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TRUST IN TECHNOLOGY VS. TRUST IN TECHNOLOGY SUPPLIER: SUCCESS FACTORS FOR CAMEROON CUSTOMS INFORMATION SYSTEM ADOPTION

CHANGHYUN LEE¹, HEEJIN LEE², KYUNGJIN CHA³

^{1,3}Hanyang University, 222, Wangsimni-ro, Seongdong-gu, Seoul, Republic of Korea ²Yonsei University, New Millennium Hall #510, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 03722, Republic of Korea

E-mail: ¹newdlckdgus@gmail.com, ²heejinmelb@yonsei.ac.kr, ³kjcha7@hanyang.ac.kr

ABSTRACT

This study investigates the main factors of e-Customs system adoption in Cameroon, focusing on suppliers' role in providing trust. Although previous technology adoption studies in developing countries have dealt with trust in technology, most are biased against developing countries than technology suppliers. In contrast, this study extended the unified theory of acceptance and use of technology (UTAUT)-based research model to consider trust in technology suppliers separately from trust in technology. After collecting data from external and internal users of the e-Customs system in Cameroon, the model was tested using structural equation modeling. Results showed that trust in technology and technology suppliers should be considered independently, apart from the significant effects of other prime factors on behavioral intention. This study suggests that technology suppliers have a strategic business reason for trust from users for successful technology adoption, suggesting that future researchers should not attribute trust issues to developing countries solely.

Keywords: Trust In Technology Supplier, Cameroon Customs Information System, E-Customs, UTAUT Model, Technology Trust

1. INTRODUCTION

The adoption of e-Customs technology as a kind of e-government for regulatory compliance and efficient customs is a global trend [53]. There are only five out of 183 member countries have not adopted e-Customs systems or are unable to confirm adoption [60]. Since e-Customs provides advantages in convenience, governance, and costefficiency, many countries globally are adopting it and Cameroon is no exception [37, 55]. Cameroon adopted ASYCUDA++ (Automated SYstem for CUstoms DAta) in 2007 and CAMCIS (CAMeroon Customs Information System) in 2020 [60]. In 2007, Cameroon Customs launched a reform and modernization project to reduce corruption, which constantly damaged the reputation of the administration and hindered the implementation of clearance business [14]. As an initiation of the reform, the government of Cameroon replaced PAGODE (Procédures Automatisées de Gestion des Opérations de la Douane et du commerce Extérieur: computerized management procedures for customs and external trade operations), the

previous customs system, with ASYCUDA++ in cooperation with UNCTAD (United Nations Conference on Trade and Development) [52]. ASYCUDA++ is a customs administration program that technically assists in automating customs processes for cargo control and clearance of goods [52]. Although ASYCUDA++ improved customs duties [25], Cameroon tried to re-modernize the e-Customs system to the CAMCIS [24] because ASYCUDA++ requires supplementary applications for the management of all customs procedures, as it is designed primarily for statistical purposes, therefore, additional features had been requested by the customs administrations.

CAMCIS (Cameroon Customs Information System) is an e-Customs system that aims to integrate all customs procedures, shorten the time required to import and export, and secure more duties and taxes on customs. CAMCIS is a computerized system for the management of customs administration inspired by the experience of South Korean customs. In 2015, the CAMCIS memorandum of understanding was signed between Cameroon Customs and Korea, and a public-private

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partnership (PPP) contract¹ was drawn up between the Cameroon government and the Korean company CAMPASS. CAMCIS provides advanced services compared to the previous system, such as early tender manifestos, management of the manifesto, e-cargo tracking, unloading/loading, transshipment management, movement of goods under customs, information on transport means, and stock management.

