

Assessing determinants of tax officials' intention to continue applying e-tax in Vietnam: Attitude toward the continued application of e-tax as a mediator

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ABSTRACT

This paper aims to examine the mediating effect of attitude toward the continued application of e-tax in the association between perceived usefulness, ease of use, compatibility, and intention to continue applying e-tax based on empirical evidence from Vietnamese tax officials. Thereby, the research model is proposed and the hypotheses are developed on the basis of the Technology Acceptance Model (TAM). This study applies a quantitative analysis with a research sample of 343 tax officials from tax authorities at all levels within Vietnam. This study applies stratified and convenient sampling techniques. Structural equation modeling with AMOS was used to test the hypothesized relationships. The results revealed that among perceived usefulness, ease of use, and compatibility only perceived usefulness has a direct impact and positive relationship to the intention to continue applying e-tax and the attitude toward the continued application of e-tax also has a direct impact and positive relationship to the intention to continue applying e-tax. Especially, the results prove the mediating effects of attitude toward the continued application of e-tax on the relationships towards the intention to continue applying e-tax. This study contributes to both the literature and practice. The limitations and future research implications are discussed.

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1. Introduction

E-tax is an inevitable development trend in the context of countries aiming to improve national competitiveness. The benefits of e-tax are undeniable, so e-tax has been vigorously implemented in many countries around the world. Therefore, implementing e-tax in Vietnam is completely in line with the general development trend, ensuring Vietnam's international integration in socio-economic in general and integration in tax administration in particular.

In Vietnam, e-tax is regarded as a critical project and a key innovation in the tax industry. E-tax is an important component of Vietnam's e-Government system, contributing to providing information and online public services at a high level, on a large scale for people and businesses, making business operations easier, government agencies are more transparent and serve people and businesses better. Furthermore, e-tax leads to increased national competitiveness in the field of tax administration, thereby placing Vietnam in the group of leading countries in Southeast Asia when ranking the level of tax convenience.

E-tax was implemented in Vietnam at the end of 2009, starting with online tax declaration, and formalized in 2010. Up to now, Vietnam has achieved certain results in tax declaration and e-tax payment, specifically exceeding the target set out in the Tax System Reform Strategy for the period 2011-2020 and reaching level 4 in terms of modernization, but other e-tax services are still modest such as using e-invoices, e-tax refund, online tax advice, tax information investigation via the internet,

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electronic exchange with taxpayers, remote access of tax staff to the system. business, resolve electronic complaints and denunciations, etc.

According to that current situation, a question arises: will the initial results of tax declaration and e-tax payment in Vietnam be sustainably maintained in the coming period? Other e-tax services such as e-tax refund, online tax consultation, internet tax information investigation, electronic exchange with taxpayers, remote access of tax staff to the business system, settlement of electronic complaints and denunciations, etc. will it be implemented quickly with the enthusiastic and voluntary response of tax officials to the supportive attitude of tax officials towards continuing to apply e-tax - the decisive factor to sustainable success.

Vietnam has had some initial success with e-tax, but there are still numerous hurdles ahead, including the problem of maintaining online tax declaration and electronic tax payment, and the challenge of continuing to improve the tax system. high level of application of other electronic tax services. The continuation of e-taxation after the initial adoption phase is highly dependent on the user experience (Venkatesh et al, 2011), which may increase or decrease the use of e-taxes. Therefore, the supportive attitude of tax officials towards continuing to apply e-tax plays an important role in maintaining and developing e-tax. The factors influencing the attitude to continue to use e-tax in Vietnam need to be studied to provide reference data for tax authorities in planning and implementing sustainability policies and develop the results of information technology application in the tax field.

Other countries when implementing e-taxes always have the support of studies on the supportive attitudes of stakeholders. Vietnam currently has studies on e-government in general, including studies on attitudes towards use and intention to use e-government. But the separate studies for domestic e-tax have only stopped at assessing the situation of e-tax implementation and have not identified or built an appropriate model to assess the public's awareness and supportive attitude. tax authorities and enterprises for the application/continued application of e-tax as well as the factors affecting these research variables. Therefore, the lack of adequate assessment of awareness and attitudes in favor of applying/continuing the application of e-tax leads to a lack of grounds for a strong, widespread, and sustainable increase in the application of e-tax. stable in Vietnam.

In regard to the context of the study, the technology acceptance model (TAM) (Davis 1989) has been applied to investigate the tax officials' intention to continue applying e-tax. Accordingly, based on previous studies highlighted the importance of attitude in the relationships towards the intention of using technology (Juharsah & Hartini, 2014; Verma et al., 2017; Raza et al., 2017; Anubha, 2021; Maulani et al., 2022; Verma et al., 2022; Yassin et al., 2022). We examined the mediating effects of attitude toward the continued application of e-tax on the relationships towards the intention to continue applying e-tax incorporated into the developed model to provide key insights on how the attitude toward the continued application of e-tax is associated with relationships towards the intention to continue applying e-tax? Accordingly, this research aimed to answer the following research questions:

- (1) What factors directly influence tax officials' intention to continue applying e-tax?
- (2) Is there mediating effects of attitude toward the continued application of e-tax on the relationships towards the intention to continue applying e-tax?

By answering these research questions, we hope to deepen our understanding on the application of e-tax and enhance this current stream of research.

This paper is organized as follows: Section 2 provides the literature review and hypothesis development of the study. In Section 3, the applied research method is discussed. Then, the results are analysed in Section 4. Section 5 discusses the results. Implications of the study both for research and practice are provided in Section 6. The limitations of the study together with recommendations for further studies are presented in Section 7. Finally, the conclusions, contributions, and limitations of the study are provided in Section 9.

2. Literature review and hypothesis development

2.1 E-tax in relation to attitude toward the continued application of e-tax and intention to continue applying e-tax

E-tax and application of e-tax

According to Che-Azmi and Kamarulzaman (2014), the e-tax system is built on the use of information and communication technology, which most governments throughout the world have been using to better public service delivery and administrative processes while Oloaye and Atilola (2018) suppose that the process of assessing, collecting, and administering taxation through an electronic system is known as the e-tax system. Based on Wasao's research (2014), an e-tax system is a web-based platform that allows taxpayers to access tax services and perform their tax obligations over the Internet. Similarly, Lee (2016) emphasizes the powerful capabilities of e-tax that not only enable the integration of taxpayer-provided tax information, but also lower tax compliance costs through efficient, transparent, and trustworthy services, hence boosting tax

ethics and confidence. Nasir (2015) shows that both taxpayers and tax authorities will profit from a well-implemented and widely used e-tax system, notably for tax filing and payment. Furthermore, several academics agree that the e-tax system improves tax compliance (Allahverdi et al., 2017; Barati & Bakhshayesh, 2015). Maisiba and Atambo (2016) argue that the e-tax system enhances tax compliance by allowing for faster tax service access without the requirement for tax authorities. Furthermore, they concentrate on the Kenya Revenue Authority's e-tax system, which was created to improve money collection and administration, give services to taxpayers at any time and from any location, reduce compliance costs, and improve tax compliance. The e-tax system allows taxpayers to register for a PIN online, file returns online, and register for payments online, allowing for tax payments and status enquiries, as well as real-time account monitoring. As a result, the electronic system is significantly superior and more convenient than the old manual approach. Wait times, workload, physical filing of huge files, and time-consuming registration processes for Kenya Revenue Authority and government employees are decreased (Maisiba & Atambo, 2016).

Along with the trend of enhancing tax administration through the use of information technology, e-tax is becoming increasingly important in both developed and developing countries (Ondara et al., 2016). E-tax, according to Lee (2016), enhances tax compliance and the transparency of corporate transactions and tax services. From a policy aspect, a well-planned and operated e-tax system has the potential to boost tax compliance. Becker and Lacktorin-revier (2008) and Muturi and Kiarie (2015) argue that individual taxpayer compliance is significantly improved by the use of e-filing and e-billing. Similarly, Muturi and Kiarie (2015) underline a beneficial association between e-registration and VAT tax compliance. Furthermore, a study of the e-tax system in India conducted by Motwani et al., (2015) reveals that, while e-tax is not mandatory in this country, e-filing of tax returns and e-payment enhances taxpayer compliance. Muturi and Kiarie (2015) discovered in Kenya a strong positive relationship between attitudes for the continued use of e-tax and the usage of the e-tax system, including online tax registration and return submission.

