

Adoption and Success in the Digital Transformation of E-Tax Services: An Empirical Study¹

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Introduction

Developments in information and communication technologies (ICTs) have transformed citizens' expectations in line with the information age. On the other hand, it has been observed that public administrations have made changes in the methods they use while performing public services. A large part of this change process consists of the electronic transformation of public administrations. Naturally, this process creates high costs for public administrations. However, considering the potential gains, it is observed that public administrations are willing to complete their electronic transformation. Nevertheless, the adoption and success of e-government investments, which create high costs for public institutions, emerge as a natural expectation.

The issue of the adoption and success of e-government applications is an important phenomenon in the literature. In this direction, the factors affecting the adoption and success of both information technologies in general and e-government applications in particular, have been frequently the subject of research in the relevant literature. In this context, the study focuses on the adoption and success of information systems, in particular e-tax services, which is a practice area of e-government. In the study, the Internet Tax Office (ITO) which represents e-tax services was determined as the object of examination.

In this context, under the title of "Theoretical Background", e-government, e-tax applications, and adoption theories and models are discussed, respectively. Again under this title, the Information Systems Success Model (ISSM), which was determined as a research model, was introduced. Under the title of "Literature Review", adoption and success studies focusing on e-tax services are included. In the section titled "Method", information about the research method is presented. Under the title of "Findings", the findings obtained as a result of the analysis were revealed, and under the title of "Discussion", the findings were compared with the literature. Finally, under the title of "Conclusion and Suggestions", it has been tried to reach generalizable results based on the findings and to develop suggestions that can be evaluated especially in terms of administration.

¹ This study was produced from the master's thesis titled "Adoption and Success of E-Tax Services in Turkey: A Study on Interactive Tax Office Users in Bursa" of the first author.

Theoretical Background

E-Government, E-Tax, and Türkiye

It is not a new issue for governments to benefit from the opportunities provided by new technologies in administrative terms. Governments have used new technologies shaped according to the needs of the age and society for reasons such as the management system to improve, develop, and make it working and efficient. It is especially important for governments that want to compete with other governments in military, political and economic fields to develop or transfer new Technologies (Yildiz et al., 2012).

Today, the developments in ICTs and especially the widespread use of the internet have brought the relationship between public administration and technology to another dimension. On the other hand, the problems experienced by public administrations at the point of service delivery contributed to the strengthening of this relationship. In this context, with the use of ICTs in public administrations, there has been a transition to the e-government model, where public services are more effective and accessible, the governments can communicate more easily with all stakeholders, and administrative processes are improved (Sobaci, 2012).

Governments' policy-making on e-transformation coincides with the 1990s. In those years, the transformation efforts, which first started in the USA, were followed carefully by European countries towards the 2000s. Then, the eEurope Project, the first institutional initiative of the European Union for e-government, emerged. After 2000, the World Summit on the Information Society (WSIS) was organized by the United Nations and the International Telecommunication Union. At this summit, e-government was seen as an important stage in the transition to an information society (Demirel, 2004; Demirhan, 2011). Türkiye has also taken an important step towards the transition to e-government by participating in the "eEurope +" initiative, which includes candidate countries for the European Union (Ozlu, 2002; Sahin & Orselli, 2003). In the last twenty years in Türkiye, e-government has been tried to be disseminated throughout the country with many projects and applications. At this point, there are many e-government projects and applications that have been successfully implemented at the local and national level, especially the e-government gateway. In this context, e-tax services are also an important application area of e-government. E-Tax services provide convenience to administrations in many aspects, such as increasing taxpayer satisfaction, auditing and authorizing tax administration employees, optimizing transactions, and modernizing services. Due to these advantages, many projects and applications related to e-taxation have been developed in Türkiye. The most important of these projects and applications is the Tax Office Automation Project (TOAP), which is the first project realized in the field of e-tax in Türkiye. This project is also an important step in the development of other applications. TOAP is a three-stage project and at the end of the project, all tax offices are included in the automation system (Revenue Administration [GIB], 2021). With the completion of TOAP projects, many e-tax applications have been tried to be implemented rapidly in stages. One of the most important of these applications is the ITO application, which was determined as the object of examination in this study. Through ITO, which started to be used in 2018, all citizens can complete transactions such as accessing information about their tax records, paying taxes, verifying documents, making an application, and filing a petition online.

Adoption and Success Theories and Models

The development of a new technology may sometimes require bearing high costs and taking some risks to the future. The increase in the usage time of the developed technologies is one of the important elements that reduce the costs and risks. Therefore, the acceptance of technology by users and its long-term use may allow the development of new technologies, while not accepting it as the opposite may cause this technology to not be used again (Sharma & Mishra, 2014). In this sense, discovering the underlying causes of individuals' decision-making behavior is one of the subjects of interest for management information systems researchers (Compeau & Higgins, 1995; Hu et al., 1999; Mathieson, 1991).

