reject H ₀

Remarks: critical value (two-tailed α 0.05) – df 100 = 1.984

critical value > computed value Not Significant (Accept Null Hypothesis)

critical value < computed value Significant (Reject Null Hypothesis)

As shown in Table 9, at 0.05 level of significance, the computed value is -0.02, below the critical value. Hence, this suggests that the relationship between the perceived effect of electronic customs administration and the type of participants in terms of age group is insignificant. Furthermore, an insignificant result is interpreted as a premise to accept the null hypothesis. Therefore, there is no significant relationship between the perceived effect of electronic customs administration and the type of participants in terms of age. The Pearson value is at 0.0, interpreted as no correlation or negligible correlation among associating variables. Based on the findings, the age of the participants will not influence nor determine the relative effect of utilizing electronic customs administration on facilitating the export activities. According to the World Economic Forum (2018), diversity in terms of age group is less likely a factor for the familiarity of employees to work operations, particularly in utilizing technologies and electronic systems.

Table 9 further highlights the underlying level of association between the perceived effect of electronic customs administration and sex. At a 0.05 level of significance, the computed value of the two aspects is at 0.17, less than to the critical value of 1.984. A value lower than the critical value represents an insignificant relationship. Thus, a computed value of 0.17 means that the relationship found is insignificant and that the null hypothesis shall be accepted while the alternative hypothesis shall be rejected. As the findings of the study firmly provide, there is no significant relationship between the perceived effect of electronic customs administration and to the type of participants in terms of sex. In addition, the Pearson value on the assessed relationship between the perceived effect of electronic customs administration and sex is at

0.01. Based on the benchmark, a Pearson value (r) between ± 0.01 and ± 0.25 implies that there is a very low correlation between the two factors. A value of 0.01 means there is a very low positive correlation on the perceived effect of electronic customs administration and sex, where the changes in either factor move on like direction. The Bureau of Customs (2022), pursuant to its active role of promoting inclusivity of all sexes, emphasized that diversity between male and female is incoherent to its competency and familiarity to customs procedures.

As determined in Table 9, there is an insignificant relationship between the perceived effect of electronic customs administration and the educational attainment of the participants based on the computed value of 0.79, less than to the critical value of 1.984 at a 0.05 level of significance. An insignificant relationship expresses that the null hypothesis shall be accepted while the alternative hypothesis shall be treated otherwise. Thus, there is no significant relationship between the perceived effect of electronic customs administration and the type of participants in terms of educational attainment. From the data as shown in Table 18, the Pearson value is at 0.07. A value lies between ± 0.01 and ± 0.25 infers that there is a very low correlation with the two factors. Hence, there is a very low positive correlation between the perceived effect of electronic customs administration and level of educational attainment. Mendoza (2022) stresses that adequate training in usage of electronic-to-mobile system of the Bureau will provide equitable skills, independent from the level of educational attainment of the participants.

As presented in Table 9, at a level of significance of 0.05, the computed value is below the critical value at -0.15, deducing that the relationship between the perceived effect and the type of participants in terms of occupation is insignificant. By interpretation, an insignificant result is regarded as a premise to accept the null hypothesis. Therefore, there is no significant relationship between the perceived effect of electronic customs administration and the type of participants in terms of their occupation. Moreover, the calculated Pearson value is at -0.01. A value that lies from ± 0.01 to ± 0.25 denotes a very low correlation. In the determined value, there is a negative sign which means that the association present between the two factors is inverse. The Pearson value of -0.01 suggests a very low negative correlation, implying that the changes in either factor will cause a movement in opposite direction of one another simultaneously. Mendoza (2022) asserts that the position of employees within the company are relevant to designate responsibilities but are likely flexible through the electronic systems that permit the implication of multiple functionalities in a single access point.

Table shows in Table 9 suggest that the null hypothesis shall be rejected, and that the alternative hypothesis is to be accepted. At 0.05 level of significance, determined computed value on the relationship between the perceived effect of electronic customs administration and the number of years in export facilitation is at 2.02. In comparison to the critical value of 1.984 at a 0.05 level of significance, a greater value means a significant relationship. Thus, the null hypothesis is to be rejected. Based on the findings, there is a significant relationship between the perceived effect of electronic customs administration and to the type of participants in terms of the number of years in export facilitation. With a Pearson value of 0.16, it proves that there is a very low positive correlation between the two factors. However, the relationship found is very low to observe an evident display of association between the two variables. Based on the study of Ahmad and Rahman (2019), diversity among employees in terms of their years of experience influences their level of performance and degree of perception on how operation works. In effect, participants that have longer years of background in export facilitation provide wider array of basis from work experience to their perception on the effect of electronic customs administration. Further, the Bureau of Customs

firmly requires that individuals and entities carrying trade activities shall possess licenses, permits, and qualifications as prescribed by the Bureau.

Relationship between the perceived effect of electronic customs administration and the type of participants. From the data provided in Table 9, findings suggest that there is no significant relationship between the perceived effect of electronic customs administration and to the type of participants. Neither variables are significant to affect the other, except for the very low correlation between the perceived effect of electronic customs administration and the type of participants in terms of the number of years in export facilitation. However, the association between these factors is found to be very low and negligible in value to perceive as heavily significant.