Attitude toward the continued application of e-tax

Attitudes are sets of beliefs about a certain object or an act which may translate into intention to carry out the act (Schwartz, 1992). Attitude toward the application of technology is an emotional component that determines the actual application of technology behavior. According to Burton-Jones and Hubona (2006), the actual application of technology will go through several stages: external factors influence users' perception; users' beliefs and perceptions influence their attitudes toward the application of technology; attitudes toward the application of technology affect intention to apply technology; and intention influences the level of applying technology (Burton-Jones & Hubona, 2006). This study focuses on people's attitudes on the continued usage of technology. Attitude is formed from three sources of information: information related to past behavior, influencing information, and self-perceived information (Zanna & Rempel, 1988). Karahanna and Straub (1999) argue that people's attitudes before using technology are often influenced by influencing information and self-perceived information, while those who have used technology are influenced by past behavior. And the attitude toward the continued application of technology is determined by whether users perceive the application of technology in the next six months as good or bad, positive, or negative.

Intention to continue applying e-tax

Intention is a determination to act in a certain way. The intention in an attitude-behavior relationship is influenced by the level of effort needed to exercise the behavior (Bagozzi et al., 1990). The degree of effort together with convenience, cost, time and space are incorporated into an attitudinal measure of individual consequences in some studies. It was also proved that the attitude-behavior correlation was greater when the attitude was operationalized as a specific environmental behavior rather than a general attitude toward the environment (Hines et al., 1987).

According to Bhattacharjee (2001), the intention to continue using technology is more important than the intention to apply it in the early stages of adoption. Intention to continue using technology is the result of perceived benefits from using technology (Bhattacharjee, 2001). The facts have shown that users may be under pressure for benefits, ease of use, or risks leading to discontinuation of technology at a later stage. Karahanna & Straub (1999) demonstrated that the intention to continue applying technology is influenced mainly by the attitude toward continue using technology, subjective norm, and perception of voluntariness. According to Karahanna & Straub (1999), the intention to continue applying technology is determined by: (1) the individual intends to apply technology to work within the next six months; (2) the individual will regularly apply technology to work within six months. Ali et al. (2012) conduct research to determine the intention to continue applying technology, which includes (1) the intention to continue applying information systems; (2) the belief that continuing to use information systems is a good idea; (3) continuing to use the information system without going through the manual system; and (4) being open and receptive to the new system because it is better than the old manual system.

The relationship between attitude toward the continued application of e-tax and Intention to continue applying e-tax

A number of studies, including Barati et al. (2014), Asianzu and Maiga (2012), Ramlah (2010), and Jahangir and Begum (2008), have demonstrated the association between attitude toward the continued application of e-tax and intention to continue

applying e-tax. According to Barati et al. (2014), taxpayer attitudes influence their intention to adapt to the e-tax system. These points of view are represented in the perceived risk of invading privacy and exposing information. Asianzu and Maiga (2012) also argue that if Ugandan taxpayers have negative attitudes toward e-tax, they will not use it. Jahangir and Begum (2008) also support that conviction in the usefulness of the e-tax system will increase the intention to continue using e-tax. Furthermore, Night and Bananuka (2018), in their research on the tax compliance of small business enterprises (SBEs) in an African developing country, they discovered a link between attitude toward the ongoing use of e-tax and desire to continue using e-tax. Based on the preceding description, the following hypothesis is summarized:

H7: *There is a positive relationship between Attitude toward the continued application of e-tax and Intention to continue applying e-tax.*

2.2 Technology acceptance model (TAM)

TAM

Davis et al. (1989) established the technology acceptance model (TAM), which has been widely used to evaluate technology acceptability in many contexts (Kim et al. 2009). TAM has enabled academics in their investigations of e-portfolio systems (Cheng et al. 2015), teleconferencing systems (Park et al. 2014b), Green information technology (Akman & Mishra 2015), e-learning systems (Persico et al. 2014), and social media tools (Acarli & Salam 2015) in recent decades. TAM is a refinement of Ajzen and Fishbein's (1980) theory of reasoned action (TRA) to explain computer usage behavior. Davis et al. (1989) modified the TRA by removing subjective norms and including two new factors that influence individuals' willingness to accept technology: (1) perceived ease of use and (2) perceived usefulness (Davis et al. 1989), and the intention reflects a person's willingness to engage in a specific behavior (Ajzen, 1991). The desire to embrace a given technology, according to TAM, is determined by (1) attitude toward the system, (2) perceived usefulness of the system, and (3) perceived ease of use of the system. Attitude represents an individual's (un)favorable appraisal of behavior (Ajzen 1991); perceived utility is the perception that a system is valuable; and perceived ease of use is the belief that utilizing a system involves no effort (Davis et al. 1989). As attitude only plays a minor mediating role in the relationship between two perceived ease of use, and perceived usefulness and behavioral intention, a number of previous studies have eliminated attitude and modified the original version of TAM (Davis 1989; Yen et al. 2010; Lee & Lehto 2013). In this regard, Venkatesh (2000) disputed that the modified form of TAM can better explain technology adoption behavior by investigating the direct influence of perceived ease of use and perceived usefulness on behavioral intention. Park et al. (2014a) utilized an upgraded version of TAM in their study to assess the adoption of mobile social network games. Thereby, perceived usefulness has a considerable impact on the intention to adopt mobile games. Choi and Chung (2013) discovered that perceived usefulness and perceived simplicity of use had a significant impact on consumers' intention to continue using technology. TAM has also been used successfully to describe many learning information systems, such as e-learning (Cheung & Vogel, 2013), YouTube for procedural learning (Lee & Lehto 2013), mobile learning (Park et al. 2012), and learning management systems (Alharbi & Drew 2014). As a result, TAM was deemed the best model for achieving the study's objectives.

Perceived usefulness

Today, e-tax services are among the most developed e-government services in the world. At the same time, e-tax services are among the most used services by people in many countries, even sometimes because people are forced to use them (Dečman & Klun, 2015). For tax authorities, the use of an e-tax system by tax administration has shown many advantages (Jimenez & Iyer, 2013): (1) Automation helps improve efficiency in workflow management such as helping to cut down on time and reduce errors in the tax filing process; softwareization of administrative procedures, application of software in data transmission, processing, storage, and use; at the same time, the centralized management and exploitation of information resources on the Internet environment have helped tax authorities to process work faster; (2) Facilitating the development of an electronic compliance management system that applies a risk-based process to detect and prevent non-compliance; (3) An electronic information system for management facilitates the collection and dissemination of information for employees and managers.

In addition, e-tax is a tool to increase the effectiveness and efficiency of tax administration. This application enhances access to information for the participants through centralized management of the database and widespread sharing of information on electronic portals. E-taxes also help to cut administrative costs and increase tax revenue (Calderon et al., 2014, Houérou et al., 2009). E-tax improves coordination among state management agencies. The government can centrally manage information in the entire system. On the other hand, information technology has the ability to break down all barriers between government agencies and contribute to building an inclusive relationship between these agencies. Not only that, private-public service agents can also be connected to the system to best serve the needs of people and businesses.

For taxpayers, e-tax reduces taxpayers' time and costs for tax compliance. Enterprises, instead of having to prepare paper documents, must spend time and move between locations to submit documents, now the costs for that are cut. At the same time, e-tax improves transparency in the system.

Perception of the usefulness of technology (according to the TAM model) not only affects the attitude and intention to use but also has been shown to affect the attitude and intention to continue using (Gebauer et al., 2013). Perceived usefulness based on the DOI model (Roger, 2003) is a relative advantage that is the degree to which users think that technology is better applied than using technology. Perceiving the usefulness of technology is given by Karahanna & Straub (1999) with the main advantages (1) helping to complete the work quickly; (2) improving the quality of work; (3) enhancing work efficiency; (4) making work easier. Furthermore, the technology acceptance model (TAM) was applied to measure how perceived usefulness affects the intention to continue using e-government websites including (1) completing the job quickly; (2) clear e-government usage results; (3) cutting travel costs; (4) cutting queuing time; (5) communicating with the government at any time, no time limit.

Ease of use

Perceived ease of use (in the TAM model) has been indicated to affect not only the attitude and intention to use technology but also the attitude and intention to continue using technology (Gebauer et al., 2013). In the DOI model (Roger, 2003), perceived ease of use is complexity - that is, a lack of effort in using technology. It has been demonstrated that perceived ease of use influences attitudes to continue using technology (Karahanna & Straub., 1999; Ali et al., 2012), as well as intention to continue using e-government websites. Karahanna & Straub, (1999) assessed perceived ease of use of technology as (1) learning to use simplicity; (2) easy to use; and (3) difficult to use. Other research assessed perceived ease of use using the following criteria: (1) ease of access; (2) ease of gathering information; (3) ease of conducting transactions via the e-government website; and (4) easy-to-follow e-government website organization and structure.

