Communication and information system for individual performance

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ABSTRACT

This study aims to at testing the effect of the use of information systems on the satisfaction of the use of information systems and test user satisfaction as mediation on the relationship between users of information systems and individual performance. The population in this study is most Civil Servants throughout North Maluku Province. The samples in this study were taken using purposive sampling with criteria is the operator of regional financial information systems in each regional device work unit in the Regional Government of North Maluku Province, Ternate City, and Tidore Islands City. The study used simple linear regression and hierarchy in hypothesis testing. The results showed that all hypotheses submitted were entirely supported in this study. Conclusions, suggestions, and recommendations of future research are also discussed at the end of this study. The research results so far are considered to ignore the relationship between the use of information systems and the satisfaction of using information systems. Moreover, on how user satisfaction information systems can "bridge" the relationship between the use of information systems and individual performance.

1. Introduction

Over the past three decades, policymakers in different domains have tried to control costs and improve the quality of services and care offered to their customers through increased levels of information technology adoption [1][2]. For the above statement, the organization needs a broad vision and related to the planning and development of information systems (IS) to use the best technology [3]. One of the government's IS is E-government, which refers to information technology, the internet, or other digital means to convey information and government services [4]. In conveying information, communication is needed from the leadership with the person who manages the IS to ensure that the information can be delivered in real-time [5], so that good or bad communication really determines a person's performance [6]

The key of IS research is to understand the antecedent adoption of individual user technologies as a measure of the principle for evaluating the success of IS [7][8][9][10]. Many IS are developed and implemented, such as corporate resource planning and customer relationship management, mainly because such investments will lead to individual performance improvement efforts [11][12]. Evaluating the individual performance of IS has been an ongoing concern in IS research [13]. However, previous studies examining the relationship between IS use and individual performance have reported contradictory results that range from positive to insignificant, even to negative

relationships [14][13][15]. The results of other studies also revealed that individual performance depends heavily on the level of satisfaction felt [16]. The use of IS and individual performance are the main factors related to personality and situational. So that performance can be affected both positively and negatively or even fail very much depends on the availability of information by the system used and the satisfaction that can make someone have a better performance, it all depends on the use of the system on the computer which at a certain time has to wait for data for each time. items so that the work becomes piled up and is not completed on time.

Based on the explanation above, it is clear that the research linking the use of IS, IS user satisfaction and individual performance is still minimal and the research results are contradictory. For this reason, this study examines the consistency of the relationship as well as tests the satisfaction of IS users as a "bridge" between IS users and individual performance which is novelty in this study in the context of local government, especially IS operators.

2. Theorical Framework and Hypothesis Development

2.1. Communication and Information System

The assumption underlying the perspective related to the development of communication and information systems is that the parties to a problem in different ways. This difference is certainly due to the personality between each group [17][18][19][20][21]. As a result, the resulting information system has become dissimilar, resulting in the uncertainty of producing accurate information. On the other hand, an information system that can provide accurate information by integrating all the differences in a model is very important in an organization and this can be achieved by using an approach to effective communication patterns in an information system [22][23].

2.2. Use Information Satisfaction

Information system (IS) is defined as a system within an organization which is a combination of people, facilities, technology, media, procedures and controls aimed at obtaining important communication lines, processing certain types of routine transactions, signalling to management and others to important internal and external events and provide an information base for intelligent decision making [24]. Users of information systems are very dependent on the expertise and how to use the information. The higher the expertise possessed, the higher the performance and perceived satisfaction [25].

2.3. Individual Performance

Individual performance is one of the dimensions of measuring the success of information systems in terms of individual impact variables [26]. Performance is defined as the achievement of the work of a person or certain groups in an organization in accordance with their respective responsibilities so that organizational goals can be achieved without violating applicable laws or norms and ethics [27]. A person's performance will be assessed higher if there is a combination of improvements in terms of quality, efficiency, effectiveness, and productivity [28]. According to Mathis & Jackson, [29], employee performance affects the number of contributions they make to the organization, such as: (1) output quality, (2) output quantity, (3) timeframe, (4) cooperative attitude and (5) attendance at work.

2.4. User Satisfaction Information System

User satisfaction is a subjective evaluation of various dimensions in measuring the success of information systems [30]. User satisfaction can be seen from the continuous use of information systems and the effect felt by a person on his work by using information systems [31]. User satisfaction is defined as an overall evaluation of the experience felt by system users and the potential impact of using an information system [32]. The higher the user satisfaction, the higher the individual impact or individual performance that occurs [33].

2.5. User IS and Individual Performance

Sibanda and Ramrathan [34] argues that information technology has a strategic and significant role for the organization. The IS is successful if the system can be run properly, easy to use, and following existing technology [35]. The more skilled the use of information systems, the more influential the application to a company will impact the increasing performance of the individual

concerned [36][37]. However, when not applied to the maximum by users of IS, IS will decrease individual performance [38]. The results also expressed that the relationship between users and individual systems and performance is positively significant, so based on the explanation above, the hypotheses proposed are as follows.