In parallel, various adoption and success theories and models have been developed in order to investigate the factors that affect people's adoption behavior of a technology or technological product. In this direction, many theories and models have been developed that are referred to as general adoption theories and are included in the behavioral science literature. Prominent among these theories and models are the Diffusion of Innovation Theory, Theory of Reasoned Action, Social Cognitive Theory, and Theory of Planned Behavior (Cinar et al., 2018). These theories and models have also been used in the field of information technology, including e-government.

In the following periods, some theories and models have been developed in the relevant literature, focusing only on the adoption and success of information technologies. Some of these theories and models, such as the Technology Acceptance Model (TAM), Model of PC Utilization, Motivation Model, Technology Acceptance Model and Planned Behavior Theory Unified Model, Unified Theory of Acceptance and Use of Technology (UTAUT) and Information Systems Success Model (ISSM), are frequently used in the relevant literature (Cinar et al., 2018). Among these, ISSM differs from other theories and models in terms of being both a model of adoption and success. This model was developed by DeLone and McLean (1992) and updated in 2003. ISSM allows to measure the adoption of information systems with the use variable, and to measure the success of information systems with variables such as user satisfaction and net benefit. This model is the first and most widely used success model in the literature (Dorr et al., 2013; Nguyen et al., 2015; Urbach & Muller, 2012). In addition, the fact that the variables in ISSM consist of many sub-dimensions and that these sub-dimensions can vary according to the object of study makes this model a frame model (Gurses, 2021). ISSM consists of independent variables of system quality and information quality, and dependent variables of use, user satisfaction, individual impact and organizational impact. System quality in the model is a measure of the extent to which users can meet their needs by using the system's functionalities (convenience, system response time, flexibility, usability, etc.). Information quality is a measure of the extent to which the information provided by the system can meet the needs of users in terms of accuracy, completeness, relevance, etc (Chang et al., 2005; J. V. Chen et al., 2015; DeLone & McLean, 2003). Use, which is one of the dependent variables, is the degree and form of using the capabilities of the information system. User satisfaction is the level of satisfaction obtained by using the information system (Petter et al., 2013). Individual impact is the impact that using the information system has on individual performance (such as increase in job performance and in productivity, improvement in task effectiveness). Finally, organizational impact can be defined as the impact of using the information system on organizational performance (such as improvement in organizational effectiveness, efficiency, and profitability) (DeLone & McLean, 1992).

Accordingly, the technical success of the information system is measured by the system quality, the semantic success of the information system is measured by the information quality, and the success of being effective of the information system is measured by the use, user satisfaction, individual impact, and organizational impact.

After the first model, DeLone and McLean reconsidered the empirical studies made up to that time, made some changes to the model in 2003 (ISSM2), and added service quality to the model. On the other hand, individual impact and organizational impact variables in ISSM are expressed as net benefit variable in the new model (DeLone & McLean, 2003).

Literature Review: Adoption and Success Studies Focusing on E-Tax Services

In this part of the study, an extensive literature review on studies focusing on the adoption and success of e-tax services is included. As a result of the literature review, a total of 71 empirical studies focusing on the adoption or success of an e-tax service have been reached. When all these studies are evaluated together, it has been seen that the frequently used theory or models are UTAUT, TAM and ISSM. The first study to focus on the adoption or success of an e-tax service was done by Wang in 2002. In this study, the factors affecting the adoption of the e-filing system were tried to be explained with TAM. At this point, it can be said that the e-filing system is mostly determined as the object of examination in the studies. In this area, the users of the system are generally taxpayers and naturally, the sample in these studies mostly consists of this group.

Only 13 of these studies focus on the effect of an independent variable in ISSM and ISSM2 on a dependent variable in these models (see Table 1). In these studies, it is seen that the updated version of ISSM by DeLone and McLean in 2003 (ISSM2) is mostly used (Ali & Khan, 2010; C. W. Chen, 2010; J. V. Chen et al., 2015; Chumsombat, 2014; Floropoulos et al., 2010; Khayun & Ractham, 2011; Tjen et al., 2019; Zaidi, 2017). On the other hand, in some studies, it is observed that ISSM is integrated with models such as UTAUT (Andriani et al., 2017; Lu & Nguyen, 2016), TAM (Masunga et al., 2021), American Customer Satisfaction Index (ACSI) (Tran et al., 2020), and Expectation-Confirmation Model (ECM) (Veeramootoo et al., 2018). Again, in the mentioned studies, it is seen that variables such as trust (J. V. Chen et al., 2015; Khayun & Ractham, 2011; Tjen et al., 2019; Zaidi, 2017), reliability (Tran et al., 2020), previous experiences (J. V. Chen et al., 2015; Tjen et al., 2019; Zaidi, 2017) and risk perception (Veeramootoo et al., 2018) are included in the models as additional variables.

