

Computerization and Its Provision to Internal Control – The Users’ Perspective in Regional State Owned Water Enterprise

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Abstract

State Owned Water Company, as one of the Regional State Owned Company (BUMD) of Jombang Regency, whose business is engaged in the distribution of clean water for the general public. At the local public water company, it uses Information Technology Systems (STI), one of which is the SIKOMPAK (Computerized Accounting Information System) software program. Proper use of STI and supported by the expertise of the personnel or users who operate it so as to increase and support the productivity of the performance of the company and the individual concerned as well as support attitudes towards system use. Therefore, in line with the achievement of company goals, it is necessary to apply the use of appropriate technology so that it is considered very influential and generally used in information technology systems, namely the Technology Acceptance Model (TAM) and the theory of planned behavior (TPB). This study uses the theory of planned behavior or TPB and the Technology Acceptance Model / TAM to analyze the relationship between the perceived usefulness of attitudes towards system use, subjective norms for attitudes towards system use, and perceived behavioral control over attitudes toward system use. In data analysis using SEM-PLS (Partial Least Square) and data processed using Warp Pls 5.0 tools. The results of this study state that 1). The perceived usefulness of interest in information systems behavior attitudes has a positive effect on attitudes to system use. 2). Subjective norms have no positive effect on attitudes to system use. 3). Perceived behavior control has a positive effect on attitudes to system use.

Keywords: Information System Behavior, Internal Control, Regional State Owned Water Company

1. INTRODUCTION

Due to the purpose of establishing the Regional State Owned Company (BUMD), many issues have been arising that take notes and attention not only for the regional government and public, but also for the academics. Since the first initiation of promulgation of Law No. 5 of 1962 on Regional Companies (Perusda) and the latest review and revision of Law No. 23 of 2014 concerning Regional Government has divided BUMD into two forms, namely those in the form of limited liability companies and in the form of public companies [1]. Two missions in instituting BUMD, first is as a business activity that provides public services and second is as companies that are expected to contribute to local revenue [2]. However, despite these prominent missions and roles, BUMD shown insignificant contribution and other internal concerns related with management, managers and administrators with insufficient skills and competence, and the inefficient use of funds [3], [4]

Among the addressed issues, Regional State Owned Water Company (Perusahaan Daerah Air Minum – PDAM) as one of BUMDs demonstrated certain effort to improve the performance by information technology, accounting computerized information systems – SIKOMPAK [5]. Specifically, the existence of an information system and technology has proved to contribute in firm’s performance [6], has significant effect on both productivity and profitability [7] and specifically, improving government financial transparency and accountability [8]. Moreover, the use of information system is inseparable with the dimension of internal control as both direct the corporate governance to achieve business objectives [9] (International Federation of Accountants, 2012). Information and communication systems should be closely embedded with its control activities to support their proper functioning and the need to identify problems as early as practical and how each person’s role and responsibilities in the system is indivisible (Principle 14 – COSO Framework) [10].

In ideal implementation, accounting information system conjoint with internal control is implemented to assure the achievement of these three main objectives [10], [11]:

- Effectiveness and efficiency of operations (EFFI) which relates to the effectiveness and efficiency of operations by enabling firms to respond appropriately to risks, and accomplish performance and profitability goals, and safeguard resources against loss.
- Reliability of financial reporting (RELI) which covers the preparation of reliable financial statements, including procedures for reporting any control weaknesses with corrective actions.
- Compliance with applicable laws and regulations (LAW) which specifies adherence to the laws and regulations the organization is subject to.

In contrary, even though tools and techniques have been acknowledged and applied to prevent IS assets from misuse, abuse and destruction [12], the weakest link in supporting information security as part of internal control is correlated with employees as the insider threat inside the organization [13]–[15]. Several studies and research stream of information system suggested to explore the socio-organizational imperatives as its equally important to organization to safeguard their resources [13], [16], [17] and examine ways to improve end user compliance with an organization's information security policies [17]–[20]. Therefore, it is essential to conduct beneficial approach for organizations to focus on the users' intentions and behaviors [21] in this term is their own employees.

In comprehending the users' perception as the individual in organizations, Theory of Planned Behavior (TPB) [22] and Technology Acceptance Model (TAM) [23] are commonly used in information system behavior research. According to TPB, an individual's performance of a certain behavior is determined by his or her intent to perform that behavior. For TPB, attitude towards the target behavior, subjective norms about engaging in the behavior, and perceived behavior control are thought to influence intention, in this study is intention to internal control behavior. On the other hand, TAM proposes specifically to explain the determinants of information technology end user's behavior towards information technology. The influence of external variables on intention is mediated by perceived ease of use (PEU) and perceived usefulness (PU). TAM also suggests that intention is directly related to actual usage behavior. Thus, to align with the recent stream of information system research that direct the focus in intention, this study converge the challenges and aim specifically to explore the users' perspective in regional stated owned water company in Jombang city.