Compatibility

Compatibility is defined as the users' perception of the suitability of the technology for their job (Karahanna & Straub, 1999). Compatibility is an important aspect of the spillover of innovation theory. Tornatzky & Klein (1982) conducted a meta-analysis and found that innovation is applied when it is compatible with job responsibilities and individual value systems (Norazah Mohd Suki, T. Ramayah, 2010). Susanto's study (2013) also explains that e-government compatibility means that the service is consistent with the way citizens interact with others, in line with other ways in which citizens interact with the government (e.g., online forms should resemble handmade paper forms, all costs should be affordable, all web interfaces of all agencies should be familiar and standardized). The aspect of perceived compatibility is thought to have the greatest influence on people's willingness to adopt e-government.

Compatibility is considered an important determinant of citizens' intention to use e-government services. Suki & Ramayah (2010) measures compatibility through (1) in accordance with the individual's working style; (2) in accordance with the individual's work style. Karahanna and Straub (1999) measure compatibility by (1) being compatible with most individual job characteristics; (2) matching the working style; (3) being suitable for the way of working that you like.

Because of its wide investigation through validations, applications, and replications, TAM is regarded as one of the most successful models for describing emerging innovations (Venkatesh, 2000). Several published investigations in an educational context have used the model (Padilla-Meléndez et al., 2013; Lee and Lehto, 2013, Park et al., 2012; Tarhini et al., 2016; Yeou, 2016; among others). Extrinsic and intrinsic motives have been identified as factors influencing the acceptance of new technology. According to Padilla-Meléndez et al. (2013), extrinsic incentives refer to the performance of an activity for the achievement of desirable outcomes that are separate from the activity itself. Extrinsic motives include perceived usefulness and perceived ease of use (Lee et al. 2005), whereas intrinsic motivations include playfulness and enjoyment (Venkatesh 2000). Based on the literature mentioned above, the following hypotheses were developed regarding the intention to continue applying e-tax:

H₁: *There is a positive relationship between Perceived usefulness and Attitude toward the continued application of e-tax.*

H₂: *There is a positive relationship between Ease of use and Attitude toward the continued application of e-tax.*

H₃: *There is a positive relationship between Compatibility and Attitude toward the continued application of e-tax.*

H₄: *There is a positive relationship between Perceived usefulness and Intention to continue applying e-tax.*

H₅: *There is a positive relationship between Ease of use and Intention to continue applying e-tax.*

H₆: *There is a positive relationship between Compatibility and Intention to continue applying e-tax.*

2.3 The mediate role of attitude toward the continued application of e-tax in TAM

In the original TAM, two factors are primary determinants of system use: perceived ease of use and perceived usefulness (Davis et al., 1989). Perceived usefulness is defined as the user's perceived likelihood that employing a certain technology will improve his or her job performance in an organizational environment. The user's appraisal of the system's ease of use is the user's belief that it will be simple to use and require little effort. Davis' model expressly states that technology consumption is determined by a behavioral intention to use the technology. The attitude toward using the technology and the perceived utility determines behavioral intention. Attitude toward system use is thought to somewhat mediate the influence of perceived

ease of use and perceived usefulness on behavioral intention. Davis (1989) discovered that perceived ease of use, rather than being a parallel, direct determinant of system usage, could be a causal antecedent to perceived usefulness. In other words, technologies that are simple to use and have simple interfaces should be useful for individuals in their work. To put it simply, usability is a requirement for useful systems. Many academics and practitioners regard the original TAM and its extended incarnations as a powerful and parsimonious model for predicting individual acceptance behavior (Legris et al., 2003).

Nonetheless, a meta-analysis of empirical research utilizing TAM found that results on the mediating role of attitude in IT acceptance are neither consistent nor unambiguous (Legris et al., 2003). According to certain studies, attitude is entirely mediated between beliefs and behavioral intentions. Others demonstrated that attitude only partially or completely mediated the association between salient beliefs and behavioral intention. Therefore, this paper proposed hypotheses to investigate the mediate role of attitude toward the continued application of e-tax in the relationship between perceived usefulness, ease of use, compatibility, and the intention to continue applying e-tax as follows:

H₈: *Attitude toward the continued application of e-tax mediates the relationship between Perceived usefulness and Intention to continue applying e-tax.*

H₉: *Attitude toward the continued application of e-tax mediates the relationship between Ease of use and Intention to continue applying e-tax.*

H₁₀: *Attitude toward the continued application of e-tax mediates the relationship between Compatibility and Intention to continue applying e-tax.*

Considering the foregoing review of the literature integrated with the insights of TAM, the research model is designed to include perceived usefulness, ease of use, compatibility, attitude toward the continued application of e-tax, and intention to continue applying e-tax (see Fig. 1).

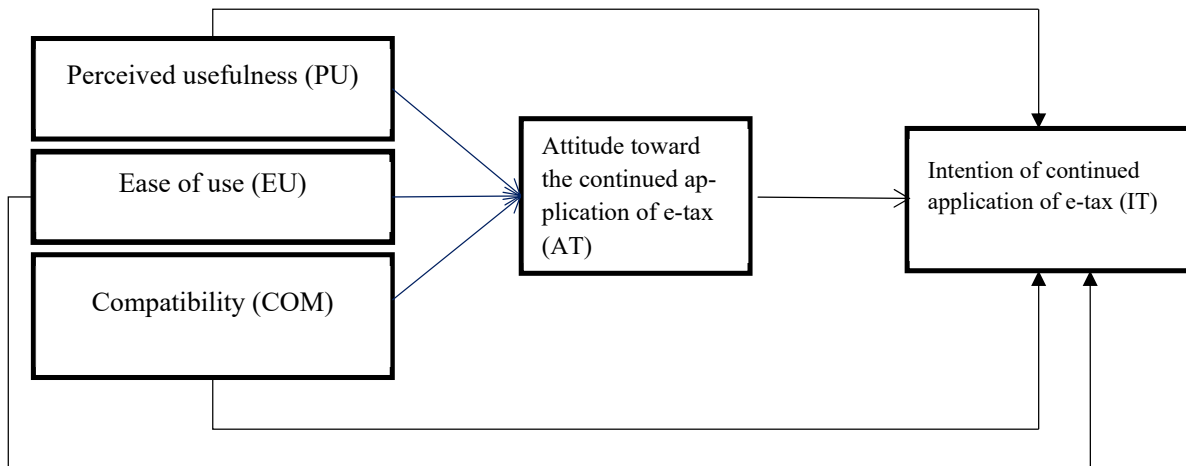


Fig. 1. Research framework

3. Methodology

3.1 Sample and data collection

This research is based on the principles of an Israeli scientist. According to this scholar, in sociological investigations, the sample size depends on two main factors: the overall sample size (N) and the allowable error level (e). Accordingly, the survey sample size (n) is determined by the formula:

$$\frac{N}{1 + N(e)^2}$$

In the above formula, scientists usually set the error level at 0.05, which is equivalent to a 95% confidence level. This is also consistent with the usual confidence level in mathematical statistics. Therefore, with the current number of tax officials in Vietnam about 40,000 ($N = 40,000$) and $e = 0.05$ (equivalent to 95% confidence level), the sample size selected in this study is 400 tax officials at all levels (the General Department of Taxation, Department of Taxation and District-level Tax Department). The authors also consider another approach based on the study of Tabachnick and Fidell (2006) and Hair et al. (2010). According to Tabachnick and Fidell (2006), studies with regression analysis should have the minimum sample size calculated by the formula: sample size $> 8m+50$ (m is the number of independent variables in the research model). According to Hair et al. (2010), for factor analysis, the sample size should be greater than or equal to 5 times the number of observed variables. In this study, there are 4 independent variables and 19 observed variables, so the minimum acceptable sample size for regression

analysis must be greater than $8 \times 4 + 50 = 82$ questionnaires, and the minimum sample size for factor analysis must be greater than $5 \times 19 = 95$ questionnaires. With limited resources, the authors sent out 400 questionnaires to tax officials who are working in tax departments related to e-tax through two methods: (1) directly interviewing tax officials; (2) sending questionnaires by email to tax officials if they were not able to participate in direct interviews. Finally, 343 valid responses were generated, demonstrating a response rate of 85.8%. Thus, the sample size is suitable for the second approach and reliable enough to proceed to the next statistical analysis. In general, tax officials answered honestly the questions in the survey. The statistical results of the survey sample are summarized in Table 1.