Table 1. E-Tax Adoption and Success Studies in the Axis of ISSM or ISSM2

Author(s), Year (A →Z)	Model	Additional Variable(s)	Object of Examination	Country	Sample
Ali & Khan (2010)	ISSM2	-	E-Tax Services	Switzerland	165 taxpayers
Andriani, Napitupulu, Haryaningsih (2017)	UTAUT, ISSM2	-	E-Filing	Indonesia	394 e-filing users
Chen (2010)	ISSM2	-	E-Filing	Taiwan	278 taxpayers

Chen, Jubilado, Capistrano, Yen (2015)	ISSM2	Previous experiences, trust in government, trust in technology, trust in e-government website	E-Filing	Philippines	234 e-filing users
Chumsombat (2014)	ISSM2	-	E-Filing	Thailand	415 taxpayers
Floropoulos, Spathis, Halvatzis, Tsiouridou (2010)	ISSM2	-	Taxation Information System	Greece	340 tax officers
Khayun & Ractham (2011)	ISSM2	Trust in e-Government websites, individual features	E-Excise Tax System	Thailand	77 company employees
Lu & Nguyen (2016)	UTAUT, ISSM2	-	E-Filing	Vietnam	137 professionals
Masunga, Mapesa, Mwakibete, Derefa, Myava, Kiria (2021)	ISSM2, TAM	-	E-Tax Services	Tanzania	313 taxpayers
Tjen, Indriani, Wicaksono (2019)	ISSM2	Perception of usefulness, previous experience, trust in government, trust in technology, trust in e-government website	E-Filing	Indonesia	1095 taxpayers
Tran, Nguyen, Nguyen, Do (2020)	ISSM2, ACSI	Organization complaints, organization satisfaction, organization expectation, responsiveness, reliability	E-Tax Services	Vietnam	230 professionals and company managers
Veeramootoo, Nunkoo, Dwivedi (2018)	ISSM2, ECM	Perception of risk, habit	E-Filing	Mauritius	645 taxpayers
Zaidi (2017)	ISSM2	Trust, effectiveness perception, e-government service quality perception	E-Tax Services	India	515 taxpayers

Method

Data Collection and Scale

The survey technique was used as a data collection tool in the research. The scale used in the study is based on the ISSM scale of DeLone and McLean (1992). The ISSM scale is a draft scale without questions/items. The questions in the scale are taken from Iivari's (2005) study focusing on the adoption and success of an information technology for municipalities. The questions were adapted to the ITO in a 7-point likert type. Accordingly, there are 38 questions in total, 8 questions regarding the demographic information of the participants and 30 questions under the system quality (SQ), information quality (IQ), use (U), user satisfaction (US) and individual impact (IM) factors.

Population and Sample

ITO is a system where taxpayers in Türkiye can get online services. With this, accounting professionals use this system more regularly and continuously than taxpayers. Therefore, it was thought that it would be more appropriate to apply this study on the adoption and success of the system to members of the accounting profession. However, it is very difficult to reach professional accountants working all over Türkiye. For this reason, the study is limited to accounting professionals operating in Bursa and using ITO. The number of accounting professionals determined as the population of the study can be found based on the data published on the website of the professional chamber. However, the number of accounting office personnel included in the population and who are system users cannot be determined in this way. For this reason, the sample size in the study was calculated with the $n = t^2 \cdot p \cdot q / \alpha^2$ formula of Saruhan and Ozdemirci (Saruhan & Ozdemirci, 2018, p. 198), which is valid when the number of individuals in the population cannot be determined exactly. The survey form was prepared online and delivered to the participants according to the snowball sampling method. As a result, 294 survey forms suitable for analysis were obtained from the participants.

Research Model and Hypotheses

Iivari's (2005) model adapted from ISSM was used as a research model in the study (Figure 1).

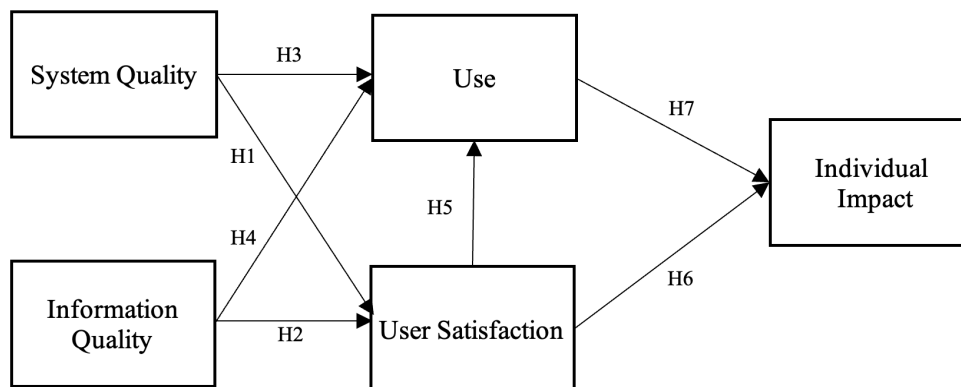


Figure 1. Research Model

Accordingly, the hypotheses to be tested within the scope of the research are as follows:

H1: There is a positive and significant relationship between system quality and user

satisfaction.

