

Net Benefit on E-Invoice Implementation: Applying the Delone & McLean Information Systems Success Model

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Abstract. E-Invoice is one of the preeminent products of E-Government. It is an application used to make electronic tax invoices and connected to an online website to report VAT. As a tax collection and reporting instrument, E-Invoice is believed to have escalated the government's capability of tax collection since it is more convenient, integrated, transparent, fast, effective, and efficient. It is cutting a lengthy tax administration procedure into a more comprehensive and efficient way. Therefore, the development and adoption of this system are crucial for various countries around the world. Hence, this study aims to analyze the success factor of E-Invoice using Delone and McLean's Information System Success Model. 121 samples were collected from respondents who are experienced in using the E-Invoice. SEM PLS method is used to analyze the data. The results show that the E-Invoice system is not fully integrated, thus affecting the outcome of user satisfaction. Overall, system quality and information quality affect intention to use significantly and positively, while service quality affects intention to use positively but not significantly. Then user satisfaction affects Net Benefit significantly and positively. In the end, the adoption of E-Invoice accelerates the processing of tax invoices and VAT reporting, providing convenience, effectiveness, and efficiency to users.

1 Introduction

Taxes have long been the primary source of income for many developing countries, including Indonesia. Based on the Indonesian Ministry of Finance data, the percentage of tax revenue on total Indonesian income from 2018 to 2020 is 69.2%, 72.7%, and 72.7%, respectively. Unfortunately, despite knowing this fact, many taxpayers are still reluctant to pay their tax obligations fairly. This can be seen from the low tax ratio in Indonesia, which shows that the government's ability to collect taxes from the total economy is still low. Based on the [1], Indonesia became one of the countries with the lowest tax-to-GDP ratio at only 11.5%, this value is still lower than the tax ratio of neighboring countries such as Malaysia (12.2%) and Singapore (13.2%), and even far below the OECD average at that time which was 34.3%. Moreover, the statistic showed a straight horizontal line indicating no significant improvement in the Indonesian tax ratio from 2007 to 2019 [2]. Coupled with the fact that during the last five years (2016-2020), the realization of tax revenues has never met or exceeded the target of the state budget and expenditures (APBN), which are 83.48%, 91.23%, 93.86%, 86.55%, and 91.50% respectively.

Escalating state capacity to gather taxes is a major concern for governments worldwide [3]. To overcome this issue, it is necessary to carry out tax reformation.

One of them is upgrading the existing tax administration system to a more effective and efficient system using the most innovative technologies. The term “E-Government” is usually used to describe the use of advanced technology in government information systems. One of the preeminent products of E-Government is E-Invoice. According to the regulation of the Directorate General of Taxation (DGT) number PER-16 PJ 2014, E-Invoice is an electronic tax invoice made through an application or an electronic system determined and/or provided by DGT. The purpose of E-Invoice is to facilitate taxpayers with an internet-based system for recording and reporting their VAT, and for recording their tax invoices. This method will reduce operational costs (e.g. printing costs, shipping charges), fewer administrative errors, and the elimination of postal delays and manually intensive workflows [4]. It is also more flexible, faster, and transparent since it also records E-invoices from vendors. However, there are still issues in the implementation of the system, such as technical issues and adjustments by taxpayers, as well as connection issues [5].

The objective of this paper is to analyze the net benefit of E-Invoice implementation using Delone and McLean's Information System Success Model (D&L IS Success Model). Previous researchers have widely used this model to measure the success of variegated information systems, including e-tax [6, 7]. The D&L IS Success Model uses System Quality, Information

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Quality, and Service Quality as the main variables to measure the Net Benefit of IS.

Research related to E-Invoice has been carried out several times, but the focus of each study is different. Some of them highlight the Host-to-Host e-Invoices on a firm [5], E-Invoice adoption at a State-Owned Firm [7], and cloud-based e-invoicing in Taiwan [8]. In this paper, we focus on the implementation of E-Invoice 3.0 and Web-based E-Invoice in Indonesia. This object was chosen because it best represents the E-Invoices system in Indonesia at the time this research was conducted, which includes the latest updates regarding the integrated system of tax invoices (Prepopulated) and the latest regulations regarding taxable entrepreneur's obligation to report VAT online through web-based E-Invoice (web-efaktur.pajak.go.id). To overcome the limitation of previous research, we also expanded the subject of research to users of E-Invoices from various sectors such as tax consultants, tax staff, accountants, and entrepreneurs. Hence the study can provide more objective and thorough results regarding the implementation of E-Invoice.

