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The antecedent e-government quality for public behaviour intention, and extended expectation-confirmation theory

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ABSTRACT

An The main objective of the study is to identify the antecedent of leadership quality, public satisfaction and public behaviour intention of e-government service. Also, this study integrated e-government quality to expectation-confirmation model. In order to achieve these goals, observational research was then carried out to collect primary information, using the method of data dissemination and obtaining the opinion of 360 from the public using the e-government service and some of the e-government and software quality experts. The results of the study show that the positive association among the e-government services quality and public perceived usefulness, public expectation confirmation, leadership quality and public satisfaction that also play a positive role on the public behavior intention.

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1. INTRODUCTION

E-government is a use that can strengthen the relationship between government and other stakeholders in information technology and information systems. The e-government role is to be able to improve the quality of public services, using information technology. As well as communication in the process of administering government at the central and regional levels so that governance can be formed that is clean, transparent and able to answer the demands of change effectively. The e-government goals include Establish an information network and public service transactions that are not limited to time and location and at a cost that is affordable to the public (Government to citizen). Establish collaborative business relationships (Government to business). Establish a mechanism and channel of communication with all state institutions and provide facilities for public dialogue (Government to government). Establishing a transparent and efficient system of management and work and facilitating transactions and services between government institutions.

Any project of the private or the public sector has the prime aim to win the trust. Similar is the case with e-government. If the e-government succeeded to win the trust of the customer, it will definitely be succeeded. On the other hand, if it failed is vice versa. The quality of the e-government strongly affects the trust of the community. As the current era customer did not compromise over the quality. There is the number of factors associated with trust like customer satisfaction. The role of e-government in building public trust and satisfaction is strongly influenced by how high the quality of e-government is. The quality of e-government provides a dominant role for public sustainability to continue to use e-government service.

Some literature has discussed information systems (IS) [1], [2] relating to discussers of adoption and use of technology. Besides that, some scholars have also investigated the use of sustainable technology [3]–[5]. The characteristics of the technology being studied however vary from the standards of e-government. E-government quality is a new form of the concept of information technology and communicative information systems with specific objectives [6]. Before e-government quality, every e-government service only displays general information that does not provide direct feedback services, privacy, which tends to be ignored. With e-government quality, this need is accommodated so that the public feels comfortable in using e-government services. The concept of e-government quality uses four variables, which consist of engagement, content, feedback and privacy [7]. By using e-government quality, the public can interact through e-government media for the activities it needs, while two-way communication becomes important (feedback), security in maintaining e-government user data (privacy), up-to-date and informative content (content), community needs for the role of e-government become an integral part (engagement). Factors that influence public satisfaction and public behavior differ from the technology examined before; therefore, this study build e-government quality as an external variable that must be investigated [8]. In addition, Zhou and Lu [9] investigated that how to experience effects usability along with satisfaction. Because of the lack of research that examines the e-government quality factor that can influence users' continuous intention to use e-government, this study trying to fill this research gap.

The e-government has its impact on multiple factors in the country like community satisfaction level, the standard of life, individual intentions. There are also other factors associated with the e-government like business opportunities in the country and quality of services. In a similar way, the e-government also affects the leadership quality in the country. In the literature: there is an association reported between e-government and the leadership [10]. The leadership quality plays a vital role in the success or failure of the e-government implementation [11]. The quality of any leadership strongly influences the success or failure of any project owned by the government [12].

The leadership styles also have influence over the entire project operated by the government [13]. There are number of leadership styles i.e toxic leadership, green leadership, and innovative leadership. If the leadership is innovative, it will introduce the innovative working environment. On the other hand, if the leadership is toxic, it will prefer the tough and rigid environment. So, the leadership styles strongly influence any project owned by the government like e-government. The leadership qualities also have a strong influence over the success of failure of the e-government. The e-government squeeze the gap between the community and the government. A qualitative leadership prefers to introduce a qualitative e-government. The quality of leadership will be reflecting in the e-government. On the contrary if the leadership of the country lacks the quality. It will be reflected as week quality e-government.