H2: There is a positive and significant relationship between information quality and user satisfaction.

H3: There is a positive and significant relationship between system quality and use.

H4: There is a positive and significant relationship between information quality and use.

H5: There is a positive and significant relationship between user satisfaction and use.

H6: There is a positive and significant relationship between user satisfaction and individual impact.

H7: There is a positive and significant relationship between use and individual impact.

Data Analysis Method

The data obtained within the scope of the research were analyzed using SPSS 23 and AMOS 23 programs. At this point, first of all, descriptive statistics were applied to the relevant data. Afterwards, the validity of the measurement model was tested with confirmatory factor analysis, and the reliability of the model was tested with the cronbach alpha test. Before testing the hypothesis, it was checked whether the data were normally distributed, and finally, the relevant hypotheses were analyzed using the structural equation modeling method.

Results

Description of the Sample

In this section, descriptive statistics of demographic variables such as gender, age, education level, income level, profession and experience of the participants are included. Demographic information of the participants can be seen in Table 2 below.

Table 2. Demographic Information on Participants

		Frequency	Percent (%)			Frequency	Percent (%)
Gender	Female	138	46,9	Profession	Professional Accountant (PA)	32	10,9
	Male	156	53,1		Certified Public Accountant (CPA)	161	54,8
Age	18-24	30	10,2		Accounting Office Personnel (AOP)	101	34,4
	25-34	88	29,9	Experience	0-5 years	80	27,2
	35-44	104	35,4		6-10 years	45	15,3
	45-54	54	18,4		11-15 years	53	18,0
	55 +	18	6,1		16-20 years	47	16,0
					20 years +	69	23,5
Education	High School	18	6,1	Income	Minimum Wage	46	15,6
	Associate Degree	15	5,1		Min. Wage-5.000 ₺	106	36,1
	Graduate	225	76,5		5.001 ₺ +	142	48,3
	Post Graduate	34	11,6				
	PhD	2	,7	Total		294	100

When the table is examined, it is seen that the ratios of men (53%) and women (46.9%) participating in the research are close. In terms of age groups, it is understood that about two-thirds of them are in the age range of 25-44, and in terms of education level, about 90% of them have graduate and above education. On the other hand, more than half of the subjects (54.8%) work as CPA, 34% as AOP, and 10.9% as PA. When the professional experiences of the subjects are examined, it is seen that the subjects with professional experience of up to 5 years constitute the most crowded group with a rate of 27%. On the other hand, the rate of subjects with more than 10 years of professional experience is 57.5%. When the income levels of the participants are evaluated, it is understood that about half of the subjects (48.3%) have a monthly income of more than 5,000 ₺ and the rest of them have a monthly income below this amount.

Validation

Validity in the study was carried out by confirmatory factor analysis. Accordingly, a measurement model in accordance with the theory was created by using the AMOS program. Then, the goodness of fit values of the first model were examined. At this stage, it was seen that only the SRMR criterion was within the acceptable value range, and the other criteria were below the expected values. For this reason, modification indices were used to bring the current goodness-of-fit values to acceptable limits. Among the suggested items, covariance was defined by considering their theoretical relationships. Finally, it was seen that the goodness of fit values reached an acceptable level (see Table 3).

Table 3. Goodness of Fit Values

	CMIN/DF*	CFI*	TLI*	IFI*	SRMR*	RMSEA*
Acceptance Values	≤ 3	≥ .90	≥ .90	≥ .90	≤ .10	≤ .08
First Model	3,336	,892	,881	,893	,0506	,089
Corrected Model	2,889	,914	,904	,914	,0532	,08

*CMIN/DF: Chi-square/Degree of Freedom, CFI: Comparative Fit Index, TLI: Turker-Lewis Index, IFI: Incremental Fit Index, SRMR: Standardized Root Mean Square Residual, RMSEA: Root Mean Square Error of Approximation

After the goodness of fit values of the measurement model reached the expected level, the factor loadings of the items were controlled. Table 4 shows the standardized regression coefficients. In CFA, these values represent factor loads. According to this, it is understood that all factor loads are above the acceptance limit of, 5 (Comrey & Lee, 2013, p. 243).