1.1 Objectives

The aims of this research are as follows: 1) evaluating e-invoice implementation in Indonesia; 2) finding the net benefits of implementing e-invoice in Indonesia; 3) highlighting issues from e-invoice in Indonesia (if any); 4) provide recommendations and solutions to existing issues regarding e-invoice; 5) provide advice to researchers, government, and system developers of the e-invoice.

2 Literature Review

According to the theory of duality of structural, information systems continuously influence and are influenced by human action, and may stimulate organizational change. Information technology has been used as a tool to facilitate human. The government, without exception, is also pushed to undergo digital transformation in developing of its services, for example, by launching E-Government products such as E-Invoice.

2.1 E-Invoice

Directorate General of Taxation (DGT) defined E-Invoice as an electronic tax invoice made through an application or an electronic system provided by DGT. It is official evidence of Value Added Tax (VAT) collection on taxable goods and services. Previous researchers have highlighted the important benefits of E-Invoice utilization in VAT collection and administration. This system was considered more effective and efficient than the paper-based manual system, because it reduces operational costs (e.g. printing costs, shipping charges), mitigates administrative errors, and eliminates postal delays and manually intensive workflows [4]. Others have also proven that the adoption of advanced information

technology in the tax administration system improves tax compliance and enforcement by simply alleviating asymmetric information through an integrated system. It reduces tax cheating planned by both transaction parties [9, 10].

However, despite its advantages, maximizing the potential of E-Invoice is still debated, especially in developing countries. Infrastructure limitations cause connectivity issues such as system down, page unloading, and system errors. There are also trust and transparency issues towards a government which are also important points in taxpayer compliance [5, 11] also stated that there were technical and adjustment issues when using the system, so they suggested that the DGT improve the education of the E-Invoice system.

2.2 DeLone & McLean Information System Success Model

Various approaches, such as DeLone & McLean IS Success Model, Technology Acceptance Model (TAM), the Innovation Diffusion Theory (IDT), the unified theory of acceptance and the use of technology (UTAUT), or Theory of Planned Behavior (TPB), has been used to evaluating E-Invoice worldwide [7, 5, 8, 11]. In this study, we used D&M IS Success model as a conceptual approach for measuring the net benefit of E-Invoice implementation in Indonesia. D&M IS Success model is one of the most prominent models in IS research. It has become a benchmark for the specification and justification of dependent variable(s) in many information systems studies [12, 13]. In the early development of this model in 1992, D&M devised a model of interrelationships between 6 dimensions: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact [14]. Many empirical studies have validated this original model, but not a few have challenged this model and suggested improvements to the original model. With this in mind, this model was developed and updated based on the evaluation of many factors after ten years [15]. In this revised model, they recommended adding "service quality" as an important dimension of IS Success. They also collapse the "individual impacts" and "organizational impact" into "net benefits" as those two may lead to confusion whether the results are good or bad. They believe thus "net benefit" is probably the most accurate descriptor of the final variable. The net benefit is defined as the effect of information systems on the success of individuals, organizations, and groups, thus enabling researchers to apply the D&M model to the appropriate level of analysis. Therefore, we proposed this model as our research model (see figure 1 for more details), as we believe that this model has a better fit for measuring E-Invoice.

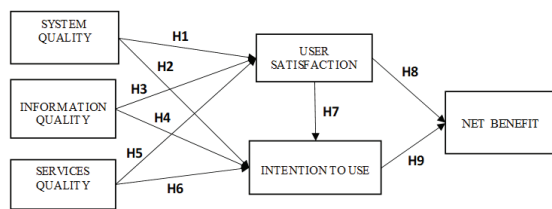


Fig. 1. Research Model

2.3 System Quality, Use, and User Satisfaction

System quality in the Delone and McLean model is the ability of the system to provide information according to user needs, determine the effectiveness of IS, and determine the extent to which the system can be used without certain disturbances, such as the website or application being down when many users have access to the system which can affect the system. The level of user satisfaction is strongly influenced by the perceived quality of the system [14]. Therefore, this study proposed several indicators, including data accuracy, the ease of learning, the ease of use, flexibility, integration, reliability, response time, system features, and system accuracy to represent system quality variables.

Multiple previous studies have verified that the quality of the system has a positive influence on user satisfaction [12, 16, 7]. In addition, another study on E-Excise also found that system quality significantly affects intention to use the system [17]. Therefore, the following hypotheses are proposed:

H₁. System Quality will significantly affect the satisfaction of E-Invoice users.

H₂. System Quality will significantly affect intention to Use E-Invoice.