2. METHOD

The research used a quantitative descriptive approach. The population of this research was determined from the number of all users of SIKOMPAK, in this study is all employees in Jombang City Owned Water Company as all employees are the users of the SIKOMPAK, thus the total sample is 75. Questionnaire as the instrument of the research is a closed ended questions as the respondents only chose available answers in the form of a checklist with Lickert Scale (1 to 5) to indicate their agreement or unagreement. Questionnaire was developed by combining the indicator in each elements of TAM and TPB as well as the previous research in information system behavior. The data analysis technique uses the Partial Least Square (PLS) method, which is a multivariate statistical technique that performs comparisons between multiple dependent variables. This analysis was carried out through five stages of testing, namely path coefficient (β) testing, coefficient of determination (R^2), t-test using the bootstrapping method, effect size (f^2).

3. RESULT AND DISCUSSION

Based on the results of testing the first hypothesis, the results show that the attitude variable has a significance value of P value <0.001 , smaller than 0.05. Usefulness of Perception has a positive influence in developing the company's SIKOMPAK Usage Attitude optimally. This research shows that the company has implemented the usefulness of the perception very well, this is one of the most important factors that can make a very big change towards increasing attitudes towards excellent behavior. This research is in line with the research conducted. Every employee is proven to have a user perception in running an information system, this is a determining factor for the attitude of using the system optimally. The higher the level of usefulness felt by users when implementing a system, the higher the awareness of using the system as well as increasing the application of the system. By having a perceptual utility, the ability to capture the motivational factors that influence a behavior. So with this can show how strong a person's desire to try, how much effort is planned to implement the business or job. When the use of perceptions possessed by each user is increasing, it will create an attitude of using the system in every operational activity carried out that will achieve the desired goals. With the attitude of using the system consistently, it is expected that all company operational activities can run well towards achieving profit maximization. In fact, not only from an operational perspective it will run in an orderly manner and according to procedures, but from a financial perspective the company can also be monitored properly.

The company has made use of technology and information by designing various systems, both in the form of software that can provide time and cost efficiency. The control system implemented has supported the achievement of efficiency and effectiveness goals. This is because the Board of Directors has currently designed and implemented a computerized work system and a computer-based accounting information system (data base), the Board of Directors already has a special SOP for every activity, such as cash disbursement activities as a reference for employees in carrying out work functions and carrying out work at various functions that exist in the company. Additionally, the company does not allow employees who are concurrently working functions to carry out their work activities, thus causing the implementation of their work activities to be carried out efficiently and effectively. This shows that all have a good attitude towards using the system. The advantage obtained by this is that it will provide optimal performance in achieving the goals of the company.

Further, another result of testing the second hypothesis, the results show that the attitude variable has a significance value of P value <0.001 which is smaller than 0.05. It shows that H_0 is rejected and H_2 is supported statistically so that Subjective Norms have a positive influence in developing the company's SIKOMPAK System Usage Attitude optimally. This study found that the company with the application of subjective norms on information systems had a positive effect on attitudes to system use, subjective norms were able to have a very good impact on all kinds of efforts made to improve the application of the attitude of using the system for task completion so that it would find

results best for the company. Overall, subjective norm beliefs produce liking or disliking attitudes toward behavior, belief in internal control. Normative beliefs generate social pressure or subjective norms, and control beliefs will provide perceived behavioral contrasts. Together, attitudes toward behavior, subjective norms, and perceived behavioral control will result in behavioral interest and that in turn will lead to an expected attitude that optimizes the use of company systems. The application of the attitude of using the system for work completion by utilizing the norms that the members have already and has been able to produce optimal performance for its employees. There have been many employees who are disciplined in using systems related to the work they are carrying out, many employees have made regular reports to their superiors according to their SOPs. It can be seen that the subjective norms owned by its members can influence the attitude of using the company's system. So with this it can show that the subjective norms of the employees show a picture of the planned business to implement the business or job. Therefore, the attitude of using the system (SIKOMPAK) towards each user is partly due to subjective norms.

