Investigating the success of an E-Auction system initiatives among public servants: Validation of an integrated IS success model

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ABSTRACT

The implementation of an information system (IS) in public sector organizations was a crucial issue that needs to be addressed periodically. This study was conducted to examine the satisfaction factors of an E-Auction system adoption behavior by using the integrated IS Model of Delon, McLean, and Seddon. The usage of seven dimensions of the integrated IS model such as compatibility, the quality of a system, information, and service, perceived usefulness, and ease of use, to evaluate users satisfaction among public servants are still rare. This study was designed to focus on officials auctioneer that have experiences in using the E-Auction systems. The structured questionnaire with a five-point Likert scale and regression was chosen as the data collection and analysis method. This study found that there were only two of six variables (information quality and compatibility) that significantly prove as predictors of user satisfaction. Interestingly, our findings also found that there was no correlation between perceived ease of use and usefulness. Poor interface design, lack of technical support, and the usage of an E-Auction system that is classified as "order by mandate" were the primary concern that causes the insignificant relationship between variables. Therefore, to boost the satisfaction levels, further IS developers should pay more attention to improving information quality that is compatible with user needs.

Keywords: Accounting; System Quality; Information Quality; Service Quality; Usefulness; Ease of Use; Compatibility; Satisfaction

Introduction

The nature of accounting practices has evolved greatly over the years as the rapid change and development of information systems. Information and communication technology (ICT) allows the creation of tools for digitally organizing, transmitting, storing, and acting on information in new ways. With governance and public administration reform in the New Public Management spirit, ICT has driven many innovations in the public sector, particularly e-procurement and e-auction (Svidronova & Mikus, 2015). Today, the development of information technology has grown quite rapidly. One of its applications is used in the world of commerce, enabling goods to be auctioned or sold online easily and efficiently (Bandiyono & Indrianto, 2019). The web-based online auction system is a web-based program that was created to make it easier for us to auction or buy and sell goods (Abi Bakri, 2013). The auction implementation in Indonesia is controlled and operated by the Ministry of Finance through the Directorate General of State Assets (DJKN). Implementation of all forms of an auction is carried out through the State Wealth Service Office and Auction (KPKNL) as well as Auction House, which is limited to non-voluntary execution auction and pre-auction implementation (Presidential Regulation No. 28 of 2015). A change of paradigm has emerged from offline auctions to online auctions (P. Lin et al., 2018).

The usage of an online auction system was crucial for not only efficient purposes but also nation strategic goal. Santoso & Bourpanus (2019) stated that by switching to electronic services, the government can save public money in developing unnecessary infrastructure projects. An online auction service called e-Auction has been introduced by the Directorate General of State Assets (DJKN) in 2014. An e-Auction with Internet Auction Application (ALI) makes auctions easier (accessible anywhere and anytime), more efficient (no need for transportation and accommodation costs), faster (bids are accepted in seconds), and secured (buyer's auction is given paper auction). To participate in the auction, participants are expected to deposit a certain amount of security deposit and are required to pay it off after being selected as the auction winner. E-Auction participants are given the ability to bid on multiple auctions (multiple closed bids) and know each "real-time" bid amount without any intervention from any party, something that may occur in a traditional auction.

After six years of implementation, it is important to evaluate the implementation of e-Auctions to ensure that the DJKN e-Auctions have been carried out properly. Although, there is no ultimate measurement of information system (IS) success, there are three theoretical frameworks that mostly used in the area of IS (Rana *et al.*, 2015). The first IS success model

was introduced by DeLone & McLean (1992) who initiated to development IS success model by using six factors namely system quality, information quality, user satisfaction, use, individual impact, and organizational impact as dependable measurement. Seddon (1997) introduced the new prescribed model of DeLone & McLean (1992) by added perceived usefulness as another factor that affects information system adoption. Later in the year 2003, after an extensive review of their original model, Delone & McLean (2003) proposed the extended IS success model by incorporated 'service quality' and (accounting) net benefits as a substitute for individual and organizational impact construct.