Table 1
Characteristics of respondents

Variables	Frequency	Percent (%)	
Gender	Male	160	46.6%
	Female	183	53.4%
Age	< 26	29	8.5%
	26-35	113	32.9%
	36-45	118	34.4%
	46-55	60	17.5%
	>55	23	6.7%
Educational degree	Intermediate	48	14.0%
	College	45	13.1%
	University	250	72.9%
Management level	District level	223	65.0%
	Department	92	26.8%
	General Department	28	8.2%
Informatics level	Level B	270	78.7%
	Level C	54	15.7%
	Bachelor	19	5.5%
Participation in e-tax training	Never	74	21.6%
	One time	152	44.3%
	Two times or more	117	34.1%

(Source: Authors' processing)

In the final data, 46.6% of respondents are males and 53.4% are females. The majority of tax officials are aged 36-45 years (reached 34.4%), followed by the group of aged 26-35 years at 32.9% and the group of age 46-55 years at 17.5%. The minority belongs to the group of ages under 26 and over 55 years. This age structure reflects the sample that included tax officials of different ages.

In terms of educational degrees, most tax officials are at the university level at 72.9%, followed by the group intermediate with 14% and the group college with 13.1%.

In terms of management level, most of the tax officials are working at district-level tax departments at 65%. The second group belongs to the tax department level with 26.8%. The smallest group is at the general department level with 8.2%.

In terms of informatics level, 78.7% of tax officials reach the B level, 15.7% at the C level and only 5.5% have bachelor's degrees in information. The results reflect that the sample is quite representative of all informatics levels of tax officials.

In terms of the frequency of participating in e-tax training, the statistical results show that 21.6% of the respondents have not been trained in e-tax; 34.1% of tax officials have been trained in e-tax two times or more; the majority 44.3% have been trained one time.

3.2 Measures

Scales and questionnaire development

To close the perception - attitude - intention gap in continuing to apply e-tax and test the mediation effect of the attitude on the links between the perception and intention to use e-tax, all scales used in this study were adopted from previous studies. Then, the authors conducted 6 semi-structured interviews with tax officials who are directly involved in receiving tax returns, processing tax returns, and tracking tax payments electronically. The sample interviewed was taken by a convenient method, but the sample still ensures reliability because these tax officials have differences in informatics, frequency of participating in training in e-tax, and management level. The authors used the scales inherited in previous studies on perception and attitude toward the continued application of e-tax. As a result, some tax officials believe that there are a number of factors related to ease of use such as whether or not there is a problem in the process of using electronic tax; a number of factors related to the

compatibility between the information infrastructure of tax authorities and enterprises; or the propaganda campaign of the tax authorities also shows the influence of the intention to continue applying e-tax. The interview also showed some comments that need to be added to the observations that e-tax creates an attractive working environment for them compared to before, or the use or non-use of e-tax is not under the control pressure of tax authorities. Finally, the indicators used for the formal study are shown in Table 2.

To measure the “Perceived usefulness”, five items were adapted from Moore and Benbasat (1991), Karahanna and Chervany (1999) and Wangpiatwong et al. (2008). These items were scored from 1 to 5 (five-point Liker-type format), representing from “strongly disagree” to “strongly agree”, respectively.

To measure the “Ease of use”, three items were adapted from Moore and Benbasat (1991), Karahanna and Straub (1999), and Lin (2015), one item was proposed from a preliminary qualitative and quantitative survey. These items were scored from 1 to 5 (five-point Liker-type format), representing from “strongly disagree” to “strongly agree”, respectively.

To measure the “Compatibility”, three items were adapted from Moore and Benbasat (1991), and Karahanna and Straub (1999), one item was proposed from a preliminary qualitative and quantitative survey. These items were scored from 1 to 5 (five-point Liker-type format), representing from “strongly disagree” to “strongly agree”, respectively.

To measure the “Attitude toward the continued application of e-tax”, three items were adapted from Moore and Benbasat (1991), Karahanna & Straub (1999), and Lin (2015). These items were scored from 1 to 5 (five-point Liker-type format), representing from “strongly disagree” to “strongly agree”, respectively.

To measure the “Intention to continue applying e-tax”, three items were adapted from Premkumar & Bhattacharjee (2008), Ramayah et al. (2010), and Ali et al. (2012). These items were scored from 1 to 5 (five-point Liker-type format), representing from “strongly disagree” to “strongly agree”, respectively.

Table 2

Variable and scale

Variable	Scale	Source
Perceived usefulness (PU)		
PU1	E-tax reduces the time it takes to search and process your tax collection management information.	Moore & Benbasat (1991)
PU2	Applying e-tax ensures that your work tasks are completed quickly	Moore & Benbasat (1991), Karahanna & Straub (1999)
PU3	Applying e-tax improves the quality of your work	Moore & Benbasat (1991), Karahanna & Straub (1999)
PU4	Applying e-tax helps improve your work efficiency	Moore & Benbasat (1991), Karahanna & Straub (1999)
PU5	The results of using e-tax services are clear to you	Proposing from preliminary qualitative and quantitative survey
Ease of use (EU)		
EU1	You can easily learn to use e-tax transactions	Moore & Benbasat (1991), Karahanna & Straub (1999)
EU2	It is easy for you to become skilled in using e-tax	Lin (2015)
EU3	The structure and design of the e-tax management process on the tax authority information network is easy to follow and use	Moore & Benbasat (1991), Karahanna & Straub (1999)
EU4	You do not have technical problems in electronic tax transactions with enterprises	Proposing from preliminary qualitative and quantitative survey
Compatibility (COM)		
COM1	The e-tax procedure is compatible with most of your work characteristics	Moore & Benbasat (1991), Karahanna & Straub (1999)
COM2	The e-tax procedure is compatible with your work style	Moore & Benbasat (1991), Karahanna & Straub (1999)
COM3	The e-tax procedure is compatible with the way you work	Moore & Benbasat (1991), Karahanna & Straub (1999)
COM4	The information infrastructure of enterprises is compatible with the information infrastructure for your work	Proposing from preliminary qualitative and quantitative survey
Attitude toward the continued application of e-tax (AT)		
AT1	You prefer to implement tax procedures through electronic transactions	Lin (2010)
AT2	E-tax creates a guiding working environment for you	Lin (2010)
AT3	The application of e-tax in your work in the next 6 months will be improved	Moore & Benbasat (1991), Karahanna & Straub (1999)
Intention to continue applying e-tax (IT)		
IT1	You will continue to use e-tax without going back to the manual tax method	Premkumar & Bhattacharjee (2008), Ramayah et al. (2010), Ali et al. (2012)
IT2	You are always ready with the e-tax procedure because it is much better than the manual tax system	Premkumar & Bhattacharjee (2008), Ramayah et al. (2010), Ali et al. (2012)
IT3	You will actively mobilize other officials to continued applying e-tax	Premkumar & Bhattacharjee (2008), Ramayah et al. (2010), Ali et al. (2012)

Data analysis

Before testing the research hypotheses, three reliability and validity tests were conducted. First, Cronbach’s alpha was tested to show the reliability of the scales. Second, a confirmatory factor analysis (CFA) was conducted using AMOS 24.0 to test the scales’ convergent and discriminant validity. Third, Harman’s one-factor testing and common method variance was conducted to confirm that there was no common method bias in our data. Additionally, hierarchical regression using SPSS 24.0 was used to test direct correlations. Finally, a structural equation model (SEM) using AMOS 24 was conducted to test the

mediation role of the attitude toward the continued application of e-tax on the nexus of perception - attitude - intention to continue applying e-tax.

4. Results

4.1 Measurement model

As the scales were adopted from previous research, it is essential to test the reliability and validity of the adopted scales by using Cronbach's alpha and CFA. The Cronbach's Alpha coefficient of the respective scales increases after examining the reliability of Cronbach's Alpha of the scales for the first time after deleting the observed variables COM1 and COM2. Table 3 shows the results of Cronbach's Alpha and factor loadings of the final scales. As illustrated in Table 3, the values of Cronbach's alpha ranged from 0.755 to 0.903, which were much higher than the threshold value of 0.7 (Hair et al., 2020) and there is no case of increasing Cronbach's Alpha on this scale by removing any observed variables.