2.4 Information quality, use, and user satisfaction

Information quality has an important role in information system success [12]. Users will expect many things such as the accuracy of the data presentation, the speed and completeness of the data presentation, as well as the usefulness of the data presented. This expectation is what later becomes the standard that determines user satisfaction. Therefore, building a high-level information quality is appropriate for IS success [18], [19, 20]. From there, we propose the key indicators to represent System quality: accuracy, format, timeliness, completeness, understandability, and usefulness.

Various studies have been conducted to determine the effect of information quality on user satisfaction and intention to use the system. Some of them have proven that information quality positively influences user satisfaction and intention to use [13, 6, 21, 12]. Therefore, the following hypotheses are proposed:

H₃. Information Quality will significantly affect the satisfaction of E-Invoice users.

H₄. Information Quality will significantly affect intention to use E-Invoice.

2.5 Service quality, Intention to use, and User satisfaction

Information and system quality have been widely used and validated as strong variables to measure IS effectiveness, but these variables focus on IS products rather than services. Thus, there is a risk that IS researchers will mismeasure IS effectiveness if they do not include “quality of service” in their IS assessment package [22]. The SERVQUAL measuring instrument is used to measure service quality, which consists of 5 dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy [15].

In this study, to measure the service quality of E-invoice in Indonesia, we use 4 indicators: assurance, reliability, responsiveness, and IS training [22]. Assurance indicators are chosen to determine whether IS employees have sufficient knowledge to answer user’s questions. Reliability is used to measure whether information system is reliable. Responsiveness is used to measure whether IS employees provide prompt service to users. And lastly, IS training is also added to the indicators to measure how well IS providers are in producing information for their products, for example, by making manual books, video tutorials, etc., as well as providing support for the end-users [23].

Previous studies have validated the existence of a positive relationship between service quality and user satisfaction in the system [24, 25, 12]. Furthermore, consistent findings confirm that service quality has a major influence on behavioral intentions in using the system [26, 27, 24]. Other research also stated that the public’s value of e-government is highly dependent on the level of service quality provided by the organization [28]. As a result, the following hypotheses are proposed:

H₅. Service Quality will significantly affect the satisfaction of E-Invoice users.

H₆. Service Quality will significantly affect intention to use E-Invoice.

2.6 Net Benefit, Use, and User Satisfaction

The net benefit is the result or uses felt by individuals and organizations after implementing an information system that impacts the quality of user performance both as individuals and organizations. Net benefit is essential in measuring the success of an information system since it captures the balance of the whole system. Therefore, it plays the most important role and cannot be separated from measuring system quality and information quality [15].

This study uses productivity and usefulness indicators to determine whether users feel the net benefits from the system. The increased intensity of use indicates a perceived benefit, such as an enhancement in productivity, then positively affects user interest and satisfaction [16]. Previous studies also supported the idea that user satisfaction positively affects intention to use, and intention to use positively impacts the net benefit [6, 16]. Thus, the following hypothesis is proposed:

H₇. User Satisfaction would significantly affect intention to use E-Invoice.

- H₈. User Satisfaction would significantly affect the net benefits of E-Invoice.
 H₉. Intention to Use would significantly affect Net Benefit of E-Invoice.

3 Methods

This research adopts DeLone and McLean IS success model, which aims to determine the Net Benefit of E-Invoice implementation in Indonesia. In the first stage of preparation, a field study is carried out to build research ideas, objectives, background problems, and other information needed in this research. This field study includes a theoretical study, literature review, and understanding of the problems and challenges in this field with the help of E-Invoice's user. Then the hypothesis was designed based on the updated DeLone and McLean IS success constructs. This model measure IS success through 6 dimensions: information system, system quality, service quality, users, user satisfaction, and net benefits. Each construct is then measured using selected indicators that are considered the most suitable for the E-Invoice system in Indonesia. This indicator is then used as the basis for making questionnaire questions. Finally, the questionnaire was distributed online using the E-Form to E-Invoice users, including tax consultants, tax staff, and accountants. The measurement of indicators in the questionnaire uses a Likert scale with as many as six measurements starting from strongly disagreeing to strongly agreeing. Then, the primary data were analyzed using SEM-PLS (Structural Equation Modeling with the Partial Least Squares) method through SmartPLS (ver 3.2.9) application.

4 Data Collection

Data is collected using an electronic questionnaire and distributed to E-Invoice users. This research questionnaire has successfully obtained data from 121 respondents who have experience using web-based E-Invoice and E-Invoice application. The majority population is women (61.2%) and men (38.8%) from different professions: accountants (20.7%), tax consultants (24%), tax officers (19%), entrepreneurs (14%), and others (22.3%). Respondents of this study have experience in using the E-Invoice application for more than three years (19.8%), 1-3 years (50.4%), less than 1 year (29.8%), and experience in using web-based E-Invoice for more than three years (19%), 1-3 years (47.1%), and less than one year (33.9%).

