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The Role of Leadership Behavior in Improving the Quality of Accounting Information Systems

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Abstract: Leadership is one of the factors that plays a role in the planning and implementation of accounting information systems. The inability of leaders to do what should be done has an impact on the quality of accounting information systems. This study aims to examine the influence of leadership behavior on the quality of accounting information system. To answer the phenomenon and test the hypothesis, this research uses descriptive method and verification method. The study result shows that leadership behavior significantly influences the quality of accounting information systems. The results of the research can be used to solve the problem on there have no quality of accounting information system by doing what should be done as a leader to achieve goals.

Key words: Leadership behavior and accounting information system, planning and implementation, hypothesis, descriptive method, leadership, significantly

INTRODUCTION

Information is a business resource and is essential for the survival of a business organization (Hall, 2015). Organizations need and use information whether financial or non-financial information to make decisions and solve problems more definitely (Sousa and Oz, 2014). To obtain information, the organization processes the data into information, so that, information becomes more meaningful and useful to improve the quality of decision making processes (Romney and Steinbart, 2015; O'Brien and Marakas, 2012).

Effective information is useful information for making decisions (Gelinas and Dull, 2007). In addition, information becomes high-quality when valuable for users to help organizations achieve more effective and efficient goals (O'Brien and Marakas, 2012; Stair and Reynold, 2012). Conversely, information that is outdated, inaccurate or difficult to understand becomes meaningless and useful information for decision makers (O'Brien and Marakas, 2013). For information to be meaningful and useful, information must meet the following characteristics, relevant, complete, accurate and current and economical (Sousa and Oz, 2014).

Quality of information depends on a quality of information system (Stair and Reynold, 2012). The organization needs an effective information system to produce quality information in accordance with its own characteristics (Laudon and Laudon, 2013). The information system includes a set of interconnected components to collect (or retrieve), process, store and distribute information (Laudon and Laudon, 2013). An information system consists of a combination of organized people, hardware, software, communication networks, data resources and policies and procedures that store, retrieve, alter and disseminate information within an organization (O'Brien and Marakas, 2012).

Quality information related to accounting information is generated by the special subsystem of information systems, namely, accounting information system by collecting accounting data and converting it into accounting information (Gelinas and Dull, 2007). The accounting information system as a system that consist of various components that are used to process financial and non financial data into the quality financial information for decision makers (Susanto, 2017a).

Quality of accounting information systems has specific characteristics such as, flexibility, reliability and integration (DeLone and McLean, 2003). System flexibility describes the ability of a system to change/adapt/adjust in response to environmental changes/new conditions/demands/circumstances that make up the organization (Nanath and Pilai, 2014). A reliable system will produce accurate and timely information, reflecting

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the results of authorized transactions correctly and includes the results of all activities undertaken within the organization over a period of time (Romney and Steinbart, 2005). System integration is formed not only when system components connect and work in harmony (Susanto, 2013) but also refers to the tight integration or linkage of IT-based information systems and databases (Piccoli, 2012). The study can use other indicators, based on the phenomenon found, such as: Susanto (2016a) using indicators such as: user satisfaction and system use to measure the quality of accounting information system. Then Puspitawati (2016) measures the effectiveness of accounting information systems using indicators: flexible, accessible, efficient, easy to use, security, availability and processing integrity.

In fact, accounting information systems at some universities in Java, Indonesia have not met such quality of characteristics as follows, accounting information system at Gadjah Mada University has not been integrated because many units (faculties/directorates) have their own system application and have separate database (Anonymous, 2014). The financial information system of the State University of Legal Entities has been deemed to be less flexible and feared will hinder the progress of higher education (Anonymous, 2015). The accounting information system at UB has not been reliable because there are revenues from universities that are late to be reported (Bisri, 2015).

One of the factors that affect the quality of accounting information system is leadership behavior (Duggan and Reichgelt, 2006; Laudon and Laudon, 2013; Xu and Quaddus, 2013). Leadership behavior is related to what the leader does in relation to completing tasks and keeping the efforts of the person performing the task (Gibson *et al*., 2012). Leadership behavior is one dimension of accounting information system management (Laudon and Laudon, 2013). Associated with accounting information systems, leadership behavior is one dimension in the management of accounting information systems (Laudon and Laudon, 2013). Leadership plays a role to ensure that information systems reserach effectively by assuring that subordinate jobs can research as they should achieve their goals (Wager *et al*., 2017).