The proposed IS success model of this study is based on DeLone & McLean (1992), Delone & McLean (2003), and Seddon (1997) model with some adaptation due to certain rational facts. For example, 'behavioral intention' and 'usage intention' constructs were excluded from the proposed model as this study is focused on actual users of the systems. On the other hand, 'service quality' is added as a new construct in the proposed model. Rana *et al.* (2015) explains that service quality has a crucial role in enhances the success level of IS implementation as the expanded responsibility of IS departments and the significance of IS in recent decades. Besides, constructs such as perceived ease of use and compatibility were also considered acceptable to be included in the model as they represent the contemplation of users' beliefs about the system's use.

Literature Review

The Relationship of System Quality, Perceived Usefulness, and Perceived Ease of Use

System quality can be defined as the degree to which the desired functionalities and performance characteristics of an information system can best address customer needs, with much ease and as minimal problems encountered as possible (Saha, Nath, & Salehi-Sangari, 2012; Samsurijal, 2019). The relationship between system quality, perceived usefulness, and perceived ease of use has been explored by researchers in various studies. Kim, Lee, & Law (2008) and Al-Fraihat *et al.* (2020) stated that one of the significant factors that drivers perceived usefulness was system quality. Handayani *et al.* (2017), Aldosari *et al.* (2018), and Verma *et al.* (2018) added that there is a positive correlation between system quality and perceived ease of use. The more positive user perceptions about system quality, the higher the usefulness and ease of use perception.

H$_1$: System quality has a positive and significant effect on perceived usefulness
H$_2$: System quality has a positive and significant effect on perceived ease of use

The Relationship of Information Quality, Perceived Usefulness, and Perceived Ease of Use

Pinem *et al.* (2020) defined information quality as users' perception and assessment of overall information quality provided by the system. Zaied, (2012) divided the information quality criteria into six dimensions which are completeness, understandability, security, availability, and accuracy. A study from Almutairi & Subramanian (2005), Hajiheydari & Ashkani (2018), and Kang & Namkung (2019) shows that there is a positive relationship between information quality, perceived usefulness, and perceived ease of use. The more understandable, complete, secure, and accurate information provided by the system, the more positive users perceived the information.

H$_3$:   Information quality has a positive and significant effect on perceived usefulness

H$_4$:   Information quality has a positive and significant effect on perceived ease of use

The Relationship of Service Quality and Perceived Usefulness

Service quality has a crucial role in enhances the success level of IS implementation as the expanded responsibility of IT departments and the significance of IS in recent decades. While Namin (2017) defined it as the difference in users perception between actual and expectation performances, Lowry & Wilson (2016) and Sasongko (2018) defined it as the degree of reliability, responsiveness, empathy, assurances, and tangibles to which IS departments provides service to users that meet their expectations. A study from Landrum & Prybutok (2004) concluded that service quality is an important variable in the success that affects both usefulness and satisfaction with responsiveness and reliability classified as the most important rating. Therefore, it can be concluded that there is a positive relationship between service quality and perceived usefulness.

H$_5$:   Service quality has a positive and significant effect on perceived usefulness

The Relationship of Perceived Ease of Use and Perceived Usefulness

The positive relationship of perceived ease of use and usefulness is one of the well-known and established correlational approaches that are commonly used in evaluating the IS success model. Lin *et al.* (2017) and Sun *et al.* (2020) described perceived ease of use as the degree to which a person believes about easiness (free of mental and physical effort) to use a particular system. Also, perceived of usefulness is the extent of which individual beliefs that using a particular system will improve/enhance their performance (Mun, Khalid, & Nadarajah, 2017; Lee *et al.* 2018; Rauschnabel & Ro, 2016). The more easy to use and useful a system, the higher users willingness to apply that particular system.

H₆: Perceived ease of use has a positive and significant effect on perceived usefulness

The Relationship of System Quality, Information Quality, Service Quality, and Compatibility

Handayani *et al.* (2017) and Alghazi *et al.* (2020) defined compatibility as the extent to which a system is perceived as being consistent in maintaining existing value, needs, and performing their required functions. In simple meaning, Rahman *et al.* (2020) described compatibility as the positive interaction (innovation fit) between users and the application. Prior studies from Alzahrani, Al-Karaghouli, & Weerakkody (2017) and Aldholay *et al.* (2018) suggest that the greater the overall quality that consist of system quality, information quality, and service quality of newer technologies, the more likely that these will enhances desires and lifestyles of their users.

