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# The Attitudes Of VAT Taxpayers Toward The Use Of E- Tax Systems And Their Impact On Tax Compliance: A Field Study Of Tabuk Region

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**Dr. Oglah Nawash Ershaid**

*Assistant professor*  
*Tabouk University –Faculty of Business Administration*  
*E-mail. [oershaid@utedu.sa](mailto:oershaid@utedu.sa)*  
*ORCID. <https://orcid.org/0000-0002-4334-5813>*

**Abstract.** *This study aims to identify the attitudes of value-added tax taxpayers towards e-tax systems and their impact on tax compliance. As such, this study answers questions about the Attitude of VAT payers towards e-tax systems, and whether it has an impact on the adoption of these systems as well as tax compliance. This paper has been composed based on two theories: Theory of Reasoned Action and Technology Acceptance Model (TAM) with the integration of the following variables: adoption of tax systems, tax compliance, and computer skills. This study revealed that a positive attitude has been shown as well as an adoption of e-applications by value-added taxpayers. In addition, this study indicated that there is compliance with this value-added tax. Furthermore, findings also showed that there is statistical significance of technical computer skills on adopting e-applications, taxpayers' attitudes, and their adoption of e-applications in compliance with value-added tax. Finally, findings have shown that there is an effect of taxpayers' adoption of e-applications as a mediating variable on the relationship between the attitudes of taxpayers towards e-applications and tax compliance.*

**Keywords:** *Tax Compliance, Attitudes of Taxpayers towards Electronic Applications, Taxpayers' Adoption of Electronic Applications, Technology Acceptance Model (TAM) , Computer Skills.*

## 1. INTRODUCTION

Value-Added Tax (VAT) is one of the primary revenue sources in more than 160 countries, among them, the Kingdom of Saudi Arabia (KSA) is implementing VAT as a revenue stream (Hussein et al., 2010). VAT in KSA aims to increase the country's sustainability to enhance the social and economic results to achieve the Vision of the Kingdom 2030 (Abdali et al., 2019).

The importance of tax, in general, can only be achieved through tax compliance that various countries strive to achieve. However, tax authorities in various countries worldwide suffer from challenges facing tax compliance (Gwaro et al., 2016; Kiring'a et al., 2017; Muturi & Kiarie, 2015; Nawawi and Salin, 2018; Night and Bananuka, 2020). Unlike the various taxes in which the tax return is one-time, the VAT requires multiple tax returns throughout the

fiscal year, Hence, compliance with VAT is more complex, costly, and challenging (Naicker and Rajaram, 2018), and tax compliance with the VAT in the Kingdom of Saudi Arabia (KSA) is like tax compliance in all countries of the world faces many challenges and threats, for this reason, the General Authority for Zakat and Tax, which is the authority entrusted with overseeing the implementation and follow-up of the implementation of the tax, has faced and overcome these challenges and threats by providing them with 22 e-services, which were adopted with the launch of the implementation of the VAT (website General Authority for Zakat and Tax)

Generally, the adoption of e-applications is affected by the users' trends and intentions. There are many theories and models available to explain and justify the adoption of tax e-applications, including but not limited to the "Theory of Reasoned Action", which dealt with the relationship between an individual's attitude and predicting the behavior of this individual for adoption based on the negative or positive attitudes of the users (e.g., Gwaro et al., 2016; Kiring' a et al., 2017), and the "Technology Acceptance Model" that provides a basis for explaining the behavior of individuals from the use and adopting of e-applications according to the following considerations: perceived ease of use, Perceived usefulness, privacy risks, and performance risks (e.g., Gwaro et al., 2016 ; Hussein, et al., 2010; Ilias, Abd Razak, & Yaso, 2009; Kiring' a et al., 2017; Muturi & Kiarie, 2015; Soneka & Phiri, 2019; Surendran, 2013), while "The Diffusion of Innovation" theory explains the technology adoption factors: relative advantages, compatibility, complexity, experiment ability, and observability of results, in addition to other factors related to an organization and the surrounding environment (Hussein et al., 2010; Gwaro et al., 2016), on the other hand, several studies have merged between these theories to justify and explain tax applications' technological use (Hussein et al., 2010).

Practically, many studies worldwide have adopted the TAM to justify the use of e-Tax systems and adoption for tax compliance in general (Ilias et al., 2009; Soneka , P & Phiri,J. 2019; Surendran, 2013; Kiring' a et al., 2017; Gwaro et al., 2016; Muturi & Kiarie 2015; Hussein et al., 2010), but the author did not find any of it that deals with justifying the use of e-applications for VAT, so the author believe that it will be useful to know VAT attitude of taxpayers in the KSA regarding e-applications. as the attitudes of VAT taxpayers impact on e-applications adoption, and on tax compliance, in this context, this paper aims to answer the following questions:

What is the nature of the VAT taxpayers' attitude towards the electronic tax system?

Is there a relationship between the VAT taxpayers' direction of electronic tax applications and tax compliance?

Is there a relationship between taxpayers' adoption of VAT for electronic applications and tax compliance?

The study contributes to the body of knowledge in several ways; According to the researcher's knowledge, it is considered one of the few studies that dealt with electronic applications of value-added tax in general and in the Kingdom in particular. And this study will serve as a starting point for future studies. It may contribute to enhancing the use of e-applications for various tax services and its contribution to increasing opportunities for tax integration.

This study also contributes to the literature by responding to various recent calls to expand tax compliance tools. It also draws attention to such use of e-applications. It enhances its role, especially in light of the exceptional circumstances that the world has experienced under the shadow of the Covid-19 pandemic, which needs such e-services.

