JURNAL ILMIAH TEKNIK INDUSTRI
ISSN: 1412-6869 e-ISSN: 2460-4038
journalhomepage: http://journals.ums.ac.id/index.php/jiti/index
doi: 10.23917/jiti.v18i1.7116

Enhancing Usage Behavior of E-procurement Through Organizational Values

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Abstract.*The main purpose of this paper is to examine empirically the influence of organizational factors on the adoption of e-procurement in government institutions.The research design used is a survey research. This study examines theoretical models involving 185 respondents from 130 work units of all local government agencies in Central Java, Indonesia. Data analysis was done by using structural equation to know influence of organization value in e-procurement adoption process in government institution. The result of the research shows that organizational polychronicity values influence the behavior of e-procurement. Characteristics of dynamic organizational functions and tasks directly enhance the use of e-procurement behavior. Another finding, the learning organization has an effect on the e-procurement intention. The ability or capacity of the organization provides an opportunity for individuals to do individual learning will further activate the process of adoption of various applications of e-procurement. An important result of this study is that organizational value is one of the main determinants of successful adoption of technology. The findings of this study provide insight into the importance of organizational value in supporting the successful implementation of e-procurement.*

Keywords: *e-procurement;, organizational polychronicity, learning organization.*

I. INTRODUCTION

E-procurement is considered necessary to be implemented in the public or government sector in order to realize the values of good governance, such as transparency, accountability, and integrity in the procurement of goods and services. According to Ahmed (2018), e-procurement is one of the main topics in the e-government area so some organizations need coaching and supervision about the use of the new technology. Straub (2009) states that procurement of goods and services is the most significant government activity, not only in terms of the amount of activity but also the allocated funds. Therefore, the successful implementation of e-procurement in the private sector or business becomes a driver of e-procurement utilization in the public sector.

Since the second half of 1999, the presence of e-procurement in the business sector began to grow rapidly. According to Lada et al. (2009), the development of e-procurement applications in government is due to the weaknesses found from previous conventional procurement systems. Innovation and creativity potential tend to be limited when governments follow regular and uniform standard procedures. The issue of public accountability of the conventional procurement process is also an ethical issue.

Initially, the implementing e-procurement in the public sector, the system is expected to improve the efficiency of public organizations such as in the business sector. E-procurement in turn is also expected to build an internet-based national market (Zolait et al., 2009). In addition to efficiency, e-procurement applications in government are also aimed at improving the effectiveness, fairness, transparency and equity among citizens in the provision of goods and services (Aguiar & Reis, 2008; Zolait et al., 2009). Nevertheless, research that has been done so far results in different conclusions about the success of the e-procurement adoption process.

However, different conclusions are expressed by Cudanov et al. (2018). According to those factors of organization type, organizational readiness in initiating e-procurement, the

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Submitted: 05-11-2018 Revised: 21-05-2019
Accepted: 17-06-2019

existence of procurement strategy, documentation of procurement and information technology influence in e-procurement adoption. However, organizational factors (number of employees and size of budget), information technology capacity, management commitment, supplier capability and willingness, and trust relationship do not influence e-procurement adoption.

The adoption of e-procurement has been conducted in various countries around the world. The United States, Britain, Italy, Australia, New Zealand, South Korea, Brazil, Mexico, Turkey, are the countries that have adopted e-procurement (Ibem et al., 2018; Saastamoinen et al., 2018). The United States was one of the first developed countries to adopt e-procurement in 2000. However, e-procurement implementation is not easy to do. There is a tendency for e-procurement adoption in the public sector to be delayed. This implies that incrementalism or the disjointed process of e-procurement adoption is always inherent in the public (Straub, 2009). This condition can not be separated from the costs or challenges for e-procurement implementation in the public sector.

Countries implementing e-procurement are reaping mixed results. America, Britain and New Zealand are countries, where e-procurement application initiatives in the public sector are less successful (Brandon-Jones & Kauppi, 2018). While Brazil, Mexico, Australia, and Turkey are the countries that adopt e-procurement they are considered successful as seen from cost savings indicator up to 25%. According to Chibani et al. (2018), e-procurement development in America is the most rapidly new in the "cataloging" stage. At this stage, there is information online about government procurement of goods and services through government websites. Then the government starts to bid auction and contract submission information through its website.