Table 4. Standardized Regression Coefficients

Item	Coefficient	Item	Coefficient
SQ1	,658	U2	,941
SQ2	,716	U3	,792
SQ3	,729	U4	,806
SQ4	,755	US1	,795
SQ5	,819	US2	,796
SQ6	,775	US3	,824
SQ7	,804	US4	,843
IQ1	,767	US5	,856

IQ2	,77	US6	,825
IQ3	,821	IM1	,858
IQ4	,886	IM2	,864
IQ5	,904	IM3	,927
IQ6	,864	IM4	,923
IQ7	,757	IM5	,874
U1	,966	IM6	,866

Reliability

After the validity analysis, Cronbach's Alpha test was applied to the items under the factors. The fact that the value reached as a result of the Cronbach's Alpha test is close to 1 indicates that the internal consistency of the items in the scale is high (George & Mallery, 2020, p. 236). In addition, Cronbach's Alpha test result greater than 0.7 indicates that the reliability of the relevant factor is at an acceptable level (Saruhan & Ozdemirci, 2018, p. 233). Table 5 shows the Cronbach's Alpha values of the factors in the scale. When the values are examined, it is seen that the Cronbach's Alpha values of all factors in the scale are above the expected level.

Table 5. Cronbach's Alpha Test Results

Factor Name	Number of Items	Cronbach's Alpha Value
System Quality	7	,899
Information Quality	7	,936
Use	4	,936
User Satisfaction	6	,929
Individual Impact	6	,956
Total	30	,964

Normality

The hypotheses within the scope of the study were tested with the structural equation modeling method. One of the assumptions of structural equation modeling is that the data show a normal distribution. Therefore, at this stage, it was checked whether the data were normally distributed. For this purpose, skewness and kurtosis values were checked. For a normal distribution, it is sufficient for the skewness and kurtosis values of the questions to be in the range of ± 2 (Garson, 2012, pp. 18–20; George & Mallery, 2016, p. 114). In this direction, the skewness and kurtosis values of the data in the study were examined. As a result of the analysis, it was seen that all values were within the range of ± 2 . Therefore, it can be said that the data are normally distributed.

Testing the Structural Model

Under this heading, the structural model will be tested. Goodness-of-fit values of the structural model are given in Table 6. When the values of goodness of fit are examined, it is seen that all values are between acceptable values. Therefore, it can be said that the structural model is compatible with the data.

Table 6. Goodness of Fit Values of the Structural Model

	CMIN/DF	CFI	TLI	IFI	SRMR	RMSEA
Acceptable Goodness of Fit Values	≤ 3	≥.90	≥.90	≥.90	≤ .10	≤ .08
Goodness of Fit Values of the Structural Model	2,890	,913	,904	,913	,0558	,080

After determining the compatibility of the structural model with the data, hypothesis tests were performed. While performing the hypothesis tests, the relationship between the factors (positivity and negativity) was checked and C.R. (Critical Ratio) values and p values were examined. In this context, hypotheses with a “p value” less than 0.05 and a “C.R. value” greater than 1.96 (if the relationship direction was also compatible) were supported. Accordingly, the results of hypothesis testing are given in Table 7.

Table 7. Hypothesis Test Results

Structural Relationships	Estimate	S.E.	C.R.	P	Result
H1: SQ → US	,669	,092	7,235	<0,001	Supported
H2: IQ → US	,194	,92	2,100	0,036	Supported
H3: SQ → U	-,418	,164	-2,556	0,011	Not Supported
H4: IQ → U	,368	,139	2,650	0,008	Supported
H5: US → U	,579	,129	4,502	<0,001	Supported
H6: US → IM	,506	,048	10,631	<0,001	Supported
H7: U → IM	,267	,037	7,191	<0,001	Supported

When Table 7 is examined, it is seen that system quality and information quality are in a positive and significant relationship with user satisfaction. Accordingly, H1 and H2 hypotheses were supported. From this table, it is seen that the most influential variable on user satisfaction is system quality with a CR value of 7,235. Although there is a significant relationship between system quality and use, it has been found that the direction of the relationship is negative. For this reason, H3 hypothesis was not supported. The relationship between information quality and user satisfaction with use is positive and significant. Therefore, H4 and H5 hypotheses were supported. In the context of these hypotheses, it is seen that the most influential factor on use is user satisfaction with a CR value of 4,502. Finally, it is seen that user satisfaction and use have a positive and significant effect on the individual impact. Accordingly, hypotheses H6 and H7 were supported. It was concluded that the factor affecting the individual impact factor the most was user satisfaction with a CR value of 10,631.