The remainder of the paper is organized as follows. Section 2 provides a background to VAT, tax compliance, electronic applications, and justifications for their use. While Section 3

provides a brief explanation of the literature review and presents the hypotheses of the study. Section 4 outlines the overall research process, and the research design, including research methods, explains the research sample. Finally, Section 5 presents the results, discusses the findings, concludes, and highlights limitations.

## **2. THEORETICAL FRAMEWORK**

### *2.1. Value-Added Tax*

Starting from January 1, 2018 (Rabi Al-Thani 14 - 1439 AH), the KSA began implementing VAT as a part of the unified tax agreement of the Gulf Cooperation Council (GCC) approved by the Kingdom according to the honorable royal decree of 5/3/1438. The VAT system was issued on 11/4 /, 1438, and the VAT system's executive regulations were published on 12/4/1438 AH.

The VAT is a major source of public revenue, as the number of countries that implement this tax has increased to be more than 160 countries, and their revenues exceed 20% of the world's revenues (Hoseini and Briand, 2020). The implementation of VAT in the Kingdom comes intending to achieve financial stability in line with the values and objectives of the Kingdom's Vision 2030 and the National Transformation Program 2020 (Vision 2030).

Like the rest of the world's countries, the KSA suffers from tax compliance consequences, which faces many limitations and challenges. The value-added tax (VAT) is an indirect tax, and the taxpayer does not bear its burden. The burden of VAT is on individuals who consume products as it is linked to their consumption; however, the effect and dependency of the implementation bear burdens associated with the costs of fulfillment. VAT compliance is the most complex, costly, and challenging among the other type of taxes. The cost of taxpayers' time to comply is considered the highest incurred, as tax compliance procedures annually require more than 150 hours to ensure tax compliance and represent more than 68 % of total tax compliance time (Naicker, 2018).

In this context, The Kingdom attempted to reduce these consequences and threats by providing a set of e- applications directly linked to VAT implementation stages, which help reduce the severity of the threats that justify non-compliance and respond to the implementation requirements the value-added tax system.

### *2.2. VAT compliance*

Tax compliance for governments is substantial because taxes are considered one of the primary revenue sources that allow governments to achieve their economic, social, and political goals. As the taxpayers commit to paying the taxes on time, they enable the governments to spend on public services through current spending schemes and providing sustainable development elements through investment spending.

Compliance is defined as the intention of taxpayers to pay taxes when it is due. It is also referred to as taxpayers' decision to comply with tax laws and regulations by paying tax timely and accurately. It is also defined as the accurate and timely manner of the income tax return coupled with the ability and willingness to pay the tax dues ( Gwaro et al., 2016). While (Palil et al., 2011) defined tax compliance as taxpayers' ability and willingness to comply with tax laws, it is largely influenced by the legal environment and surrounding factors. The tax authorities also added to the definition of tax compliance the declaration of right income and accurate payment of tax amount on time (Kuria & Omboi, 2016). Accordingly, it is possible to identify the behavioral elements of tax compliance, obedience, ability, willingness, and procedural registration, reporting, and payment compliance processes.

Theoretically, a difference can be spotted between two forms of tax compliance, which are voluntary tax compliance, which is compliance with tax requirements without any government enforcement. It is a taxpayer's self-assessment and performs all tax procedures such as registration, preparation, and tax returns, leading to voluntary payment (Palil et al., 2011; Nawawi and Salin, 2018). This type of compliance depends on taxpayers' awareness and understanding that benefits are realized from tax and its importance and necessity, illustrated in the form of self-application of tax returns (Hussein et al., 2010).

Tax awareness is considered an essential pillar for the success of voluntary tax compliance. And it becomes one of the pillars of modern tax systems and their management, which made spreading tax awareness among taxpayers as an urgent necessity; hence the increasing tax awareness leads to increases in the level of voluntary tax compliance (Al-Hassoun, 2013; Al-Khursan, 2010). The authorities need to increase the level of tax awareness by educating the community about their tax duties using various means and marketing campaigns. And focus on benefits that would result from tax compliance. Such benefits appear in the provision and continuity of public services, which naturally reflects on strengthening the social fabric and individuals' national patriot spirit (Zakat & Income Magazine, Issue 58).

The second type of tax compliance is mandatory compliance, which, in contrast to voluntary compliance, is accompanied by some form of government enforcement. In this type, the tax administration authorities need to enforce and monitor tax compliance procedures at all stages and verify the submitted tax returns (Hussein et al., 2010). Many reasons lead to a low level of tax compliance. Mainly the weakness in bookkeeping; due to the lack of appointing professional accountants-expensive- and frequent changes in SMEs' ownerships, in addition to the combination of ownership and bookkeeping of accounts, which make a tendency for tax non-compliance, and low revenues, poor knowledge of tax and accounting, and a lack of tax awareness programs (Nakiwala, 2010).

In addition to the spreading tax awareness, the tax authorities seek to raise tax compliance levels by publishing tools and mechanisms that enhance tax compliance, including implementing e-tax systems depends on the taxpayer's self-assessment controls (Nawawi & Salin, 2018). E-tax systems' success depends on taxpayers' attitudes and trends, whether they are accepted or rejected. In this domain, several studies (Kiring'a et al., 2017; Gwaro et al., 2016; Obert et al., 2018) indicated that positive attitudes and trends have a positive effect on the taxpayers' adoption and success of implementing E-tax systems. The success of e-tax systems is presented in the size and speed of e-tax adoption due to the positive outcomes of those adopted previously. So, the level of tax compliance increases with the spread of e-tax (Kamarulzaman & Azmi, 2010). Hence, the desired benefits of e-tax systems services depend on the level of their adoption by taxpayers and their uses (Sonoka & Phiri, 2019).