In Indonesia, e-procurement demonstrates its own strategic role to assist in the realization of bureaucratic reform. E-procurement is regarded as one of the most effective e-government initiatives delivering tangible results in the form of transparency and efficiency of government procurement processes and prime movers of e-government. For the case in Indonesia, the implementation of e-procurement initiated in 2008 showed remarkable results, especially in the development of the system's intensity in government institutions. One of the researches conducted in Indonesia regarding the implementation of e-procurement states that the implementation of e-procurement in the government of organizations requires solidarity movement of individuals who are voluntarily diffusing technology. Implementation of e-procurement also requires personal capability to adopt the technology that is perceived behavioral control and self-efficacy (Praveen & Khaliq, 2008).

The literature has provided a number of studies to examine the main determinants of technology adoption. Seeing the difference of research results above which this research proposes another perspective that is the value of the organization as one of the main factors that determine the success of e-procurement adoption in government institutions.

II. Literature Review

This section will explain each variable that used in this research. Organizational learning and polycronicity had been developed in the recent years (Arnitage & Conner, 2011; Ahmed, 2018). Eventhough, intention had strong relationship to organizational commitment, it is still debatable (Straub, 2009; Zolait et al., 2009; Alsheri & Drew, 2010).

Intention: Lada et al. (2009) stated that this intention is the closest cognitive anticendent of the actual behavior. However, that does not mean that measurement of intentional and behavioral relationships shows perfect correlation (Daoud & Ibrahim, 2018). It is commonly found that when behavior is under the control of an individual, his behavior can be predicted from that intention quite accurately (Alsheri & Drew, 2010). Someone will do the behavior (behavior) if have intention (behavioral intention) to do it. Previous researches (Straub, 2009; Zolait et al., 2009) argue that this intention is a good predictor of the use of technology. Other studies have also

used construction intentions in predicting the use of behavioral technologies such as intent to use (Armitage & Conner, 2011), behavioral intentions (Majdalaweih et al., 2008; Aguiar & Reis, 2008; Ibem et al., 2018) and the intention to use behavior (Yasin et al., 2018).

H1: *Intention towards e-procurement has a positive effect on the usage behavior of e-procurement*

Organizational Polycronicity: Polychronicity is derived from the concept of polychronicity proposed by Alsheri and Drew (2010) which is then applied to the individual level (Gasco et al., 2018). Polychronicity at the individual level is defined as having broad meaning in which individuals prefer to perform two or more tasks or activities at the same time and they believe in their choice as the best way to do something (Al-Yahya et al., 2018). Instead the monochronic-oriented worker prefers to do one activity at a time and work on each of these activities to be completed in order. As a result, the individual prefers to be tied to the schedule and avoid irregularities. According to Chibani et al. (2018) and Stoica et al. (2018), polychronicity can be viewed in the organizational culture dimension. As organizational culture, organizational polychronicity describes polychronic organizational task orientation.

The construct of work orientation oriented to organizational polychronicity in this research refers to the definition of polychronicity as the dimension of organizational culture that is polychronic organizational task orientation. Characteristics of tasks in the form of organizational polychronicity is emerging from the demands of the organization on its members to be able to perform tasks simultaneously, the burden and responsibility of large and high variety of tasks. Armitage and Conner (2011) states that polychronic-oriented individuals will exhibit higher creative performance compared to monochronic-oriented individuals.

The polychronic organization's task orientation tasks encourage the creativity of individuals to find better ways and methods of work. So that the use of technology is one alternative way that can be used to enable individuals to organize the task orientation of the polychronic organization.

Based on literature review and synthesis process done then the hypothesis proposed is as follows:

H2a: *Organizational polychronicity has a positive effect on intention toward e-procurement.*

H2b: *Organizational polychronicity has a positive effect on the usage behavior of e-procurement.*

Learning Organization: Learning organization is a group of individuals within an organization that continually improve their self-competence to create all the innovations they can create (Ahmed, 2018). The research by Zolait et al. (2009) found a close relationship between management performance and innovative procurement practices within government organizations.

Research conducted by Saastamoinen et al. (2018) generally states that organizations that have a strong culture of innovation are more active in implementing various types of innovation. Therefore, the adoption of technology (e-procurement) is easier to do with low levels of administrative resistance. Moon's opinion was reinforced by Gasco et al. (2018), based on their case study on the procurement of Taiwan Military Industry, stating that the main challenge to e-procurement is the cultural resistance in changing processes and practices procurement of conventional goods to e-procurement.

Directly related to the use of e-procurement technology in the public sector, Bartai and Kimutai (2018) mention the importance of organizational readiness in deciding the use of appropriate software and hardware so as not to cause problems in the application of such technology. The research by Ibem et al. (2018) found a close relationship between management performance and innovative procurement practices within government organizations. Gasco et al. (2018) argues that organizations that have spent much of their energy developing information technology will more easily develop e-procurement. This statement is supported by Daoud and Ibrahim (2018) that organizations that

have implemented integrated systems in their operations will be easier to implement e-procurement.

