

THE IMPACT OF MANAGEMENT INFORMATION SYSTEM ON ORGANIZATIONAL PERFORMANCE WITH THE COMPOSITION OF TOP MANAGEMENT AS THE MODERATING VARIABLE

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ABSTRACT

The present research aims to study the impact of management information system on the performance of organization with the composition of top management as the moderating variable. The research objects are heads of university management, both state and private. The hypothesis testing was performed using Moderated Regression Analysis. The test results showed that the management information system positively affects the universities' organizational performance. This means that the better the management information system, the higher the performance of a university. The composition of top management has no effect as the moderating variable between MIS and university performance. Thus, the composition of the top management does not reinforce the influence of management information system on the performance of organizations (universities).

INTRODUCTION

Companies face the need for Management Information Systems (MIS) today. It boosts their competitive advantage and performance improvement. MIS that serves as a tool to provide information is indispensable in any company or organization and it is, therefore, an undeniable need. Furthermore, it even constitutes one of the requirements for competitive advantage these days.

Earlier studies have also shown that MIS has been adopted by organizations and top management teams as a strategic management tool in decision making and performance improvement (Lin, 2006; Hagan et.al., 2007). Advantages of MIS implementations in organizations have effects on organizational performance improvement, and previous studies confirmed this in, among others, Fuller and Cooper (1996), Choe (2006) and Gil (2009).

Some studies on the impact of MIS on

performance have also been conducted not only in private sector, but also in public sector that provide services to the community. As for the studies in public sector, they indicate that MIS did affect the performance by making organizations more efficient, qualified, and flexible in providing their services (Kaul, 1997). Gil and Hartman (2006) have conducted similar studies in public sector, i.e. general hospitals in Spain, and the results indicated that MIS has improved the performance of hospitals in terms of cost efficiency, flexibility and quality of care for patients and society.

The reason why the current study is very important is the fact that Human Resource Development in universities frequently takes different forms than those in corporations. A generation gap existed in that difference in age overlooked due to discrepancies between top management's needs and variability in student number. Furthermore, it is not uncommon that universities have

limited fund for HRD and, therefore, achieving only the minimum standard. Education sector is the selected object for the present study because the education institutions need to adopt MIS to improve their performance and to face competition, especially in Yogyakarta as a city with a number of universities, both public and private. It is, therefore, the researchers attempted to test empirically if the MIS have an impact on the organizational performance with the composition of top management as the moderating variable

LITERATURE REVIEW

The existence of MIS as a tool for providing information is indispensable to any parties in organization, and, thus, such a need is undeniable. In fact, MIS has become one of the requirements to win the competition today. It provides benefits and advantages for organizations that make them more prepared to compete (O'Brien, 1996), such as:

1. *Cost Leadership*

The use of technology-based MIS is capable of reducing the costs in production processes, such as marketing and administrative costs.

2. *Differentiation Strategy*

The utilization of MIS provides strategic advantages that differ between organizations, such as the use of websites and software applications that facilitate interaction between stakeholders.

3. *Innovation Strategy*

Organizational innovation strategies can benefit from technology-based MIS, for example interaction with customers using live interaction technologies.

4. *Growth Strategy*

Strategies implemented on the basis of the above benefits will promote organizational growth—i.e. growth in non-financial performance will ultimately improve the financial performance.

5. *Strategic Alliance*

MIS allows organizations to interact with their stakeholders and, thus, to form a strategic alliance with them. Alliance could form a chain of processes that lead to a formidable and sustainable organization.

Lederer and Mendelow (1987) concluded that top management contributes to the success of information system managed by subordinates. If the top management was not aware of the effectiveness of information processes, it is quite likely that the existing system is not fully understood and that PCs are viewed as mere tools. The following are the reasons why information processes failed to provide source of information (Lederer and Mendelow, 1987):

1. The management wasn't aware that the system constitutes the source of invaluable information, not a mere technological instrument.
2. The management has not found any benefits in technology; on the contrary it brings the organization difficulties in procurement and utilization.
3. The management may not be able to see information as a business resource that should be managed for the long run.
4. The management sees information as cost, not as potential long-term economic benefits.
5. The management focuses only on short-term rather than long-term needs, especially those relate to information system.

Proper information processing will provide information accuracy required for decision-making, in this case budgetary participation. The information accuracy will improve organization effectiveness, which in turn will promote budgetary participation in organizations.