### *2.3. Electronic applications of the VAT in KSA*

In line with the KSA's strategy in adopting e-services, the General Authority for Zakat and Tax has adopted an integrated system of e-services to improve its services. It has endeavored to develop working methods, harness modern technologies to facilitate and simplify its procedures and dealings and develop its e-services to implement all required procedures electronically to shorten the authority taxpayers' time and effort. In this context, the authority provides many e-applications for different channels, including smartphones. These channels offer a set of 72 e-services (the Zakat and Income Tax website). The Zakat and Income Tax authority develop and automate tax administration departments by integrated tax systems. The Automated e-tax system has multiple stages; e-registration, in which taxpayers register through platforms, and get the approval automatically, then taxpayers to prepare and process tax returns through their accounts and get approved to show the taxpayer's due tax. It also aimed to provide other

services to taxpayers, including objection and appeal, installment and amendment, and services to obtain certificates and clearance through these applications via websites.

In our study, tax compliance means that the taxpayer is subject to the officially approved VAT system's provisions published in its final version on 11/4/1438 AH and the VAT executive regulations published on 4/12/1438 AH.

The table (1) below summarizes VAT compliance requirements in KSA, and the 22 e-services approved by the General Authority for Zakat and Income. Additionally, the introduction of the automatic registration service in the VAT for new establishments is there, which takes place immediately after the issuance of a commercial register, and it enables the establishment's management to initiate all its procedures and dealings with authority through one electronic account (the Zakat and Income Journal, Issue 56).

Table 1. Requirements for tax compliance according to the VAT system and related regulations, and their e- applications.

<b>VAT compliance Requirements</b>	<b>Regulation Resource's*</b>	<b>E-service name**</b>
Compulsory or voluntary/optional , cancel registration	Articles (3-7) of the second chapter	Companies Registration, Individual registration Group Registration Registration of persons eligible for refund in VAT Amend Registration Details Deregister for VAT
VAT calculation	Ninth chapter	Request to Change Input Tax Deduction Method
payment of the tax Tax Refund	Articles (59-61) Articles (69-73)	VAT Payment VAT Refund Request Request for Installment Plan
submission of the tax returns	Article (62)	VAT Return Tax Return Amendment
Correction of Returns	Article (63)	Request to Change the Filing Period
Procedures for Examination and Evaluation Appeal	Article (64) Article (68)	File An Objection on Re-assessment File An Objection on Penalty
Keeping of Records	Article (66)	
Other application		Request to Reprint of VAT Certificate Request to Release Request for Ruling

\* Source: VAT system and executive regulations prepared by the researcher

\*\* General Authority of Zakat and Income website

### 2.3.1 Advantages of Tax Electronic Applications

The e-Tax applications and systems have several advantages, including (pwc, 2017; Gwaro et al., 2016; Obert et al., 2018):



- Increase administration government efficiency.
  - the flexibility of tax returns submission; hence the e-Tax systems are available online and can be accessed from any location, saving time and effort compared to traditional procedures.
  - Accurate, most if not all, traditional procedures (manual) of tax returns errors are avoided.
  - The taxpayer avoids the additional costs associated with manual filing of tax return
- There are also other advantages of e-tax applications from tax authorities view as follows:  
(Kiring' a et al., 2017)
- It helps achieve the tax authorities' objectives of collecting the taxes at the lowest cost.
  - Reducing the time for filing tax returns.
  - Speed of processing and extracting data and information about revenues.

### 2.3.2. Limitations of Tax E-Applications

On the other hand, according to ( Ilias et al., 2009; Azmi e & Bee, 2010) several challenges are facing e-tax systems, including the following:

- The negative impressions of the taxpayer towards e-applications reliability.
- A minimum limit of knowledge and computer skills that the taxpayers must have to prepare the e-tax return via the e-platforms / e-tax systems platforms.
- System availability and connectivity issues and other faults and errors related to the e-tax backend (hardware failures, network errors and malfunctions, software malfunctions and errors).

## 2.4. Reasoned Action Theory, Technological Acceptance Model, and the Diffusion of Innovation Theory

### 2.4.1. Theory of reasoned action

The theory of reasoned action (acting rationally) by Ajzen and Fishbein (1980). it explains the relationship between an individual's attitude and behavior for a particular situation. It is used to predict the behavior based on the fact that the individual's behavior depends on individual expectations of that behavior's consequences. So, Positive attitude for e-tax applications generate a positive attitude in the taxpayer. The results of such positive attitudes are reflected as adoption of e-tax applications. On the other hand, if the taxpayers generate negative attitude, it explains their resistance to e-applications. So the negative trends of use e-tax applications represent one of the most critical barriers to tax compliance.

### 2.4.2. Technology Acceptance Model

To explain and predict the user of information technologies' behavior, a TAM was proposed by Davis in 1986, on which many scholars employ it to explain the acceptance of the use and adoption of new technology. Many studies utilized this model provided strong evidence supporting the role of this model in predicting users' behavior. The model provides a basis for explaining the behavior of individuals for the technical programs intended to be used (Ilias et al., 2009; Soneka, & Phiri, 2019; Surendran. 2013; Kiring' a et al., 2017; Gwaro et al., 2016; Muturi & Kiarie, 2015; Hussein et al., 2010). It is used to explain the taxpayer's behavior from the use and adoption of e-Tax applications, also, its impact on VAT compliance on a set of considerations (Azmi & Bee, 2010; Ilias et al., 2009):

**Perceived Ease of Use:** The extent to which a person believes that using a particular system will be free of effort

**Perceived usefulness:**the extent to which the user believes that the technology in use will enhance and improve their job performance.

In subsequent studies, the assessment model for perceived risks that negatively affect intention to use was strengthened (Kamarulzaman & Azmi, 2010), which is based on two dimensions (Gwaro et al., 2016).

**Privacy Risks:**they are the concerns related to the ways of protecting taxpayers' data required by the use of technological systems when preparing and processing tax returns, such as risks of third party access to this data.