Table 3
Results of Cronbach's Alpha and factor loadings of items

Code	Cronbach's alpha	Mean	SD	Skewness	Kurtosis	Factor loadings
EU	.903					
EU2	.869	4.01	.784	-.414	-.125	.889
EU4	.867	3.97	.812	-.496	-.183	.858
EU3	.877	3.94	.821	-.518	.019	.829
EU1	.887	4.06	.759	-.421	-.290	.773
PU	.818					
PU02	.672	3.66	.931	-.422	.012	.759
PU03	.608	3.53	.957	-.438	-.025	.695
PU04	.606	3.52	.936	-.380	.085	.691
PU01	.593	3.87	.968	-.733	.305	.665
PU05	.595	3.64	.966	-.279	-.375	.637
COM	.762					
COM3	.760	3.41	.990	-.152	-.590	.847
COM4	.760	3.39	.948	-.190	-.422	.718
AT	.755					
AT2	.662	3.52	.851	-.207	-.040	.815
AT1	.642	3.73	.886	-.400	.087	.724
AT3	.714	3.52	.920	-.291	-.099	.570
IT	.885					
IT1	.819	3.40	.965	-.224	-.015	.875
IT2	.831	3.30	.917	-.121	.037	.842
IT3	.859	3.42	.933	.020	-.311	.827

(Source: Authors' processing)

Additionally, CFA results reported a good level of fit indices when $\chi^2(109) = 175.722$; Chi-square/df = 1.612; GFI = 0.942 > 0.8; AGFI = 0.919 > 0.8; CFI = 0.974 > 0.9; TLI = 0.967 > 0.9; NFI = 0.935 > 0.9 and RMSEA = 0.042 < 0.08 (Anderson & Gerbing, 1988; Hu & Bentler, 1999) (see Fig. 2). Standardized regression weights (factor loadings) of all items ranged from 0.61 (PU5) to 0.87 (EU4).

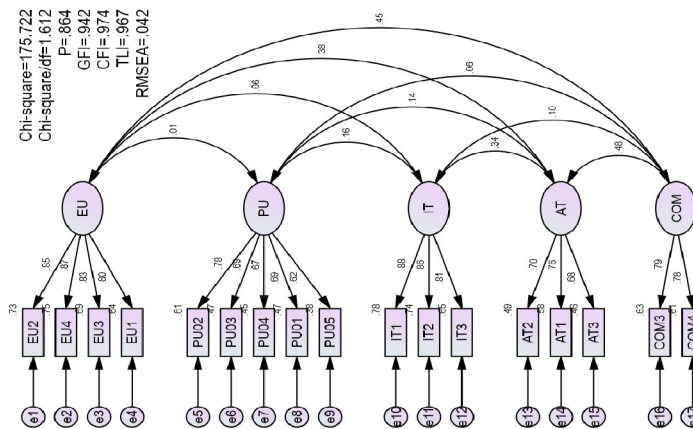


Fig. 2. Results of Confirmatory Factor Analysis (CFA)

Table 6 shows the results of the Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variability (MSV), and correlations between observed variables. According to Chin (1998) and Hair et al. (2010), the CR should

be more than 0.6, according to Chin (1998) and Hair et al. (2010), the reliability of scales is ensured when the CR is greater than 0.6. Accordingly, the results demonstrate that all scales have CR values greater than 0.7, indicating that all scales demonstrated acceptable levels of reliability. Besides, the scales' convergent and discriminant validity are ensured when the AVE is greater than 0.5 and the ASV is less than the AVE (Hair et al., 2010). Meanwhile, the AVE result is greater than 0.5, indicating that convergent validity is acceptable. Furthermore, all concepts in the study model are demonstrated to be appropriate in terms of value (unidirectionality, convergent validity, and discriminant validity) and reliability (see Table 4).

Table 4

The composite reliability and discriminant validity index

Variables	Code	CR	AVE	MSV
Perceived usefulness	EU	0.90	0.518	0.385
Ease of use	EU	0.82	0.571	0.433
Compatibility	COM	0.77	0.555	0.403
Attitude toward the continued application of e-tax	AT	0.76	0.503	0.429
Intention to continue applying e-tax	IT	0.89	0.583	0.339

(Source: Authors' processing)

In conclusion, the indexes GFI, CFI, TLI, RMSE are all at the guaranteed threshold according to Hair et al. (2010), thus the conceptual scales used in the model are convergent and discriminant and could be used in subsequent quantitative analyses.

4.2 Hypothesis testing

The study conducted a structural equation model (SEM) to test relationships in the research framework. The results of the structural equation model indicated that: (see Table 5 and Fig. 3). The Perceived usefulness (PU) has a direct impact and positive relationship to the Attitude toward the continued application of e-tax (AT) that can be observed from the Beta value ($\beta_1 = 0.092$) with a significant value (P-value $< 0,1$). So, hypothesis H1 is accepted. The Ease of use (EU) has a direct impact and positive relationship to the Attitude toward the continued application of e-tax (AT) that can be observed from the Beta value ($\beta_2 = 0.181$) with a significant value (P-value $< 0,05$). So, hypothesis H2 is accepted. The Compatibility (COM) has a direct impact and positive relationship to the Attitude toward the continued application of e-tax (AT) that can be observed from the Beta value ($\beta_3 = 0.286$) with a significant value (P-value $< 0,001$). So, hypothesis H3 is accepted.

The Perceived usefulness (PU) has a direct impact and positive relationship to the Intention to continue applying e-tax (IT) can be observed from the Beta value ($\beta_4 = 0.134$) with a significant value (P-value $< 0,1$). So, hypothesis H4 is accepted. The Ease of use (EU) does not have a direct impact on the Intention to continue applying e-tax (IT) that can be confirmed with a significant value (P-value $> 0,05$). So, hypothesis H5 is rejected. The Compatibility (COM) does not have a direct impact on the Intention to continue applying e-tax (IT) that can be confirmed with a significant value (P-value $> 0,05$). So, hypothesis H6 is rejected. The Attitude toward the continued application of e-tax (AT) has a direct impact and positive relationship to the Intention to continue applying e-tax (IT) that can be observed from the Beta value ($\beta_7 = 0.533$) with a significant value (P-value $< 0,001$). So, hypothesis H7 is accepted.

The statement of H8 is based on the result of testing the H1, H4, and H7. From the results depicted in Table 4, the Perceived usefulness (PU) has a direct impact on the Attitude toward the continued application of e-tax (AT), the Perceived usefulness (PU) has a direct impact on the Intention to continue applying e-tax (IT), and the Attitude toward the continued application of e-tax (AT) has a direct impact on the Intention to continue applying e-tax (IT). Therefore, the Perceived usefulness (PU) has both a direct impact on the Intention to continue applying e-tax (IT) and an indirect impact on Intention to continue applying e-tax (IT) through the Attitude toward the continued application of e-tax (AT). So, hypothesis H8 is accepted.

The statement of H9 is based on the result of testing the H2, H5, and H7. From the results depicted in Table 4, the Ease of use (EU) has a direct impact on the Attitude toward the continued application of e-tax (AT), the Attitude toward the continued application of e-tax (AT) has a direct impact on the Intention to continue applying e-tax (IT) but the Ease of use (EU) does not have a direct impact on the Intention to continue applying e-tax (IT). This confirms the mediating role of Attitude toward the continued application of e-tax (AT) in the relationship between Ease of use (EU) and Intention to continue applying e-tax (IT). So, hypothesis H9 is accepted.

The statement of H10 is based on the result of testing the H3, H6, and H7. From the results depicted in Table 4, the Compatibility (COM) has a direct impact and positive relationship to the Attitude toward the continued application of e-tax (AT), the Attitude toward the continued application of e-tax (AT) has a direct impact on the Intention to continue applying e-tax (IT) but the Compatibility (COM) does not have a direct impact on the Intention to continue applying e-tax (IT). This confirms the function of Attitude toward the continued application of e-tax (AT) as a mediator in the interaction between Compatibility (COM) and Intention to continue applying e-tax (IT). So, hypothesis H10 is accepted.