5 Results and Discussion

We obtained the primary data by distributing electronic questionnaires to E-Invoice users in Indonesia, especially in Jakarta and Tangerang. We started sending out the questionnaires on March 12, 2022 and closed it on March 23, 2022. From there, 121 respondents were obtained with statistical descriptions as shown in Table 1.

Table 1. Descriptive analysis, Average Variance Extracted (AVE), and reliability result

Variables	M e a n	S D e v	A V E	C R	C A
System Quality (SYQ)			0,816	0,947	0,925
SYQ1 : E- Invoice systems are easy to learn	5,512	0,762			
SYQ2 : The Web E-Invoice system accurately records all the data inputted by users in the E-Invoice application	5,622	0,719			
SYQ3 : E-Invoice systems are trustworthy and reliable	5,628	0,706			
SYQ4 : The E-Invoice Web and application features ease users job in creating tax invoice and VAT reporting.	5,577	0,699			
Information Quality (IQ)			0,874	0,954	0,928
IQ1 : The output information is correctly generated or displayed in accordance with the data inputted into the system.	5,645	0,703			
IQ2 : The output material and design help the user to understand the information	5,579	0,758			
IQ3 : The output information is available at a time suitable for its use	5,636	0,692			
Service Quality (SEQ)			0,914	0,942	0,918
SEQ1 : Hotline or helpdesk is responsive in helping users solve their problems.	4,727	0,891			
SEQ2 : Helpdesk knowledge provides security for users	4,909	0,833			
SEQ3 : Helpdesk is capable in providing accurate and reliable services	4,919	0,888			

	0 9	0 3			
SEQ4 : Its is easy for users to find learning media related to the technical use of E-Invoice web and application	5 , 4 0 5	0 , 8 7 7			
User Satisfaction (US)			0 , 8 9 7	0 , 9 7 0	0 , 9 5 3
US1 : Users are satisfied with the system quality of E-Invoice	5 , 4 8 8	0 , 8 0 4			
US2 : Users are satisfied with the information quality of E-Invoice	5 , 4 8 8	0 , 8 0 4			
US3 : Overall, users are satisfied with the performance of the E-Invoice web and application	5 , 4 4 6	0 , 8 7 1			
Intention to Use (ITU)			0 , 8 6 1	0 , 9 4 9	0 , 9 1 9
ITU1 : Users regularly use the E-Invoice application to create tax invoices and use E-Invoice Web to report the VAT	5 , 6 0 3	0 , 7 2 1			
ITU2 : Users often use the E-Invoice application to create tax invoices and use E-Invoice Web to report the VAT	5 , 6 4 5	0 , 6 9 1			
ITU3 : Users are willing to reuse the E-Invoice web and application	5 , 5 8 7	0 , 7 6 8			
Net Benefit (NB)			0 , 8 0 2	0 , 9 7 2	0 , 9 6 2
NB1 : Utilization of E-Invoice web and application, help users to be more productive	5 , 5 3 7	0 , 8 2 4			
NB2 : Utilization of E-Invoice web and application improve a user's working performance	5 , 5 9 5	0 , 7 8 8			
NB3 : Utilization of E-Invoice web and application simplify the user's work	5 , 5 9 5	0 , 8 0 9			

NB4 : Utilization of E-Invoice web and application help user save more time and money	5 , 5 4 5	0 , 8 4 3			
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Through SEM-PLS statistical tests, we obtained results showing that indicators representing the SYQ, IQ, US, ITU, and NB variables have an average value of more than 5.4 points. Compared to the maximum score of 6 points, this indicates that respondents tend to agree with the statements in the questionnaire. As for service quality, the average value is slightly lower than other variables, ranging from 4.7 to 4.9 points with a minimum value of 2 and a maximum value of 5. This shows that respondents do not totally agree, but still tend to agree with the statements. The standard deviation shown by each indicator in each variable has a value of 0.69 to 0.89, which means that the resulting data distribution is quite spread out from the average value.

5.1 Measurement Model Evaluation

The outer loading in table 3 shows that all indicators have been able to measure the latent variables well and tend to have high validity as they all scored more than 0.7. The average variance extracted (AVE) value is said to be good if it has at least a value of 0.5, which indicates that a latent variable is able to explain more than half the variance of its indicators on average [29], [30]. The AVE value in table 1 shows a high value ranging from 0.8 to 0.9, which means that each variable has met good convergent validity.