Several previous research results have proven the effect of leadership behavior on the quality of accounting information systems that leadership behavior is an important factor affecting the quality of accounting information system (Gelinas and Dull, 2007; Cho and Michel, 2011; Fitrios, 2017).

Based on the background of the problem, this research aims to determine the influence of leadership behavior on the quality of accounting information systems.

Literature review

Leadership behavior: Leadership can be seen from behavioral aspect (Yukl, 2010). Leadership as behavior, reflected in what leaders do when they lead and how they act on a particular situation (Northouse, 2008). Leadership can be meaningful as the behavior of individuals involved in directing group activities (Bass and Bass, 2008; Yukl, 2010). In addition leadership is a behavioral process that focuses on what the leader does on what he leads (Chelladurai, 2006). Thus, it can be said that leadership as a behavioral process is related to what is done and how to act in a group.

Yukl (2010) states that leadership is the process of influencing others by understanding and approving what they should do and how to do it and the process of facilitating individual and collective efforts to achieve common goals. Lussier and Achua (2012) define leadership as the process of influencing others by communicating ideas, getting acceptance from them and motivating followers to support and implement ideas through change. In addition, Daft and Lane (2015) states that leadership is a relationship of influence between leaders and followers who intend real change and outcomes that reflect their common goals.

Based on the above opinion, we define that leadership as behavior is the process of influencing, guiding and facilitating subordinates to achieve organizational goals.

Based on the approach of "The behavior approach, there are 2 dimensions of leadership, namely, consideration behavior and initiating structure behavior (George and Jones, 2011). Yukl (2010) divides leadership behaviors into two main dimensions, consideration and structure. Similarly, Daft and Lane (2015) classifie leadership behaviors into consideration behavior and initiating structure behavior. This research classifies leadership behavior into two dimensions, namely, consideration behavior and initiating structure behavior.

Consideration behaviors include a leader's concern for people and interpersonal relationships where leaders act in a friendly and supportive way and show concern for the needs and feelings of subordinates (Yukl, 2010). Consideration behavior also illustrates the extent to which a leader cares about subordinates, respects their ideas and feelings and builds trust, listens carefully to the problems faced by subordinates and finds subordinate feedback about key decisions (Daft and Lane, 2015). Leaders who trust and appreciate and appreciate good relationships with subordinates to achieve organizational goals show consideration behavior (George and Jones, 2011). The employment relationship between leaders and

subordinates is characterized by mutual trust, respect for employee ideas and attention to their feelings is a feature of the consideration behavior (Robbins and Judge, 2014).

Thus, consideration behavior is the behavior of leaders who give trust, respect and maintain good relationship with subordinates.

Yukl (2010) argues that the initiating structure behavior includes leaders who pay attention to the completion of tasks by defining and forming their own roles and the role of subordinates to the achievement of task objectives. Daft and Lane (2015) explains that initiating structure describes task-oriented leaders and directs subordinates to achieve desired goals such as, directing tasks, planning and providing a clear schedule for research activities. In addition leaders are engaged in research in their field with a view to ensuring that their subordinates and teams perform their duties and research effectively and acceptably (George and Jones, 2011). Similarly, the initiating structure also describes the leader who defines and subordinates the role of his subordinates to achieving organizational goals (Robbins and Judge, 2014). Thus, the initiating structure behavior shows the leader's behavior by influencing subordinates through his involvement in performing the research organizing and explaining the tasks of the job and compiling the details of the tasks and responsibilities.

Leadership behavior indicators are the dimension of consideration behaviors with indicators for trusting subordinate jobs, respecting subordinates in the execution of reserach and maintaining good relations with subordinates, the dimensions of initial structure behaviors, measured by indicators: compiling and explaining details tasks and responsibilities organizing research activities and involvement in research.

Quality accounting information system: Information systems are an organized combination of system components such as people, tools and procedures for storing, processing and disseminating information (O'Brien and Marakas, 2012). Accounting information systems can also be said to be a set of resources such as people and tools designed to process financial data and other data into accounting information (Bodnar and Hopwood, 2012). In addition, accounting information system describes the integration of sub-sub system/components both physical and non-physical are interconnected and reserach together with each other in harmony (Susanto, 2013). Furthermore, accounting information systems can also be meaningful as a system used to compile, record, save and process data and to produce useful information for users (Romney and Steinbart, 2015).