Finally, regarding the results of testing the first hypothesis, the results show that the attitude variable has a P value of significance 0.144 greater than 0.05. This shows that H_0 is accepted and H_1 is statistically rejected so that the Perceptual Behaviour Control does not have a positive effect in developing the company's SIKOMPAK System Usage Attitude optimally. Perceived behaviour control also depends on the content and completeness of information provided by an information system. Completeness of content and information provided by the system will support the efficiency of performance and effectiveness of system use. Improved performance efficiency and effectiveness of system use are able to satisfy and respond to user needs. Users will have a positive response to system use. When users perceive the high usability of information systems, user attitudes will be positively affected. The ability to apply motivational factors that will control the perceptual behaviour of the users which affects an attitude of using the system (SIKOMPAK) and can improve job descriptions which can be a reference in the best achievement of company goals. The role of directors in the implementation of activities have not been able to control the perceptual behaviour of their employees by carrying out their duties and authorities, especially in cash disbursement transactions and other work divisions have been poorly presented, this is supported by still many deficiencies in the attitude of using the system in controlling employee behaviour who are still out of the system that has been prepared by the directors in carrying out their work such as cash disbursements in the form of checks, vouchers, receipts, journals for large and petty cash disbursements, and disposition forms, which are not in accordance with the regulations of the Decree of the Minister of Home Affairs for Regional Autonomy Number 8 of the Year 2000 Regarding Accounting Guidelines for Regional Drinking Water Companies. This has been implemented properly in order to create effective and efficient internal control.

The attitude of using the system resulting from a lack of perceptual behaviour control will create problems for the company in improving the performance of its employees. If the attitude of using the system, such as the use of information technology, has not been aligned with perceptual behaviour control, then this will not be able to be utilised optimally so that it will not have a positive influence on the performance of government agencies and support the effectiveness of implementing the task management system in the company.

4. CONCLUSION

This study was used to determine the effect of the TAM (technology acceptance model) and TPB (theory planned behavior) perspective on the effectiveness of internal control. The findings conclude that the company has implemented the use of perception well so that it is able to produce a good attitude to use the system (SIKOMPAK) in completing tasks. Additionally, it has been able to create subjective norms well so as to encourage the adoption of a good attitude to use the system (SIKOMPAK) in completing work. However, the company is unable to control behavior, so it is not able to create the application of the attitude of using the system (SIKOMPAK). As a result, the completion of tasks cannot be carried out optimally.

To enhance the comprehending factors of behaviour to support the internal control, there are practical and research implications that could be proposed from the study. The company is expected to be able to apply the use of the Information Technology System, namely SIKOMPAK, effectively and efficiently using control tools such as the COSO internal control standards, Sarbanes Oxley, and Cobit Framework 5 to simplify the data input process and present quality data results. Furthermore, the implementation of TRA could be combined with persuasion-centric theory [24] and protection motivation theory [25] to examine and extend the understanding of system security intention and system security behavior.

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REFERENCES

- [1] A. Budhisulistiyawati, Y. T. Muryanto, and A. Sri, "STRATEGI PENGELOLAAN BADAN USAHA MILIK DAERAH (BUMD) PERSERO UNTUK MEWUJUDKAN PRINSIP TATA KELOLA PERUSAHAAN YANG BAIK," *Priv. Law*, vol. 3, no. 2, pp. 56–66, 2015.
- [2] R. S. H. Bako, "PERMASALAHAN HUKUM ATAS BENTUK BADAN HUKUM PADA BADAN USAHA MILIK DAERAH," *J. Kaji.*, vol. 15, no. 4, pp. 751–781, 2010.
- [3] I. A. Azre, "Analisis Good Corporate Governance (GCG) Pada Badan Usaha Milik Daerah (BUMD) Provinsi Sumatera Barat (Studi