To achieve the functional benefits of adopting CAMCIS, Cameroon is interested in its successful adoption in four special contexts. First, Cameroon has changed its e-Customs system twice in 13 years, from PAGODE (Procédures Automatisées de Gestion des Opérations de la Douane et du commerce Extérieur: computerized management procedures for customs and external trade operations) to ASYCUDA++ to CAMCIS. Although Cameroon intended to modernize and reduce corruption by changing e-Customs systems [14], frequent system changes can cause resistance due to switching costs [40], distrust [10], and decline in confidence [33]. Second, a PPP contract is conducted to adopt CAMCIS. The supplier of the original e-Customs system, ASYCUDA++, is UNCTAD, an international organization, and the supplier of CAMCIS is CAMPASS, a private firm in the Republic of Korea. PPP contracts can create issues related to the supplier's trust provision, as people perceive that international organizations consider the public interest more than private companies in general. Third, the CAMCIS is a mandatory system; customs officers must use the CAMCIS for their clearance tasks. Since there is no alternative but using the CAMCIS under the mandatory context, customs officers may be dissatisfied or distrust it even if they should use it [11]. Fourth, the CAMCIS is in the early stage. Cameroon started a pilot operation of CAMCIS on October 1, 2019, at pilot sites in Kribi, Douala-Youpwé, Yaoundé-Nsimalen, Kousséri, and Ngaoundéré [12]. Because people can be influenced by social features [56], they can be affected by the social influence of coworkers or suppliers in the early stage when they do not sufficiently experience the functional aspects of the CAMCIS.

Regarding the special contexts of adopting the CAMCIS, trust, especially in technology supplier, could be the influential factor for the CAMCIS adoption. When the supplier of the e-Customs

system is changing from the international organization to private firm, users may resist to use the new technology because they may expect the latter will seek their own interest rather than the interest of the Cameroon compared to the former. Such tendency may be reinforced based on the context of mandatory use and early stage because the users could not identify the alternative but using the system. However, previous studies tended to consider that less-developed countries are responsible to offer trust. Therefore, this study articulates the following research questions. First, are technology adoption factors still important in adopting the CAMCIS with mirroring the upper four contexts? Second, is there any reason for suppliers to provide trust for the successful technology adoption?

2. LITERATURE REVIEW

2.1 E-Customs Adoption

e-Custom is an application of IT in public customs administration, which relates to organizational changes and new abilities of public services, which aim to improve the quality of services provided by the government [59]. Changing e-Customs is related to new abilities of public services, which aim to improve the quality of government services such as an increase in revenue, standardization of customs operations, convenient and time-saving processes, removal of errors, and cost reduction [37, 55, 59]. Since adopting e-Customs has become a global trend [60], previous research has studied the factors for successful e-Customs adoption. For example, cost savings, reliability, time, usefulness, and ease of use were suggested as perceived drivers, and confidentiality, technical constraints, and costs were suggested as perceived barriers to e-Customs adoption by examining the technology adoption model and unified theory of acceptance and use of technology (UTAUT) [53].

Likewise, various e-Customs studies have widely dealt with technology adoption, and several theories have been utilized to verify technology adoption [53, 55]. Among them, the UTAUT model mirrors the context of the early adoption stage and consists of five direct determinants: performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioral intention [56]. Since UTAUT assumes that the technology adoption can be affected by the user's expectancies before their actual use, previous studies employed UTAUT while investigating the technology adoption features in the context of the early stage [3, 66]. Nowadays, the features of the UTAUT model are considered a general topic for measuring

¹ A PPP contract is an agreement between the government and one or more private partners. It is used to find a project of public nature in the corporation of the private sector. As such, it aligns the objectives with the profit objectives of the private partners [7].

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er, they are still used to stated

stated that trust and transparency are required more in less-developed countries because they are more vulnerable to corruption, fraud, and lack of trust than more-developed countries [8]. Even if it is true that less-developed countries are often fragile in providing trust compared with more-developed countries, these perspectives may cause biases that consider only the trust provided by less-developed countries as a driver of technology adoption [31].

Some studies have focused on trust in the provider. For example, some focused on trust in service providers for e-payment adoption in Bangladesh [46], and others included trust in technology suppliers for interpersonal trust [64]. Although these are also respectable approaches, we intend to point out that they did not theoretically separate trust in technology suppliers from trust in technology. Trust toward the provider was understood in that the provider can violate customers' privacy, abuse the knowledge gap, or provide inaccurate information [30, 49, 67]. Existing research has only focused on trust in technology suppliers mediated by trust in the technology; therefore, it has regarded former as a part of the latter [67]. However, there are more stakes between customers and technology suppliers than those mediated by trust in technology [17]. For example, the overall reputation of the supplier, brand loyalty, or investment relationship can cause trust in technology suppliers, regardless of the technology they have provided. Therefore, this study is designed to investigate the role of trust in technology suppliers in technology adoption where the less-developed country changes its e-Customs system from the one whose provider is an international organization to a private firm, assuming that it is harder for the private firm to earn trust in technology suppliers from the customers.