2. METHOD

At present there are various kinds of definitions relating to quality and one of the past literatures stated that quality could be defined as a facility attached to a website aimed at supporting the performance of shopping, purchasing and shipping of products and services so that they are efficient and effective. Furthermore, Santos [14] explained from internet marketing that quality is a service received by the customer, the higher the quality obtained, the higher the impact of acceptance of a product or service. The governments in the world invest maximum efforts to bring quality in their projects. The e-government is basically the developed form of the government. It brings quality and ease to the community. The quality of the leadership reflects from the quality offered by the leadership in the e-government. The customer in this world considered the factor most is the quality of any product or service. The customer never ever compromises the quality of the product. Any gap in the business committed quality brings the dissatisfaction factor in the customer mind. Once the customer is dissatisfied it will never ever think again about the product or service. In this way, the customer also becomes part of the marketing campaign of the e-government. If the customer is satisfied, then it will transfer the positive word of mouth otherwise the customer will transfer the negative words of mouth. In the case of negative word of mouth, it will badly affect the e-government projects. There is an association reported between e-government and customer satisfaction [15]. The quality leadership put maximum efforts to win customer satisfaction by providing the maximum quality.

The rapid technological changes in the world not only effecting the private but also the government sectors. Initially, the governments were not fully engaged in business activities. With the passage of time, the governments are also efficiently and effectively using its resources to bring quality in their performance and to be more strengthen in comparison with the private sector. In the government sectors, all the services are usually delivered by the bureaucracy. In the world, this kind of service provided is not reported with good comments. It's the prime aim of any e-government to bring quality in all the aspects of society. The e-government also aims to bring closer all the stakeholders of society. E-government impacts almost all

aspects of life. It influences the different factors like the expectation of public confirmation, public satisfaction, perceived usefulness, and the perceived behavioral intentions of the community. There are numerous results reported regarding the association between leadership quality and the e-government [16].

Hariguna *et al*. [17] explained specifically that e-government quality is an inseparable connection between e-government usability and e-government credibility, there are antecedents that form both variables, namely, information quality, service quality and system quality. Still, in the same study, usability, and credibility in the concept of e-government have a positive impact on citizen perceived usefulness. In this study, this study added four variables on e-government quality, namely engagement, content, feedback, and privacy as improvements to the previous concept. The facts that the e-government affects the different factors of the society like customer satisfaction, customer trust on the project, and the impact on the customer buying decision. In routine life, an individual takes several decisions. These decisions are considered very valuable because it has a direct effect on individual daily life. The customer at the time of decision making considered a lot of factors. If the customer is satisfied with these factors only then it takes a positive decision. Otherwise, the customer avoids having the decisions. In the customer literature, the theory relates to customer confirmation is narrated as expectancy confirmation model [18] and adoption of technology [3], [19], [20].

When consumers are faced with a decision to buy a product or use a dining service, the expectation conformation model (ECM) framework suggests that the basic decisions in purchasing come from the initial expectations they expect about the goods or services. The further information they get about the product by consuming or using it, this will help them in determining whether their initial expectations about the product are appropriate. These expectations will be confirmed or not confirmed which then affects the intention of the consumer to repurchase [21] or vice versa [22].

Engagement, content, feedback, and privacy are indicator variables in shaping e-government quality, with the existence of e-government quality that can encourage the public to use e-government on an ongoing basis. The existing inhibiting factors for e-government services such as privacy, usability, and credibility in e-government services, which make the public reluctant to adopt e-government. Because the role of e-government, in addition to facilitating public access, must also provide comfort and security to users, so it is important to investigate the role of e-government quality [23]. Hariguna *et al*. [17] Have developed and reviewed the integration of creativity and usability as an extract of information system quality (ISQ) in e-government using the ECM framework, in this study shows that ISQ significantly has a relationship to perceived usefulness and behavioral intention in the context of e-services government. Related studies showed that ISQ is positive for satisfaction [24]–[26].