Based on the above statement, we define the accounting information system as a set of subsystems or related components in an organized manner to process financial data and become useful financial information for the purpose of decision making.

Quality shows how useful the results of reserach to meet the desired goals by management (Laudon and Laudon, 2013). Quality indicates the suitability between the required specifications compared to the specifications produced by the company (Susanto, 2013). Associated with accounting information systems an information system becomes qualified when the system is flexible, efficient, accessible and timely presenting information (Stair and Reynolds, 2012). In addition, the quality of information systems can also be demonstrated by the ease of use of the system (Laudon and Laudon , 2013).

Thus, it can be said that the quality of accounting information systems is the ability of accounting information systems to organize its components to process financial data and generate accounting information useful for decision makers.

The quality of accounting information systems has characteristics, including, system flexibility, system reliability and ease of learning (Petter *et al*., 2008). Characteristics of quality accounting information systems can also be seen from providing the correct functionality for end users, fast in taking data and moving between different data display screens, reliable well integrated with other systems, etc. (Bocij *et al*., 2015). In addition, the quality of information systems has indicators, including, acceptance, availability, integration, ease of learning, effectiveness, efficiency, flexibility, reliability, robustness and visibility (Avison, 2006). In addition, Weber (1999) describes several characteristics of information systems, including, the reliability (stability) of the system, the ease of interaction with the system, the usefulness of functions provided by the system and the level of integration with other systems. Darma (2017) measures the quality of business intelligent systems by using indicators of flexibility, reliability, accessibility and integration. Then Susanto (2016b) uses flexibility, ease of use, accessible and integration dimensions to determine the quality of AIS.

This study examines the quality of accounting information systems of characteristics, integration, flexibility and reliability.

System flexibility is the ability of computer-based information systems to react to unexpected situations and events (Bocij *et al*., 2015). Flexibility of the system can also be said as a system capable of responding to organizational changes both small and big changes (Haag, 2009). In addition, the system flexibility is demonstrated by how quickly the system can adapt to environmental changes (Baltzan and Phillips, 2014). Based on the above explanation it can be said that the flexibility of the system is the ability of the system to follow the changes quickly and easily to be modified.

The system's ability to minimize error rates and produce consistent and correct information describes system reliability (Avison, 2006). In addition, reliable systems are visible when performing pre-programmed functions where reliable system applications can reject improper system usage such as improper entries and data processing (Sousa and Oz, 2014). System reliability can also be demonstrated by systems that operate 24 h a day and only cease to be repaired or routine maintenance (Bocij *et al*., 2015). Based on the above explanation it can be said that reliability is a system working properly, able to minimize errors and operate full time.

System integration occurs when the new system infrastructure is able to research with the old infrastructure and new elements of the system infrastructure research together with each other (Laudon and Laudon, 2013). System integration can be formed from the integration of various software and network components (Whitten and Bentley, 2007). In addition, system integration illustrates the linking of separate information and data systems to improve business processes and decision making (Valacich and Schneider, 2014). Indicators of the quality of accounting information systems are the dimensions of the flexible system has indicators, the system quickly adapts to the changes and the system can be easily modified, the system reliability dimension has indicators: the system minimizes errors, the system functions correctly and the system operates on a full-time basis and system integration dimensions have indicators, interaction between system components, data integration and system compatibility with other systems.

Framework and hypothesis: Leadership is one of the management dimensions involved in the management of accounting information systems, apart from management strategies and behaviors (Laudon and Laudon, 2013). Leadership plays a role in the design and implementation of accounting information systems (Laudon and Laudon, 2013). Leadership behaviors play a role in ensuring that information systems operate effectively (Wager *et al*., 2017). Strong leadership behavior is able to produce consistent quality accounting information system (Duggan and Reichgelt, 2006). Furthermore, strong leadership positions as part of contingency and recovery of infrastructure programs affect the infrastructure of the information systems used (Xu and Quaddus, 2013).