Table 5

Coefficients from SEM analysis

	Associations			Coefficients		S.d.	C.r	Sig.
H2	AT	←	EU	(β_2)	0.181	0.063	2.860	0.004
H1	AT	←	PU	(β_1)	0.092	0.051	1.784	0.074
H3	AT	←	COM	(β_3)	0.286	0.063	4.545	0.000
H5	IT	←	EU	(β_5)	-0.063	0.088	-0.718	0.473
H4	IT	←	PU	(β_4)	0.134	0.072	1.857	0.063
H6	IT	←	COM	(β_5)	-0.069	0.089	-0.777	0.437
H7	IT	←	AT	(β_7)	0.533	0.119	4.476	0.000

Significance levels are: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ and $p < 0.10$

(Source: Authors' processing)

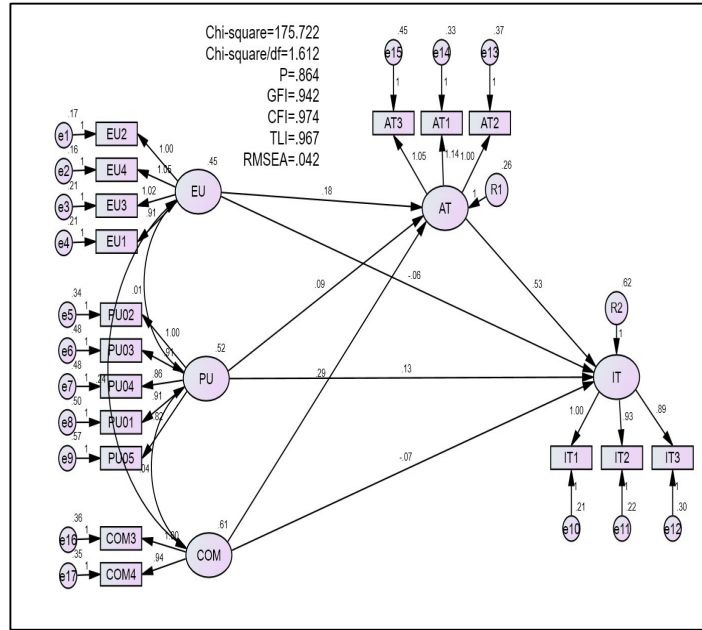


Fig. 3. Unstandardized regression coefficients of SEM

(Source: Authors' processing)

5. Discussion

The research results indicate that there are significant direct effects of the perceived usefulness, ease of use, compatibility on the attitude toward the continued application of e-tax and the direct effect of the attitude toward the continued application of e-tax on the intention to continue applying e-tax. In particular, the perceived usefulness has a direct impact and positive relationship to the attitude toward the continued application of e-tax and contributes to 9.2% to the change of the attitude. In other words, 1 unit change in the perceived usefulness is, on average, a 0.092-unit change in the attitude toward the continued application of e-tax. The ease of use has a direct impact and positive relationship to the attitude toward the continued application of e-tax and contributes 18.1% to the change of the attitude. In other words, 1 unit change in the ease of use is, on average, a 0.181-unit change in the attitude toward the continued application of e-tax. Compatibility has a direct impact and positive relationship to the attitude toward the continued application of e-tax and contributes to 28.6% to the change of the attitude. In other words, 1 unit change in the compatibility is, on average, a 0.286-unit change in the attitude toward the continued application of e-tax.

These results, from the theoretical perspective, are supported by the theory of the Technology Acceptance Model (TAM) (Davis et al.,1989). From the empirical perspective, the findings of this study are consistent with the published results of previous studies on technology adoption such as Gebauer et al. (2013) who found that perception of the usefulness of technology not only affects the attitude and intention to use but also has been shown to affect the attitude and intention to continue using; Wu & Chen (2017), Roca et al. (2006) and Saadé & Bahli (2005) have also confirmed the perception of the usefulness as an important factor in deciding the adoption of learning-related technologies, and correspondingly, the findings of the present study also attest the importance of perception of the usefulness in motivating taxpayers to continue applying e-tax. The direct effects of the ease of use and the compatibility on the attitude toward the continued application of e-tax are also supported by findings of other studies, especially in Vietnam. Oanh et al. (2021) investigated enterprises' perceptions and attitudes toward supporting the continued use of e-tax in Vietnam and discovered that perceived usefulness, ease of use, compatibility, and perceived risk contribute 55.3% of the variation in the dependent variable attitude. Similarly, Do & Mac (2021) also concluded that an e-tax system with clear tax information and administrative procedures, easy e-tax transactions, the information technology infrastructure between tax authorities and taxpayers is compatible; incentives widely propagated,

regulations on strict and fair sanctions, inspections are conducted openly and regularly... will impact taxpayers' attitude and accordingly encouraging taxpayers to regularly use e-tax in order to enhance taxpayers' compliance.

The second goal of this study is to investigate the mediating influence of the attitude toward the continued application of e-tax in the association between the perceived usefulness, ease of use, compatibility, and the intention to continue applying e-tax. The attitude toward the continued application of e-tax not only plays a mediating role but also strengthens the impact of these variables on the intention to continue applying e-tax. These results are consistent with some other findings such as Davis et al. (1989), Juharsah and Hartini (2014), Verma et al. (2017), Raza et al. (2017), Anubha (2021), Maulani et al. (2022) and Verma et al. (2022), Yassin et al. (2022). In particular, Juharsah and Hartini (2014) showed that attitude plays a mediating role in the relationship between product knowledge and ethnocentrism on purchasing intention of community Bau-Bau toward Buton typical weaving while the mediating role of the attitude to address the relationship between advertising appeal and the intention was explained by Raza et al. (2017). Similarly, Verma et al. (2017) indicated that the perceived ease of use is mediated by attitude while other predictors influence behavioral intention directly. Anubha (2021) also revealed that attitude towards halal cosmetics mediates the relationships of various drivers of eWOM with halal cosmetics purchase intention. Besides, Maulani et al. (2022) also proved that attitudes mediated the influence of knowledge and religiosity on purchase intention. Verma et al. (2022) both clarified the mediating role of attitude toward consumer intention and provided some practical implications based on that. The results of Yassin et al. (2022) study partially support the mediation role of attitude toward purchase in the relationship between (ethnocentrism, country of origin image, religiosity, and animosity) and intentions to purchase Chinese fashion products.

The results imply that it is not enough for tax authorities to rely on e-tax features such as usefulness, ease of use and compatibility when they want to influence the tax officials' intention to continue applying e-tax. In Vietnam, the application of e-tax has become mandatory at the stage of e-tax registration and declaration and continues to move towards the remaining steps in the tax management process including e-tax payment and e-tax refund. Therefore, research on the intention to continue applying e-tax in the future is extremely necessary to propose recommendations for tax authorities change in order to apply e-tax more effectively and at the same time to improve taxpayers' compliance. Through the above research results, tax authorities should take appropriate solutions to affect the attitude towards the continued application of e-tax by tax officials such as: strengthening propaganda about the usefulness, supporting tax officials in implementing e-tax transactions, regularly conducting professional training courses for tax officials to ensure that they feel e-tax is easy to use and that they have had compatibility conditions in continue applying e-tax in the coming time.

6. Theoretical and Practical Implication

The research has contributed to enriching the field of e-tax in the context of a developing country with a transition economy, thereby making a small contribution to the relevant study literature. First, it highlights the importance of continuing applying e-tax as e-tax services have brought significant benefits to taxpayers and are a modern administrative tool for tax authorities in most countries all over the world. Second, based on the original Technology acceptance model (TAM), this study proposes a new theoretical framework on the relationship between perceived usefulness, ease of use, compatibility, and Attitude toward the continued application of e-tax in relation to the intention to continue applying e-tax. With this approach, the paper has removed some factors in previous studies to focus on investigating the mediating role of the attitude in comparison to not having the attitude. Third, this research has adjusted some items compared to the original items as well as has proved some new items based on the qualitative research to ensure the appropriation in the Vietnamese context. In general, this study attempted to bridge knowledge gaps discovered by past studies or to address contradictory difficulties in prior research, as well as to figure out dismissed issues and serve as input for academicians interested in investigating related construct variables. Regarding practical context, the findings of the study suggest some policy implications for improving e-tax in Vietnam as following:

To enhance the Ease of use and Compatibility:

Firstly, developing and improving information technology applications within state agencies; developing and completing technical infrastructure, information systems, and national databases to create a foundation for e-Government development.

Secondly, renewing investment policies on information technology infrastructure development with investment programs and projects on information technology infrastructure development. Completing policies to encourage public-private partnerships in building and operating e-government in Vietnam.