This research in conjunction with e-government services defines satisfaction as a psychological condition that is a product of an assessment of what happens between beliefs and fact. Shin *et al*. [27] explained in the ubiquitous context that user satisfaction is very dependent upon user confirmation. A similar study explained that user confirmation had a positive impact on user satisfaction. Associated with the ECM study explains that perceived usefulness can be interpreted as a form of perceived quality, this has a correlation and is positive to the confirmation [17], [28]–[30]. In an e-government satisfaction study, it was shown that confirmation positively influences satisfaction. In addition, Brown *et al*. [31] empirical tests of satisfaction and usefulness in the context of online learning have been described as an important determinant of the system used especially in an online system study [32]. Chen *et al*. [33] also explained that perceived usefulness in the context of sustainable social relationship has a positive correlation between satisfaction and intention of behavior. Similarly, other studies have consistently shown that perceived usefulness is a determinant of user satisfaction and intent on behavior [4], [19], [28], [29]. Public satisfaction is a basic principle in measuring the success of e-government service. Based on the ECM model, intention-behavior is influenced by public satisfaction and the public perceived usefulness directly. Studies relating to e-government service stated that intention-behavior is influenced by public satisfaction with the use of e-government services used previously. Thus, the following hypothesis is proposed.

H1: There is an association between E-Government Quality and Public Expectation Confirmation.
H2: There is an association between E-Government Quality and Public Perceived Usefulness.
H3: There is an association between E-Government Quality and public Satisfaction.
H4: There is an association between E-Government Quality and Leadership Quality.
H5: There is an association between public confirmation and Public Perceived Usefulness.
H6: There is an association between public confirmation and Public Satisfaction Quality.
H7: Public perceived usefulness has a significant impact and positively affects Public Behavior Intention.
H8: Public perceived usefulness has a significant impact and positively affects Public Satisfaction.
H9: Public satisfaction mediates the relationship between Public Perceived Usefulness and Public Behavior Intention.
H10: Public satisfaction has significant mediates among the links of e-government service and public behavior intention.

In short, this study connect the variable of e-government quality with public perceived usefulness, confirmation and public satisfaction and public behavior intention on e-government services. The construct that I developed at this mediator is public confirmation, public perceived usefulness and public satisfaction; these constructs play a role as explanatory variables to understand the effects indirectly. That is, I build a relationship between the main predictors of e-government quality and outcome variables such as public satisfaction and public behavior intention towards e-government services.

The hypothesis of this research model integrates e-government quality with the ECM, which is empirically tested with user survey methods on e-government services as shown in Figure 1. The questionnaire items used in this study to ensure validity of contents and adequate modifications were made on a scale which was applied to previous studies [34]. In order to improve measurement accuracy, three procedures were performed on screen questionnaire items. Selected articles were first translated into Indonesian from previous studies. Second, e-government services including e-government investigators and professionals have been focused on validating study groups to review each item in the measurement and ensuring their interpretation can be understood. Thirdly, in a pilot study, measuring elements were evaluated and refined to ensure the validity of the content.

The nominal scale was used for collecting basic data such as gender, age, education, employment and the experience of e-Government Services during the first part of the two-part questionnaire. It is assumed, for purposes such as mails and/or receipt of e-mails, browsing of the news or blogging, Internet auctioning and online interaction that users are prepared to accept certain e-Government services via smart phones or mobile devices. This definition has been employed to develop a general model for the user to understand the continued intentions of e-government services. Three ECM measurement and e-government quality were included in the second part. The Likert range for each item was seven-point, ranging from (1) to neutral (4) to a strong consensus (7). E-government quality consists of 3 items adapted from [34], public perceived usefulness: consists of three items modified from [4]; public expectation confirmation: consists of three items derived and slightly modified from [35]; public satisfaction quality: consists of three items adapted from [19]; public behavior intention and leadership quality: consists of three items each derived and slightly modified from [32]. These variables along with links are shown in Figure 1.