Several previous research results have proved the impact of leadership behavior on the quality of accounting information systems among them, the results of research (Cho *et al*., 2011) show that the behavior of transformational leadership influences the success of information systems in the organization through two psychological mechanisms, perceived organizational support users and system capabilities. The study results of Susanto (2017b) shows that leadership affects the quality of accounting information systems at pharmaceutical wholesale companies in Bandung. In addition Nurhayati and Susanto (2017) conclude that transformational leadership has significant influence on the success of accounting information systems application of BAZNAS at the district level in West Java. Similarly, Fitrios (2017) concludes that leadership behavior has an effect on accounting information system at hospitals in Riau Province, Indonesia.

Based on the description of theory and the results of previous studies above can be concluded that leadership behavior influences the quality of accounting information systems.

Hypothesis: Leadership behavior influences the accounting information systems quality. Conceptual framework scheme can be seen in Fig. 1.

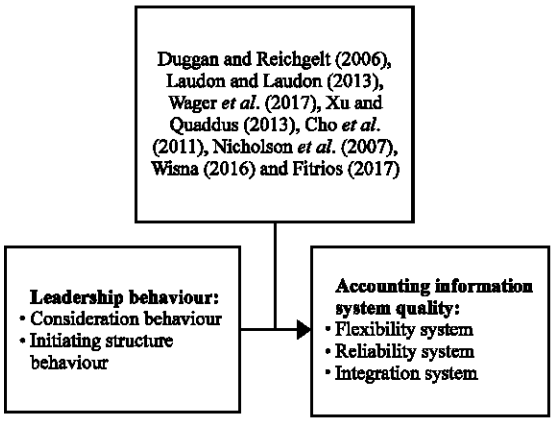

Fig. 1: Framework scheme

MATERIALS AND METHODS

This research uses descriptive and verificative research methods that are intended to prove the phenomenon and research hypothesis. Descriptive method is used to describe data collected about the characteristics of the events, persons or situations under study (Sekaran and Bougie, 2013). The descriptive method is also intended to collect information about existing conditions with a view to describing a natural event (Sevilla *et al*., 1992). Thus, the descriptive method in this study describes the real conditions about the influence of variable leadership behavior and the quality of accounting information systems. While the verification method is intended to test the hypothesis derived from the theory (Punch, 2016). In addition, verification theory focuses on how to test the hypothesis up to a certain level of trust (Flynn *et al*., 1990). Thus, this study will examine the conclusions of the theory as stated in the research hypothesis with the facts in the field.

The population of this study is all units of finance on higher education accredited in Java with the target population of 238 higher education accredited. Questionnaires were distributed to 543 respondents for 155 unit of finance on higher education accredited selected using stratified random sampling technique. The 104 units of finance on higher education returned the questionnaire with the number of respondents a total of 325 respondents.

Respondents of this study are those responsible for the preparation of financial statements, staff of financial reporting, head of subdivision, head of accountancy/finance and/or bureau of finance. Characteristics of respondents are described by job position/position, level of formal education and research experience (Table 1).

The questionnaire was constructed using a Likert scale model, giving 5 answer choices for each question. The collected data was processed by using SPSS analysis tool for descriptive analysis and Structural Equation Modeling (SEM) based on Partial Least Square (PLS) for hypothesis testing.

Based on the theoretical framework constructed above, we can illustrate the overall path model (Fig. 2). The measurement model is reflective, either at the first order or in the second order for all latent variables. The structural model describes the model of influence of leadership behavior on the accounting information systems quality.

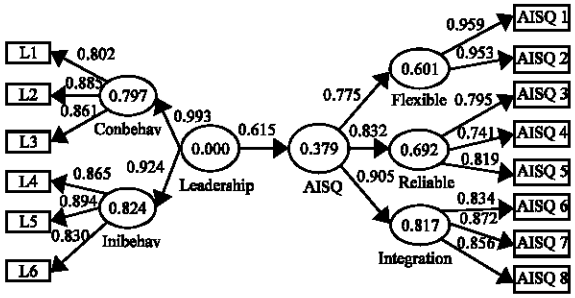

Fig. 2: Overall path model

Table 1: Respondent characteristics

Description	Frequency	Percentage
Position		
Manager/Head of section	115	35.38
Head of subsection	75	23.08
Accounting staff	135	41.54
Total	325	100.00
Education level		
High school	27	8.31
College	28	8.62
Undergraduate	176	54.15
Graduate	87	26.77
Postgraduate	7	2.15
Total	325	100.00
Work experience (years)		
<10	214	66.85
10 to <20	41	12.62
≥20	32	9.85
Not identified	38	11.69
Total	325	100.00

