The performance of information systems: Empirical research on government organization

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Abstract: This study aims to examine the effect of user involvement, personal technical abilities, top management support, education & training programs, and formalization of information systems development on the performance of accounting information systems in regional government organization (OPD) in Sleman Regency. The number of samples used was 76 respondents with a purposive sampling method. The multiple linear regression is used as a technique analysis. The results of the study prove that the ability of personal skills and education & training programs has a positive effect on the performance of accounting information systems. In contrast, user involvement, top management support, and formalization of information system development do not affect the performance of accounting information systems.

Keywords: personal technical skills, education and training programs, the performance of accounting information systems

1. Introduction

The era of globalization has made information technology, especially accounting systems, develop rapidly both in government and non-government organizations [1]. Technological developments encourage government agencies to implement accounting information systems to simplify the planning process for financial accountability. Besides, the information system will facilitate decision making, improve services and can be used as a benchmark for the performance results of government agencies [2], [3].

The accounting information system is essential because it can provide financial information and help manage financial data, making it easier to manage the organization [4]–[6]. Therefore, the development of an accounting information system requires the involvement of competent individuals to produce precise, accurate, relevant, and quality information [7], [8]. Users need to be involved in system development because they better understand the problems faced when using technology [9].

Top management plays an essential role in supporting the planning process, system development, resource providers, and advice on better accounting information system design. However, low support from top management and a lack of education and training programs can disrupt the process of accounting information system development [10]. The education and training program for employees aims to improve skills in using accounting information systems to facilitate its development and implementation [11]. Also,
the formalization of development needs to be done in the organization so that the entire information system development process can be archived in a structured manner so that it can make it easier for users and can work effectively [12].

Research on accounting information systems is still interesting because first several companies in Indonesia have experienced failures in system implementation and have had a negative impact on organizational performance [13], [14], second, accounting information systems can increase efficiency and provide added value to a company [15], [16], third, accounting information system problems often occur in government organizations, especially regarding regional financial management, such as incorrect input of assets and changes in regulations [9], fourth, there is an inconsistency in the research results. Several studies suggest that user involvement, personal technical skills, top management support, education & training programs and the formalization of information system development do not affect the performance of accounting information systems [9], [17], [18]. However, other research states that user involvement, personal technical skills, top management support, education and training programs, and the formalization of information system development affect the performance of accounting information systems [3], [15], [19], [20].

This research was conducted to complement the study of [9] by adding to the formalization of information system development as an independent variable because it can serve as guidelines and rules in the system development process that will affect the successful implementation of information systems [12], [18]. The difference with the research conducted by [21] lies in the object of research. The object of the study [21] is a private company, while the object of this research is the government organization (OPD) in Sleman Regency. Government Organizations should be accountable for financial reports to the public, so a proper accounting information system is needed to produce accurate, relevant, and timely financial information [2]. Besides, based on an evaluation from the Financial and Development Supervisory Agency (BPKP) in 2018, the Sleman Regency has used various systems related to regional financial and asset management, but all systems built have not been fully integrated (www.bpkp.go.id).

2. Hypotheses development

The Technology Acceptance Model is used to obtain an understanding of user behavior in accepting and using technology [22]. This theory explains that two factors can influence individual behavior related to the acceptance and use of technology, namely usefulness and ease of use [15]. The expansion of this theory's concept is expected to help predict a person's attitude in the acceptance of technology and convey the necessary information needed about the factors that drive one's attitude [23].

The accounting information system is a collection of resources designed to transform financial data into useful information for decision making [24]. The main function of accounting information systems is to create quantitative value from past, present, and future business events [25]. The performance of the accounting information system has four tasks, namely collecting, conveying, storing and documenting data [26].

User involvement can be defined as the participation of information system users to contribute and be responsible for developing accounting information systems [15]. User involvement has three characteristics, namely relationship, insight & value, satisfaction & support [27]. The importance of user involvement in the process of developing information systems for several reasons, namely, user needs, knowledge of local conditions, unwillingness to change, system users feel threatened and increase democracy [12].

User involvement can be realized by providing opportunities for system users to convey opinions, suggestions, and information in information system development [37]. Information system users will feel responsible if involved in system development so that it will have an impact on improving the performance of the accounting information system [30]. This is supported by research [3] and [19] which state that user
involvement has a positive effect on the performance of accounting information systems. Based on the research above, the following hypothesis is proposed:

**H1:** User involvement has a positive effect on the performance of the accounting information system

Information system personal technical ability means the proficiency of a person or information system user in running the system to complete user tasks related to information systems [28]. Individuals' skills include knowledge, skills, experience, education, and personality [29], [30]. Personal technical skills are related to the performance of accounting information systems. Excellent technical skills can be seen from the level of education and user experience [9]. The accounting information system will help organizational activities if personal technical skills support it in operating the accounting information system to improve the accounting information system's performance. Therefore, the higher the own technical skills, the performance of the accounting information system will increase [22]. This is supported by research [38] and [30] which states that personal technical skills positively affect the performance of accounting information systems. Based on the research results above, the following hypothesis is proposed:

**H2:** Personal technical skills have a positive effect on the performance of accounting information systems

The top management support can be defined as involvement to commit in terms of time, cost and resources that support the use of systems in the organization [31]. The achievement of goals and success measures that can be achieved requires support from top management [32]. Support from senior management facilitates information technology management, operational and strategic activities. Activities in the form of negotiations, information system planning, project management, evaluating proposed system development projects, conducting program reviews and system development plans [33], [34].