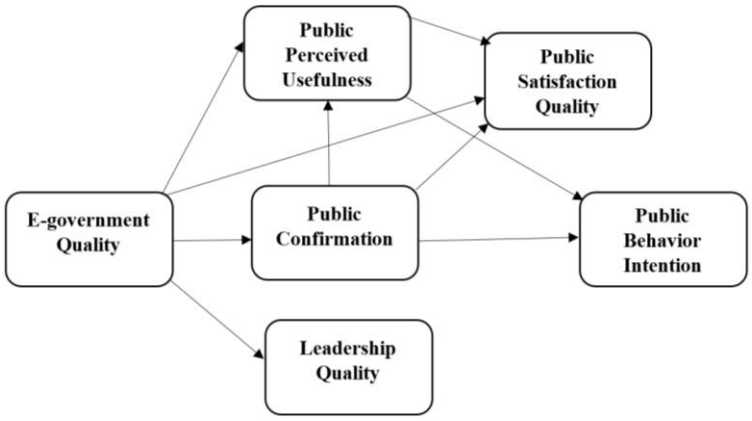

Figure 1. Theoretical framework

An online survey of e-government user experiences in Indonesia assessed the synthetic impact of ECM and e-government quality. Online survey methods are used because there are several advantages over paper-based data collection, namely: rapid response, low cost, and no geographical limitation are the advantages of online surveys. Each participant was requested to provide an e-mail address to ensure that participants did not complete the questionnaire more than once. The valid final sampling was 360 subjects after the removal of invalid answers by data filtering. The sample demographic data is presented in Table 1. Measuring items were taken through the research framework and relevant literature on the basis of the previously mentioned research objectives. This questionnaire was discussed with academics with e-government expertise and practitioners and a series of revisions were made in accordance with the pretest method. This study referred to credible literature for the formulation of measuring items. The survey was conducted between eleven January 2022 and thirty March 2022.

Table 1. Demographics of the sample

Variable	Category	Frequency (n)	Percent (%)
Gender	Male	210	58
	Female	150	42
Age	> 25	85	24
	> 35	95	26
	> 40	180	50
Education	Undergraduate	100	28
	Postgraduate	120	33
	others	140	39
Occupation	Student	50	14
	Entrepreneur	120	33
	Public service	90	25
	others	100	28
Experience in using e-government services	More than 5 times a year	80	22
	3-5 times a year	175	49
	less than 3 times a year	105	29

3. RESULTS AND DISCUSSION

In this study, this study were testing and verifying the hypothesis for the model and the stability of partial least squares (PLS). The software used was SmartPLS version 2.0 in the data analysis process. PLS is a technique based on path and regression analysis for structural equation (SEM). PLS was used as a technique to analyze models that are causal to several constructs. Researchers say that PLS is above SEM in the covariance for four reasons [36]. PLS was used in this study as an analytical method because of certain factors, and first to incorporate public perception values and their background. Several structures such as public utility, public expectations and public satisfaction were built upon this framework. Second, the second reflective construct was the public perceived value in this study. In contrast, PLS had no test importance. In order to test the importance, the resampling process was used. In this study, measurements with random samples were made repeatedly to measure the importance using the bootstrapping method. A statistical assessment and testing were then carried out using appropriate simulation results. Based on suggestions from Wynne and Peter [37], a stable parameter estimate was made of the number of repeat samples at 1000. The outer model was used to measure the relationship between the latent construct and indicators on PLS. The indicator used in the outer model was the loading factor and the reliability test results of various construction items. Also, it was measured by the value of Cronbach's α and the composite reliability value. The value must be 0.7 or greater to be declared reliable and acceptable. Table 2 shows that the constructions that met the criteria can be declared acceptable and reliable.