H1. IS users have a positive effect on individual performance

2.6. User IS and User Satisfaction IS

One of the models used to measure acceptance is the Technology Acceptance Model (TAM). TAM is a popular model used to measure the adoption of information technology regarding the use and reception of IS [39]. Users tend to use a technology system when it is easy to use and valuable [40][41]. Amin et al., [42] show that user satisfaction is directly influenced by the IS user and uses it. Other research has also shown that a user's decision to accept a software is indicated by the level of user satisfaction affected by its ease of use [25]. Therefore, the proposed hypothesis is as follows.

H2. The use of IS positively affects the satisfaction of IS Users

2.7. IS User Satisfaction and Individual Performance

User satisfaction is a subjective evaluation of various dimensions in measuring the success of IS [43]. User satisfaction can be seen from the continued use of IS and the perceived effects of choosing and conveniently using such systems [44][45]. The higher the user satisfaction felt, the more measurable individual performance will be.

The high performance of individuals is demonstrated by improving the quality, efficiency, effectiveness, and productivity of their work [46]. Tam & Oliveira, [47] research results proves that individual performance is influenced by user satisfaction. Based on the description above, hypotheses 3 are as follows:

H3. User satisfaction of IS positively affects individual performance.

2.8. IS Users, IS User Satisfaction and Individual Performance

The results of previous studies that have been discussed (see hypotheses 1, 2, and 3) show that the use of IS can have a direct and indirect effect through user satisfaction of IS on individual performance. However, the mediation effect of user satisfaction IS having never been tested in previous studies, so the hypotheses proposed are as follows.

H4. User satisfaction of IS mediates the relationship between the use of IS and individual performance

3. Method

This research was conducted in November-December 2020. The population in this study was the operators who produced the financial report at the end of each fiscal year and were directly involved with the regional financial IS. The samples were collected using the purposive sampling technique. The samples were targeted to those operators who work at each regional agency unit (SKPD) at the Province of North Maluku, the Municipality of Ternate City Municipality of Tidore Islands. The total number of respondents were 261 people. This number was in line with the number of studies sampled as suggested by Roscoe et al., [48] that the sample in quantitative research ideally amounts to between 30-500 people. Instrument testing in the study was conducted in two stages: validity and reliability tests. Validity tests use factor analysis with values greater than 0.5 and reliability tests using Cronbach alpha more than 0.7. Questionnaires for variable user IS adopted from Davis, [40] and Thompson et al., [49], individual performance adopted from Bernardin & Russel [50] and user satisfaction adopted from DeLone & McLean, [7] and Seddon & Kiew, [43]. The questionnaire in this study used a 5-point Likert scale. For hypothesis testing, the analysis used simple regression analysis and hierarchy regression [51][52].

4. Results and Discussion

The dissemination of questionnaires showed that as many 350 questionnaires for regional financial IS operators worked with North Maluku Province, Ternate City, and Tidore Island City. Of these, only 273 questionnaires were returned, and a total of 261 questionnaires were declared

eligible for further testing. In comparison, the rest is considered defective in charging. The questionnaire's returned rate was 78%.

Table 1. Respondents Perception on user Information system, User Satisfaction of IS and Individual Performance (Source: data process)

Variable	(%) Strongly Disagree	(%) Disagree	(%) Neutral	(%) Agree	(%) Strongly Agree	Mode
User IS	-	-	17,24	48,28	34,48	Agree
User Satisfaction IS	-	-	10,34	48,28	41,38	Agree
Individual Performance	-	6,90	20,69	62,07	10,34	Agree

Based on table 1, respondent perception related to user variables, performance, and user satisfaction of IS. For variable user IS, respondents agree that the intensity, frequency, and the number of types of software used to get the job done. Furthermore, respondents agreed that performance was seen from the quality, quantity, work produced, and the time spent completing a job for performance variables. Lastly, for variable user satisfaction IS, the respondent's information system agrees and is satisfied with the efficiency, effectiveness, information, interface display, and overall IS used.

Table 2. Validity and Reliability Testing Results (Source: data process)

Factor	Factor 1	Factor 2	Factor 3	Cronbach Alpha
KMO Measure of Sampling Adequacy = 0,679				
SIUser1	0,862			0,861
SIUser2	0,866			
SIUser3	0,935			
KMO Measure of Sampling Adequacy = 0,781				
Performance1		0,726		0,869
Performance2		0,773		
Performance3		0,875		
Performance4		0,841		
Performance5		0,795		
Performance6		0,691		
Performance7		0,622		
KMO Measure of Sampling Adequacy = 0,795				
Satis.Use1			0,818	0,892
Satis.Use2			0,797	
Satis.Use3			0,876	
Satis.Use4			0,834	
Satis.Use5			0,727	
Satis.Use6			0,800	

The tests in table 2 above show the results of validity and reliability tests. For test results of good validity of user IS variables, individual performance and user satisfaction IS having loading factor values above 0.5. Furthermore, reliability test results also have an alpha Cronbach value above 0.7, so the variables used in this study can be said to be valid and reliable [53][54][55].