Based on the literature review conducted the hypothesis proposed is as follows:

H3: *Learning organization has a positive effect on intention toward e-procurement.*

Organizational Commitment: Commitment is the bond between an individual and an organization and affective commitment is defined as the emotional bonding, identification and engagement of an employee with the organization (Alsheri & Drew, 2010). Affective commitment is characterized by three factors: trust and acceptance of organizational goals and values, willingness to focus efforts to help the organization achieve its goals, and the desire to maintain organizational membership (Praveen & Khaliq, 2018). The commitment is the attitude that guides a person's real response or the intent of one's behavior toward a particular object (Aminah et al., 2018) Leaders with high affective commitment demonstrate the attitude of a leader who constantly tries to understand himself to harmonize organizational goals and involve himself fully for organizational progress.

Some research on technology adoption (especially e-procurement) attests to the important role of leadership commitments. Alsheri and Drew (2010) states that the success of technology development (e-procurement) is highly dependent on management performance. If the top leader does not strategically support e-procurement, then its development will face problems. Vice versa, a strong commitment from top leaders can facilitate its development. According to Zolait et al. (2009), management capacity is the most decisive factor in the development of the technology.

The research by Brandon-Jones and Kauppi (2018) supports Reddick's view by stating that the higher the commitment of the authority holder in developing e-procurement, the adoption of the technology will be more successful. Lada et al. (2009) also added that e-procurement adoption is easier to perform with low administrative resistance. Strong support from top level managers or managers will further facilitate the implementation of e-procurement (Cudanov et al., 2018).

Dooley and Purchases (2006) mention internal support organization in the form of desire from within organization to be efficient operation process also give positive influence for adoption of e-procurement. Saastamoinen et al. (2018) mentions supportive conditions (facilitating conditions) in the level of individual trust that the organization supports the changes will increase the use of new technology.

Bartai and Kimutai (2018) stated that commitment is an attitude that guides a person's real response as well as the intention (intent) of a person's behavior towards a particular object. Leaders with high affective commitment will demonstrate trust in the organization and accept organizational goals and values. If the commitment of the leadership then undergoes the process of internalization into organizational practices then this commitment will be an organization value that is trusted by all members of the organization. This value will then encourage members of the organization to have the intention of behaving towards a particular object. In the context of technology adoption, the value of this organization is manifested in the form of an intention to the use of technology.

Based on literature review conducted the hypothesis proposed is as follows:

H4a: *Organizational commitment has a positive effect on intention toward e-procurement.*

H4b: *Organizational commitment has a positive effect on the usage behavior of e-procurement.*

III. RESEARCH METHOD

The research survey is used to test the research model. This research takes the object of research in the Work Unit of Local Government and Higher Education in Central Java Province which has been using e-procurement system. The total work units involved are 359 work units and as many as 130 the number of sample units and the number of respondents as many as 185. Assuming that the procurement organizational

structure of the local government unit has the same organizational structure, the sampling unit is the same as the sampling elements. This research uses probability sampling method with simple random sampling technique.

This study proposes an empirical model in the organizational value perspective. Data analysis was performed using evaluation measurement analysis (outer model) and structural model analysis (inner model). The structural model was tested using Structural Equation Modeling-Smart PLS. In order to qualitatively explore the results of the research, a descriptive analysis was conducted through open questions to the respondents. The results of the analysis are used to complement the findings of further research.

Exogenous variables consist of organizational polychronicity (POL), learning organization (LRN), and leadership commitment (COM). Endogenous variables are the behavior of the use of e-procurement (USE) and intervening variable is the intention toward e-procurement (INT). Described variables can be shown by Table 1.

IV. Result and Discussion

Data analysis was performed in 2 (two) stages of evaluation measurement (outer model) and tested the structural model (inner model). First, the evaluation of measurement (outer model) of empirical models; obtained convergent validity values (>0.7), average variance extrated (>0.5), composite reliability (>0.7), Cronbachs alpha (>0.7) and discriminant validity are eligible. Second, the test result of the structural model (inner model), the model shows the value of goodness-fit models are moderate with a value from 0.234 to 0.265. Table 2 illustrates the output of SmartPLS.

The latent variable correlation in Table 3 shows that the AVE root (diagonal element) has a higher value than the correlation value between the other constructs. This proves that all constructs of USE, INT, LRO, POL and COM have good discriminant validity.