The Fornell-larcker criterion shows the correlation between a variable and the variable itself and a variable with other variables, while Cross Loading shows the correlation between the indicator and the indicator itself and the relationship between the indicator and the other indicators. A construct is said to have good discriminant validity if the value of the correlation between the variable or indicator and the variable or indicator itself is greater than the correlation between the variable or indicator and other variables or indicators. If the correlation between a variable or indicator and itself is not strong, it is said that the variable or indicator does not have a positive or real relationship with other variables or indicators even though its value is greater than the variable or indicator itself. As reported in table 2 and table 3, all the criteria (i.e. Fornell-Larcker, Cross loading) were met, thus it can be verified that the constructs are valid. Table 1 shows the Cronbach's Alpha and Composite reliability values for each latent variable, values more than 0.9 (> 0.7), which indicates good and high reliability.

Table 2. Fornell-Larcker Criterion

	SYQ	IQ	SEQ	ITU	US	NB
SYQ	0.903					
IQ	0.872	0.935				
SEQ	0.713	0.769	0.896			
US	0.801	0.841	0.824	0.956		
ITU	0.862	0.863	0.746	0.820	0.928	
NB	0.804	0.861	0.789	0.900	0.806	0.947

Table 3. Outer Loading & Cross Loading

	SYQ	IQ	SEQ	US	ITU	NB
SYQ1	0.895	0.742	0.634	0.732	0.758	0.681
SYQ2	0.891	0.814	0.621	0.680	0.816	0.697
SYQ3	0.912	0.824	0.645	0.741	0.774	0.758
SYQ4	0.916	0.771	0.677	0.743	0.767	0.767
IQ1	0.812	0.935	0.719	0.760	0.825	0.791
IQ2	0.827	0.945	0.776	0.821	0.818	0.839
IQ3	0.807	0.925	0.659	0.778	0.778	0.785
SEQ1	0.507	0.586	0.887	0.701	0.520	0.597
SEQ2	0.672	0.701	0.915	0.735	0.702	0.715
SEQ3	0.605	0.682	0.912	0.711	0.647	0.719
SEQ4	0.738	0.762	0.868	0.792	0.769	0.773
US1	0.777	0.808	0.793	0.961	0.786	0.868
US2	0.757	0.797	0.790	0.960	0.761	0.865
US3	0.764	0.808	0.780	0.947	0.805	0.848
ITU1	0.784	0.758	0.691	0.759	0.934	0.716
ITU2	0.830	0.796	0.658	0.702	0.936	0.715
ITU3	0.786	0.845	0.724	0.817	0.914	0.807
NB1	0.756	0.787	0.719	0.862	0.723	0.945
NB2	0.744	0.844	0.753	0.879	0.777	0.960
NB3	0.765	0.822	0.758	0.809	0.768	0.943
NB4	0.780	0.809	0.761	0.857	0.785	0.941

5.2 Structural Model Evaluation

To evaluate the structural model of this study, we conducted several tests. The R-square test aims to determine how much the exogenous variable influences the endogenous variable. The R² results show that SYQ, IQ, and SEQ affect user satisfaction by 0.795 (79.5%), affect intention to use by 0.812 (81.2%), and affect net benefit by 0.824 (82.4%). Then the rest of US (20.5%), ITU (18.8%), and NB (17.6%) were influenced by other factors which were not used in this study.

The path coefficients value shows the direction of the correlation between variables in the construct. A positive value (>0) indicates a positive correlation, while a negative value (<0) indicates a negative correlation. The result on table 4 shows all values are above zero, so it can be concluded that the correlation between variables in the constructs is positive.

Effect size of the model was measured using f² test proposed by [31]. The results (see table 4) show that the effect of SYQ → US, IQ → ITU, SEQ → ITU, US → ITU, ITU → NB are small (f² ≥ 0.01). The effect of SYQ → ITU, and IQ → US are moderate (f² ≥ 0.09), while SEQ → US, and US → NB is showing a large effect (f² ≥ 0.25). Bootstrapping analysis was performed using 5000 subsamples to determine the significance of the model. The t-statistics value must be more than 1.96, to be said to be significant. Therefore, the effect of SYQ on ITU, IQ on US, IQ on ITU, SEQ on US, and US on NB are significant (T-Stat >1.96), while the effect of

SYQ on US, SEQ on ITU, US on ITU, ITU on NB are not significant.