H₇ₐ: System quality has a positive and significant effect on compatibility
H₇ᵦ: Information quality has a positive and significant effect on compatibility
H₇ᵪ: Service quality has a positive and significant effect on compatibility

The Relationship of System Quality, Information Quality, Service Quality, Perceived Usefulness, Perceived Ease of Use, Compatibility and User Satisfaction

User satisfaction is another well-known IS success model constructs that widely used over decades. While Nwankpa & Roumani (2014) and Montesdioca & Maçada (2015) referred to user satisfaction as the degree to which users confident and believes that a system meets their needs. Navimipour & Soltani (2016) defined user satisfaction as the sum of positive and negative user (subjective) experiences to a particular information system. A previous study from Aldholay *et al.* (2018) established a meaningful relationship between overall quality and user satisfaction with regards to online learning students in Yemeni. Moreover, the specific correlation of each quality dimensional namely system quality, information quality, and service quality on user satisfactions scientifically proved by Song *et al.* (2017), Lien, Cao, & Zhou (2017), Aldholay *et al.* (2018), Chen & Chang (2018), Sebetci, (2018), and Koh & Kan (2020). Finally, prior studies of Lin & Wang (2012), Liaw & Huang (2013), Aldholay *et al.* (2018), and Sebetci (2018) that there is a positive relationship between compatibility, perceived usefulness, and ease of use and user satisfaction. Therefore, the proposed hypotheses of this study can be described as follows.

H₈: System quality has a positive and significant effect on user satisfaction
H₉: Information quality has a positive and significant effect on user satisfaction

H_{10}:   Service quality has a positive and significant effect on user satisfaction

H_{11}:   Perceived usefulness has a positive and significant effect on user satisfaction

H_{12}:   Perceived ease of use has a positive and significant effect on user satisfaction

H_{13}:   Compatibility of use has a positive and significant effect on user satisfaction

Methods

Figure 1. Research Framework
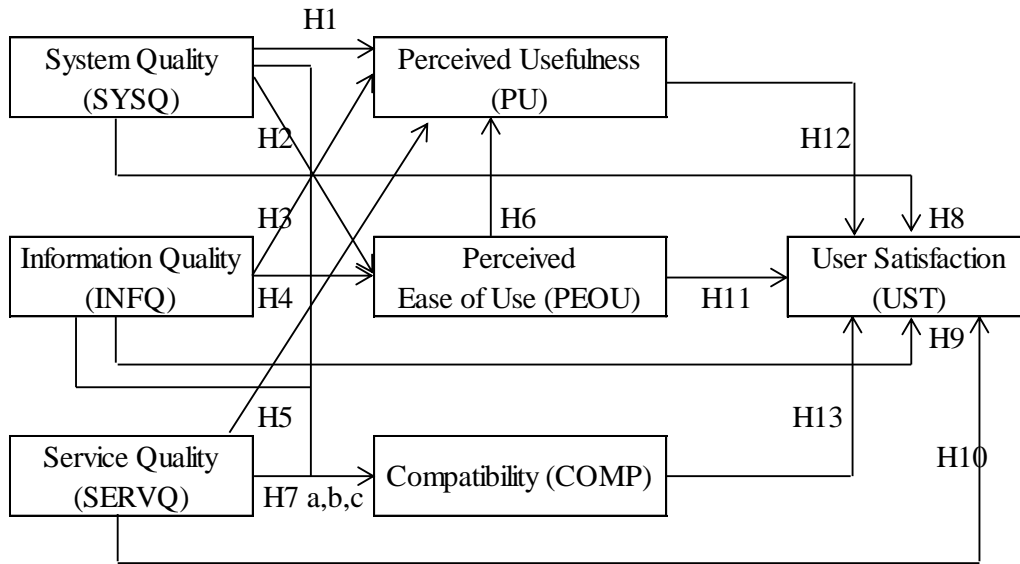
The proposed integrated IS success model used in this study can be seen in Figure 1. To examine the success of the E-Auction system that is developed by the Directorate General of State Assets Management (DJKN), Ministry of Finance of Indonesia, the researchers contemplated survey as an appropriate research method. Büyüköztürk *et al.* (2010) and Samsurijal (2019) defined survey method as an explanatory survey that aims to explain the relationship between variables and to identify the perceptions or characteristics of targeted population or samples. The structured questionnaire with five-point Likert (where 1 denotes 'Strongly Disagree' and 5 denotes 'Strongly Agree') was used in this study to measure the proposed model. Purposive sampling was chosen as a sampling technique with the auction officials of Directorate of Auction DJKN that have experiences in using E-Auction systems were the selected criterion of a respondent to this study. A total of 700 questionnaires were distributed through each administrator with more than 200 valid samples were used for analysis in this study. Also, the researchers adopted all of the measures from prior literature. Table 1 shows a detailed description of each questionnaire item.