RESULTS AND DISCUSSION

Descriptive analysis: Table 2 presents the average answer of the respondents for each indicator of the variables studied. The average answer for each question of leadership variables indicate the criteria "enough" except for indicator L1 (trust) and L2 (respect) on the dimension of consideration indicate the criteria "good". The average answer for each question of the accounting information system quality variable shows the "adequate" criteria, except for the AISQ 2 indicator (ease of system modification) and AISQ 8 (inter-system integration) indicating "no good" criteria.

Respondent's answers about the quality of accounting information systems on higher education accredited in Java successfully describes the phenomenon of accounting information system that occurred at several universities as revealed in the introduction of this study.

Verificative analysis: The measurement model evaluation. The measurement model evaluation is used to assess the validity and reliability of indicators of measurement variables. Test validity is intended to determine the feasibility of an instrument to measure the concept (Sekaran and Bougie, 2013).

Table 2: Descriptive statistics of variables

Variable and dimention	Indicator code	Minimum	Maximum	Mean	SD	Criteria
Environmental uncertainty						
Consideration behavior	L1	3.00	5.00	4.0897	0.47535	Good
	L2	2.50	5.00	4.0425	0.54355	Good
	L3	2.33	5.00	3.8614	0.54548	Enough
Initiating structure behavior	L4	2.50	5.00	3.8622	0.57157	Enough
	L5	2.00	5.00	3.6987	0.59283	Enough
	L6	2.00	5.00	3.7083	0.62738	Enough
Accounting information system quality						
Flexibility	AISQ1	1.50	5.00	3.4207	0.73830	Enough
	AISQ2	1.00	5.00	2.9327	0.99663	Not good
Reliability	AISQ3	1.00	5.00	3.6162	1.23075	Enough
	AISQ4	2.25	5.00	3.9583	0.63783	Enough
	AISQ5	2.00	5.00	3.6282	0.57594	Enough
Integration	AISQ6	2.00	5.00	3.6715	0.67569	Enough
	AISQ7	1.00	5.00	3.1763	1.04027	Enough
	AISQ8	1.00	5.00	2.9071	1.00002	Not good

The result of evaluation of measurement model through convergent validity shows that outer loading from each indicator of leadership behavior variable and accounting information system quality have >0.5 (outer loading value on path model, Fig. 2) while AVE shows value of ≥0.5 (Table 3).

In addition, discriminatory validity indicates that outer loading's of indicators on leadership behavioral constructs and quality of accounting information systems is higher than cross loading with other constructs and the square root value of the construct of leadership behavior and the quality of the accounting information system is higher than the correlation with other constructs (Table 4).

Based on the evaluation of the measurement model above, it can be concluded that the measurement model used is valid. In other words, the measuring indicators of leadership behavior and the quality of the accounting information system.

The reliability test shows the consistency of the measuring instrument to measure the concept measured (Sekaran and Bougie, 2013). Based on the evaluation of the measurement model through internal consistency reliability, the composite reliability value is more than 0.708 (Table 3). Thus, it can be concluded that the variables of leadership behavior and the quality of accounting information systems meet the criteria reliable.

The structural model evaluation is intended to determine how well empirical data support the constructed theories/concepts (Hair *et al*., 2014). The results of evaluation of measurement model are presented as follows.

R-square of the quality accounting information system as depicted in Table 5 shows the value of 0.379. This value indicates that leadership behavior variable can explain the quality of accounting information system by 37.86% while the remaining 62.14% is explained by other variables.