**Performance Risks:**they are related to the possibility that the system fails to reach its intended goal, and such performance risks decrease with the increase in perceived benefit and ease of use (Kamarulzaman & Azmi, 2010; Gwaro et al., 2016).

The interaction between technology acceptance factors (ease of use, performance risk, privacy risk, and Perceived usefulness) allows users to develop an attitude towards using the technological system, determining their acceptance or rejection. It also contributes to their role in determining the complexity level within the system, so it will justify the time needed to learn and the associated risks (Surendran, 2013; Azmi & Bee, 2011; Obert et al., 2018; Suleman, 2019).

#### 2.4.3. Diffusion of Innovation theory

It is one of the theories used to justify user's adoption of new technology (Helton, 2019). Diffusion is "the process by which innovation is transmitted over time between users. And innovation is" referring to "an idea or thing that is perceived as new." "Prevalence is affected by a set of factors (relative advantage, observability, trialability, compatibility, and complexity) as stated by Rogers (1995) - cited in Hoseinia and Briand (2020)." According to Hoseinia and Briand (2020) indicated that the compatibility component determines the rate of innovation adoption; citizens are willing to use e-government technologies if these services are compatible with how they prefer to interact with others. Therefore, it is considered the most critical factor affecting e-government adoption.

### 2.5. Computer Skills and E-Applications

Although the assumption of e-government services are easy to use and enable users to use these services (Kiring' a et al., 2017), the preparation and processing of tax returns over the Internet are influenced by the factors of computer skills and Internet setup (Auyat, 2013; Zaidi et al., 2017). The use of e-tax services requires a minimum level of computer skills, which enable the user to switch between the operating system windows and use the self-help lists available on the site (Kiring' a et al., 2017; Azmi & Bee, 2010; Hussein et al. 2010).

On the other hand, the lack of computer skills makes the user face several options; firstly, according to (Kiring' a et al., 2017), as cited Mandola, hires a third party that charges fees for processing tax returns online, i.e., additional costs. Secondly, it is to avoid using e-tax systems and manually processing tax returns. Thirdly, process tax returns using e-tax by users themselves despite the difficulties faces in online e-tax. It takes a lot of time and effort to learn, negatively affecting the systems' adoption and tax compliance (Lukwata, 2011).

## 3. LITERATURE REVIEW

According to the researcher's review of the previous literature, only a few of them related to one or more of the current study elements were found (Ilias et al., 2009; Gwaro et al., 2016; Kamarulzaman & Azmi, 2010; Kiring' a et al., 2017; Kuria & Omboi, 2016; Muturi & Kiarie,

2015; Night & Bananuka, 2020; Soneka & Phiri, 2019; Zaidi et al., 2017), which led the researcher to list these elements to be investigated in this current study.

Using the technology acceptance model (TAM), (Ilias et al., 2009) studied taxpayers' attitudes using the e-tax filing system. The study conducted in Malaysia aimed to identify the differences in the taxpayers' attitude based on the following variables (gender, level of education, experiences) and the relationship between taxpayers' attitudes and the following factors (Perceived usefulness, perceived ease of use, information system quality, information quality, and perceived credibility). The study indicated that there are differences in taxpayers' attitudes to the system of filling electronic tax returns, which are related to the variables of experience and education. There are no differences between the attitude and the determinants (Perceived usefulness, perceived ease of use, information system quality, information quality, and perceived credibility).

Kamarulzaman and Azmi (2010) addressed the evaluation of the Malaysian experience in adopting the submission of e-tax declarations as an important e-government service that gains the interests of taxpayers to fulfill tax compliance requirements. And they carried out this study with a risky environment due to performance and trust-ability risk as it was at the same time as launching the e-tax system. Within this study, they proposed a theoretical framework for adoption that handled the impact of those risks. The proposed framework assessed the taxpayers' attitudes toward both recognized and performance risks based TAM for both the application and e-filing of tax returns, which suggest a negative correlation between the ease of use of the e-system and the low-performance risks. The model provides useful guidance for developing strategies to enhance e-government services and improve the e-tax system's performance.

Muturi and Kiarie (2015) conducted a study to examine the effects of the e-tax system on the tax compliance of small enterprises by studying independent variables (e-tax registration, e-tax deposit, e-filing, and e-tax transfers). The study covered 60 companies, and they concluded that the e-tax system has a positive impact on tax compliance.

In their study Gwaro et al. (2016) assessed the level of awareness of the technical use of applying tax returns online for small and medium-sized companies in Kenya. The study examined the effect of (computer knowledge and skills, e-Tax system use, privacy, and security) on tax compliance. Within their work, the study described the factors that affect the acceptance and adoption of e-programs using several theories such as TAM, the unified theory of technology acceptance and use, the logical action or reasoned action, and the theory of diffusion of innovations. On the other hand, Gwaro, et al. (2016) did not find a statistically significant effect on tax compliance among the study variables but only for the computer literacy variable.

Kiring' a et al. (2017) investigated the effect of e-tax returns through (taxpayers' attitude towards the direction of e-tax returns and their technical skills in preparing e-tax returns) on tax compliance. After analyzing 316 companies' data, the results indicated that online tax returns have an impact on the level of tax compliance. Additionally, this study showed a negative correlation between taxpayers' attitude on e-tax returns and tax compliance and a positive correlation between the e-tax return and tax compliance's technical skills.

Another study used TAM, the theory of planned behavior and the information systems success model, was conducted by Zaidi et al (2017). The study results showed that ease of use and recognized interest positively affected adopting e-tax systems.