Table 1. Questionnaire Items

| Variables	Code	Item	Reference
System Quality (SYSQ)	SYSQ1	I would find the E-Auction system to be easy to use.	Rana *et al*. (2015)
	SYSQ2	I would find the E-Auction system to be easy to learn.	
	SYSQ3	E-Auction system would be user friendly.	
Information Quality (INFQ)	INFQ1	Information provided by the E-Auction system would be reliable.	Lin *et al.* (2011), Lin & Wang (2012), Rana *et al*. (2015)
	INFQ2	Information provided by the E-Auction system would be accurate.	
	INFQ3	Information provided by the E-Auction system would be understandable.	
	INFQ4	E-Auction system would provide sufficient information.	
	INFQ5	Through the E-Auction system, I would get up-to-date information.	
Service Quality (SERVQ)	SERVQ1	E-Auction system would provide dependable services.	Lin *et al.* (2011), Rana *et al*. (2015)
	SERVQ2	E-Auction system would provide services at the time it promises.	
	SERVQ3	E-Auction system would enable interactive communication.	
	SERVQ4	E-Auction system would provide service as promised.	
	SERVQ5	E-Auction system keeping users informed.	
Perceived Usefulness (PU)	PU1	Using the E-Auction system in my job increases my productivity.	Chau & Hu (2002), Hung *et al.* (2012)
	PU2	Using the E-Auction system enables me to accomplish tasks more quickly.	
	PU3	Overall, I find the E-Auction system useful in my job.	
Perceived Ease of Use (PEOU)	PEOU1	I find it easy to get the E-Auction system to do what I want them to do.	Chau & Hu (2002), Hung *et al.* (2012)
	PEOU2	Learning to work with an E-Auction system is easy for me.	
	PEOU3	It would be easy for me to become skillful at using the E-Auction system.	
Compatibility (COMP)	COMP1	E-Auction system is compatible with my need.	Ifinedo (2012), Zhang, Li, & Sun (2014)
	COMP2	E-Auction system is compatible with my job description.	
User Satisfaction (UST)	UST1	Overall, I'm satisfied with the E-Auction system.	Sun et a*l*. (2008), Wang (2008)
	UST2	E-Auction system has met my expectations.	
	UST3	E-Auction system is really enjoyable.	

Table 2. Validity and Reliability Result

Variable/Item	Pearson Correlation	Criteria	Cronbach's Alpha	Criteria	Decision
SYSQ			0.876	> 0.600	Reliable
SYSQ1	0.915	> 0.131			Valid
SYSQ2	0.915	> 0.131			Valid
SYSQ3	0.856	> 0.131			Valid
INFQ			0.866	> 0.600	Reliable
INFQ1	0.852	> 0.131			Valid
INFQ2	0.730	> 0.131			Valid
INFQ3	0.839	> 0.131			Valid
INFQ4	0.846	> 0.131			Valid
INFQ5	0.842	> 0.131			Valid
SERVQ			0.871	> 0.600	Reliable
SERVQ1	0.868	> 0.131			Valid
SERVQ2	0.835	> 0.131			Valid
SERVQ3	0.796	> 0.131			Valid
SERVQ4	0.748	> 0.131			Valid
SERVQ5	0.850	> 0.131			Valid
PU			0.843	> 0.600	Reliable
PU1	0.900	> 0.131			Valid
PU2	0.826	> 0.131			Valid
PU3	0.894	> 0.131			Valid
PEOU			0.739	> 0.600	Reliable
PEOU1	0.783	> 0.131			Valid
PEOU2	0.791	> 0.131			Valid
PEOU3	0.870	> 0.131			Valid
COMP			0.752	> 0.600	Reliable
COMP1	0.899	> 0.131			Valid
COMP2	0.892	> 0.131			Valid
UST			0.851	> 0.600	Reliable
UST1	0.866	> 0.131			Valid
UST2	0.870	> 0.131			Valid
UST3	0.898	> 0.131			Valid

The results of the validity and reliability testing in Table 2 show that all instruments used in this study were valid and reliable as the value of Pearson correlation (r-value) and Cronbach's Alpha was higher than 0.131 and 0.600. Therefore, all instruments in this study can be used to analyze the proposed hypotheses.