Table 2. Reliability analysis and convergent validity

Constructs	Items	Loadings	Alpha	CR	AVE
E-government Quality	EGQ1	0.866	0.833	0.899	0.749
	EGQ2	0.861			
	EGQ3	0.869			
Leadership Quality	LQ1	0.917	0.71	0.787	0.56
	LQ2	0.653			
	LQ3	0.642			
Public Behavior Intention	PBI1	0.790	0.777	0.823	0.608
	PBI2	0.719			
	PBI3	0.827			
Public Confirmation	PCF1	0.919	0.785	0.875	0.701
	PCF2	0.838			
	PCF3	0.745			
Public Perceived Usefulness	PPU1	0.980	0.956	0.971	0.918
	PPU2	0.924			
	PPU3	0.969			
Public Satisfaction Quality	PSQ1	0.736	0.784	0.875	0.702
	PSQ2	0.880			
	PSQ3	0.889			

This study used the common method variance (CMV) to deal with the problem of bias in the questionnaire survey. Referring to Podsakoff *et al*. [38], the questionnaire was designed with a strict control process. Questionnaires were designed, reviewed, and revised based on comments or suggestions made by experts who have experience in the relevant field. In this study, the test results were declared relevant because the single factor was declared failed to explain 50% of the variance; this indicated that the

questionnaire did not indicate the existence of CMV In this study, two tests were conducted to validate the validity of the construct, namely: testing convergent validity and testing discriminant validity. It was stated that the construct showed convergent validity where the loading factor indicator exceeded 0.5, the average extracted variance (AVE) exceeded 0.5, and the reliability exceeded 0.7. Table 3 shows that the suggestions proposed by Fornell and Larcker [39] for all constructs are correct, meaning discriminant validity is correct. The square root AVE indicator was used to test discriminant validity. If the square root of AVE is greater than the tested construct correlation coefficient, the requirements of discriminant validity can be confirmed. The construction shows that it met converging validity and discriminatory validity standards based on Table 3 and Table 4. Another way to test the discriminant validity is Heterotrait Monotrait (HTMT) ratio and the results exposed that the valid discriminant validity and no high correlation among variables because the values of HTMT ratio are lower than 0.90. These values are highlighted in Table 5. Meanwhile Figure 2 described measurement model assessment.

Table 3. Fornell larcker

	EGQ	**LQ**	**PBI**	**PCF**	**PPU**	**PSQ**
EGQ	0.865					
LQ	0.431	0.748				
PBI	0.462	0.373	0.780			
PCF	0.473	0.405	0.510	0.837		
PPU	0.326	0.349	0.440	0.311	0.958	
PSQ	0.516	0.511	0.576	0.602	0.513	0.838

Table 4. Cross loadings

	EGQ	**LQ**	**PBI**	**PCF**	**PPU**	**PSQ**
EGQ1	**0.866**	0.415	0.410	0.372	0.344	0.476
EGQ2	**0.861**	0.312	0.377	0.374	0.205	0.446
EGQ3	**0.869**	0.383	0.410	0.479	0.287	0.418
LQ1	0.448	**0.917**	0.366	0.350	0.356	0.502
LQ2	0.197	**0.653**	0.188	0.196	0.199	0.248
LQ3	0.248	**0.642**	0.240	0.351	0.183	0.335
PBI1	0.324	0.301	**0.790**	0.367	0.455	0.392
PBI2	0.387	0.275	**0.719**	0.323	0.280	0.422
PBI3	0.374	0.296	**0.827**	0.491	0.298	0.526
PCF1	0.445	0.391	0.534	**0.919**	0.314	0.586
PCF2	0.426	0.283	0.450	**0.838**	0.250	0.495
PCF3	0.301	0.344	0.257	**0.745**	0.205	0.413
PPU1	0.317	0.321	0.443	0.303	**0.980**	0.512
PPU2	0.230	0.319	0.331	0.242	**0.924**	0.399
PPU3	0.369	0.360	0.469	0.337	**0.969**	0.541
PSQ1	0.476	0.271	0.497	0.659	0.343	**0.736**
PSQ2	0.430	0.543	0.454	0.381	0.462	**0.880**
PSQ3	0.375	0.481	0.481	0.437	0.483	**0.889**

Table 5. Heterotrait monotrait (HTMT) ratio

	EGQ	**LQ**	**PBI**	**PCF**	**PPU**	**PSQ**
EGQ						
LQ	0.553					
PBI	0.616	0.551				
PCF	0.576	0.584	0.671			
PPU	0.352	0.429	0.539	0.349		
PSQ	0.632	0.705	0.780	0.743	0.585	

The concept of the PLS is known as the inner model, which is the structure of the path between the construction. In this study, the path coefficient t-value, significance, and the results of hypothesis testing for the model can be seen in Table 6 and also shown in Figure 3. All the hypotheses formulated in the study were significant and positive. The Sobel test is used to analyze the effects of mediation. Importance of the presence of mediating effects is obtained when the absolute z value is more than 1.96. The value of the mediating effect was shown in all existing construction. Table 6 shows the test results.

