

The Successful Implementation of E-Budgeting In Public University: A Study at Individual Level

Purwohandoko and Sanaji

Department of Management, State University of Surabaya, Surabaya, Indonesia
Email: warogpurwo2008@yahoo.com, dataaji03@gmail.com

Ali Mustofa

Department of English Language and Literature, State University of Surabaya, Surabaya, Indonesia
Email: ali_mustofa2012@yahoo.co.id

Abstract—The study aims at investigating the relationship of organizational support, supervisor support, and user prior experience on the implementation of successful e-budgeting, that mediated perceived ease of use (PEoU) and perceived usefulness (PU) of TAM. A survey from the users of e-budgeting indicated that supervisor support gave the most contribution on the success of the program. Finally, user satisfaction, user commitment, and user performance were positively influenced by PEoU and PU.

Index Terms—implementation success, E-budgeting, innovation, public university

I. INTRODUCTION

The Formation of Public Service Agency (PSA) for state university in Indonesia is one of reformed effort in public sector. This reform is to promote good governance practice to be more transparent, accountable, efficient, effective, and productive in serving and utilizing of the resources. Currently, utilization of information technology in public sector becomes an important and critical decision in achieving good governance, because it can simplify working system, increase efficiency and performance [1].

Currently, information technology becomes an inevitable part of modern organization, so maintaining strong boundaries between two fields is counter-productive, because its developments requires knowledge of technological systems, social processes, and interactions [2]. This research attempts to fill this gap by proposing an integrated model from information technology and organizational behavior research, particularly in the context of organizational adoption of information technology. We proposed satisfaction, commitment and user performance as successful indicators of implementation. Job satisfaction, organizational commitment, employees performance is main variable which have been studied in organizational behavior [3], [4]. Some researchers suggested that the user acceptance to the innovation is a critical phase [5]. But, this stage has not been implied on the successful, if it

could not enhance the performance of individual and or organizational [6], [7]. Previous researches on information technology adoption tend to focus on antecedent of adoption or user acceptance, and they only ended in this stage. Although, some studies have been carried out to integrate the two models [8], they only rest on explaining how processes and their impacts on individual in implementation stage.

II. LITERATURE REVIEW AND HYPOTHESES

A. The Technology Acceptance Model

Davis's [5] Technology Acceptance Model (TAM) and Information System Success Model [6] are two models which are widely cited in the study of implementation information system success [8]. TAM was derived from Fishbein & Ajzen's [9], Theory of Reasoned Action (TRA), and explains end-user acceptance of computer technologies [5]. TAM was applied in a broad range of computing and other technology innovations [10].

The outcome variables of TAM are user acceptance and they are influenced by two beliefs variables, namely PEoU and PU [5]. Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" [5]. Thus, perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" [5].

B. Factors Affecting PEoU and PU

There are two levels of decision in organizational adoption of innovation [11]. Level 1 is the innovation adoption by organization and level 2 is the acceptance of innovation by organization members. This study is at level 2. In this level, the successful implementation of innovation is determined by the acceptance of the organization members, when the innovation has been used routinely and thoroughly and then to be integrated in organizational units [10], [11].

TAM was criticized for its neglect of the influence of organizational, social, and individual factors in shaping the attitudes and beliefs of the target users on innovation

[12]. Theoretically, individual decision to accept an innovation is not in a vacuum situation, but to be influenced by a variety of factors, including individual differences, social influences, beliefs and attitudes, situational influences, and managerial interventions [13]. These factors influence the user acceptance via PEOU and PU [10], [11].

Organizational factor was attributed to organizational facilitator or internal marketing [10], [11] and perceived organizational support [14], [15]. Related to the different terms, organizational support is defined as organizational efforts to influence and support the implementation of e-budgeting system. These efforts include training [11], technical support [5], [11], social persuasion [10], [11], incentives and control structures [16], [17]. Previous researches have concluded that organizational support is positively related to job satisfaction [14], [18], organizational commitment [14], [19], and job performance [20]. It is argued that organizational support can be used to explain the successful implementation of innovation, by adding process variables namely PEOU and PU of TAM [5], [11]. Based on this view, we proposed:

H1: Organizational support influence PEOU of e-budgeting positively.