Discussion

In this section, a comparison of the findings obtained within the scope of the research with the literature is given. In this direction, the findings in the literature will be analyzed separately for each dependent variable in the model. As a result of the analysis, it was found that system quality (H1) and information quality (H2) had a positive and significant effect on user satisfaction. In most of the studies examining the effect of system quality and information quality on user satisfaction, similar results were obtained with this study (see for H1: Ali & Khan, 2010; Andriani et al., 2017; C. W. Chen, 2010; Chumsombat, 2014; Tjen et al., 2019; Veeramootoo et al., 2018; Zaidi, 2017 and for H2: Ali & Khan, 2010; Andriani et al., 2017; C. W. Chen, 2010; J. V. Chen et al., 2015; Chumsom-

bat, 2014; Floropoulos et al., 2010; Khayun & Ractham, 2011; Tran et al., 2020; Zaidi, 2017). A small number of other studies (see for H1: J. V. Chen et al., 2015; Floropoulos et al., 2010; Khayun & Ractham, 2011, and for H2: Tjen et al., 2019; Veeramootoo et al., 2018) did not find a significant relationship. As a result of the hypothesis tests, the H3 hypothesis, which deals with the relationship between system quality and use, was not supported; H4 and H5 hypotheses, which deal with the relationship between information quality, user satisfaction and, use, respectively, were supported. When evaluated for the H3 hypothesis, it is understood that these findings do not agree with the findings of other studies in the literature (Ali & Khan, 2010; Khayun & Ractham, 2011; Lu & Nguyen, 2016; Zaidi, 2017). For the H4 hypothesis, in the studies of Lu and Nguyen (2016) and Zaidi (2017), a significant relationship was found between information quality and use, in line with the findings obtained from this study; in the studies of Ali and Khan (2010) and Khayun and Ractham (2011), no significant results were obtained in the relationship between these factors. In the context of the H5 hypothesis, the only study that can be identified on e-tax services in which the relationship between user satisfaction and use is examined in the relevant literature is the studies of Khayun and Ractham (2011). The findings of the study are consistent with our study. According to the findings of the study, it is understood that user satisfaction (H6) and use (H7) have a positive and significant effect on the individual impact. When the studies in the literature are examined, it has been found that user satisfaction (H6) has a significant effect on the individual impact factor (see Ali & Khan, 2010; J. V. Chen et al., 2015; Khayun & Ractham, 2011). However, only in the study of Tjen et al. (2019) no significant results could be reached. In the study of Ali and Khan (2010), the effect of use (H7) on the individual impact was found to be significant, but in the study of Khayun and Ractham (2011) no significant results were obtained in this relationship.

Conclusion and Recommendations

All of the economic units in the society are in some way related to taxational procedures. It is expected from different taxpayer groups (in terms of criteria such as sociocultural structure, education level, income level, age) to perform similar tax procedures. E-tax applications, which will be developed by using today's technologies, can make complex tax legislation simple and understandable, and also eliminate implementation differences between units. Tax revenues are the most important revenue item in the budget. In this direction, e-tax applications will facilitate the collection of taxes and will make significant contributions to the country's economy. In order to obtain these contributions and benefits, e-tax services must be successfully implemented. Especially the success of optional systems such as ITO depends on the extent to which taxpayers adopt this system. Ultimately, systems that are not accepted and used sufficiently by taxpayers will waste resources, even if they have a strong infrastructure. Therefore, in the study, the answer to the question "What are the factors affecting the adoption and success of ITO by taxpayers?" has been sought. Findings show that there is a positive and significant relationship between system quality and information quality with user satisfaction, information quality and user satisfaction with use, and finally use and user satisfaction with individual impact at the point of adoption and success of the ITO. At this point, it has been observed that the most influential factor on user satisfaction is system quality, and the most influential factor on use and individual impact is user satisfaction. In that case, the improvements to be made in the system quality and information quality of the ITO will increase the satisfaction of the taxpayers, and the taxpayers will use the system more. In addition, the increase in satisfaction and use levels will increase the benefit of

taxpayers from the ITO system. The tax administration has brought a large number of e-tax services internally (G2E), externally (G2B, G2C), and inter-corporate (G2G) into use. In this respect, these initiatives of the administration also make important contributions to the development of e-government in our country. It is important to regularly follow the factors affecting the adoption and success of these applications from the perspective of users. At this point, the tax administration makes determinations about problems and solutions through satisfaction surveys and professional service procurement. However, it is thought that it would be more accurate to conduct these analyzes through personnel specialized in this field and with academic support when necessary. In this sense, it can be ensured that analysis units for e-tax services receive education on models focusing on the adoption and success of e-government. Thus, the failing aspects of the existing systems or the issues that negatively affect the use of taxpayers can be determined by scientific methods adoption and success of the system can be increased by making necessary improvements and it can be ensured that decision-makers can develop strategies for new applications.