Thirdly, strengthening information technology training programs for tax officials. The objective is to ensure that tax officials have basic information technology platforms, and overcome technological barriers to quickly access, adapt, and continue to use the tax industry's electronic tax management services. Organizing training courses on information technology and the internet for tax officials with weak information technology backgrounds. Supporting self-training in information technology for tax officials who want and need to improve their information technology capacity.

Fourthly, developing and implementing large-scale e-tax training programs, widely deployed in localities, with a system of training documents, lecturers, and teaching methods suitable for each group of tax officials.

Fifthly, establishing technical support groups at district-level tax departments to assist tax officials in case of technical difficulties in e-tax operation, and applying new software.

Sixthly, developing a set of manuals on the use of e-tax services to provide specific guidance to enterprises, especially in the case of developing new e-tax services. A detailed set of manuals for each e-tax service is necessary.

To encourage the Attitude toward the continued application of e-tax:

Firstly, having orientations for propaganda and advocacy, not only focusing on enterprises but also tax officials, who directly operate e-tax services.

Secondly, building a separate communication channel for tax officials about e-tax, widely disseminating the benefits that tax officials themselves receive from e-tax, especially with new e-tax services in the new period. next paragraph. Improving autonomy, and making public officials feel less obligated to continue using e-tax is an important goal of tax authorities.

Thirdly, using absolute tax officials who have knowledge, skills, and support the development of e-tax as a communication channel for tax officials who are inexperienced, or whose awareness of the benefits of e-tax is still low, not self-sufficient. When it comes to e-tax information, civil servants need a support person in using e-tax, and tax officials whose awareness of favorable conditions in using e-tax is still low.

Fourthly, strengthening monitoring and evaluation of tax officials' attitude toward the continued application of e-tax, determining factors affecting the attitude toward the continued application of e-tax. This is an important solution in providing information to promote the continued implementation of e-tax.

7. Limitation and Future Research

Despite contributing to the existing literature on e-tax in general and perceptions, attitude, and intention to continue applying e-tax and contributing to the practical application of e-tax in Vietnam, this study is not free from limitations. Firstly, due to the limited resources, the data for this study were only 343 tax officials instead of reaching the target of 400 or more. Secondly, the research model was based on an original theory, however, the authors only conduct the research with a part of the original theory by not bringing all the variables in the model. As a result, future researchers are encouraged to conduct a more comprehensive study with a bigger sample or consider the impact of other variables with the intention to continue applying e-tax. Besides, the research model and methods of this topic could be referenced and applied in investigating the nexus of perceptions – attitude – intention of stakeholders in the development of other e-government projects. This study is also the basis for developing research-oriented research on policies promoting the application of e-tax and e-government.

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References

- Acarli, D. S., & Sağlam, Y. (2015). Investigation of pre-service teachers' intentions to use of social Media in Teaching Activities within the framework of technology acceptance model. *Procedia - Social and Behavioural Sciences*, 176, 709–713.
- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50, 179–211.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs: Prentice-Hall.
- Akman, I., & Mishra, A. (2015). Sector diversity in green information technology practices: Technology acceptance model perspective. *Computers in Human Behaviour*, 49, 477–486.
- Alharbi, S., & Drew, S. (2014). Using the technology acceptance model in understanding academics' behavioural intention to use learning management systems. *International Journal of Advanced Computer Science and Applications*, 5(1), 143–155.
- Ali, A. Rahman, M. S. A. Ismail, W. N. S. W (2012). Predicting Continuance Intention to use Accounting Information Systems among SMEs in Terengganu, Malaysia. *International Journal of Services Economics and Management*, 6(2), 295-320.
- Allahverdi, M., Alagoz, A., & Ortakarpuz, M. (2017). The effect of e-taxation system on tax revenues and cost: Turkey case. *European Journal of Social Sciences*, 9, 100-150.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin*, 103(3), 411.

- Anubha (2023), Mediating role of attitude in halal cosmetics purchase intention: an ELM perspective, *Journal of Islamic Marketing*, 14(3), 645-679.
- Asianzu, E., & Maiga, G. (2012). A consumer based model for adoption of E-Tax services in Uganda. *In IST-Africa 2012 Conference Proceedings*.
- Bagozzi, R. P., Belanche, D., Casaló, L. V., & Flavián, C. (2016). The role of anticipated emotions in purchase intentions. *Psychology & Marketing*, 33(8), 629-645.
- Barati, A., & Bakhshayesh, S. (2015). Electronic tax system and the facing challenges. *Indian Journal of Fundamental and Applied Life Sciences*, 5(S1), 480-497.
- Becker, D., & Lacktorin-revier, S. (2008). The impact of electronic tax return filing on tax compliance. *In MWAIS 2008 Proceedings*. Retrieved from https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1025&context=mw_ais2008
- Bhattacharjee, A. (2001) Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, 25, 351-370. <http://dx.doi.org/10.2307/3250921>
- Burton-Jones, A & and Hubona, G.S (2006). The mediation of external variables in the technology acceptance model, *Information & Management*, 43(6), 706-717.
- Calderon, J. F., Sirtaine, S., Guislain, P., Sudan, R., Gallegos, D., Lewin, A., Lewin, A. & Puech, M. R. 2014. *Grenada - E-government for Regional Integration Project*. New York: The World Bank.
- Che-Azmi, A. A., & Kamarulzaman, Y. (2014). Adoption of tax e-filing: A conceptual paper. *African Journal of Business Management*, 4(5), 599- 603. <https://doi.org/10.5897/AJBM.9000045>
- Cheng, S.-I., Chen, S.-C., & Yen, D. C. (2015). Continuance intention of E-portfolio system: A confirmatory and multigroup invariance analysis of technology acceptance model. *Computer Standards and Interfaces*, 42, 17–23.
- Cheung, R., & Vogel, D. (2013). Predicting user acceptance of collaborative technologies: An extension of the technology acceptance model for e-learning. *Computers and Education*, 63, 160–175.
- Choi, G., & Chung, H. (2013). Applying the technology acceptance model to social networking sites (SNS): Impact of subjective norm and social capital on the acceptance of SNS. *International Journal of Human Computer Interaction*, 29, 619–628.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13, 319–340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35, 982–1003.
- Dečman, M & Klun, M (2015), The Impact of Information Systems on Taxation: A Case of Users' Experience With an e-Recovery Information System, *The Electronic Journal of e-Government*, 13(2), 110-93.
- Do, T. H. H & Mac, T. H. Y (2021). The impact of e-tax system on tax compliance of Vietnamese enterprises, *Journal of Economics and Development*, 287(5), 55-65.
- Gebauer, Lysann and Söllner, Matthias and Leimeister, Jan Marco, Towards Understanding the Formation of Continuous IT Use (2013). *Thirty Fourth International Conference on Information Systems*, Milan, Available at SSRN: <https://ssrn.com/abstract=2474107>.
- Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101-110.
- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis*. Seventh Edition. New Jersey: Prentice Hall, Upper Saddle River.
- Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and Synthesis of Research on Responsible Environmental Behavior: A Meta-Analysis. *Journal of Environmental Education*, 18, 1-8.
- Houérou, P. L., Ahlers, T., Myers, R., Ilieva, S. & Ferreira, C. (2009). *Revenue Administration Reform Project in Republic of Bulgaria*. New York: The World Bank. <http://dx.doi.org/10.1109/TEM.1982.6447463>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary Journal*, 6(1), 1-55.
- Jahangir, N., & Begum, N. (2008). The role of perceived usefulness, perceived ease of use, security and privacy, and customer attitude to engender customer adaptation in the context of electronic banking. *African Journal of Business Management*. 2(2), 32-40. <https://doi.org/10.5897/AJBM.9000634>
- Jimenez, P., & Iyer, G. S. (2016). Tax compliance in a social setting: The influence of social norms, trust in government, and perceived fairness on taxpayer compliance. *Advances in accounting*, 34, 17-26. <http://dx.doi.org/10.1016/j.ad-jac.2016.07.001>
- Juharsah & Hartini (2014). The Role of Attitude as Relationship Mediation between Products Knowledge and Ethnocentrism on Purchasing Intention of Buton Special Woven (Study on the City Of Bau-Bau), *International Journal of Business and Management Invention*, 3(11), 26-34.
- Karahanna, E., & Straub, D.W. (1999) The Psychological Origins of Perceived Usefulness and Ease-of-Use. *Information & Management*, 35, 237-250.
- Kim, H.-b., Kim, T., & Shin, S. W. (2009). Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites. *Tourism Management*, 30, 266–277.
- Lee, D. Y., & Lehto, M. R. (2013). User acceptance of YouTube for procedural learning: An extension of the technology acceptance model. *Computers & Education*, 61, 193–208.