Based on hypothesis results (Table 4), it is known that in hypothesis 1, the SYQ has an influence (no significant effect) on the US. This is most likely because the data entered in the E-Invoice application has not been fully integrated with the Web E-Invoice system, system error and lag. Hence, hypothesis 1 not supported, because users are not very satisfied with the SYQ provided by the E-Invoice. The same result is also shown in another research on e-excise tax [17], while others didn't agree with this result [16, 7]. However, hypothesis 2 shows the opposite outcome, SYQ significantly affects ITU. The results are in line with [17]. This result most likely arises because of the mandatory system of E-Invoice adoption in Indonesia, where the government requires all taxable entrepreneurs to make electronic tax invoices and report VAT online. This idea is also supported by [32], he mentions that in a mandatory system, ITU is not a suitable variable to measure other variables.

Meanwhile, the IQ of E-Invoice has met user needs, it significantly affects both US and ITU, thus hypotheses 3 and 4 are supported. These results are consistent with previous studies [13, 6, 12]. On the other hand, hypothesis 5 shows that the SEQ significantly affects US, but has no significant effect on the ITU (hypothesis 6). Since there are no specific service facilities handling E-Invoice, contacting the helpdesk might be challenging for users. This limitation makes inconveniency to the user. Thus hypothesis 5 is reasonable. This result also in line with previous studies [24, 25, 12]. However, hypothesis 6 is not supported. It was reasonable since the system's adoption is mandatory, thus SEQ not significantly affects ITU. This result are consistent with previous study [7], but inconsistent with others studies [26, 27, 24]. This reason also applies to hypothesis 7, US not significantly affects ITU. This result is in line with [32].

Since SYQ is sufficient and IQ meets the needs of E-Invoice users, this affects user satisfaction and indirectly affects the perceived NB. Thus hypothesis 8 is supported. The result is consistent with other studies [6, 16, 7]. This study shows that ITU has no significant effect on NB, therefore, hypothesis 9 is not supported. This result is in line with [33] study, which mentioned that the relationship between ITU and NB is not statistically significant. Overall, users are satisfied with the facilities provided by the government, namely the E-Invoice, both application and the website, and find it helpful in facilitating the user's work.

Table 4. Hypothesis Result

Hypothesis	f ²	Effect Size	Path Coef.	T Stat.	P Values	Conclusion
H1. SYQ → US	0.051	Small	0.210	1.618	0.106	Not Supported
H2. SYQ → ITU	0.180	Moderate	0.389	3.720	0.000	Supported

H3. IQ -> US	0.12	Mod erate	0.342	2.479	0.013	Support ed
H4. IQ -> ITU	0.089	Smal l	0.308	2.011	0.044	Support ed
H5. SEQ -> US	0.333	Larg e	0.412	5.449	0.000	Support ed
H6. SEQ -> ITU	0.011	Smal l	0.081	0.878	0.380	Not Support ed
H7. US -> ITU	0.036	Smal l	0.182	1.252	0.211	Not Support ed
H8. US -> NB	0.992	Larg e	0.731	4.632	0.000	Support ed
H9. ITU -> NB	0.079	Smal l	0.206	1.285	0.199	Not Support ed

6 Conclusion

The development of E-Government has become a focus for every country. Various studies were conducted to evaluate the existing system or to find a new system. Previous literature on e-government mostly focused on the adoption of e-filing in Indonesia. This paper attempts to explain more specific derivatives, which is E-Invoice and VAT Online reporting. Since vat online reporting became mandatory in October 2020. Further research is needed to determine the advantages and disadvantages of its adoption and determine which parts need improvement, kept, or discarded. The result shows a significant and positive effect of information quality and service quality on user satisfaction, and an insignificant positive influence on system quality on user satisfaction. System quality and information quality affect intention to use significantly and positively, while service quality affects intention to use positively but insignificant. Then user satisfaction affects Net Benefit significantly and positively.

This paper aims to determine the net benefit of E-Invoice implementation in Indonesia and highlight any issues regarding the system's adoption. It can be concluded that the major advantage of E-Invoice lies in the quality of the information produced, it has met user expectations in terms of accuracy of the data, completeness, and easy to understand. Overall E-Invoice is user-friendly; the developer has inserted a guidebook in the application. It is effortless to find both written and audio-visual (video) user guides on the internet. The E-Invoice Website has been designed as concise as possible with only 3 menus: profile, SPT monitoring, and prepopulated. For the rest which is the quality of systems and services, some improvements are still needed. There are several parts of the E-Invoice application that have not been fully integrated with the Website, one of them is the payment code number (NTPN), the system is also not entirely stable sometimes, it is still down in high demand. For example, near the deadline of VAT reporting. Regarding the quality of service, it also still needs to be improved, the helpdesk is expected to be faster in responding to user calls, currently, a high effort is required to connect with the helpdesk.