References

- Ali, M., & Khan, Z. (2010). Validating IS Success Model : Evaluation of Swedish e-Tax System. Lund University.
- Andriani, F. D., Napitupulu, T. A., & Haryaningsih, S. (2017). The user acceptance factors of e-filing system in Pontianak. *J. of Theoretical and Applied Information Techn.*, 95(17), 4265–4272.
- Chang, I. C., Li, Y. C., Hung, W. F., & Hwang, H. G. (2005). An empirical study on the impact of quality antecedents on tax payers' acceptance of Internet tax-filing systems. *Government Information Quarterly*, 22(3), 389–410. <https://doi.org/10.1016/j.giq.2005.05.002>.
- Chen, C. W. (2010). Impact of quality antecedents on taxpayer satisfaction with online tax-filing systems— An empirical study. *Information & Management*, 47(5–6), 308–315. <https://doi.org/10.1016/j.im.2010.06.005>.
- Chen, J. V., Jubilado, R. J. M., Capistrano, E. P. S., & Yen, D. C. (2015). Factors affecting online tax filing - An application of the IS Success Model and trust theory. *Computers in Human Behavior*, 43, 251–262. <https://doi.org/10.1016/j.chb.2014.11.017>.
- Chumsombat, N. (2014). User evaluations service quality on e-tax filing satisfaction within the public sector. *17th IEEE International Conference on Computational Science and Engineering*, 930–935. <https://doi.org/10.1109/CSE.2014.187>.
- Compeau, D. R., & Higgins, C. A. (1995). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly*, 19(2), 189. <https://doi.org/10.2307/249688>.
- Comrey, A. L., & Lee, H. B. (2013). *A First Course in Factor Analysis*. In *A First Course in Factor Analysis*. Psychology Press. <https://doi.org/10.4324/9781315827506>.
- Cinar, M., Parlak, B., & Gurses, F. (2018). Adoption of e-government: A conceptual framework on theoretical models. *Akademik Bakış Uluslararası Hakemli Sosyal Bilimler Dergisi*, 65, 334–353. <https://dergipark.org.tr/tr/pub/abuhsbd/issue/36059/404878>.
- DeLone, W. H., & McLean, E. R. (1992). Information Systems Success: The Quest for the Dependent Variable. *Information Systems Research*, 3(1), 60–95. <https://doi.org/10.1287/isre.3.1.60>.

- DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9–30. <https://doi.org/10.1080/07421222.2003.11045748>.
- Demirel, D. (2004). E-Devlet ve Dünya Örnekleri. *J. of Turkish Court of Accounts*, 61, 83–118.
- Demirhan, Y. (2011). E-government policy and management in Turkish public administration. Ankara University, Graduate School of Social Sciences, Ankara.
- Dorr, S., Walther, S., & Eymann, T. (2013). Information Systems Success - A Quantitative Literature Review and Comparison. *Wirtschaftsinformatik Proceedings 2013*, 1813–1827. <https://aisel.aisnet.org/wi2013/113>.
- Floropoulos, J., Spathis, C., Halvatzis, D., & Tsipouridou, M. (2010). Measuring the success of the Greek Taxation Information System. *International Journal of Information Management*, 30(1), 47–56. <https://doi.org/10.1016/j.ijinfomgt.2009.03.013>.
- Garson, G. D. (2012). *Testing statistical assumptions*. In Statistical Associate Publishing. https://www.researchgate.net/profile/Jurandy_Penitente-Filho/post/What_is_the_best_statistical_method_to_correlate_immunohistochemistry_and_rt-pcr/attachment/59d61d9879197b807797853c/AS:271755204071424@1441802897825/download/assumptions.pdf.
- George, D., & Mallery, P. (2016). IBM SPSS Statistics 23 Step by Step: A Simple Guide and Reference. In IBM SPSS Statistics 23 Step by Step (14th ed.). Routledge. <https://doi.org/10.4324/9781315545899>.
- George, D., & Mallery, P. (2020). IBM SPSS Statistics 26 Step by Step A Simple Guide and Reference. In Routledge. Routledge. https://s3-eu-west-1.amazonaws.com/s3-euw1-ap-pe-ws4-cws-documents.ri-prod/9780367174354/SPSS_Statistics_26_Step_by_Step_Answers_to_Selected_Exercises.pdf.
- GIB. (2021). 2021 Yılı Performans Programı. https://www.gib.gov.tr/sites/default/files/fileadmin/yayinlar/Gib_2021_Performans_Programi.pdf.
- Gurses, F. (2021). Kamu Kurumlarında Bilişim Teknolojilerinin Benimsenmesi ve Başarısı Ölçeğinin Geliştirilmesi: Geçerlilik ve Güvenilirlik. In S. Karabulut (Ed.), *Terrori ve Uygulamada Kamu Yönetimi ve Siyaset Alanında Yaşanan Bilimsel Gelişmeler* (1st ed., pp. 207–226).
- Hu, P. J., Chau, P. Y. K., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the Technology Acceptance Model Using Physician Acceptance of Telemedicine Technology. *Journal of Management Information Systems*, 16(2), 91–112. <https://doi.org/10.1080/07421222.1999.11518247>.
- Khayun, V., & Ractham, P. (2011). Measuring e-Excise Tax Success Factors: Applying the DeLone. *2011 44th Hawaii International Conference on System Sciences*, 1–10. <https://doi.org/10.1109/HICSS.2011.303>.
- Iivari, J. (2005). An empirical test of the DeLone-McLean model of information system success. *Data Base for Advances in Information Systems*, 36(2), 8–27. <https://doi.org/10.1145/1066149.1066152>.
- Lu, N. L., & Nguyen, V. T. (2016). Online Tax Filing—E-Government Service Adoption Case of Vietnam. *Modern Economy*, 07(12), 1498–1504. <https://doi.org/10.4236/me.2016.712135>.