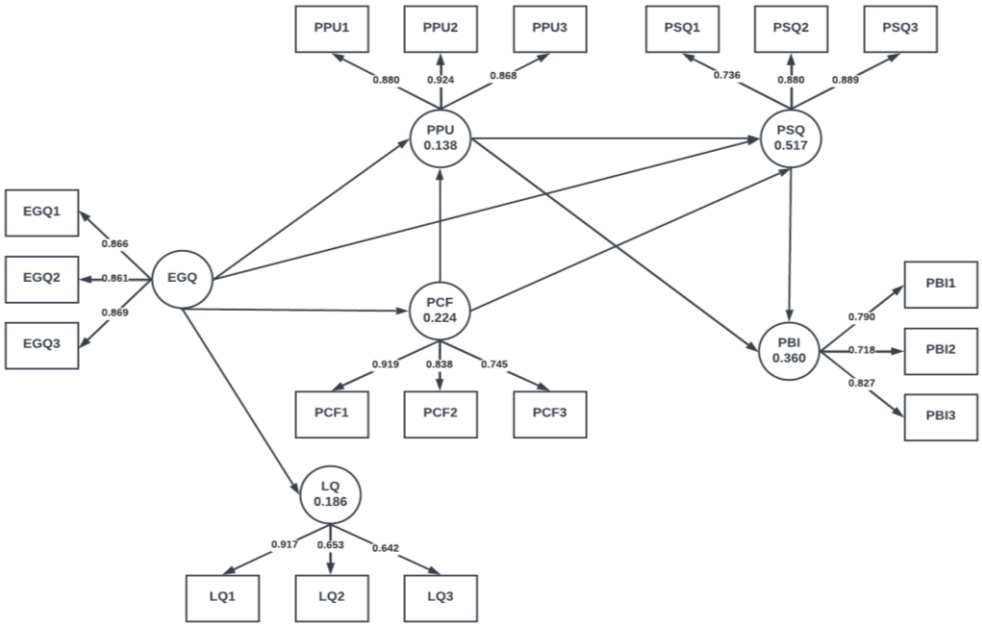

Figure 2. Measurement model assessment

Table 6. Summary of hypotheses testing results

Relationships	Beta	S.D.	t-statistics	p-values	L.L.	U.L.
EGQ -> LQ	0.431	0.043	9.930	0.000	0.363	0.508
EGQ -> PCF	0.473	0.048	9.946	0.000	0.396	0.546
EGQ -> PPU	0.230	0.056	4.143	0.000	0.129	0.311
EGQ -> PSQ	0.225	0.045	5.054	0.000	0.146	0.286
PCF -> PPU	0.203	0.065	3.105	0.001	0.093	0.309
PCF -> PSQ	0.397	0.048	8.252	0.000	0.303	0.470
PPU -> PBI	0.196	0.047	4.159	0.000	0.114	0.272
PPU -> PSQ	0.316	0.054	5.827	0.000	0.233	0.418
PSQ -> PBI	0.475	0.063	7.501	0.000	0.350	0.576
PPU -> PSQ -> PBI	0.150	0.026	5.692	0.000	0.109	0.200
EGQ -> PSQ -> PBI	0.107	0.029	3.711	0.000	0.059	0.148