Night and Bananuka (2020) also conducted a study to examine the impact of adopting the e-tax system as a mediating variable on the relationship between the attitude towards the e-tax system and tax compliance. The sample of their study was 214 managers. The results indicated that the e-tax system's adoption and the attitude towards the e-tax system are highly correlated



with tax compliance. The study also found an effect of adopting an e-tax system on the relationship between the attitude towards the e-tax system and tax compliance.

Soneka and Phiri (2019) attempted to evaluate the factors affecting the adoption of e-tax systems in Zambia. One hundred participants were surveyed about e-registration and e-payment e-tax return and submission of declarations. Using TAM to explain the results, the study indicated that most of the participants submitted their tax declarations and paid the taxes via the e-tax system. Several taxpayers did not use e-tax due to fear of privacy risks and the difficulty of application and fear of not getting the declared benefits. The study recommended that the authorities carry out more awareness and highlight the importance of adopting e-tax systems.

In their study, Kuria & Omboi (2016) presented the elements that affect the formation of taxpayers' attitudes and the effect of these elements on tax compliance. This study concluded that there is an effect of the tax burden factor. In contrast, there was neither effect of governmental accountability factors nor knowledge of the laws and regulations applicable to taxpayers' attitudes. However, it is found that there is a relationship between taxpayer attitude and tax compliance.

As mentioned earlier, the studies have discussed the e-tax returns and the factors affecting them. Based on such reviews, TAM's use, the theory of logical actions, and the theory of diffusion of innovations can be justified. Moreover, E-applications and the attitudes towards them are adopted as independent variables ( Kamarulzaman& Azmi, 2010; Gwaro et al., 2016; Ilias et al., 2009; Zaidi et al., 2017; Soneka, & Phiri, 2019; Kiring'a et al., 2017; Night & Bananuka, 2020). The current study's uniqueness examined the value-added tax (VAT) by discussing, describing, and analyzing taxpayers' attitudes and adopting e-VAT applications.

### Research model and hypotheses

Taking into consideration the previous literature on the role of taxpayers' attitudes towards electronic tax services and their impact on compliance and the elements of the value-added tax system and its tax executive regulations in the KSA, and in order to answer the research questions, the following hypotheses were proposed:

- H1: There is a relationship between taxpayers' attitudes towards VAT e-applications and tax compliance.
- H2: There is a relationship between taxpayers' adoption of VAT e-applications and tax compliance
- H3: There is a relationship between computer skills and tax compliance.
- H4: There is an impact of VAT taxpayers' adoption of e-applications on the relationship between their attitudes to e-applications and tax compliance

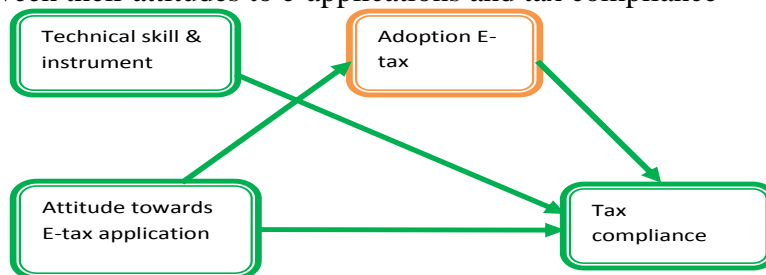


Figure 1. An illustration showing the research mode.

Table 2. Definition and Measurement of Variable

Variable	Definition	Dimension	Measurement	References
Tax	It is the voluntary	Estimate the	the Arithmetic	Night &

compliance	fulfillment of all tax obligations in accordance with the provisions of the VAT tax system in a timely manner joined with the ability and willingness to pay.	fulfillment of regulatory compliance requirements and reimbursement compliance requirements	averages of study sample responses to tax compliance questions. (26 to 34)	Bananuka (2020); (Kiring'a et al. (2017); Kuria & Omboi (2016)
Attitude towards e-tax	Are the positive or negative attitudes of the VAT taxpayers from e-applications	The sample members evaluation the dimensions of Perceived usefulness , Perceived Ease of Use, Security (privacy risk), and Reliability (performance risk).	the Arithmetic averages of study sample responses to dimension estimates questions (5-17)	Kuria & Omboi, (2016); Night & Bananuka (2020); Gwaro et al., (2016); Hussein et al., (2010)
Adoption of e-tax application	It is the ability and willingness of the taxpayer to use electronic applications	evaluate the performance of Tax registration procedures Preparing and submitting the tax return e-payment and refund Preparing and processing tax reports	the Arithmetic averages of sample responses to carrying out the procedures questions (18-25)	Night & Bananuka, (2020)
Computer skill and instrument	Set of skills and equipment that must be mastered and provided to enable the taxpayer to run the e-applications	Evaluate the excel of skills and the availability of equipment	the Arithmetic averages of sample responses to computer skills questions (35-38)	Gwaroet al., (2016) Hussein et al., (2010) Kiring'a et al., (2017)

#### 4. RESEARCH METHODOLOGY AND DESIGN

##### 4.1 Research Methodology

This descriptive analytical study adopted survey research design. According to Saunders et al (2007) this research strategy enables the researcher to collect data using questionnaire distributed to the selected sample. The study population comprised of the VAT taxpayers in the Kingdom of Saudi Arabia. According to the value-added tax regulations, all business entities whose revenue exceeds the minimum tax compliance threshold (375,000 SR) are subjected to Mandatory registration (GCC VAT unified agreement article 50). However, because of the COVID-19 pandemic lockdown and restrictions, the study was limited to the Tabuk region and a sample of 70 firms was selected randomly

#### 4.2 Questionnaire design:

The questionnaire was designed in light of reviewing the literature on taxpayers' attitudes towards using e-applications of the tax system, the adoption of these applications and the variable related to this study is tax compliance. The five-point Likert scale was used because it enables the measurement of the study sample responses about their attitudes and the situations they went through. It consisted of 39 paragraphs, as displayed in the table (2) of the definition of variables above.