Table 1. Measurement

Construct	Measurement	References
Usage behavior of e-procurement (USE)		
USE1	Full utilization	Aguiar & Reis (2008), Lada et al. (2009), Aminah et al. (2018)
USE2	Frequency of use	
USE3	Time duration ofuse	
USE4	Value of procurement (Rp)	
USE5	Size of procurement	
Intention toward e-procurement (INT)		
INT1	Tendency to use	Cudanov et al. (2018), Chibani et al. (2018), Gupta et al. (2018)
INT2	Possibilityto use	
INT3	Plan to use	
INT4	Decision to use	
Learning Organization(LRN)		
LRN1	Perform individual learning	Majdalaweih et al. (2008), Praveen & Khaliq (2018), Yasin et al. (2018)
LRN2	Motivating individuals to think critically, to take risks on innovation	
LRN3	The opportunity to make improvements and changes Knowledge sharing	
LRN4		
Organizational Polychronicity(POL)		
POL1	Carry out many tasks simultaneously	Straub (2009), Armitage & Conner (2011), Stoica et al. (2018)
POL2	Implement a heavy workload	
POL3	Carry out the task with great responsibility	
POL4	Carry out tasks as diverse	
Organizational Commitment (COM)		
COM1	Support of leader	Zolait et al. (2009), Alsheri & Drew (2010), Yasin et al. (2018), Gupta et al. (2018)
COM2	Involvement of leader	
COM3	Planning of leader	

Table 2. Evaluation Measurement (Outer Model): AVE, CR, CA, T-Values

	Outer Loading	*√ AVE*	*Composite Reliability*	*Cronbachs Alpha*	*T Statistics*
Behavioral use of e-procurement (USE)		0.816	0.908	0.872	
USE1	0.766448				20.834250
USE2	0.688434				13.773228
USE3	0.836800				22.007895
USE4	0.891383				25.533480
USE5	0.878716				24.070960
Intention toward e-procurement (INT)		0.900	0.944	0.921	
INT1	0.915410				31.959123
INT2	0.797062				10.070074
INT3	0.940245				69.132423
INT4	0.940560				71.032286
Learning Organization (LRO)		0.768	0.852	0.771	
LRO1	0.799617				11.813418
LRO2	0.710032				7.346936
LRO3	0.769659				9.015009
LRO4	0.789940				10.921783
Organizational Polychronicity (POL)		0.702	0.726	0.570	
POL1	0.656952				6.282214
POL2	0.450727				3.244343
POL3	0.912643				22.828453
POL4	-0.283325				1.724383
Organizational Commitment (COM)		0.874	0.906	0.843	
COM1	0.792640				19.620671
COM2	0.921833				49.036480
COM3	0.902744				39.634526

Table 3. Latent variable correlations

	USE	**COM**	**INT**	**POL**	**LRO**
Behavioral use e-procurement (USE)	**0.816011**				
Intention toward e-procurement (INT)	0.364909	**0.874256**			
Learning Organization(LRO)	0.355866	0.263265	**0.900278**		
Organizational Polychronicity(POL)	0.364670	0.224653	0.291536	**0.702064**	
Organizational Commitment(COM)	0.303163	0.690731	0.296496	0.304449	**0.7681**

Notes: Bold numbers on the diagonal are the square root of the variance shared between the constructs (average variance extracted) and their measures. Off-diagonal elements are correlations among constructs. For discriminant validity,diagonal elements should be larger than off-diagonal elements

Inner model testing is performed to see the relationship between constructs, as well as the significance value and R-square. The goodness-fit model test of the structural model (inner model) is shown from the R-square value. R-square values of 0.19, 0.33 and 0.67 for endogenous latent variables in the structural model suggest that the models are weak, moderate and good. The following table gives an approximate output. Table 4 gives an output estimate.

Table 4. Testing a structural model (inner model): R-Square

	R Square
USE	0.258900
COM	0.138404
INT	
POL	
LRO	

The test results of the structural model (inner models) shown in Figure 2 below. Intention

towards e-procurement (INT) has a positive effect on usage behavior of e-procurement (USE) (β=0.218, p < 0.05). Organizational polychronicity (POL) has a positive effect on INT (β=0.220, p <0.05) and positive effect on usage behavior of e-procurement (USE) (β=0.244, p <0.001). Learning organization (LRO) has a positive effect on INT (β=0.156, p<0.1). Next, Organizational commitment (COM) has a effect on usage behavior of e-procurement (USE) (β=0.253, p <0.001). Nevertheless COM has no effect on the Intention towards e-procurement (INT).