Table 3. Hypotheses Testing

Independent Variable	Individual Performance			User Satisfaction SI		
	β	t	Sig	β	t	Sig
User SI	0,649	12,220	0,000	0,790	30,425	0,000
User Satisfaction IS	0,797	14,277	0,000	-	-	-

Abbreviation: Beta (β), t count (t), significant (Sig)
Source: data processed

The results of hypothesis testing indicate that the use of information systems has a positive effect on individual performance ($\beta = 0.649$, $t = 12.220$, $P < 0.05$), the user of IS had a positive effect on the user satisfaction of the IS ($\beta = 0.790$, $t = 30.425$, $P < 0.05$), and user satisfaction IS positively affecting individual performance ($\beta = 0.797$, $t = 14.227$, $P < 0.05$), so the hypotheses 1, 2, and 3 submitted in this study are supported. Hypothetical test results can be seen in table 3.

Table 3. Direct, Indirect and Total effect IS User Satisfaction Variables (Source: processed data)

variable	Direct	Indirect	Total Effect
User SI – User Satisfaction SI	0,790	0,629	1,278
User Satisfaction SI – Individual Performance	0,797	-	-
User SI – Individual Performance	0,649	-	-

The test results showed the user satisfaction of the IS mediating the full relationship between the user IS and individual performance. The direct influence of users IS on individual performance was 0.649, with mediation being 1,278 (total effect), so hypothesis 4 in this study was supported. Direct, indirect, and total effect test results can be seen in table 4.

Based on the results of hypothesis testing, the use of IS has a significant positive effect on individual performance. Based on the results of hypothesis testing, the use of SI has a significant positive effect on individual performance. This result is in accordance with the opinion of Davenport & Short, [36] and Thong, [37] that when users are more proficient in running applications, it will greatly determine the perceived performance of individuals. This study's results are also supported by Lucas, Jr [38] and Lucas & Spitler [15]. This result suggests that when one can use IS related to the intensity and frequency of use and how much software is used, it will significantly determine performance individually.

The test results of hypothesis 2 also showed that the use of IS positively and significantly affects user satisfaction IS. The results of this study are in line with the opinion of Amin et al., [42] that people who use information systems will feel satisfaction if the system is considered in accordance with the needs of the job. This study shows that the satisfaction of using IS is primarily determined by the IS used. A person who is satisfied with using the IS will feel the efficiency and effectiveness in working, the friendly interface, and the information obtained so that that satisfaction [56][49], will have an impact on the ease and use of IS on an ongoing basis [42][25].

Similar to the test results on hypotheses 1 and 2, hypothesis 3 also showed a positive and significant influence between user satisfaction of IS and individual performance. The results of this study are in accordance with the opinion of Sudarwo, et. al., [45], McGill, et. al, [44], and Buamonabot, et. al., [57] that people who are satisfied will continue to choose, use and be comfortable with the system, so that it will automatically have an impact on increasing that person's performance. The results of this study were also supported by Ali & Younes, [16] and Tam & Oliveira, [47] that a person with high performance will feel the quality, quantity, and time to complete the work is already as expected.

Hypothesis 4 testing related to the mediation testing of user satisfaction IS on the relationship between the use of IS and individual performance. The results show that the proper use of IS can be a solution to improve user satisfaction of IS which can ultimately impact on improving individual performance. Individual performance is also determined from the use of IS, so the results of this study also show that the use of IS can indirectly affect user satisfaction of IS on individual performance. The results of this study are also in accordance with the opinion of Meissner et. al., [5] and Ho & Cho [6] that the success of information system users and their impact on individual satisfaction and performance cannot be separated from good communication between leaders and information system managers.

5. Conclusion

From the elaborations above, it can be concluded that the results of this study contributed to the proof of hypotheses, especially on the relationship between the use of IS and user satisfaction of IS. This result indicates that the satisfaction of the use of information can be affected by the use of IS.

Second, it is related to user satisfaction testing of IS as mediation variables. The results showed that variable user satisfaction IS could be a full mediation of the relationship between IS and individual performance. Besides, this study also has some limitations and recommendations for future research, namely the first, homogeneous research samples, therefore future research should research with samples not only in the government sector but also the private sector, this is to aim for heterogeneity of data and generalization of the results of the broader research. Second, this research is also limited by using only one independent variable. Therefore, future research can add variables of information quality, information quality, perceived usefulness, perceived enjoyment, and perceived ease of use.

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