The top management has an essential role in determining the success of all activities related to information systems and developing their subordinates' innovative power [20]. Every stage of system development, starting from the planning and analysis of the system to the implementation of the system, requires top management support in the form of providers of the needed resources [3]. Therefore, the higher the support from senior management, the better the accounting information system's performance will be [28]. This is supported by research [15] and [39] which states that top management support has a positive effect on the performance of the accounting information system. Based on the research results above, the following hypothesis is proposed:

**H3:** Top management support has a positive effect on the performance of the accounting information system

Education and training programs are efforts made by organizations to channel knowledge and insights into information systems, including information system design, technical capabilities, organizational capabilities, and information system products [10]. Education and training are essential for the successful implementation of information systems and have three main phases, namely assessment, implementation and evaluation [35], [24].

Every organization must always hold education and training programs for users of accounting information systems in developing accounting information systems [15]. The education and training program aims to improve the accounting information system's ability to operate the accounting information system to improve the accounting information system [30]. This is supported by research [22] and [19] which states that education and training programs positively affect the performance of the accounting information system. Based on the research results above, the following hypothesis is proposed:

**H4:** Education and training programs have a positive effect on the performance of the accounting information system
The formalization of information system development is a system, guidelines, rules and procedures in the development of an accounting information system that is systematically documented and confirmed with existing documents that can affect the successful implementation of information systems [36]. System development consists of three stages, namely system analysis related to analysis of current information systems, system design, and operation [12].

The formalization of information system development will affect the successful application of information systems. Each stage or procedure in the system development process has been documented in a structured manner and confirmed in document form [22]. Therefore, the formalization of information system development is expected to improve accounting information systems [3]. This is supported by research [26] and [40] which states that the formalization of information system development has a positive effect on the performance of the accounting information system. Based on the above research results, the following hypothesis is proposed:

\[ H_5: \text{Formalization of information system development have a positive effect on the performance of the accounting information system} \]

3. Method

The population of this research is all employees of the government organization (OPD) in the Sleman Regency. The sampling technique was purposive sampling with specific criteria. The criteria used as samples in this study were as follows:

- Financial department employees who use accounting information systems.
- He has worked in finance for at least 1 year because he is considered to have experience in using accounting information systems.

The purposive sampling method requires the researcher to understand the respondents who will be selected as samples in the research so that respondents can provide information to researchers about the data needed [41].

4. Measurement of Variables

Accounting information system performance is measured using five indicators: information generated following user needs, information accuracy, ease of access, ease of understanding, and ease of use [15]. User involvement is measured using five indicators: participation in building the system, proposing system development, contributing ideas or thoughts to the system, and a sense of belonging to the system, maintaining the information system [15]. Personal technical ability is measured using three indicators, namely, knowledge, skill, and expertise [8]. Top management support is measured using 5 indicators, namely being proficient in using computers, having high expectations of the use of information systems, being actively involved in planning information system operations, paying high attention to information system performance, rating information system usage [20].

Education and training programs are measured using five indicators: the quality of education and training, systematic procedures, technical skills, learning knowledge, and prioritizing practice rather than a theory [15]. The formalization of information system development is measured using five indicators: namely financial reports for system development projects reported to top management, development documentation, techniques and recording time, information system development costs are allocated to information system development in each part, introduction to computer-based information system control [12]. All questions are measured on a Likert scale from 1 (strongly disagree) to 5 (strongly agree).
5. Result & Discussion
The data in this study were obtained by distributing questionnaires directly to respondents. The questionnaire was distributed to 28 agencies in the Government Organization (OPD) in Sleman Regency which is presented in table 1.