- Lee, H.C. (2016). *Can electronic tax invoicing improve tax compliance?: A case study of the Republic of Korea's electronic tax invoicing for value-added tax*. World Bank Group. Retrieved from <http://documents1.worldbank.org/curated/en/712881467994710005/pdf/WPS7592.pdf>
- Lee, M. K., Cheung, C. M., & Chen, Z. (2005). Acceptance of internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information Management*, 42, 1095–1104.
- Legris, P., Ingham, J., & Collette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information Management*, 40, 191–204.
- Lin, KM (2015). Predicting Asian undergraduates' intention to continue using social network services from negative perspectives. *Behaviour & Information Technology*, 34(9), 882-892.
- Maisiba, G. J., & Atambo, W. (2016). Effects of electronic-tax system on the revenue collection efficiency of Kenya Revenue Authority: A case of Uasin Gishu County. *Imperial Journal of Interdisciplinary Research (IJIR)*, 2(4), 815-827.
- Maulani, M. R., Nuryakin., & Nurhidayah. (2022). Purchase Intention of Halal Cosmetics: The Mediating Role of Attitude. *Etikonomi*, 21(2), 383–398.
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, 2(3), 192-222.
- Motwani, B., Haryani, S., & Matharu, S. (2015). Profession as the determinant on the adoption of e-taxation. *Review of Professional Management – A Journal of New Delhi Institute of Management*, 13(2), 15-23.
- Muturi, H.M., & Kiarie, N. (2015). Effects of online tax system on tax compliance among small taxpayers in Meru county, Kenya. *International Journal of Economics, Commerce and Management*, 3(12), 280-297.
- Nasir (2015). Implementing electronic tax fillings and payments in Malaysia. *Journal of Accounting and Economics*, 17(2), 41-67. https://doi.org/10.1596/978-0-8213-9984-2_Case_studies_4
- Night, S., & Bananuka, J. (2018). The mediating role of adoption of an electronic tax system in the relationship between attitude towards electronic tax system and tax compliance. *Journal of Economics, Finance and Administrative Science*, 25(49), 73-88. <https://doi.org/10.1108/JEFAS-07-2018-0066>
- Oanh, T. T. K., Thuy, N. T. L., & Song, N. V. (2021). Assessing perception and attitude of supporting of enterprises regarding the continued application of E-Tax In Vietnam. *Journal of Contemporary Issues in Business and Government*, 27(3), 216-227.
- Oloaye, C.O., & Atilola, O.O, (2018). Effect of e-tax payment on revenue generation in Nigeria. *Journal of Accounting, Business and Finance Research*, 4(2), 56-65. <https://doi.org/10.20448/2002.42.56.65>
- Ondara, T.G., Kimani, M., & Kwasira, J. (2016). Influence of online tax filing on tax compliance among small and medium enterprises in Nakuru town, Kenya. *IOSR Journal of Business and Management*, 18(10), 82-92.
- Padilla-Meléndez, A. Aguila-Obra, A & Garrido-Moreno, A (2013), Perceived playfulness, gender differences and technology acceptance model in a blended learning scenario, *Computers & Education*, 63, 306-317.
- Park, E., Baek, S., Ohm, J., & Chang, H. J. (2014a). Determinants of player acceptance of mobile social network games: An application of extended technology acceptance model. *Telematics and Informatics*, 31, 3–15.
- Park, N., Rhoads, M., Hou, J., & Lee, K. M. (2014b). Understanding the acceptance of teleconferencing systems among employees: An extension of the technology acceptance model. *Computers in Human Behaviour*, 39, 118–127.
- Park, S. Y., Nam, M. W., & Cha, S. B. (2012). University students' behavioural intention to use mobile learning: Evaluating the technology acceptance model. *British Journal of Educational Technology*, 43, 592–605.
- Persico, D., Manca, S., & Pozzi, F. (2014). Adapting the technology acceptance model to evaluate the innovative potential of e-learning systems. *Computers in Human Behavior*, 30, 614-622.
- Premkumar, G., & Bhattacharjee, A. (2008). Explaining information technology usage: A test of competing models. *Omega*, 36(1), 64-75.
- Ramayah, T., Lee, J. W. C., & Mohamad, O. (2010). Green product purchase intention: Some insights from a developing country. *Resources, conservation and recycling*, 54(12), 1419-1427.
- Ramlah, H. (2010). *An integrated model on online tax adoption in Malaysia*. In European, Mediterranean and Middle Eastern Conference on Information Systems. Retrieved from https://www.researchgate.net/publication/228469696_An_Integrated_Model_on_Online_Tax_Adoption_in_Malaysia
- Raza, S.H, Abu Bakar, H & Mohamad, B (2017), Relationships between the Advertising Appeal and Behavioral Intention: The Mediating role of the Attitude towards Advertising Appeal. *SHS Web of Conferences*, 33, 1-6.
- Roca, J. C., Chiu, C.-M., & Martínez, F. J. (2006). Understanding e-learning continuance intention: An extension of the technology acceptance model. *International Journal of Human-Computer Studies*, 64, 683–696.
- Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.
- Saadé, R., & Bahli, B. (2005). The impact of cognitive absorption on perceived usefulness and perceived ease of use in on-line learning: An extension of the technology acceptance model. *Information Management*, 42, 317–327.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25(1), 1–65. [https://doi.org/10.1016/S0065-2601\(08\)60281-6](https://doi.org/10.1016/S0065-2601(08)60281-6)
- Suki, N.M & Ramayah, T (2010). User Acceptance of the E-Government Services in Malaysia: Structural Equation Modelling Approach. *Interdisciplinary Journal of Information, Knowledge, and Management*, 5, 395-413.
- Tabachnick, B.G., & Fidell, L.S. (2006). *Using multivariate statistics*. 5th Edition, Allyn and Bacon, Boston.

- Tarhini, A., El-Masri, M., Ali, M., & Serrano, A. (2016). Extending the UTAUT model to understand the customers' acceptance and use of internet banking in Lebanon: A structural equation modeling approach. *Information Technology & People*, 29(4), 830-849. <https://doi.org/10.1108/ITP-02-2014-0034>
- Tornatzky, L. G., & Klein, K. J. (1982). Innovation Characteristics and Innovation Adoption-Implementation: A Meta-Analysis of Findings. *IEEE Transactions on Engineering Management*, 29, 28-45.
- Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11, 342-365.
- Venkatesh, V., Thong, J. Y. L., Chan, F. K. Y. Hu, P. J. H., & Brown, S. A. (2011). Extending the Two-Stage Information Systems Continuance Model: Incorporating UTAUT Predictors and the Role of Context. *Information Systems Journal*, 21(6), 527-555.
- Verma, A., Verma, M., & Naidu, G. (2022). Consumer intention towards blended learning. A mediating role of attitude. *Academy of Marketing Studies Journal*, 26(S3), 1-12.
- Verma, P. and Sinha, N. (2017). Role of attitude as mediator of the perceived ease of use and behavioural intention relationship. *Int. J. Management Concepts and Philosophy*, 10(3), pp.227-245.
- Wasao, D. (2014). The effect of online tax system on tax compliance among small taxpayers in east of Nairobi tax district, University of Nairobi, Kenya.
- Wu, B., & Chen, X. (2017). Continuance intention to use MOOCs: Integrating the technology acceptance model (TAM) and task technology fit (TTF) model. *Computers in Human Behavior*, 67, 221-232.
- Yassin, S., Labeeb, A & Rasheed, H. (2022). The Mediation Role of Attitude toward Purchase in the Relationship between Country of Origin Image, Religiosity, Ethnocentrism, Animosity and Intentions to Purchase in the Egyptian Context. *International Journal of Social Science And Human Research*, 5(1), 233-251.
- Yen, D. C., Wu, C.-S., Cheng, F.-F., & Huang, Y.-W. (2010). Determinants of users' intention to adopt wireless technology: An empirical study by integrating TTF with TAM. *Computers in Human Behaviour*, 26, 906-915.
- Yeou, M (2006). An Investigation of Students' Acceptance of Moodle in a Blended Learning Setting Using Technology Acceptance Model. *Journal of Educational Technology Systems*, 44(3), 300-318.
- Zanna, M.P., & Rempel, J.K. (1988) Attitudes: A New Look at an Old Concept. *The Social Psychology of Knowledge*, 315-334.



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