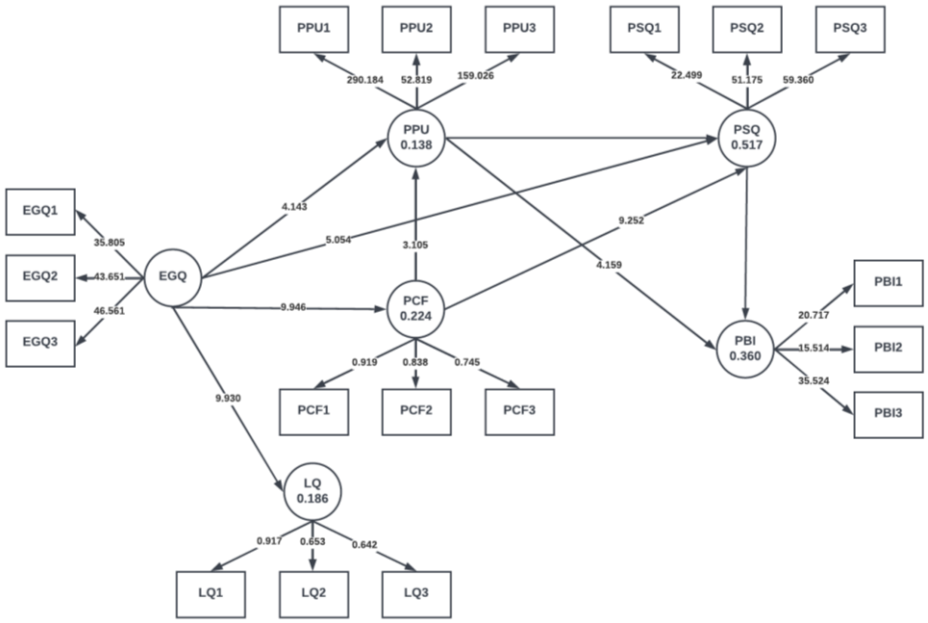

Figure 3. Structural model assessment

There are several management implications of the findings of this study. Firstly, e-government quality is closely related to e-government services' public intent by the mediator of public perception and public satisfaction as well as confirmation of public expectations. The perceived experience strongly influences psychologically citizens who adopt e-government services, and these perceptions influence the public's psychological perception of adopting services rather than e-government. The results of this study show that integrating psychological views of the quality of e-government with the ECM will increase the accuracy of evaluating the designs designed for predicting the intent of public behavior. Secondly, the intention to use e-government services through the mediation effect of public satisfaction has been positively influenced by public perceived usefulness and public expectation confirmation, and several empirical studies have eliminated satisfaction in the prediction of uses [40], [41]. This study proposes that the satisfaction of behavioral studies in the adoption of information technology or information systems not be eliminated.

Thirdly, the initial public expectations for its use may change on the basis of post-adoption experience. Public expectations must always be updated simultaneously, which can, in turn, have a significant influence on the usefulness and public satisfaction perceived by the public process. In addition, public perceived usefulness in e-government services is the dominant factor in influencing public satisfaction and intention for public behavior. So that these findings can be used to improve service providers' competitive advantage and help those to understand the values of e-government service users.

Fourth, leadership quality also influences the e-government success or failure [16]. If there is quality leadership stands behind the e-government, it will affect a lot. The quality leadership will never ever compromise over the quality which brings more perfection and success in the project. To bring more quality the leadership will employee more procedure in the project. These procedures will bring transparency and results in the success of the project as well as improvement in the quality. The results of the study also proposed that there a positive association reported between e-government quality and leadership quality.

4. CONCLUSION

This research contributes to developing and integrating ECM with the quality of e-government and synthesizing its essentials in explaining public behavior in e-government services, considering its systemic influencing factors. This study integrates the quality of e-government with an ECM in order that the theories on earlier research and services characteristics can be adopted by e-governmental services and linked of theoretically, the public usefulness, the public confirmation and public satisfaction to the impact of the quality of e-government on public behavior. The quality of the leadership also strongly associated with the e-government. The method used with an empirical approach and has been explained that public perceived usefulness, public confirmation, and public satisfaction are strong indicators in predicting public behavior intention in e-government service studies. It is also recommended that the leadership quality can be employed as moderating or the mediating variable. Similar research should overcome the limitations of this study in the future. In other words, only nations-Indonesia the data used for ECM integration and e-government quality, so it will be better for people in various countries to be added in future.

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