- Masunga, F. J., Derefa, M. J., Mapesa, H. J., Myava, J. E., Mwakibete, A. N., & Kiria, J. S. (2021). The Role of Mediating Effects of User Satisfaction and Behavioural Intention on the Influence of the Electronic Tax System on Tax Compliance Behaviour : An application of Bootstrapping Technique. *The International Journal of Applied Business*, 5(2), 137–154.
- Mathieson, K. (1991). Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior. *Information Systems Research*, 2(3), 173–191. <https://doi.org/10.1287/isre.2.3.173>.
- Nguyen, T. D., Nguyen, T. M., & Cao, T. H. (2015). Information Systems Success: A Literature Review. In T. Dang, R. Wagner, J. Küng, N. Thoai, M. Takizawa, & E. Neuhold (Eds.), *Future Data and Security Engineering. FDSE 2015. Lecture Notes in Computer Science*, cilt 9446 (pp. 242–256). Springer, Cham. https://doi.org/10.1007/978-3-319-26135-5_18.
- Ozlu, T. C. (2002). eAvrupa + Avrupa Bilgi Toplumu ve Türkiye. *Ankara Review of European Studies*, 1(2), 153–169. https://doi.org/10.1501/Avraras_0000000003.
- Petter, S., DeLone, W., & McLean, E. R. (2013). Information Systems Success: The Quest for the Independent Variables. *Journal of Management Information Systems*, 29(4), 7–62. <https://doi.org/10.2753/MIS0742-1222290401>.
- Saruhan, S. C., & Ozdemirci, A. (2018). *Bilim, Felsefe ve Metodoloji (5th ed.)*. Beta Basım ve Yayın Dağıtım.
- Sharma, R., & Mishra, R. (2014). A Review of Evolution of Theories and Models of Technology Adoption. *A Review of Evolution of Theories and Models of Technology Adoption*, 6(2), 17–29.
- Sobaci, M. Z. (2012). E-Devlet: Kuramsal Bir Bakış. In M. Z. Sobaci & M. Yıldız (Eds.), *E-Devlet: Kamu Yönetimi ve Teknoloji İlişkisinde Güncel Gelişmeler (1st ed., pp. 3–37)*. Nobel.
- Sahin, A., & Orselli, E. (2003). E-Devlet Anlayışı Sürecinde Türkiye. *The Journal of Selcuk University Social Sciences Institute*, 9, 343–356.
- Tjen, C., Indriani, V., & Wicaksono, P. T. (2019). Prior experience, trust, and is success model: A study on the use of tax e-filing in Indonesia. In *LPEM-FEBUI Working Paper (Issue 30)*.
- Tran, K. T., Nguyen, P. V., Nguyen, Y. T., & Do, N. H. (2020). Assessment of organisation satisfaction with the electronic tax system in Vietnam. *International Journal of Innovation, Creativity and Change*, 11(12), 75–97.
- Urbach, N., & Muller, B. (2012). The Updated DeLone and McLean Model of Information Systems Success. In Y. K. Dwivedi, M. R. Wade, & S. L. Schneberger (Eds.), *Information Systems Theory: Explaining and Predicting Our Digital Society (pp. 1–18)*. Springer. https://doi.org/10.1007/978-1-4419-6108-2_1.
- Veeramootoo, N., Nunkoo, R., & Dwivedi, Y. K. (2018). What determines success of an e-government service? Validation of an integrative model of e-filing continuance usage. *Government Information Quarterly*, 35, 161–174. <https://doi.org/10.1016/j.giq.2018.03.004>
- Yıldız, M., Sadioglu, U., & Babaoglu, C. (2012). Yönetmelik Perspektifinden Kamu Yönetiminde Teknoloji Kullanımı: Osmanlı İmparatorluğu'nda Ulaştırma Teknolojileri

Kullanımı Örneği (1823-1923). In M. Z. Sobaci & M. Yildiz (Eds.), *E-Devlet: Kamu Yönetimi ve Teknoloji İlişkisinde Güncel Gelişmeler* (1st ed., pp. 65–84). Nobel.

Zaidi, S. F. H. (2017). *E-Government Services Effectiveness Evaluation Framework (E-GEEF) A Case Study of Indian E-tax Service*. London Metropolitan University.

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