Result and Discussion

Figure 2. Results of Regression Analysis
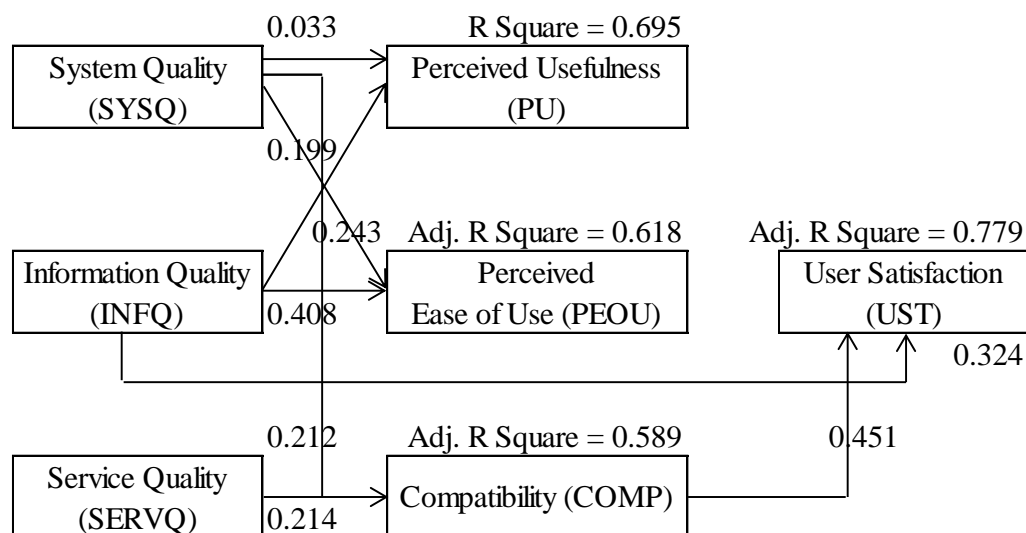
Table 3. Regression Coefficients on Perceived Usefulness

Variables	Coeff. (β)	t-Value	Sig.	Sig. Criteria	Decision
SYSQ	0.320	2.170	0.033	< 0.050	H_1 Accepted
INFQ	0.586	5.615	0.000	< 0.050	H_3 Accepted
SERVQ	-0.159	-1.444	0.153	< 0.050	H_5 Rejected
PEOU	-0.077	-0.606	0.546	< 0.050	H_6 Rejected

Table 4. Average Score Comparison of Overall Quality Items

Items	Average	Items	Average	Items	Average
SYSQ1	4.084	INFQ1	4.120	SERVQ1	4.120
SYSQ2	4.072	INFQ2	3.964	SERVQ2	4.036
SYSQ3	3.824	INFQ3	4.096	SERVQ3	3.831
		INFQ4	3.964	SERVQ4	4.120
		INFQ5	4.024	SERVQ5	4.096

Table 5. Regression Coefficients on Perceived Ease of Use

Variables	Coeff. (β)	t-Value	Sig.	Sig. Criteria	Decision
SYSQ	0.199	3.646	0.008	< 0.050	H_2 Accepted
INFQ	0.408	2.734	0.000	< 0.050	H_4 Accepted

Table 6. Regression Coefficients on Compatibility

Variables	Coeff. (β)	t-Value	Sig.	Sig. Criteria	Decision
SYSQ	0.212	2.143	0.035	< 0.050	H_{7a} Accepted
INFQ	0.009	0.129	0.898	< 0.050	H_{7b} Rejected
SERVQ	0.214	2.763	0.007	< 0.050	H_{7c} Accepted