H2: Organizational support influence PU of e-budgeting positively.

In level 2 organizational adoption of innovation [11], the acceptance of e-budgeting by employee is not voluntary decision, but tends to be a mandatory. The influence of social environment to be an important variable in the acceptance of innovation by employees within organization [5], [11], [15]-[17], [21]. Organization members will exhibit more positive attitudes if people in their social environment also use the focal innovation [10], [11]. Previous researches vary in including social factor, such as supervisor support and peer usage [10], peer usage and social network [17], and internalization, identification, and compliance [21]. In workplace setting, supervisor is identified to have important roles, because he/she is source of subjective norms to subordinate [11]. Encouragement, attitude, opinion, and direct instruction by supervisor are likely to be followed by his/her subordinate. Therefore, we hypothesized:

H3: Supervisor support influence PEOU e-budgeting positively.

H4: Supervisor support influence PU e-budgeting positively.

Individual factors are derived from personal characteristics, such as tenure, innovativeness, and prior experience [10]. In fact, information technology is an innovation cluster [22], developed over time and is complementary to the prior innovation. The study focused on user experience prior as a predictor of PEOU and PU. User prior experience and familiarity with technology reduces anxiety and provide confidence [17], [23]. The ability to use technology which was previously

included in the cluster will affect the next acceptance of related-innovation [22]. Hence:

H5: User prior experience influence PEOU of e-budgeting positively

H6: Prior experience influence PU of e-budgeting positively.

Previous researchers [10, 11, 17] confirmed that PEOU has positively influenced the usefulness of e-budgeting. And, based on TAM, PU was influenced by PEOU [5], so:

H7: PEOU influence PU of e-budgeting positively.

C. Consequences of Implementation Innovation for Employees

The consequences of implementation of new technology in organization are change on structure, psychosocial, and managerial [24]. The changing of psychosocial subsystem is the most relevant issue. It refers to the interaction of psychological and social aspects between individual and work environment [25]. This change includes satisfaction, commitment, and performance [24], and they can be enhanced after the acceptance of innovation [13], [26].

User satisfaction is a positive or negative feeling as a result of an evaluation of the use of innovation [16], [27]. User satisfaction can be influenced both by PEOU and PU [28]. User satisfaction will be higher if the innovation perceived has better benefits or can be performed well. So, we propose:

H8: PEOU influence e-budgeting user satisfaction positively.

H9: PU influence e-budgeting user satisfaction positively.

User commitment was proposed as antecedent [21] and consequence [29] of implementation success. As form of attitude, commitment is proposed as consequence of implementation. Commitment is multidimensional construct [21], [31], but this study focused to affective commitment, that refers to the commitment of the system user based upon congruence of personal values and identification of satisfying self-defining relationships [21]. If individual perceived there is highly organization support, he/she will reciprocate in positive attitudes and behaviors. It is argued that the influence of organization support is not affected directly, but depends on its effect on PEOU and PU. Then:

H10: PEOU influence user commitment to e-budgeting positively.

H11: PU influence user commitment to e-budgeting positively.

The use of information technology will predictively influence performance if the user perceived that there is a task-technology fit [32]. E-budgeting system is appropriately fit to the user task in budgeting practice, and this system will improve user performance when it is ease and more useful [5]. Therefore:

H12: PEOU influence user performance of e-budgeting positively.

H13: PU influence user performance of e-budgeting positively.