3. HYPOTHESES AND RESEARCH MODEL DEVELOPMENT

3.1 UTAUT Model

The UTUAT model was employed to verify the first purpose of this study because it can widely cover the special contexts of the CAMCIS. First, since the UTAUT model is useful to assess the probability of success and recognize the prime features for new technology adoption in advance [56], applying it in the CAMCIS case, which is in the early stage, would be timely. Second, since the UTAUT model does not consider whether the new system is voluntary or mandatory and public or private [56], it will be suitable for CAMCIS, which

2.2 Trust in Technology Supplier

Trust is defined as believing in others without clear-cut reasons to disbelieve and is considered an interpersonal or system-based factor [47, 51]. As trust is a dominant factor in the success of egovernment, it has been studied from several perspectives, such as trust in government, trust in technology, and trust in service [1, 36]. Regarding trust in technology, since technology does not have a personality to trust, many studies have discussed whether technology can be a recipient of trust [9]. The perspective of trust in technology is divided into interpersonal trust (i.e., trust in organizational colleagues who are related to the technology) and technology-based trust (i.e., trust in the performance of the technological solution). Due to various views on interpreting trust in technology and ambiguity in the concept of trust in technology, studies on trust in technology differ in defining who needs to earn trust exactly [51]. For example, some treated trust in technology as an extension of interpersonal trust and focused on the competence, benevolence. and integrity of online recommendation agents, even though these are software entities that do not have a personality [9]. In contrast, others suggest that trust in technology is trust in the technological artifact [29]. However, these studies admit that trust in technology plays an important role, especially in shaping the long-term use of technology by influencing users' attitudes [21, 29].

Although there are numerous perspectives on trust in technology, only a few at least indirectly focus on the role of suppliers in providing trust [32, 54] while investigating technology adoption in lessdeveloped countries. Previous studies have argued that the availability and proximity of new technology suppliers are critical for technology adoption [48], and trust in technology suppliers has been overlooked in actual cases of technology adoption in less-developed countries. Previous studies have attributed the failure of technology adoption in less-developed countries to the ignorance of the people of less-developed countries or because they did not provide sufficient trust while ignoring the importance of considering trust that the suppliers have to offer [31, 43]. For example, some pointed to infrastructure; social, cultural, political, and legal issues; and the regulation of less-developed countries as external barriers to adopting new technology [27]. Others



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has a mandatory use context and PPP contract. The overall research model is described in Figure 1.

3.1.1 Performance expectancy

Users seem to be more motivated to use and accept new technology when they perceive that it has more advantages and is more useful in their daily lives [3]. Accordingly, performance expectancy presumes that the acceptance attitude of users is related to the perceived benefits that they anticipate from using the new system [23]. Performance expectancy refers to the degree to which an individual believes that using the system will help the users to attain gains in job performance [56]. As CAMCIS replaces ASYCUDA++, specialized for statistical tasks, users would expect CAMCIS to work better at other tasks such as cargo tracking and loading management. Therefore, this study proposes the following hypothesis:

H1: Service quality will positively affect perceived ease of use in terms of responsiveness, assurance, tangibles, empathy, and reliability.

3.1.2 Effort expectancy

Effort expectancy is the degree of ease associated with the use of the system [56]. Although previous studies have revealed that perceived difficulty in using a new system negatively influences adoption attitude [23], the effort expectancy variable was removed in this study when constructing the research model because it often conflicts with facilitating conditions. If the ease of understanding and learning how to use a new technology or system is a precondition to using the CAMCIS, it is ambiguous to distinguish whether the perception of technology ease of use depends on the capability of technological and information infrastructures [62]. In addition, in the case of Cameroon, which has changed its e-Customs system twice in recent years, users may already be used to the new technology [63]; therefore, we assumed that the basis for their adaptation was their experiential infrastructure. In other words, the more infrastructure users have, the less effort is needed; therefore, we focus on facilitating conditions instead of effort expectancy.

3.1.3 Social influence

Social influence refers to the degree to which an individual perceives that important other believe he or she should use the new system [56]. Social influence generally assumes that people's attitudes and behaviors are settled by belonging or related groups such as their families, friends, social classes, and reference groups [18], but also by their head or boss of the organization in a mandatory context [34]. Since organizational pressure attenuates over time as increasing experience provides more instrumental intention [56], social influence was found more significant in the early stage of mandatory adoption [58]. Hence, this study proposes the following hypothesis:

H2: Social influence positively influences users' behavioral intention toward CAMCIS.