MIS aims to meet users' demand, including management's, for information that potentially become valuable for decision making and, subsequently, lead to performance improvement (Gil, 2009). Gil (2009) divided the strategic objective into two: cost reduction and flexibility. The results of Gil's (2009) study indicated that positive relationship exists between MIS

and organizational performance as measured by the flexibility and cost savings.

Management as the party responsible for managing organization plays an important role in supporting the use of MIS for performance improvement. Such a support may become stronger, provided that the management has a composition of age, work experience, education, as well as experience in personal development through a series of activities other than formal education (Hambrick and Mason, 1984).

Lederer and Mendelow (1987) concluded that top management plays a part in determining the success of MIS that can be implemented by subordinates. If the top management was not aware of the effectiveness of information processes, it is quite possible that the existing system is not fully understood and that PCs are viewed as mere tools.

The composition of top management helped reinforce the impact of MIS on organizational performance. If the top management comprised of different ages, work experience, education, as well as experience other than formal education, their ability to perform analysis on an information would be optimum and coherent so that decision-making will be able to improve performance (Carpenter *et al.*, 2004). Simons *et al* (1999) also concluded that heterogenic composition of top management team will generate varied perspectives on organizational operation and activities and, therefore, reinforces the influence of MIS on organizational performance.

Heterogeneous composition of top management team allows for more effective decision-making due to their varied knowledge, skills, experiences, intuition, and perspectives (Gupta and Givindarjan, 1984). The more varied the composition of top management team in an organization, the higher the value added for MIS and the more optimum the performance will be. Gil (2009) concluded that the heterogeneity of top management composition reinforce the influence of MIS on the performance of public sector organizations, in this case hospitals in Spain.

Based on what described earlier, the study formulates hypothesis statements as follows:

H₁: MIS affects the performance of higher education organizations.

H₂: The composition of top management reinforces the impact of MIS on the performance of higher education organizations.

RESEARCH METHODS

Populations and Samples

We choose education organizations, i.e. public and private universities in Yogyakarta, as the object of study upon the following considerations:

1. Universities are organizations that also need MIS implementation in their management to compete and to improve their performance.
2. Universities are organizations with varied composition of management background—education, age, experience, or human resource development

The study population was composed of all management officials of both private and public universities in Yogyakarta. The sampling in this study was conducted using purposive sampling techniques. The criteria include ranked official who have served for at least 2 years. The reason for such a criterion is that over 2-year period respondents have already adapted to and conversant with the organizational MIS in general and, therefore, capable of assessing the MIS and organizational performance.

Data collection in this study was conducted using survey, which is one of the many data collection techniques used, upon consideration of getting data on individual opinions from target respondents (Jogiyanto, 2011). The method has been widely used in earlier studies in the field similar to that in this study, so that it allows for comparison. The primary data was collected by sending questionnaires consisting of a number of questions relevant to the variables used in this study to the respondents based on the above-mentioned criterion

Operational Definition of Variables

All variables in this study are measured on 6 point Likert scale: from the highest scale, Extremely Agree (AE), Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD) to the lowest scale, Extremely Disagree (ED). The researchers opt for this six-point scale for such reasons as avoiding doubts in respondents' answers so that they can be led to focus on more definitive answers. It was also based on the results of Chomeya (2010) study concluding that for the study using questionnaire asking individual questions, the use of 6-point scale generate higher level of discriminant validity and reliability compared to the 5-point scale.

1. MIS (Management Information System) is a computer-based system that provides information for any relevant parties (McLeod, 2007). The variable is measured using an instrument developed by earlier studies asking about the differences in information dimension, scope, timeliness, aggregation, and integration (Gil, 2004).
2. Performance is how an organization is measured with the focus on strategic performance and flexibility (Gupta & Govindarajan, 1984). The variable is measured using 9 questions developed by Gil (2009), asking personal situation, decentralizing responsibility, and cost-reduction programs.
3. Composition of Top Management is the heterogeneity of the organizational management background (Gil, 2009). This variable is measured using 4 demographic characteristic; age, work experience, education, and experience in personal development through various activities other than formal education.