#### 4.3 Measuring the Reliability and Validity of the Questionnaire

Reliability: means the stability of the scale and its non-contradiction with itself; i.e., it gives the same results if it is re-applied to the same sample. The reliability of scales was measured using Cronbach's coefficient Alpha based on each scale's internal consistency. Whereas the acceptable and unacceptable levels of Cronbach's Alpha coefficient (Cronbach, 1951). The calculated value of Cronbach alpha was (0.796) as shown in Table 3; hence, the coefficient of the reliability 0.70 and above is preferred. and which indicates the existence of a good coherence and correlation relationship between the questionnaire items. (Cronbach, 1951).

Table 3.shows the Cronbach alpha of the study variables.

Variables	Items' number	Cronbach's Alpha
Attitudes towards e-applications	13	0.784
Taxpayers' adoption of e-applications	8	0.787
Compliance with VAT	9	0.784
Computer illiteracy	4	0.785
All Items	34	0.796

Validity: The questionnaire's validity is to measure what it is designed to measure so that the asked questions are relevant to the topic. The validity of the questionnaire was confirmed through reviewers and SME's. Hence, the questionnaire was validated with a group of SME's / reviewers in the field, such as the Zakat and Income Authority's professors and employees.

#### 4.4 Descriptive Analysis

The results related to the first question's responses: "What is the nature of the VAT taxpayers' attitudes towards the e-tax system?"

In order to answer this question, the mean and standard deviation (SD) of the participants' responses to the survey items were presented.

Table 4. shows the results of the descriptive statistical analysis of the dimensions of the VAT taxpayers' attitudes variable, the attitude of e-applications.

Items	Mean	Std . Dev	Mini	Max

			v		
	The use of the e-tax system helped improve the quality of services provided	4.02	0.7 3	2.0	5.0
	The use of VAT e-applications facilitates the preparation of tax documents and certificates.	3.76	0.6 4	3.0	5.0
Usefulness	The e-tax system's use helped save management time, efforts, and reduce costs of tax returns.	4.19	0.5 9	3.0	5.0
	The use of the e-VAT system helped provide and payment and refund services	4.38	0.5 2	3.0	5.0
	All Perceived usefulness	4.09	0.3 8		
Ease-use	I have no difficulty using e-tax to prepare and submit the tax return electronically.	4.29	0.7 1	2	5.0
	For tax compliance purposes, I prefer using the e-tax system over using a standard manual procedure.	4.24	0.6 1	3	5.0
	The e-VAT system facilitates tax compliance practices.	4.22	0.6 1	3	5.0
	All perceived Ease-use	4.25	0.5 4		
	e-tax applications are useful and good	3.78	0.8 5	2.0	5.0
Performance Risk	The e-VAT system enables connecting at any time and any place.	4.05	0.7 3	3.0	5.0
	the e-VAT system fulfills the intended objectives of tax compliance.	4.03	0.7 2	3.0	5.0
	Perceived performance risk	3.95	0.4 5		
	The e-VAT system provides a high level of privacy and security.	3.95	0.4 9	3.0	5.0
privacy Risk	I am not worried about exposing business information to data entry / 3rd party to help with tax filing.	3.56	0.7 4	2.0	5.0
	Using the e-tax system is privacy risk-free and secure, and leaking tax return data and information to third parties is prevented.	3.14	0.8 0	2.0	4.0
	Perceived security and privacy risk questions	3.55	0.3 4		
Attitude	VAT taxpayers' attitudes for e-applications	3.97	0.2 7		

Table 4 shows the mean of the participants' responses to the dimensions of attitudes towards using e-tax systems is 3.97, which is higher than the hypothetical mean (3) and represents 79%. Accordingly, taxpayers have a positive attitude towards the use of VAT E-Systems. Table 4 shows that the means of the dimensions: usefulness, ease of use, privacy risk, performance risk, and attitude are (4.09,4.25,3.95,3.55, 3.97), respectively, higher than the hypothesis mean (3). Therefore, the VAT taxpayers have a positive attitude due to the Perceived usefulness of using

e-applications, the confidence in the ease of use, safety, privacy risks free, and e-application performance reliability.

Table 5. Means for e-application adoption and tax compliance.

	e-application adoption			tax compliance		
	Lowest	Highest	average	Lowest	highest	average
Default average	8	40	24	13	41	27
Responses Average	20	40	30	26	41	33.5
Number of Items	8			9		
Negative Items				1		
percentage			75%			82%

Table 5 shows the e-application adoption variable questions consist of 8 statements; all of them are positive. Thus the lowest possible score for any respondent will be 8 degrees while the highest score will be 40, noting that the average default score is 24 degrees. Simultaneously, the table shows that the mean of responses is 30 degrees, represents 75%. Therefore, the taxpayers have a good percentage of adopting E-Systems for value-added tax.

Concerning tax compliance, the variable consists of 9 statements; one of them has a negative value. The lowest possible score for any respondent would be 13 degrees, and the highest score would be 41, while the average default score is 27 degrees. Table 5 shows that the average of the responses is 33.5 degrees, which represents a compliance rate of 82%. Therefore, taxpayers have a good adoption rate for using E-Systems for value-added tax.

#### 4.5 Hypothesis Testing

The researcher applied a simple linear regression (SLR) test; hence, the SLR test the effect of independent variables' dimensions with the dependent variable.

Table 6 shows the correlation test results, the Pearson correlation coefficient between the variables (attitudes towards e-applications and the adoption of e-applications and computer skills with the dependent variable tax compliance).