3.1.4 Facilitating conditions

Facilitating conditions feature refers to the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system [56]. They are measured by the perception of accessing required resources and obtaining knowledge and technology infrastructure needed to use e-Customs services [4, 66]. In other words, facilitating conditions may be perceived as intellectual and technical compatibility in the case of CAMCIS replacing ASYCUDA++: people may perceive the facilitating conditions positively when the knowledge and technology they learned from using ASYCUDA++ are also valid for using CAMCIS. That may reduce the switching cost in terms of effort to learn new knowledge and technology under frequent system changes, which can lessen the resistance of users in accepting the new technology [40]. Consequently, this study proposes the following hypothesis:

H3: Facilitating conditions positively influence users' behavioral intention toward CAMCIS.

3.1.5 Behavioral intention and user satisfaction

UTAUT investigated behavioral intention and user behavior by measuring independent variables [56]. However, although behavioral intention could cover both voluntary and mandatory contexts [56], this study assumed that there are several considerations for setting the dependent variables due to the mandatory context. First, since there is no alternative to using the new system under mandatory use, discussing actual use is inappropriate [11]. Behavioral intention can differ between users in terms of willingness to use the system, but every user should use the CAMCIS, regardless of their behavioral intention. Instead, previous studies have adopted user satisfaction to observe whether a new technology meets the users' expectations [26]. The direction of the path between the behavioral intention and user satisfaction varies from the view of the study; since the CAMCIS is in the early stage, we assumed that the path from behavioral intention to user satisfaction is more appropriate than the reverse direction [44]. Therefore, to determine the positive relationship between behavioral intention and user satisfaction, this study proposes the following hypothesis without actual use:

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suppliers on technology adoption in less-developed countries since the supplier of the e-customs system has changed from an international organization to a private enterprise. As the international organization is generally perceived to be more credible than the private enterprise, users are significantly aware of changes in suppliers. This study considered trust in technology and trust in technology suppliers separately to observe their differences from a business perspective.

3.3.1 Trust in technology supplier

A few studies have considered trust in technology at least indirectly [54]. However, these studies did not conceptualize and investigate trust in technology suppliers independently of trust in technology. We consider trust in technology suppliers as a belief and confidence in them as an independent subject. That means. unlike interpersonal trust, trust in technology suppliers could be crucial even when not mediated by trust in technology. For example, users may not adopt the technology because of the unstable investment of technology suppliers, even if their technology can guarantee ability, benevolence, and integrity [17, 51]. In this case, suppliers should actively earn trust from users for the successful adoption of their technology from a strategic business perspective. Therefore, assuming that trust in technology suppliers can be considered separately from trust in technology, this study proposes the following hypothesis:

H6: Trust in the technology suppliers positively influences users' behavioral intention toward CAMCIS.

3.3.2 Trust in technology

Since various studies have used the trust to investigate the success of technology adoption [21], there is no need to emphasize the importance of trust. Trust in technology is particularly important for less-developed countries because it can offer confidence to customers who are unfamiliar with the technology [28, 33]. Among the various definitions of trust in technology according to the perspective of each study [51], this study intended to apply the narrow definition to distinguish it clearly from trust in technology suppliers: "Focusing on technology itself rather than related factors, a belief that a specific technology has the attributes necessary to perform as expected in a given situation in which negative consequences are possible" [42]. Although this study does not deny that trust in technology generally has a significant effect on behavioral intention, we intended to observe how it differs from the effect of trust in

H4: The behavioral intention of CAMCIS positively influences users' satisfaction with CAMCIS.

3.2 Service Quality

Service quality measures the degree of discrepancy between customers' normative expectations for the service and their perceptions of the service performance [41]. That is an additional feature mirroring the universal purpose of adopting e-Customs. Since the previous conversion in the e-Customs system aims to improve the quality of its service in terms of revenue, standardization, convenience, time-saving, debugging, and cost [37, 55, 59], and Cameroon also aimed to modernize their e-Customs system by adopting the CAMCIS [24]; measuring service quality may reflect its fitness. Furthermore, as this study aims to consider four special contexts, focusing on trust in technology suppliers, measuring service quality can act as a baseline to recognize whether the influence of these contexts is affected by universal features. Therefore, this study proposes the following hypothesis:

H5: Service quality positively influences users' behavioral intention toward CAMCIS.