Table 7. Regression Coefficients on User Satisfaction

Variables	Coeff. (β)	t-Value	Sig.	Sig. Criteria	Decision
SYSQ	0.153	1.238	0.220	< 0.050	H_8 Rejected
INFQ	0.324	3.258	0.002	< 0.050	H_9 Accepted
SERVQ	-0.008	-0.090	0.928	< 0.050	H_{10} Rejected
PU	0.012	0.127	0.899	< 0.050	H_{11} Rejected
PEOU	0.069	0.650	0.518	< 0.050	H_{12} Rejected
COMP	0.451	3.408	0.001	< 0.050	H_{13} Accepted

The IS success model of this study was constructed by combining DeLone & McLean (1992), Delone & McLean (2003), and Seddon (1997) model with some adaptation due to the certain rational facts. A total of six independent variables namely system quality, information quality, service quality, perceived usefulness, perceived ease of use, and compatibility were used to measures the success (satisfaction) of E-Auction implementation in Directorate of Auction, DJKN. A regression analysis was performed on system quality, information quality, service quality, and perceived ease of use with perceived usefulness as the dependent variable. The model examined an adjusted R^2 of 0.695 (Figure 2). The result of this study did not find sufficient evidence to support the positive relationship between service quality and perceived usefulness. The value of t-tested between variables as shown in Table 3 was -0.159

and -0.077 with a significant value of 0.153 and 0.546 (which is higher than significances criteria of 0.050), therefore H_5, H_6 is rejected. The majority of the respondent in this study does not feel any sufficient support from related departments whenever they are required to use an E-Auction system regularly. Therefore, it does affect their perceived evaluation of the E-Auction system advantages. On the other hand, Sheppard & Vibert (2019) argued that the insignificance relationship of perceived ease of use and usefulness should be seen as an indication that these model may need to be revised as the rapid change of users' perceptions and behavior and current development practices. Users can still be able to perform the tasks for which a system is built, even if it is difficult to use, but with a system that is simple to use, they would be more effective, efficient, and pleased. Finally, the result of this study support prior finding by Almutairi & Subramanian (2005), Handayani *et al.* (2017), Hajiheydari & Ashkani (2018), Aldosari *et al.* (2018), Verma *et al.* (2018), and Kang & Namkung (2019) that stated there was a positive relationship between system and information quality on perceived usefulness. The value of t-tested between variables as shown in Table 3 was 0.320 and 0.586 with a significant value of 0.003 and 0.000 (which is lower than significances criteria of 0.050), therefore H_1, H_3 is acceptable. It means that the more positive users' evaluation of the E-Auction system and service quality, the more useful the E-Auction system is perceived.

A second regression analysis was run on system quality and information quality with perceived ease of use as the dependent variable. The model exhibited an adjusted R^2 of 0.618 (Figure 2). All two variables were significant predictors of perceived ease of use. The value of t-tested between variables as shown in Table 5 was 3.646 and 2.734 with a significant value of 0.008 and 0.000 (which is lower than significances criteria of 0.050), therefore H_2, H_4 is acceptable. This study supports previous studies by Almutairi & Subramanian (2005), Handayani *et al.* (2017), Hajiheydari & Ashkani (2018), Aldosari, Al-Mansour, Aldosari, & Alanazi (2018), Verma *et al.* (2018), and Kang & Namkung (2019) that concluded that there was a positive and significant relationship of system quality, information quality, and perceived ease of use. The more positive users' evaluation of the E-Auction system and service quality, the more ease of use the E-Auction system is perceived.

A third regression analysis was applied on system quality, information quality, service quality with compatibility as the dependent variable. The model exhibited an adjusted R^2 of 0.589 (Figure 2). Table 6 of the hypotheses testing shows that this study was only able to confirm H_{7a} and H_{7c}, as there were significant effects of system quality and service quality on compatibility ($\beta = 0.212, 0.214$; $t = 0.035, 0.007$; $p < 0.050$). This study supports prior

literature by Aldholay *et al.* (2018) and Sebetci (2018) which concluded that system quality and service quality has a positive effect on compatibility. The higher the quality of system and service offered, the more compatible the interaction of system and users will be. Thus, unlike previous studies by Aldholay *et al.* (2018) and Sebetci (2018) that found that information quality was a significant predictor of compatibility, the result of this study concluded the opposite. Eppler (2006) stated that there are five issues of compatibility hinder for information quality improvements in e-government initiatives which is an existing resource (such as staff, budget, available time), rules, skills, infrastructure, and reference points (such as official benchmarks or standards of the required attitudes of public servants). Based on open survey questions, the unattractive dashboard, the missing of the "Auction Acta" feature, lack of support and socialization from IS developers, and instability of internet network was mentioned as an issue that respondent faced regularly. It can be concluded that the issue of resources and infrastructure were considered as the most important factors that make the insignificant relationship between information quality and compatibility.