Table 6. Pearson correlation coefficients of the study variables

Variables		Attitude	Adoption	Computer Skills	Tax compliance
Attitude	Pearson Correlation	1			
	Sig. (2-tailed)				
Adoption	Pearson Correlation	0.534**	1		
	Sig. (2-tailed)	0.000			
Computer Skills	Pearson Correlation	0.599**	0.750**	1	
	Sig. (2-tailed)	0.000	0.000		
Tax compliance	Pearson Correlation	0.603**	0.430**	0.265*	



	Sig. (2-tailed)	0.000	0.000	0.036	1
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\*\*. Correlation is significant at the 0.01 level (2-tailed) \*. Correlation is significant at the 0.05 level (2-tailed).

Source: Primary data Spss

It is clearly observed from Table 6 that there is a significant relationship between the variables (attitudes towards e-applications and adoption of e-applications and computer skills) and tax compliance with a correlation value of (0.603, 0.430, 0.265), respectively. All of them were statistically significant at ( $\alpha \leq 0.05$ ), which confirms the validity of assumptions regarding the effect of independent variables on tax compliance.

The simple linear regression model is applied to determine the interaction and reciprocal effect of the independent variables on the dependent variable, and hence, table 7 shows the correlation and variance test for the relationship between the study variables through the following Simple Linear Regression Model  $Y_i = \beta_0 + \beta_1 X_i$

**Table 7.** correlation and variance test for the relationship between the studies' variables.

Independent Variable	Dependent Variable	R	R <sup>2</sup>	F	Sig.	B	T	Sig
Taxpayers' attitudes of applications	Tax Compliance	0.60 3	0.36 3	34.78	0.00	0.64 5	5.89 8	0.00 0
Taxpayers' adoption of the applications	Tax Compliance	0.43	0.18 5	13.85 9	0.00	0.56 7	3.72 3	0.00 0
Taxpayers' attitudes of applications	Taxpayers' attitudes of applications	0.53 4	0.28 5	24.38	0.00	0.43 4	4.93 9	0.00 0

Source: Primary data Spss

H1: There is a relationship between taxpayers' attitudes towards e-applications of VAT and tax compliance.

By investigating the results in Table 7, it is noted that the value of (F = 34.78) is significant at ( $\alpha \leq 0.05$ ) and the coefficient of the R<sup>2</sup> is (0.363), which expresses 36.3% of the taxpayers' attitudes for e-applications from the variation in tax compliance and the results indicate that the value of (t = 5.898) is significant at ( $\alpha \leq 0.05$ ) and the value of (Beta = 0.645) indicates that the amount of the increase in tax compliance as a result of the increase in taxpayers' attitudes for e-applications, meaning that the increase in the level of one unit attitudes lead to an increase in tax compliance by 64.5% of the unit, and the following equation reflects this result assuming that tax compliance (Y) and the independent variable are taxpayer attitudes (X<sub>1</sub>)

$$Y = 1.141 + 0.645X_1 + e$$

Therefore, H1 is accepted, hence there is a statistically significant at ( $\alpha \leq 0.05$ ). Thus, there is a positive relationship between taxpayers' attitudes towards e-applications and tax compliance.

H2: There is a relationship between taxpayers' adoption of e-applications of VAT and tax compliance.

Examining the results presented in Table 7, it is shown that the value of (F = 13.859) is significant at ( $\alpha \leq 0.05$ ). The coefficient of the determination reached (0.185), which expresses the explanatory capacity for the taxpayers' adoption of e-applications from the variation in tax compliance and assessment 18.5%, and the results indicate that the value of (t = 3.723) is

significant at ( $\alpha \leq 0.05$ ). The value of (Beta = 0.567) indicates the amount of the increase in tax compliance due to the increase in taxpayers' adoption of e-applications. So, the increase in the level of one unit's adoption leads to increased tax compliance by 56.7%. The following equation represents this result, assuming that tax compliance (Y) and the independent variable adopt the taxpayers for e-applications.

$$Y = 1.895 + 0.567X_2 + e$$

Therefore, H2 is accepted, hence there is a statistically significant at ( $\alpha \leq 0.05$ ).

H3: There is a relationship between computer skills and technology and tax compliance.

By looking at the results in Table 7, it worth noted that the value of (F = 4.615) is significant at ( $\alpha \leq 0.05$ ) and the coefficient of the determination reached (0.07), which expresses the interpretive ability of computer skills and technology from the variance in tax compliance and the assessment 7%. The results also indicate that the value of (t = 2.148) is significant at ( $\alpha \leq 0.05$ ). The value of (Beta = 0.25) indicates the amount of the increase in tax compliance due to the development of computer skills and technology. So, the increase in the level of computer skills and technology leads to an increase in tax compliance by 25% of the unit. The following equation represents this result, assuming that tax compliance (Y) and the independent variable are technical computer skills (X).

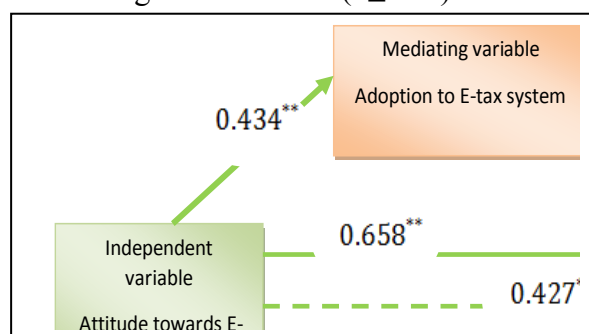
$$Y = 3.036 + 0.25X_3 + e$$

Therefore, H3 is accepted, hence there is a statistically significant at ( $\alpha \leq 0.05$ ) for computer skills and technology on tax compliance.