3.3 Technology Trust

Trust is a crucial enabler for e-Customs to make information safe, communicative, and efficient [32]. Trust issues frequently occur when new technology replaces the previous one, and if trust is managed incapably in such a replacement, the user's trust and confidence in the technology would be critically damaged [10, 33]. Trust in technology needs a special focus when dealing with lessdeveloped countries, since users in less-developed countries are less likely to be familiar with using new technology than those in more-developed countries [28]. In this regard, considering trust in the case of CAMCIS would be a natural flow since it contains the context of e-Customs system changes in less-developed countries.

However, the need for less-developed countries to pay more attention to trust does not mean that only less-developed countries are obligated to provide trust, as past studies tend to point to less-developed countries as the cause of trust problems. The fact that the concept of trust in technology has not been well established made previous studies use it vaguely [51], which has created an implicit trend that dismisses trust as a problem for less-developed countries [31]. This study intends to discover the business implications of considering trust in technology suppliers rather than the humanitarian aspect. The case of CAMCIS is suitable to investigate the importance of trust in technology



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4. METHOD

information

the survey.

each construct.

the following hypothesis:

technology suppliers. Hence, this study proposes

H7: Trust in technology positively influences

To verify the research model, we collected data

from external and internal users who have

experienced Cameroon's e-Customs system for at least one month to conduct structural equation

modeling (SEM). Data were collected over two

months through an online survey. Because

Cameroon speaks two languages, English and

participants in both languages with identical

content, to allow the participants to choose a

familiar language. The questionnaire was first

established in English and then translated into

French using a two-way translation method. Two

native French master's students were hired to

translate the questionnaire: one translated the

English questionnaire into French; another the

French translation back into English independently.

These translations were corrected until the contents

of the original questionnaire and English translation

matched. A brief introduction and appreciation for

accepting the survey were provided at the

beginning of the survey. No identifiable personal

participation of the survey participants was confirmed. The participants were notified that the

data would be used only for academic purposes and discarded completely after the research. The

respondents were asked about their affiliation and

experience of using e-Customs to induce only

internal and external users who had ever used the

CAMCIS and/or the ASYCUDA++ to participate in

The survey was formulated as a total of 26

questions measured on a 7-point Likert scale

ranging from "strongly disagree" to "strongly

agree." To justify the validity of each question, all

items were imported from the prior well-estimated

literature Table 1 lists the items and references for

There are approximately 3,735 customs staff

members in Cameroon [61], including internal and

external users, of which 200 were invited to

participate in the survey. After receiving 107

questionnaires from external and internal users, we

eliminated five after filtering insincere responses.

The final sample of 102 consisted of 70.5% men

and 29.5% women, and the period of use was

evenly distributed. People who directly belonged to

was collected, and

French, the survey was distributed to

users' behavioral intention toward CAMCIS.

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the

voluntary

the CAMCIS were classified as internal users, and indirect users, such as customs brokers, exporters, or multinational corporations, were classified as external users. Of the users, 90.2% were in the age group 31–50 years, and 97.4% used the e-Customs system for more than four days per week. The details of the sample demographics are presented in Table 2.

5. ANALYSIS AND RESULTS

Because analysis based on partial least squares (PLS) regression is not strictly limited by the size of the population and the distribution of residuals [16, 22], we conducted PLS regression using SmartPLS

5.1 Validity Testing

To evaluate the reliability of SEM using PLS, convergent validity, which refers to the actual relationship between two measured constructs that theoretically should be related, and discriminant validity, which means the actual relationship between two measured constructs that are not supposed to be related, are used [13, 16]. To retain convergent validity, composite reliability required is 0.7 or higher, average variance extracted (AVE) required is ≥ 0.5 , and Cronbach's alpha required is 0.7 or higher [20, 22, 50]. The results of measuring the convergent validity of the indicators are as presented in Table 3.

Discriminant validity can be assessed using factor loadings and AVE [20]. In verifying discriminant validity, if the average correlation between two different constructs is higher than 0.85, or the square root of AVE [2, 20], the multicollinearity issue occurs between the two constructs. The results of measuring the discriminant validity of our indicators by revealing the latent variable correlations are as shown in Table 4.

The main diagonal elements of Table 4 show the square root of AVE. As neither of the correlations between the two constructs exceeded 0.85, nor did the square root of AVE, we concluded that all our indicators achieved the threshold of each validity test.