- Kasus PT Grafika Jaya Sumbar),” *J. Adm. dan Kebijakan. Publik*, vol. 2, no. 3, pp. 187–203, 2017.
- [4] Suharyono, “The Effect of Accountability, Transparency, and Supervision on Budget Performance by Using The Concept of Value for Money in Regional Business Enterprises (BUMD) of Riau Province,” *Int. J. Public Financ.*, vol. 4, no. 2, pp. 236 – 249, 2019, doi: 10.30927/ijpf.584834.
- [5] BPKP, “Peningkatan Kinerja Melalui Penerapan Sistem Pengendalian Intern pada PDAM se-Provinsi Jambi,” 2018. <http://www.bpkp.go.id/berita/read/19477/0/Peningkatan-Kinerja-Melalui-Penerapan-Sistem-Pengendalian-Intern-pada-PDAM-se-Provinsi-Jambi.bpkp> (accessed Nov. 27, 2020).
- [6] N. Melville, K. Kraemer, and V. Gurbaxani, “Information Technology and Organizational Performance: An Integrative Model of IT Business Value,” *MIS Q.*, vol. 28, no. 2, pp. 283–322, 2004, doi: 10.2307/25148636.
- [7] T. Jacks, P. Palvia, and R. Schilhavy, “A framework for the impact of IT on organizational performance,” *Bus. Process Manag. J.*, vol. 07, no. 05, pp. 846–870, 2011, doi: 10.1108/14637151111166213.
- [8] L. Hladchenko, “Government Financial Accountability and Transparency in the Digital World,” 2016.
- [9] International Federation of and Accountants, “Evaluating and Improving Internal Control in Organizations,” New York City, 2012. [Online]. Available: [https://www.ifac.org/system/files/publications/files/Evaluating and Improving Internal Control in Organizations - updated 7.23.12.pdf](https://www.ifac.org/system/files/publications/files/Evaluating%20and%20Improving%20Internal%20Control%20in%20Organizations%20-%20updated%207.23.12.pdf).
- [10] L. Graham, *Internal Control Audit and Compliance - Documentation and Testing Under the New COSO Framework*, 1st ed. New Jersey: John Wiley & Sons, Inc, 2015.
- [11] G. Sarens and I. De Beelde, “Internal auditors’ perception about their role in risk management,” *Manag. Audit. J.*, vol. 21, no. 1, pp. 63–80, 2006.
- [12] M. Workman, W. H. Bommer, and D. Straub, “Security lapses and the omission of information security measures: A threat control model and empirical test,” *Comput. Human Behav.*, vol. 24, no. 6, pp. 2799–2816, 2008, doi: 10.1016/j.chb.2008.04.005.
- [13] C. Vroom, R. Von Solms, P. E. Technikon, P. Elizabeth, and S. Africa, “Towards information security behavioural compliance,” *Comput. Secur.*, vol. 23, no. 3, pp. 191–198, 2004, doi: 10.1016/j.cose.2004.01.012.
- [14] J. M. Stanton, K. R. Stam, P. Mastrangelo, and J. Jolton, “Analysis of end user security behaviors,” *Comput. Secur.*, vol. 24, no. 2, pp. 124–133, 2005, doi: 10.1016/j.cose.2004.07.001.
- [15] G. V. Post and A. Kagan, “Evaluating information security tradeoffs: Restricting access can interfere with user tasks,” *Comput. Secur.*, vol. 26, no. 3, pp. 229–237, 2007, doi: 10.1016/j.cose.2006.10.004.
- [16] S. Pahlila, M. Siponen, and A. Mahmood, “Employees’ Behavior towards IS Security Policy Compliance,” in *Proceedings of the 40th Annual Hawaii International Conference on System Sciences (HICSS’07)*, 2007, pp. 3–6, doi: 10.1109/HICSS.2007.206.
- [17] B. Bulgurcu, H. Cavusoglu, and I. Benbasat, “INFORMATION SECURITY POLICY COMPLIANCE : AN EMPIRICAL STUDY OF RATIONALITY-BASED BELIEFS,” *MIS Q.*, vol. 34, no. 3, pp. 523–548, 2010.
- [18] J. D. Arcy, A. Hovav, and D. Galletta, “User Awareness of Security Countermeasures and Its Impact on Information Systems Misuse : A Deterrence Approach,” no. December 2015, 2009, doi: 10.1287/isre.1070.0160.
- [19] A. Johnston and M. Warkentin, “Fear appeals and information security behaviors: an empirical study,” *MIS Q.*, vol. 34, pp. 549–566, 2010.
- [20] J. Spears and H. Barki, “User participation in information systems security risk management,” *MIS Q.*, vol. 34, pp. 503–522, 2010.
- [21] P. Ifinedo, “Understanding information systems security policy compliance: An integration of the theory of planned behavior and the protection motivation theory,” *Comput. Secur.*, vol. 31, no. 1, pp. 83–95, 2012, doi: 10.1016/j.cose.2011.10.007.
- [22] I. Ajzen, “The Theory of Planned Behavior,” in *The Theories of Social Psychology*, P. A. M. Van Lange, A. W. Kruglanski, and E. T. Higgins, Eds. Los Angeles, London, New Delhi, Singapore, Washington DC: SAGE, 2012, p. 438.
- [23] F. D. Davis, “Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology,” *MIS Q.*, vol. 13, no. 3, pp. 319–340, 1989.
- [24] J. D. Wall and M. Warkentin, “Information & Management Perceived argument quality ’ s effect on threat and coping appraisals in fear appeals : An experiment and exploration of realism check heuristics,” *Inf. Manag.*, vol. 56, no. 8, p. 103157, 2019, doi: 10.1016/j.im.2019.03.002.
- [25] T. Herath and R. Rao, “Protection motivation and deterrence: A framework for security policy compliance in organisations,” *Eur. J. Inf. Syst.*, vol. 18, no. 2, pp. 106–125, 2009, doi: 10.1057/ejis.2009.6.

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