#### 4.6 The Results of the Median Variable's Test

Determining the effect of adopting the e-tax system as an intermediate variable on the relationship between the independent variable, the taxpayers' attitudes from the e-tax system, and the dependent variable tax compliance is presented. According to Baron and Kenny's (1986) model, which listed three conditions and were fulfilled by simple and multiple regression analysis where:

- The independent variable, the taxpayers' attitudes towards the e-tax system, has a statistically significant effect on the adoption of the e-tax system, as (F = 24.38) and (Sig = 0.00), which is less than the significance level ( $\alpha$  0.05)
- The taxpayers' attitudes as a variable from the e-tax system has a statistically significant effect on tax compliance, as (13.859 = (F) and (Sig = 0.00), which is less than the level of significance ( $\alpha \leq 0.05$ ).
- The adoption of the e-tax system has a statistically significant effect on tax compliance with the existence of the taxpayers' attitudes from the e-tax system, as (25.15 = (F) and (Sig = 0.00), which is less than the significance level ( $\alpha \leq 0.05$ ).



**Figure 2.** This Analysis of the Effect of the Mediating Variable

The effect of introducing an e-tax system variable (adoption) as a mediating variable on the effect of taxpayers' attitudes on tax compliance was negative (Beta = 0.658 decreased to Beta = 0.427) as it in Figure 2. In contrast, the effect of the variable (attitudes) on the variable (compliance) in the presence of a variable (adoption) was statistically significant and less than the direct effect of the variable (attitudes) on the variable (compliance). It is concluded that the adoption variable partly mediates the relationship between taxpayers' attitudes and tax compliance.

H4: There is an effect of adopting e-applications of the VAT as a mediating variable on the relationship between their attitudes to e-applications and tax compliance.

## 5. RESULTS AND DISCUSSION

The study results showed that the Perceived usefulness and ease of use are consistent with (Night and Bananuka, 2020; Ilias et al., 2009; Gwaro et al., 2016) findings. Also, achieving a level of information security and reliability are consistent with (Hussein et al., 2010) results, and in contrast to (Gwaro et al., 2016) findings concerning information security; which contributed to the development of positive attitudes and trends for VAT taxpayers towards the use of electronic applications. The positive trends and attitudes of taxpayers' toward the electronic applications were reflected in the increase in tax compliance among value-added tax. This increase in the level of tax compliance can be explained by the positive role that the taxpayers' adoption of electronic applications has on taxpayers' behavior. And also, the ease of use for taxpayers and the perceived benefits from the use of e-VAT system is consistent with (Night & Bananuka, 2020; (Kiring'a et al., 2017; Kuria & Dr Omboi, 2016), and also with what the Zakat and Income Authority aimed for in these applications.

The positive impact of VAT taxpayers' computer skills and equipment on tax compliance is consistent with (Gwaro et al., 2016) findings and contrary to the findings of (Kiring'a et al., 2017). These findings can be explained by combining the ease of use of applications, taxpayers' computer skills, availability of the necessary equipment, and supplies factors to enable taxpayers to control and perform tax compliance.

The use of the e-VAT system effectively has a positive impact on the tax compliance level. One of the significant successes that Zakat and Income Authority achieved by introducing e-VAT -according to this study results- and this success ensured a positive image about the authority at taxpayers' and enhanced the chances of adopting and using e-VAT.

## 6. CONCLUSIONS

The study results show that VAT taxpayers' attitudes for the using e-tax systems are positive due to the ease of use, realized and Perceived usefulness, privacy, and performance risk-free. Because of these positive attitudes formed among taxpayers, e-tax systems have been adopted and used by them. This result also confirms that the use of e-tax systems and applications enables VAT taxpayers to overcome the various obstacles that would have prevented tax compliance.

The study shows that the VAT of the taxpayers had an acceptance to adopt e-applications for the tax because of the time saving, fewer efforts, and accuracy.

The study shows that the adoption of e-applications positively impacts the level of tax compliance.

The study show that the computer skills and its equipment variable significantly impact the taxpayers' adoption of e-tax systems, explaining the discrepancy within. The proficiency in using computers, programs, and ready-made applications and proper equipment at a level of competence contributes to the taxpayers' adoption of e-tax systems and facilitate, operate and employ it in the tax compliance.

The study shows the existence of a statistically significant effect of (computer skills and equipment on the adoption of e-applications), (taxpayers' attitudes and their adoption of e-applications on their compliance with the value-added tax).

Finally, it is found that there is an effect of taxpayers' attitudes towards e-applications as a mediating variable on the relationship between taxpayers' adoption of e-applications and tax compliance.

## 7. LIMITATIONS

Although a reasonable sample size was taken into account in this study, there is a need in future studies to expand sample sizes to include all regional governance in Saudi Arabia. The study investigated specific variables, while others were not covered. Hence, future research should take these variables into consideration in order to present a comprehensive picture of the research. Additionally, the timing of the study, the researcher collected data related to period from the first implementation of VAT until the end of June 2020.

## 8. RECOMMENDATIONS

Considering the results of the study, the following recommendations are:

- The relevant agencies continue their pioneering role in adopting e-applications and work on continuing to simplify e-applications so that all taxpayers can submit tax returns/declaration online. The system's servers must be upgraded, expand the tax consulting services, and awareness through programmed campaigns to enable taxpayers to acquire the necessary knowledge and tax compliance requirements.
- Tax authorities shall maintain and enhance the adoption of e-applications, through continual improvement of current systems, update and review and update data protection laws and regulations.
- Improve and spread the culture of adopting Tax e-applications among the taxpayers by Continue and expand the training programs and awareness workshops for the targeted groups; hence, they positively impact tax compliance.
- Develop and improve taxpayers' capabilities to use the Tax e-applications in all stages of tax compliance.
- Develop and enhance the Published guidelines and user-manuals of Tax e-applications on the website of TAX authorities.
- Expand the Taxpayers' groups by spreading the culture of using Tax e-applications to include the new generation through different education stages.

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