5.2 Research Model Testing

After confirming the validity of the scale, the SEM approach was used to assess interaction effects. We used the PLS algorithm and bootstrapping procedure to determine the standardized path coefficients () to confirm the explanatory power of each variable and bias-corrected confidence intervals (t) to calculate the significance probability (p-value). A summary of the results is presented in Figure 2.

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The behavioral intention was explained by all independent variables in this study, with performance expectancy $(\beta = 0.255, t = 2.054, p = 0.04)$, social influence $(\beta = 0.265, t = 2.015, p = 0.04)$, facilitating conditions ($\beta = 0.182, t = 1.966, p = 0.05$), service quality ($\beta = 0.357$, t = 2.046, p = 0.04), trust in technology suppliers $(\beta = 0.355, t = 2.570, p = 0.01)$, and trust in technology ($\beta = -0.471, t = 2.892, p = 0.04$). These variables together explained 71.2% of the variance in behavioral intention, and behavioral intention significantly affected user satisfaction $\beta = 0.650, t = 10.596, p = 0.00)$ explaining 42.3% of the variance in user satisfaction. To verify the validity of the research model, the confidence interval level would be set at 95% (i.e., $p \le 0.05$) for bootstrapping, which would be interpreted as valid modeling [65]. In other words, all the hypotheses are supported except for H7, whose result was contrary to what was expected. Although we hypothesized that trust in technology would positively influence users' behavioral intention toward CAMCIS, it had a negative effect on the behavioral intention.

6. **DISCUSSION**

This study focused on two main research questions: finding the key factors of behavioral intention and user satisfaction in adopting CAMCIS by considering the context of frequent system change, PPP contract, mandatory use, and early adoption stage, and focusing on trust in technology suppliers to provide business benefits on technology adoption in less-developed countries. The UTAUT model, service quality, and trust factors are employed to discover the key determinants of CAMCIS adoption; trust is specifically considered separately as trust in technology and trust in technology suppliers to concentrate on the role of suppliers in providing trust. As an explanatory power of 40% or more is recommended to interpret the results on the technology adoption as acceptable [3, 56], the research model of this study appears to have successfully discovered the key determinants of behavioral intention and user satisfaction in adopting the CAMCIS. In addition to a simple interpretation, this study statistical shows significant findings regarding the context of the field and the study perspective.

6.1 Findings via the UTAUT Model

From a simplistic view, the significant effects of performance expectancy, social influence, and facilitating conditions on behavioral intention showed that these factors are the key variables of technology adoption. However, although previous generally considered performance studies expectancy as the strongest determinant among the UTAUT models [56], the results of this study found social influence to be the strongest determinant. By considering the special context faced by the CAMCIS, we viewed the result in two ways: the perspective that the effect of social influence is relatively strong and the perspective that the effect of performance expectancy is relatively weak. The former may mirror the context of PPP contracts and their mandated use. PPP contracts may create new social relationships that are different from those of ASYCUDA++ in terms of new technology suppliers and stakeholders [17], and mandated use may indicate the vertical influence of organizational decision-makers on actual users to use the CAMCIS [34]. That means trust in technology suppliers may potentially enhance users' intention to use CAMCIS in terms of social influence in some context. However, the effect of performance expectancy may reflect the context of frequent system changes and early stages. Although the CAMCIS shares several technological resources the Internet environment) with (e.g., ASYCUDA++, and it allows users not to seek peripheral features by providing more services than statistical services, users who have experienced past e-Customs systems may already have those additional features and may not have experienced extra utility of the new system. This view is supported by the lowest explanatory power of facilitating conditions among the UTAUT models, even if CAMCIS is compatible with the previous facilitating conditions and requires less effort to apply additional features [62, 63]. If so, the explanatory power of performance expectancy will be stronger with the new user influx as the users become familiar with CAMCIS.

6.2 Findings via Technology Trust

The most interesting result of this study was that the influence of trust in technology and trust in technology suppliers was the opposite. Although past studies have tended to neglect the role of suppliers in providing trust or consider it as a component of trust in technology, such results show that those two can be considered independently. Although the high impact of trust in technology suppliers is understandable due to the special context of the CAMCIS case, several discussions explaining the negative interaction between trust in technology and behavioral intention seem to be required. First, the mandatory technology adoption process consists of four stages: market preparation, targeting, positioning, and execution stage [15].