Table 3: AVE and composite reliability

Descriptions	AVE	Composite reliability
AISQ	0.518	0.895
AISQ flexibility	0.914	0.955
AISQ reliability	0.616	0.828
AISQ integration	0.729	0.890
Leadership behavior	0.594	0.898
Consideration	0.722	0.886
Initiating structture	0.745	0.898

Table 4: Square root value vs. latent variabel correlation

Constructs	AISQ fexibl	AISQ integr	AISQ real	Con. behav.	IS behav.
AISQ flexibl	**0.96**	-	-	-	-
AISQ integr	0.56	**0.85**	-	-	-
AISQ reliabl	0.45	0.66	**0.79**	-	-
Consid. behav.	0.33	0.44	0.47	**0.85**	-
ISBehav.	0.56	0.56	0.40	0.62	**0.86**

Bold values are significant values

Table 5: Evaluation of structural models

Values	Path coefficient	SE	t-statistics	R^2
Leadership bevavior ->AISQ	0.615	0.0826	7.450	0.379

Hypothesis testing is intended to determine the influence of leadership behavior on the quality of accounting information systems. The statistical hypothesis is:

- H_0: no influence of leadership behavior on the quality of accounting information system
- H_1: there is influence of leadership behavior to quality of accounting information system

The structural model evaluation yields a coefficient value of 0.615 (Table 5). These results indicate that leadership behavior is directly proportional to the quality of accounting information systems. While the result of statistical t-value 7.450>1.96 shows the results of this study reject H_0 and receive H_1. Thus, it can be concluded that leadership behavior has a significant positive influence on the quality of accounting information systems.

This research empirically managed to prove the influence of leadership behavior on the quality of accounting information systems. This result is indicated by a statistical t-value greater than the critical value. This study also found a relationship in the direction of leadership behavior with the quality of accounting information systems in which any increase in leadership behavior will improve the quality of accounting information systems as shown by the value of path coefficients. Furthermore, the research results describe the amount of ability or role of leadership behavior in explaining the quality of accounting information system through R^2 value of 0.430.

The results of this study confirm the opinions of experts as stated in the framework of thinking that leadership plays a role and is involved in managing and improving the quality of accounting information systems (Laudon and Laudon, 2013; Duggan and Reichgelt, 2006; Xu and Quaddus, 2013). The results of this study, also further strengthen the results of previous studies which reveal that leadership influences the effectiveness of information systems (Dong, 2006) effects the successful implementation of ecommerce systems and affects the quality of accounting information systems (Susanto, 2017; Fitrios, 2017).

The quality of the accounting information system of accredited colleges is shown by the dimensions that reflect it. The results of this study indicate that the dimension of system integration provides the most dominant role to describe the quality of accounting information systems, followed by system reliability and system flexibility.

Field empirical facts show that there are have no quality of accounting information system because the system is not flexible, the system has not been reliable and the system has not been integrated. Empirical facts from this field at once prove the phenomenon that emerged in the real world and the basis of this research problem.

To improve the accounting information systems quality so, higher education should consider leadership behavior factors. Leadership behavior is what is done by the leadership to influence subordinates in achieving goals. Leader behavior processes to influence subordinates to achieve goals are reflected through consideration behavior and initiating structure behaviors. The loading factor results indicate that both dimensions provide decent results as a measure of leadership behavior.

IMPLEMENTATIONS

Empirical facts show that leaders are good because they give trust and respect subordinates in the implementation of the research but not good maintain good relations with subordinates, so that, the implementation of accounting information system can achieve its goals. Furthermore, the leader has not been good in terms of compiling and explaining the details of duties to subordinates organizing reserach activities, engaging in reserach. So, it can be said that the leader has not been able to initiate well to influence his subordinates apply the accounting information system.

Based on the above description to improve the quality of accounting information system from the dimension of consideration, accredited high education leaders must provide trust to subordinates to carry out financial data processing reserach using accounting information system applications. Leaders should appreciate/listen to any feedback, feedback or suggestions on general job related matters, especially, regarding the accounting information system application used. Then the leader must improve the quality of good relationship with his subordinates (good relationship) through good communication.

Furthermore, to improve the quality of AIS through the initiating structure, accredited higher education leaders must be able to explain the details of the tasks to subordinates organize research activities well and engage in research to determine the effectiveness of job performance.

CONCLUSION

Based on the results of research and discussion above, the conclusion of the study is the leadership behavior influences the quality of accounting information systems. The low quality of accounting information system in accredited higher education in Java, Indonesia is characterized by an inflexible system, unreliable systems and unintegrated systems caused by leaders who have not yet fully done what they are supposed to do. The result of this research is able to answer the research problem that arise based on phenomenon that to improve the quality of accounting information system, leadership behavior must be strengthened by doing what must be done to achieve the goal.

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