The last regression analysis was applied to all six variables using user satisfaction as the dependent variable. There are 4 of 6 variables were failed to prove the proposed hypotheses. The model exhibited an adjusted R^2 of 0.779 (Figure 2). Table 7 shows that information quality and compatibility meaningfully predicts user satisfaction, therefore H_9, H_{13} is acceptable (β = 0.324, 0.451; t = 3.258, 3.408; p < 0.050). This study supports previous studies by Song *et al.* (2017), Lien, Cao, & Zhou (2017), Aldholay *et al.* (2018), Chen & Chang (2018), Sebetci, (2018), and Koh & Kan (2020) that found that information quality and compatibility has a positive effect on user satisfaction. It means that the more compatible, reliable, accurate, understandable, sufficient, and up-to-date information provided by the system, the more satisfied users will be. Meanwhile, system quality, service quality, perceived usefulness, perceived ease of use, and compatibility failed to predicts user satisfaction in this study, therefore it can be concluded that H_8, H_{10}, H_{11}, H_{12} is rejected (β = 0.153, -0.008, 0.012, 0.069; t = 1.238, -0.090, 0.127, 0.650; p > 0.050). Table 4 shows the comparison of system quality and service quality average score which is described that respondent of this study has not valued the question of "E-Auction system would be user friendly" and "E-Auction system would enable interactive communication" as high as others questions. These same symptoms with a prior study by Mulhanga & Lima (2017), which is poor interface design and lack of technical support were considered as the primary barriers that deter the successful implementation of IS. Furthermore, Normelindasari & Solichin (2020), added that whenever user experienced system failure, it would decrease their level of

satisfaction simultaneously. Lastly, the insignificant effect of perceived usefulness and ease of use on satisfaction may due to the finite alternatives E-Auction system that available for the official member of Directorate Auction, DJKN. Therefore, it makes perceived usefulness and ease of use have not become the key belief that influences their attitude in using the particular IS (Sumaedi et al., 2016). Moreover, the usage of an E-Auction system among the official member of Directorate Auction, DJKN, was considered as mandatory acted that obligated by government and organization policies.

Conclusion and Suggestion

The purpose of this study was to examine the satisfaction factors of public servants used the E-Auction system that is developed by the Directorate General of State Assets Management (DJKN), Ministry of Finance of Indonesia. This study found that there were only two of six variables that significantly prove as predictors of user satisfaction of E-Auction system which is information quality and compatibility. It means that the system designers should pay more attention to designing information quality that compatible with user needs to boost the level of satisfaction. Other constructs such as system quality, service quality, perceived usefulness, and perceived ease of use failed to prove their significant relationship to user satisfaction. Researchers argued that the poor interface design and lack of technical support were the primary concern that is considered as the reason for the insignificant hypotheses result. Moreover, the usage of an E-Auction system that is classified as "order by mandate" makes perceived usefulness and ease of use have not become the key belief that influence their attitude. Interestingly, this study did not find sufficient evidence to support the relationship between perceived ease of use. It seems that users can still be able to perform the tasks for which an E-Auction system is built, even if it is difficult to use, but with a system that is simple to use, they would be more effective, efficient, and pleased. Finally, the issue of resources and infrastructure were considered as the most important factors that make the insignificant relationship between information quality and compatibility in this study. Future studies should extend their theoretical scope and target respondents (the bidder) in a broader way to gain a better perspective. The usage of technology task fit and perceived usefulness with the modification role of perceived ease of use (as a moderator in between) may considered as the extension construct of future study. As in public sectors, IS initiatives were a mandatory approach, then the investigation of the IS success model should focus on the real impact of IS implementation (such as net benefit) rather than user perception.

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