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Among the stages, trust in technology is considered mainly in the execution stage, where reducing the risk of adoption is the focus, while trust in technology suppliers may be considered mainly in the positioning stage, where personal interaction is the focus [15]. In other words, trust in technology suppliers may respond earlier than trust in the technology; hence, trust in technology suppliers is more prominent in the CAMCIS case because it is in the early adoption phase. Second, since interorganizational trust is necessary for technology suppliers to share information effectively [32], users willing to experience new technology may desire trust in technology suppliers before technology distribution. Such trust may differ from interpersonal trust since technology suppliers can have more stakes (e.g., asset investment or loyalty)

[17]. Likewise, considering trust in technology suppliers separately from trust in technology can have various implications based on the context of technology adoption. In particular, technology adoption research in less-developed countries should be aware that previous studies were biased to the supplier side, and less-developed countries are not the only subjects who should provide trust [31]. This study implies that there are various adoption issues related to trust in technology suppliers in less-developed countries, and technology suppliers may actively earn trust from users not only for moral but also strategic business reasons. Suppliers may use efforts to improve relations with less-developed countries, provide appropriate information, and improve services from their perspective for successful technology adoption rather than looking for problems in the ignorance or opacity of less-developed countries.

than when considering trust in technology only

6.3 Findings via Service Quality

As previous studies have shown, service quality has a significant influence on behavioral intention. That implies CAMCIS is perceived to provide sufficient service improvements, generally expected from adopting the new e-Customs system. Meanwhile, the effects of the technology trust factors on behavioral intention are comparable to those of service quality, while those of the UTAUT model are lower than those of service quality. Since service quality is a vital factor for technology adoption regardless of the type of supplier [19], the significance of service quality does not appear to have diminished, even if the technology supplier has changed from an international organization to a private enterprise. Moreover, the results also imply that considering trust toward the technology and its supplier would be necessary for the early adoption stage, as much as the general features on which previous studies have focused.

6.4 Contributions and Limitations

Regarding the findings, this study includes the following contributions in which previous studies have not covered. First, this study provides additional case with four special contexts applying the UTAUT model. Performance expectancy, social influence, and facilitating conditions are still important factors in the context of frequent change, PPP contract, mandated use, and early stage. Therefore, future studies considering the UTAUT model under these contexts can reference the analysis result of this study. Second, this study conceptualized trust in technology supplier separately from trust in technology. Trust in technology should be considered separately from trust in technology because there are other features that affect trust in technology supplier than the characteristics of the technology itself. Suppliers must consider ways for providing trust to lessdeveloped countries for the successful technology adoption instead of attribute trust issues to the lessdeveloping countries solely.

Despite these important implications, this study had several limitations. First, since the CAMCIS case contains various contexts such as frequent system changes, PPP contracts, mandated use, and early stages, it is hard to say that it can widely cover other cases. Various contexts allow this study to discover various implications, but simultaneously limit the generalization of this study. Therefore, future research is likely required to generalize the findings from each consideration by providing more cases. Second, the scale of the survey data was relatively small compared with that of other studies. Even considering that CAMCIS did not acquire many users (since it is in the early stage), and the PLS algorithm is tolerant of a small population size [22], it is true that the larger the data, the more sophisticated the analysis. Therefore, in cases where a large amount of survey data can be collected, an attempt to study trust in technology suppliers is needed for more sophisticated verification. Third, although this study suggested the importance of considering trust in technology suppliers in technology adoption in less-developed countries, it did not statistically investigate in detail which factors could affect trust in technology suppliers. Hence, future research can examine the key factors affecting trust in technology suppliers.



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7. CONCLUSION

This study showed interesting results bv investigating the CAMCIS adoption case, based on its special conditions and a new perspective on viewing trust when researching less-developed countries. On the one hand, this study suggests an empirical examination that considers frequent system changes, PPP contracts, mandated systems, and early adoption stages by applying the UTAUT model. This study identified the statistical influence of the UTAUT model and interpreted the specificity of those special contexts by observing that the relative effect of each path was different from that of the previous study. On the other hand, as investigating the influence of trust in technology suppliers toward behavioral intention, this study contributes to the literature on less-developed countries by discovering that it should be considered for business reasons. Unlike prior tendencies, which attribute trust issues to lessdeveloped countries, the role of suppliers in providing trust may be essential in the early adoption stage; hence, technology suppliers should strategically make efforts to earn trust for successful technology adoption. Such efforts may ease the users' uncertainty that the new technology could trigger and provide reliability and safety, which may promote their intention to use the new technology [31]. From an academic perspective, this study has expanded the understanding of trust and has empirically introduced a factor that has been overlooked in past studies, although it should be considered for successful technology adoption.