Although there are pros and cons regarding E-Invoice adoption in Indonesia, in the end, users still get the positive net benefit of this adoption. Users find that E-Invoice can simplify their work in terms of time, effort, and cost. It helps them to become more productive. So basically, E-Invoice is very useful. Despite knowing that fact, as an information system technology, development still needs to be done to increase user satisfaction and interest on the system. Through this study, we suggest that developers improve system performance so that the system can run smoothly even in the peak season. Developers can also enhance the quality of services by creating new features specifically for E-Invoice users to contact the helpdesk. It could be in the form of live chat, virtual meeting rooms, specific call centers for E-Invoices, etc. In addition, the government also needs to increase public awareness of taxes and E-Invoices, with the hope that later E-Invoices can be fully adopted in Indonesia. The utilization of information systems will facilitate data collection, reduce fraud, increase transparency, and save time and costs. This can transform lengthy tax administration procedures into shorter, more effective, and efficient processes.

The limitations in this study lie in the number of samples used, the relatively short research period, the survey location which only covers Jakarta and Tangerang, so it may not represent Indonesia as a whole. Therefore, this result cannot be generalized. Further research is still needed. Researchers can use a larger sample covering a broad demographic with more prolonged research and survey period. They can use different approaches such as the UTAUT Model, TAM, UMEGA, or create a new approach by combining those models.

References

- [1] OECD, *Revenue Statistics in Asian and Pacific Economies 2020*. Paris: OECD Publishing, 2020.
- [2] OECD, *Revenue Statistics in Asia and the Pacific: Key findings for Indonesia*. Paris: OECD Publishing, 2021.
- [3] D. Pomeranz, Vila-Belda, and Jose, "Taking state-capacity research to the field: insights from collaborations with tax authorities," *Annu. Rev. Econom.*, vol. 11, pp. 755–781, 2019.
- [4] S. Haq, "Electronic Invoicing gains as adoption barriers fall," *Financ. Exec.*, vol. 23, no. 7, pp. 61–63, 2007.
- [5] N. K. Farrasati and Murwendah, "Smart Governance on Taxation: Tax Data Integration through Host-to-Host e-Invoices towards Collaborative Compliance in Indonesia," *Int. Conf. ICT Smart Soc.*, pp. 1–8, 2020.
- [6] S. Millenia, T. Kristianti, and L. Dhia Prawati, "The Success Factors of e-Filing Tax Reporting in Indonesia: An Empirical Analysis Using the DeLone & McLean IS Success Model," *2022 5th Int. Conf. Comput. Manag.*