Table 1. Questionnaire distribution results

| Characteristics                                | Total | %  |
|------------------------------------------------|-------|----|
| Questionnaires were distributed                | 112   | 100% |
| Questionnaire returned                         | 95    | 85%  |
| Questionnaire that did not get a response      | 17    | 15%  |
| Processed questionnaires                       | 76    | 68%  |

Table 2. Characteristics of respondents

| Characteristics | Frequency | % |
|-----------------|-----------|---|
| Age             |           |   |
| 21-30           | 4         | 5% |
| 31-40           | 21        | 28%|
| 41-50           | 38        | 50%|
| >50             | 13        | 17%|
| Gender          |           |   |
| Men             | 29        | 38%|
| Women           | 47        | 62%|
| Education       |           |   |
| Senior High School | 13  | 17% |
| Diploma         | 10        | 13%|
| Bachelor        | 37        | 49%|
| Master          | 16        | 21%|
| Occupation      |           |   |
| Finance Spv     | 18        | 24%|
| Finance staff   | 58        | 76%|
| Years of work   |           |   |
| 1-10            | 18        | 24%|
| 11-20           | 30        | 39%|
| >20             | 28        | 37%|

5.1. Instrument testing
The questionnaire must be tested to determine whether the instrument is valid or not by using the validity test. The valid instrument is a positive and significant correlation of α < 5%. The validity test results show that the variables of user involvement, personal technical skills, top management support, education and training programs, formalization of information system development, and accounting information system performance are valid. Reliability testing is used to show how high the reliability of an instrument. The results of reliability testing show that all research variables have a cronbach’s Alpha value of > 0.5 (reliable).

5.2. Hypotheses testing
This research uses hypothesis testing with the Multiple Linear Regression Test. The test results are presented in Table 3. Based on table 3, it can be explained that user involvement does not affect the performance of the accounting information system. Research conducted [42] states that involving users in system
development does not lead to successful accounting information system performance. This is due to the low level of knowledge and experience of users making decisions so that they are unwilling to make decisions and convey their views through suggestions or ideas in system development. Besides, users who are involved in system development, but if not balanced with the ability to adjust the system and do not understand the system and accounting, it can have an impact on the ineffective performance of the accounting information system [43].

### Table 3. Hypothesis testing

| Variable                              | B    | t     | Sig.     | Explanation  |
|---------------------------------------|------|-------|----------|--------------|
| User involvement                      | 0.075| 1.103 | 0.274    | Rejected     |
| Personal engineering skills           | 0.218| 2.493 | 0.015*   | Supported    |
| Top management support                | -0.022| -0.226| 0.822    | Rejected     |
| Training and education program        | 0.197| 2.086 | 0.041*   | Supported    |
| Formalization of system development   | 0.082| 0.970 | 0.335    | Rejected     |

F value: 6.112, Adjusted R Square: 0.254

* Sig < 5%; ** Sig <1%

The second hypothesis testing proves that personal engineering skills positively affect the performance of the accounting information system. Employees who have high technical capabilities can improve the performance of information systems in an organization [32]. Employee technical skills can be seen from the level of education and experience of employees [9]. Accounting information systems that are operated by employees who have technical skills, knowledge, and abilities can produce quality information systems that can operate effectively so that they can support the performance of accounting information systems [30], [44].

The third hypothesis testing shows that top management support does not affect the performance of the accounting information system. This study's results support research [17] that top management support does not affect the performance of the accounting information system. The rejection of the hypothesis in this study is that senior management rarely evaluates the performance of the accounting information system in the organization, which makes system users dissatisfied, and the system usage is not optimal. This routine evaluation aims to determine the obstacles or constraints of the user in operating the system [45].

Testing the fourth hypothesis proves that education and training programs positively affect the performance of the accounting information system. This study's results are in line with research [19] which states that the more training and education will increase the accounting information system performance. The existence of training and education programs is beneficial for users of information systems because it can provide additional knowledge and enhance skills and understanding in using accounting information systems. If the user has mastered the system used, it can support completing the work so that it will improve the performance of the accounting information system [9], [15].

Testing the fifth hypothesis proves that the formalization of information system development does not affect the performance of the accounting information system. The study results support research [36] that the high formalization of information system development does not affect the performance of accounting information systems in organizations. This is due to a lack of cooperation from system users in complying with and implementing systematically structured system development procedures to hinder the process of developing and implementing accounting information systems [46]. Research [43] states that system users tend to ignore formalization and prefer to ask colleagues who have previously mastered the system used by the organization. Also, according to research [18] in the use of accounting information systems, users are not bound by formal rules regarding system development tasks, formalization is only intended to ensure clarity of regulations to ensure equality of business processes.
6. Conclusion

Based on the results of data analysis, two conclusions can be drawn: first, personal technical skills and training & education programs have a significant positive effect on the performance of accounting information systems. Second, user involvement, top management support, and the formalization of information system development do not affect the accounting information system's performance. The limitation of this research is that the research data is only conducted in the government organizations in Sleman Regency. This study only examines the variables of user involvement, personal technical skills, top management support, training and education programs and the formalization of information system development and research only uses the questionnaire method. Suggestions for further research can expand the study's object and sample so that the research results can be generalized [47]. Further research is also suggested to complement the direct interview method with respondents to avoid the possibility that respondents are not objective in filling out the questionnaire and get a clearer picture of the problem [48].

7. References

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