5. Conclusions and Recommendations

5.1. Conclusions . The following statements were concluded, based on the findings of the study:

5.1.1. Majority of the subject export companies preferred to use the services of E-Konek Pilipinas, Inc. as an accredited value-added service provider of customs primarily catering export activities done in areas within Philippine Economic Zone Authority (PEZA). In addition, majority of the export companies were engaged with monthly volume of export activities between 50-99 with an operating year of mostly within 3-5 years in export industry. Further, majority of export companies were operating with a total number of employees between the range of 10-49 and were in the form of corporation.

5.1.2 Most of the participants were male, between the ages of twenty-one (21) and thirty (30), college graduates, managers, and had less than three (3) years of experience in export facilitation.

5.1.3. The results revealed that the perceived effect of electronic customs administration on facilitating the export activities received an overall very high level of agreement from the participants of the study, in terms of:

5.1.3.1. Facilitation of formalities. The majority of the participants strongly agreed that electronic customs administration influences the facilitation of clearance process involving lodgement of export declarations beneficial in streamlining export management with simplified and harmonized export procedures. The participants viewed that the electronic systems were instrumental to reduce complexities in export formalities, responsible for the enhance compliance level and cooperation between traders and the Bureau of Customs as evident with the shift from heavily paper-based procedures to automated processes.

5.1.3.2. Identifying new opportunities. Majority of the participants strongly agreed that the implementation of electronic customs administration was vital to the discovery of new opportunities in export management. It obtained an overall very high level remark, which implies that electronic systems were relevant in addressing modernization initiatives to streamline export management by integrating multiple functions into a single platform optimizing resources, while sustaining diversification and enhancing risk management system.

5.1.3.3. Curtailing the transaction turnover. In curtailing the transaction turnover, it obtained an overall very high level of agreement with few statements rated as high level of agreement from most of the participants. The complexities of electronic customs administration in facilitating export activities in terms of curtailing transaction turnover were minor. In curtailing transaction turnover, findings revealed that there was an improvement in the real-time tracking of the status of goods in terms of predictability and transparency. By utilizing modern technologies to complete export transactions, electronic customs administration helps organization avoid operational delays and input errors.

5.1.3.4. Reducing transaction cost. It got an overall very high level of remarks. In terms of lowering the transaction costs, the results suggested that electronic customs administration for the facilitation of export activities led most of the participants to consider that the expenditures associated with paper-based processes and other onerous formalities in their company's export processing were eliminated by shifting to electronic systems. Their company's export operations were completed more efficiently and at a reduced overall cost in effect of electronic customs administration. Additionally, electronic customs administration still needs to be developed and improved in order to decrease the time, expense, and high-risk input error when handling the intricacies of international trade based on the remarks of high level of agreement.

5.1.3.5. Enhancing competitive advantage. Findings revealed that majority of the participants strongly agreed that electronic customs administration affects the degree of competitive advantage among export-oriented firms as represented in the very high level remarks in the results of the study. The participants regarded the implementation of electronic systems as integral to ensure trade capacity and augment value of services to strengthen the relationship among stakeholders with evident growth in the quality of performance. Participants in enhancing competitive advantages should develop the value of the services offered by their business and other export-oriented firms through electronic customs administration.

5.1.3.6. Exports development. Findings of the study implied that electronic customs administration accelerates global expansion, helps access a vast array of new marketplaces in contemporary economies, and caters to an evident growth in export volume in respect to the effect of electronic customs administration, which combines digital trade benefitting the users of faster transaction cycle. Based on the results, it received an overall very high level of agreement from majority of the participants with marginal disparity on areas concerning the capacity to sustain with global expansion and integration to digital trade that receives a high level remarks. It infers that further improvement is required.

5.1.4. Based on the presentation of results, it was concluded that when participants were grouped according to their socio-economic profiles in terms of age group, sex, level of educational attainment, and occupation, there is no significant relationship to the perceived effect of electronic customs administration on the six (6) export activities. Neither factors impact the other, except for the type of participants in terms of the number of years in export facilitation that entails a very low level of correlation. The type of the participants in terms of age group, sex, educational attainment, and occupation has negligible or very low correlation with the perceive effect of electronic customs administration suggesting an insignificant relationship, while number of years in export facilitation to the perceived effect of electronic customs administration was found to have significant relationship but was very low in value.

5.2. Recommendations. Based on the findings, the researchers thereby arrived with the following recommendations:

5.2.1. The researcher recommends that the Bureau of Customs to find new ways to expand export activities internationally and domestically, apart from the transactions largely carried on special economic zones to spur economic growth. The electronic-to-mobile (E2M) system of the Bureau should be flexible and useful in expanding the trading system by adapting the changes in international standards in respect to modern customs administration.

5.2.2. Results present “very high level” remarks. Thus, the researcher recommends that the Bureau of Customs (BOC), in cooperation with the accredited value-added service providers (VASPs) to organize forum or introduce upgrades on an annual basis. Including the collaboration with other relevant sectors

and government agencies to promote export in the Philippines in a timely manner. Ensure that the operational systems are intact and sufficient to the volume of export transactions, in line with the international best standards.

5.2.3. The researchers recommend that further study must be conducted using a different manner of data gathering such as the experimental approach may significantly influence the findings of the study. In addition, the gap from having negligible or very low correlation can be further attested to determine which factors are linked. Likewise, the study's limitations or gap may be found either in the construct of the questionnaires, sampling technique used, size of the sample taken from the population, and the data collection procedure undertaken.

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