Validity and Reliability Assessment

Data in this study will be worthless if the research instrument for data collection is neither reliable nor valid (Copper and Schindler, 2001). Reliability assessment is

conducted to determine the extent to which the measurement is consistent. It is conducted by calculating the Cronbach's Alpha with the indicator of an instrument being reliable if the Cronbach's Alpha is greater than 0.5 (Hair et al., 1998). Validity assessment is conducted to determine how well the instrument is measuring what it is supposed to measure. It is conducted using inter-instruments correlation matrix with the indicator of an instrument considered valid each has a significance level of less than 0.05 (Hair et al., 1998).

Hypothesis Testing

Hypothesis testing in this study was conducted using Moderated Regression Analysis (MRA) to determine whether the independent variable influences the dependent variable, and whether the a variable moderates the influence of independent variable on the dependent variable.

RESULT AND DISCUSSION

Pilot Test

Before sending the questionnaires to the respondents, researchers conducted a pilot test to determine the validity and reliability of instruments, to avoid vague questions and misperception of the questions, and to estimate the time the questionnaire will take to complete.

The pilot test was given to 44 respondents comprising of lecturers at the Faculty of Economics, University of National Development Veteran Yogyakarta. The results of the pilot testing are as follows: reliability assessment for MIS Development indicates that the Cronbach's Alpha is 0.870, which is greater than 0.5, and thus the variable is reliable and for Performance it indicates the Cronbach's Alpha of 0.814, which is greater than 0.5, and therefore reliable.

The validity assessment for MIS Development indicates that the 12 questions are all declared valid, and for Performance it indicates that the 9 questions are all declared valid assessment for MIS Development

indicates that the 12 questions are all declared valid, and for Performance it indicates that the 9 questions are all declared valid.

Hypothesis Testing

The results of hypothesis testing are as follows:

Table 1. Hypothesis Testing

Variables	t	Sig
MIS	4.093	0.000
Moderating	-.580	0.583

The significance level of 0.000, which is lower than the Alpha (5%), means that the Management Information System (MIS) has an impact on organizational performance of universities (H1 is supported). MIS, therefore, is able to provide information in accordance with the needs of management in the universities.

The results of this study are in accordance with those of Gill (2009). The results are also in agreement with those of previous studies by Carpenter et al. (2004) and Gil (2009) stating that MIS has an impact on organizational performance, which is higher education organization in this case.

MIS is indispensably necessary for organizational activities. With a properly coordinated MIS, organizational performance will increase and improve. In conducting their activities, universities benefited greatly from the MIS, either for the academicians or non-academicians. To put it another way, all stakeholders of universities can feel the impacts and benefits of MIS. The impacts can provide desirable performance improvement for the universities. Universities are expected, in the near future, to continually develop the MIS for the benefit of all parties in order to optimize their performance.

Asfor the moderating variable, it indicates the significance level of 0.563, which is greater than the Alpha (5%). This means that the moderating variable does not reinforce the impact of MIS on organizational performance of universities

(H2 is not supported). The composition of top management does not reinforce the MIS in providing all required information. This indicates that it is quite likely that no diversity was found in the composition of top management of universities.

This could be due to the fact that ranked officials in organizations in universities are of the same age group: either young adult for the universities that put high priority on employing young generation or old adults for conventional universities that put emphasis on seniority. It is rare to find universities that combine both age groups for the purpose of leadership regeneration. With a nearly similar age composition, it is likely that they have similar level of experience. This also holds true in the case of education, both formal and informal. Ranked officials in university organizations are normally came from the same faculty or department with training and courses that also similarly relevant to their education background, and mostly not intended to prepare them serve in organizational management position.

From the analysis described above, we can see that this study differs from previous studies in terms of the research object. The composition of top management in manufacturing organizations is quite different from that in university organization.

CONCLUSION

Based on the knowledge obtained in the present study, we conclude that:

1. MIS has an impact on the performance of university organizations, the impact is positive, which means that the better the MIS, the higher the university performance.
2. Composition of top management has no effect as the moderating variable between MIS and university performance. This means that the composition of top management does not reinforce the impact of MIS on the performance of university organization

The present study has a number of limitations, such as access to top management of universities and their tight schedule, resulting in limited number of respondents. Furthermore, the study does not distinguish between public and private universities that, in fact, differ in their organizational characteristics, especially in their use of budget.

We hope that in the future study, the researchers use access to the communication forum for universities management and distinguish between private and public universities, as well as using additional variable such as budgeting in MIS development.

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