- Bus.*, pp. 90–97, 2022.
- [7] D. Amalina and E. Suryani, “Evaluating the Success of E-Invoice Implementation at a State-Owned Enterprise Using DeLone & McLean IS Success Model,” *IPTEK J. Proc. Ser.*, no. 1, pp. 388–396, 2022.
 - [8] J. W. Lian, “Critical factors for cloud based e-invoice service adoption in Taiwan: An empirical study,” *Int. J. Inf. Manage.*, vol. 35, no. 1, pp. 98–109, 2015.
 - [9] H. Kleven, C. Kreiner, and E. Saez, “Why can modern governments tax so much? An agency model of companies as fiscal intermediaries,” *Economica*, vol. 83, no. 330, pp. 219–246, 2016.
 - [10] J. Li, X. Wang, and Y. Wu, “Can government improve tax compliance by adopting advanced information technology? Evidence from the Golden Tax Project III in China,” *Econ. Model.*, no. 93, pp. 384–397, 2020.
 - [11] M. Lagzian and N. Naderi, “An Empirical Study of the Factors Affecting Customers’ Acceptance Intention of E-Invoice Services: The Case of Mashhad Electricity Distribution Company,” *Proc. 2015 2nd Int. Conf. Electron. Gov. Open Soc. Challenges Eurasia*, pp. 97–103, 2015.
 - [12] Y. S. Wang and Y. W. Liao, “Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success,” *Gov. Inf. Q.*, vol. 25, no. 4, pp. 717–733, 2008.
 - [13] H. M. Al-Hattami, “Validation of the D&M IS success model in the context of accounting information system of the banking sector in the least developed countries,” *J. Manag. Control*, vol. 32, no. 1, pp. 127–153, 2021.
 - [14] W. . DeLone and E. . McLean, “Information systems success: The quest for the dependent variable,” *Inf. Syst. Res.*, vol. 3, no. 1, pp. 60–95, 1992.
 - [15] W. H. DeLone and E. R. McLean, “The DeLone and McLean model of information systems success: a ten-year update,” *J. Manag. Inf. Syst.*, vol. 19, no. 4, pp. 9–30, 2003.
 - [16] A. J. H. Hambali, “The success of e-filing adoption during COVID 19 pandemic: The role of collaborative quality, user intention, and user satisfaction,” *J. Econ. Business, Account. Ventur.*, vol. 23, no. 1, pp. 57–68, 2020.
 - [17] V. Khayun and P. Ractham, “Measuring e-excise tax success factors: Applying the DeLone & McLean information systems success model,” *2011 44th Hawaii Int. Conf. Syst. Sci.*, pp. 1–10, 2011.
 - [18] W. H. DeLone and E. R. McLean, “Measuring e-commerce success: Applying the DeLone & McLean information systems success model,” *Int. J. Electron. Commer.*, vol. 9, no. 1, pp. 31–47, 2004.
 - [19] B. H. Wixom and P. A. Todd, “A theoretical integration of user satisfaction and technology acceptance,” *Inf. Syst. Res.*, vol. 16, no. 1, pp. 85–102, 2005.
 - [20] J. E. Bailey and S. W. Pearson, “Development of a Tool for Measuring and Analyzing Computer User Satisfaction,” *Manage. Sci.*, vol. 29, no. 5, pp. 530–545, 1983.
 - [21] M. N. Yakubu and S. Dasuki, “Assessing eLearning systems success in Nigeria: An application of the DeLone and McLean information systems success model,” *J. Inf. Technol. Educ. Res.*, vol. 17, pp. 183–203, 2018.
 - [22] L. F. Pitt, R. T. Watson, and C. B. Kavan, “Service quality: A measure of information systems effectiveness,” *MIS Quarterly*, vol. 19, no. 2, pp. 173–187, 1995.
 - [23] J. C. J. Chang and W. R. King, “Measuring the performance of information systems: A functional scorecard,” *J. Manag. Inf. Syst.*, vol. 22, no. 1, pp. 85–115, 2005.
 - [24] F. J. Masunga, H. J. Mapesa, and M. A. Nyalle, “Quality of E-Tax System and Its Effect on Tax Compliance (Evidence from Large Taxpayers in Tanzania),” *Int. J. Commer. Financ.*, vol. 6, no. 2, pp. 145–158, 2020.
 - [25] A. Ameen, D. Al-Ali, O. Isaac, and F. Mohammed, “Examining relationship between service quality, user satisfaction, and performance impact in the context of smart government in UAE,” *Int. J. Electr. Comput. Eng.*, vol. 10, no. 6, pp. 6026–6033, 2020.
 - [26] J. V. et al. Chen, “Factors affecting online tax filing - An application of the IS Success Model and trust theory, Computers in Human Behavior,” *Elsevier Ltd*, vol. 43, pp. 251–262, 2015.
 - [27] S. K. R. Zaidi, C. D. Henderson, and G. Gupta, “The moderating effect of culture on e-filing taxes: evidence from India,” *J. Account. Emerg. Econ.*, vol. 7, no. 1, pp. 134–152, 2017.
 - [28] K. . Omar, H. Scheepers, and R. Stockdale, “eGovernment service quality assessed through the public value lens,” *Int. Conf. Electron. Gov.*, pp. 431–440, 2011.
 - [29] I. Ghozali and H. Latan, *Partial Least Squares Konsep Teknik dan Aplikasi menggunakan Program Smart PLS 3.0 untuk Penelitian Empiris*, 2nd ed. Semarang: Universitas Diponegoro, 2015.
 - [30] W. W. Chin and P. A. Todd, “On the use, usefulness, and ease of use of structural equation modeling in MIS research: A note of caution,” *MIS Q.*, vol. 19, no. 2, pp. 237–246, 1995.
 - [31] D. A. Kenny, “Mediation,” 2016. [Online]. Available: <http://davidakenny.net/cm/mediate.htm>. [Accessed: 04-May-2021].
 - [32] Budiyanto, “Evaluasi Kesuksesan Sistem Informasi dengan Pendekatan Model Delone dan Mclean (Studi Kasus Implementasi Billing System Di RSUD Kabupaten Sragen),” Universitas Sebelas Maret Surakarta, 2009.
 - [33] M. Gelderman, “The Relation Between User

Satisfaction, Usage of Information Systems
and Performance,” *Inf. Manag*, vol. 34, no. 1,
pp. 11 –18, 1998.