III. METHODS

The study uses a survey of 35 accounting and finance staff, as users of e-budgeting system at Universitas Negeri Surabaya (State University of Surabaya). This system is an intranet web-based which integrates 28 work units in the university to facilitate budgeting activities, such as planning, cash and asset management, and financial reporting. The data were collected using questionnaires, which were developed based on literature review as well as understanding of the characteristics and the objectives of the system. We conducted content validity test via focus-group discussion to assess the appropriateness of measurement variable. Organizational support was measured using three dimensions: training, technical support, and commitment implementation [10], and each dimension was measured in multi-items. Finally, we developed 72 items, including organizational support (15), supervisor support (4), prior experience (5), PEOU (7), PU (17), user satisfaction (9), user commitment (8), and user performance (7). We applied a five-point Likert-like scales, ranging from (1) “strongly disagree” to (5) “strongly agree” to arrange response formats for all items.

Data were analyzed using Partial Least Square (PLS) with SmartPLS to assess convergence, discriminant validity, internal consistency, and hypotheses testing. PLS was used since the sample size denoted relatively small number. Chin & Newsted [33] recommended sample size of PLS was ranged from 30 to 100 cases. The result showed that convergent validity was appropriate (loading > 0.50 and AVE > 0.50), but discriminant validity was not, for user satisfaction, user commitment, and user performance, since the items showed high intercorrelated to the other ones. We did not drop the items because the three variables were tested in different equation. Internal consistency was quite good (about 0.831 to 0.958). Finally, we used global goodness of fit (GoF) formula [34] to assess GoF, and the model was appropriate (GoF= 0.638).

IV. RESULT

Table I presents the standardized parameter estimates, the coefficient of determination, and t-statistic for testing the hypothesis.

In our model, all paths were positive, but there were four hypotheses that did not fit at all. Organizational support did not influence the PEOU, but prior experience and supervisor support were significant influence. The three independent variables denoted about 52% of variation on PEOU, and supervisor support had the most effect. For dependent variable PU, only PEOU can influence significantly. R^2 in this equation was quite high ($R^2 = 0.72$). The non significant influence of organizational support on PEOU and PU possibly emerged some questions. But, based-on simple correlation, organizational support correlated significantly with the two variables with $r = 0.525$ and $r = 0.523$ respectively. Thus, organizational support could be considered as an important factor to support the successful implementation of e-budgeting. Although no

significant effect, but user prior experience significantly correlated with PEOU ($r = 0.474$). Furthermore, for the rest of endogenous variables, the result of test supported the hypothesis. PEOU and PU had a significant influence on user satisfaction, user commitment and user performance.

TABLE I. THE RESULTS OF HYPOTHESIS TESTING

Hi	Path	Standardized Estimate	t-Statistic	R2
H1	Org. support -> PEOU	0.141	1.094	0.520
H3	Prior experience -> PEOU	0.229	3.448*	
H5	Supervisor support -> PEOU	0.517	5.837*	
H2	Org. support -> PU	0.035	0.292	0.720
H4	Prior experience -> PU	0.116	1.312	
H6	Supervisor support -> PU	0.147	1.325	
H7	PEOU -> PU	0.663	7.515*	0.646
H8	PEOU -> user satisfaction	0.464	3.612*	
H9	PU -> user satisfaction	0.344	2.705*	
H10	PEOU -> user commitment	0.259	2.348*	0.599
H11	PU -> user commitment	0.595	4.572*	
H12	PEOU -> user performance	0.397	3.512*	0.667
H13	PU -> user performance	0.443	3.638*	

Note: * = sig. at alpha = 0.05

V. CONCLUSION

Based on the results of hypothesis testing, it can be drawn several important conclusions. Organizational factor did not effect PEOU into a question mark about its position as an external variable. The previous studies also put up a diversified findings. Training did not influence PU, but it influenced on PEOU, and hence the technical support did not affect PEOU [11]. Technical support gave impact on adoption, but training did not [35]. Diversity gave results over the influence of organizational factor on the formation of PEOU and PU caused by several factors: (1) a dynamic innovation which was used routinely every day, it required employees to be able to solve the problem immediately, (2) occurring the process of self-learning continually toward the use of systems, and (3) a dominant bureaucratic culture in the public organization needs much time to make daily problem solving.