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Figure 2. Results of the Research Model

Construct		Measuring Items
Performance	PE1	I find the CAMCIS useful in my daily life [57].
Expectancy	PE2	Using the CAMCIS helps me accomplish things more quickly [57].
	PE3	Using the CAMCIS increases my productivity [57].
Social	SI1	People who are important to me think that I should use the CAMCIS [57].
Influence	SI2	People who influence my behavior think that I should use the CAMCIS [57].
	SI3	People whose opinions that I value prefer that I use the CAMCIS [57].
Facilitating	FC1	I have the resources necessary to use the CAMCIS [57].
Conditions	FC2	I have the knowledge necessary to use the CAMCIS [57].
	FC3	I have enough Internet experience to use online services [4].

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Service	SQ1	The CAMCIS has visually appealing material [6].	
Quality	SQ2	The CAMCIS provides the right solution to my request [6].	
	SQ3	The CAMCIS provides its service at the time it promises to do	[39].
Behavioral	BI1	I intend to continue using the CAMCIS in the future [57].	
Intentions	BI2	I will always try to use the CAMCIS in my daily life [57].	
	BI3	I plan to continue to use the CAMCIS frequently [57].	
Trust in Technology	TTS1	I have faith that the supplier of the CAMCIS technology (Repu will function as I expect it [32].	ublic of Korea)
Supplier	TTS2	Good reputation of a supplier of the CAMCIS technology (Rep would affect me using CAMCIS [32].	oublic of Korea)
	TTS3	Transparency of the supplier of the CAMCIS technology (Rep would help going with it to CAMCIS [5].	ublic of Korea)
Trust in	TT1	I think the CAMCIS is predictable [32].	
Technology	TT2	I can rely on the CAMCIS to be working when I need it [32].	
	TT3	I have faith that the CAMCIS will function as I expect it [32].	
	TT4	I have high degree of confidence that the CAMCIS will be worneed it [32].	rking when I
User	US1	The CAMCIS has done well in improving customs service [38].
Satisfaction	US2	The CAMCIS serves users well [38].	-
	US3	I am satisfied with the CAMCIS [26].	

Table 2. Sample Demographics					
Measurement	Item	Frequency	Percentage		
Gender	Male	72	70.5		
	Female	30	29.5		
Types of Users	Internal Users	86	84.3		
	External Users	16	15.7		
Age	20-30	3	2.9		
	31–40	58	56.9		
	41–50	34	33.3		
	51-60	7	6.9		
Period of Use Frequency of Use (Days per Week)	Less than 1 year	11	10.9		
	1-3 years	14	13.7		
	4–7 years	27	26.5		
	8–10 years	21	20.6		
	More than 10 years	29	28.4		
	1 day	14	13.7		
	2-3 days	7	6.9		
	4–5 days	46	45.1		
	More than 5 days	35	34.3		

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Table 3. Convergent Validity									
Constructs	AVE	Composite Reliability	\mathbf{R}^2	Cronbach' s Alpha	Commu- nality	Redundanc y			
Behavioral Intention	0.885	0.958	0.712	0.935	0.885	0.177			
Facilitating Conditions	0.697	0.873	0	0.783	0.697	0			
Performance	0.793	0.92	0	0.869	0.793	0			
Social Influence	0.845	0.942	0	0.908	0.845	0			
Service Quality	0.791	0.919	0	0.867	0.791	0			
Trust in Technology	0.81	0.944	0	0.921	0.81	0			
Trust in Technology Supplier	0.868	0.952	0	0.924	0.868	0			
User Satisfaction	0.878	0.966	0.423	0.954	0.878	0.366			

Table 4. Discriminant Validity								
Constructs	BI	FC	PE	SI	SQ	TT	TTS	US
Behavioral Intention (BI)	0.94		_					
Facilitating Conditions (FC)	0.64	0.834						
Performance Expectancy (PE)	0.727	0.598	0.89					
Social Influence (SI)	0.706	0.612	0.741	0.919				
Service Quality (SQ)	0.769	0.689	0.795	0.767	0.889			
Trust in Technology (TT)	0.655	0.66	0.815	0.807	0.821	0.9		
Trust in Technology Supplier (TTS)	0.722	0.589	0.754	0.696	0.755	0.82	0.931	
User Satisfaction (US)	0.651	0.592	0.817	0.742	0.816	0.8	0.754	0.937