The analysis shows that the commitment of the leadership have a positive influence on the behavior of the adoption of e-procurement. Management commitment illustrates how much attention and support given by the leadership to implement e-procurement. The results support the idea Teo. Lin and Lay (2009) and Vaidya (2006) which states that top management support will facilitate the implementation of e-procurement. These findings also support the statement Reddick (2004) that the development of e-procurement is determined by the performance of management in the form of support and a strong commitment from the top leadership to this technology. The higher the commitment of the authorities in developing e-procurement, the adoption of this technology will be more successful (Moon, 2005).

The results of the analysis also found that there was no influence of the leadership's commitment to the intentions of the e-procurement. Through descriptive analysis, it can be explained that in government institutions, the leadership of the central figure, a role model and holder of authority over the organization's direction. So that the leadership's commitment to the implementation of e-procurement will respond as a strong support to actually use the technology. Figure 2 shows that the commitment of leadership does not affect the intention but directly affect the behavior of the use of e-procurement. This means that the higher the commitment of the leadership to further improve the technology usage behavior.

Second, hypothesis testing results prove that the organizational polychronicity positive influence on the behavior of the use of e-procurement. This means that the higher the organizational polychronicity will improve the behavior of the use of e-procurement. Hypothesis testing results also prove that the organizational polychronicityalso indirectly have a positive influence on behavior through the use of e-procurement intentions.

Figure 2 explains the findings of this research as a development model of the behavior of the adoption of e-procurement. Organizational constructs polychronicity role in influencing the

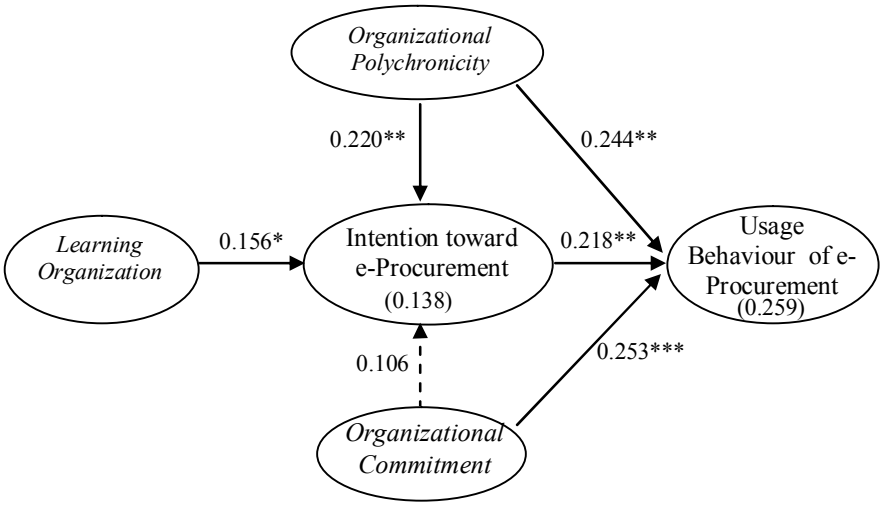

Figure 2. Results

Notes : significance *** p<0.01 **p<0.05 *p<0.10

behavior of the use of e-procurement can be done through two alternative channels, namely directly (direct effect) and other indirect or mediating (indirect effect) through intention. However, this construct direct influence on the behavior of the use of e-procurement higher than their indirect influence on the behavior of these technologies through intention.

Third, hypothesis testing results prove that the learning organization positively influence the intention of the e-procurement. This study supports the opinion of Liao and Cheng in Croom and Brandon-Jones (2005), which states that the change process and procurement practices from conventional to e-procurement becomes easier if there is no cultural resistance within the organization. These findings also support the research Moon (2005) which states that the more innovative organizational culture in the government will be actively adopted various applications of e–procurement.

V. CONCLUSION

This study shows that the values of an organization determine the behavior of the use of e-procurement in government institutions. The results of empirical testing regarding organizational factors prove that the higher management commitment to e-procurement, the behavior of individuals in using these technologies also increased.

Another empirical evidence shows that more dynamic the functions and tasks of organization will further enhance the use of e-procurement behavior. Furthermore, the ability or capacity of an organization that can provide the opportunity for individuals to make individual learning (learning organization) proved to increase the intentions of the e-procurement and will ultimately increase the behavior of the use of these technologies.

This research model has limitations that are relatively small R-square value for endegenos variable of intention to e-procurement and behavior of e-procurement. This shows that there are other variables that influence the intention and behavior of e-procurement. Therefore, further exploration and development is needed for the research model.

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