The role of a supervisor who was more dominant in shaping the users' beliefs, provide an important implications. E-budgeting in the public sector was a complex innovation. It related to varied procedures and government regulations, so that the knowledge and skills of supervisors on government regulation and the use of tools become indispensable. Furthermore, user prior experience significantly influences PEOU to the role of the compatibility of the innovation on user. The formation of PU was also interesting, since it was only PEOU which had significant effect. Furthermore, it was concluded that there was full mediation to the effect of supervisor support and user prior experience on PU, but no mediation from organizational factor.

In organizational context, user satisfaction for the use of a work tool could become a critical driver, if the innovation was the main tool to carry out the task, so the performance of the usage would give impact to overall job performance. The result of this study provides a new discourse on how the impact of the implementation of information technology in general. When information

technology becomes an inescapable necessity for the public sector to facilitate administrative and managerial tasks, the success and failure can be a source of formation of positive attitudes and behavior of employees in the workplace.

VI. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

To reinforce other research's findings and discussions, this study has its own limitations. First, the relatively small sample size from one public organization has been used to generalize the ideas. Further studies, should be carried out with the involvement of various public organizations. Second, comparative study to test the proposed model in public and business organizations was also considered to be relevant to give insight of the different role among variable in explaining the successful endeavors. The specificity of public and business organizations potentially provide a unique understanding of and the determinants of successful implementation of e-budgeting.

Third, research on the individual level still could not be able to explain the impact of the implementation of e-budgeting on organizational performance. Therefore, further studies need addressing on this issue. Because, information technology is not a single innovation, but it is a bundle innovation bound to other innovation types, though it defines the type of innovation and becoming the objects of observations from time to time for future researchers.

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Purwohandoko is an associate professor of management and financial support in State University of Surabaya (Unesa). He was graduated from Accounting Education of Institute of Teacher Training Education of Semarang (IKIP Semarang, 1980). He then joined Master Degree program of Magister Management of Brawijaya University of Malang in 2000. His doctorate degree in Economic and Management was earned in 2009 from Brawijaya University of Malang too. He takes concerns of management and financial support for the organization and institution. He helps his institution to develop the management system for financial transparency and technology. His research on financial and management supports have been used to assist the government and institution to develop new model for financial and management support using web based technology. Dr. Purwohandoko has done a lot of research in management technology and organization. He also supervises the students who take concern as the same field as his during 2009-2014 in Graduate School of State University of Surabaya. He has been collaborated his ideas with students to carry out many different

researches on economic, finance, management, and information technology.

Sanaji is an associate professor of Management Department, Economic Faculty of State University of Surabaya. He was graduated from Management Department of Airlangga University of Surabaya in 1998. His master degree was in Economic and Management from Airlangga University of Surabaya in 2003. He is now enlisted as the student of Doctorate Degree program of Economic and Management, Graduate School of Airlangga University of Surabaya. He has carried out many researches in adoption and diffusion of innovation of information technology at organizational and individual level. His research has been used as a model for innovation of information technology either in his institution or also in government organization. Mr. Sanaji also supervises students in his department to accomplish their final projects on management and information technology. He has been collaborating with many researchers from different schools and organizations in order to help the government to successfully implement the web based technology in economic and management system.

Ali Mustofa is an associate professor of English Literature in English Department, State University of Surabaya. He has been graduated from English Literature of Dr. Soetomo University in 1998. His master degree program was achieved in 2002 from English Language and Literature Education study program, State University of Surabaya. His doctorate Degree was achieved in the same university in 2008. He has supervised many teachers from different schools and institutions to optimize the web based technology to support their teaching program, in collaboration with the local government of Surabaya. His researches are mainly on developing teachers' professional skills and information gap in order to develop professional teachers. Dr. Ali Mustofa also supervises students who take concerns with educational and management support for education. His researches are mostly on developing professional skills as teachers and educators. He has been collaborating with local government and institutions to support the government's mission on web based technology of education.