The Influence of Using Enterprise Resource Planning (ERP) Technology and Knowledge Management on the Quality of Accounting Information Systems

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Abstract: This study aims to determine the effect of using Enterprise Resource Planning (ERP) technology and knowledge management on the quality of accounting information systems. The study was conducted on 30 state-owned enterprises in Gorontalo province where the respondents were managers and financial heads/supervisors, using survey methods. Data testing uses Structural Equation Modeling (SEM) with Part Least Square (PLS) analysis approach. The results of the study prove that the use of Enterprise Resource Planning (ERP) technology affects the quality of accounting information systems and knowledge management influences the quality of accounting information systems. Enterprise resource planning technology has been integrated in all lines in state-owned enterprises as well as knowledge management has been implemented well in all organizational lines.

INTRODUCTION

All organizations need information to make effective decisions, besides having certain business processes that are constantly interrelated. Information is data that has been managed and processed to give meaning and improve the decision making process[1]. Information is data that has been processed that is intended for someone, organization or anyone who needs it[2]. Some management decisions require information that integrates financial and non-financial data, such integrated information if it can be provided will usually comes from a centralized accounting information system that functions independently[3].

To improve operational efficiency and achieve competitive advantage in the market, many companies have reengineered their information systems to include various features of the Accounting Information System (AIS) and Management Information System (MIS), this has an impact on the traditional role of accountants because accountants now have responsibility for providing reliable non-financial data[3]. Furthermore, Hall explained that some management decisions require information that integrates financial and non-financial data such integrated information, if indeed it can be provided will usually come from centralized and functioning AIS and MIS applications. Accounting Information Systems (AIS) in an organization plays an

important role in helping to adopt and manage strategic positions. The most appropriate achievement between activities requires data collection for each activity[1]. In general, accounting information systems are used as a tool to make decision analysis or as a decision maker related to company transactions[4].

Reality in the field related to information systems is still not optimal as it happens in hospitals, MIS has not been running, the Ministry of Industry information systems are difficult to access in the Supreme Audit Agency, asset management is not in accordance with accounting standards and in the State owned enterprises themselves the product service has not been optimal. Of these facts, Hall[3] argues that information is not only a series of facts that are processed and regulated in formal reports, information allows users to take action to overcome problems, reduce uncertainty and make decisions. The purpose of accounting information systems, namely as a provider of information for daily operations[5]. A well-designed information system can add value to the organization by: improving quality and reducing the cost of products or services, increasing efficiency, sharing knowledge, increasing the efficiency and effectiveness of supply chains, improving the structure of internal control and improving decision making[1].

One of the factors that influence the quality of accounting information systems is the use of Enterprise Resource Planning (ERP) technology, ERP that successfully produces quality accounting information. Enterprise resource planning is an information system model that allows companies to automate and integrate various business processes and penetrate various barriers to traditional functions with shared data facilities among all users in the company. The implementation is in the form of large-scale takeovers that can last for several years[3].

Using information to achieve competitive advantage, managers must manage all resources in order to achieve the desired results. Leod and Schell further stated that supervision of management, activity of acquiring data, processing data into information, using and communicating information in the most effective way and deleting information at the right time is called knowledge management. Knowledge management increases organizational effectiveness because it can encourage use knowledge that has been owned (knowledge reuse) to improve the quality of the decision making process. In addition, knowledge management can also play a role as a tool in the process of change or even organizational transformation because knowledge management can help the formation of a learning culture within an organization (Minister of Administrative Reform Regulation Number 14, 2011).

Literatur review

Enterprise Resource Planning (ERP): Enterprise Resource Planning (ERP) system that integrates all aspects of an organization's activities such us accounting, finance, marketing, human resources, manufacturing, inventory management in to one system[1]. Mulyani[4] argues that ERP is an integration of all subsystems in a company for example Human Resource Management (HRM) will relate to Project Management System, payroll, inventory to Accounting Information System (AIS) which will generate the required reporting by all departments and integration between these departments. Similarly, Bret *et al.*[6] argued that an ERP system is a software system designed to capture a wide range of information about all key business processes within an organization and between organizations and their suppliers and customers. Based on the above definitions, it is said that enterprise resource planning is a system that can integrate all activities in an organization, so that, they can be connected to one another.

Romney[1] suggested that ERP systems are modular with each module using the best business practices to automate standard business processes. ERP modules typically include finance, human resources, manufacturing (production cycles), project management, relationship management and system tools including tools for creating master file data, detailing information flows, controlling access and so on. Jatinder and Sharma[7] proposes ERP characteristics including: Client/server, Enterprise-wide, Multi-enterprise environment, Process-oriented, business reference model, Adaptation to the enterprise and Modularity. According to Gupta, ERP characteristics include: Total cost of ownership, flexible, usability, business process linkages, modules, integration, trust, response, internationalization and localization.

Knowledge management: Knowledge is a company asset in a different form from other assets such as building or financial assets. Knowledge is a complex phenomenon and there are many aspects in knowledge management processes[8]. Laudon and Laudon further stated that Knowledge management refers to the set of business processes developed in an organization to create, store, transfer and apply knowledge. Knowledge management increases the ability of the organization to learn from its environment and to incorporate knowledge into its

business processes and decision making. Watson[9] suggested that Knowledge management involves the acquisition, storage, retrieval, application, generation and review of the knowledge assets of an organization in a controlled way. According to Partners that the knowledge management process involves several steps or sub-processes including: knowledge generation, knowledge representation, knowledge Storage, knowledge access and knowledge transfer. The organization for economic co-operation and development (2003) suggests that there are five dimensions of knowledge management that underlie research and are supported by surveys and analyzes, namely: Usage namely the extent to which various knowledge management practices are used and how dynamic the diffusion of these instruments is motives are what are the driving forces to employ knowledge management practices and we can find certain key paths that are defined in various types of knowledge management, effects namely what are the impacts associated with the use of knowledge management practices, namely the effects of human resources (skills and productivity), success in marketing/promoting the company, Institutionalisation: is knowledge management institutionalized in corporate and/or financial organizations and what effect does institutionalization have, innovation: what is the relationship between knowledge management in general and management innovation?.

Quality of accounting information systems: Chang, etc., suggests that an Accounting Information System (AIS), defined as a system that records, processes and reports on transactions to provide financial and non-financial information to make decisions and have appropriate levels of internal control (security measures to protect sensitive data for those transactions while according to Mulyani[2] accounting information systems can be defined as computerized information systems that work because of human and computer interactions. From the opinions of the experts above can be seen that the accounting information system is a data transformation system of several components that are interconnected so that it can be a reference in decision making. The components in the system must be integrated with each other which can be illustrated by a computer system where the memory and processor must be integrated how the data will be processed by the processor sent d from memory how the data that has been processed by the processor is sent back to memory how the data in memory can be displayed on the monitor screen[10].

Characteristics of information system quality according to DeLone and McLean are ease to use, system

flexibility and ease of learning. Wixom and Todd describe the quality characteristics of information systems as realness, flexibility, integration, accessibility and timeliness. The following dimensions of the quality of AIS in detail are perceived usefulness, referring to the degree to which a person believes that using a particular system will enhance his or her job performance. The indicators used to measure this dimension are: work more quickly, job performance, increase productivity, effectiveness, makes job easier, useful. Perceived ease of use: refer to the degree to which a person believes that using a particular system would be free effort. The indicators used to measure this dimension are easy to learn, clear and understandable, easy to become skillful, easy to use, controllable and flexible. Information System (IS) use (usage): reference to and manner in which a person utilizes the capabilities of an information system. The indicators used to measure this dimension are frequency of use and hours of use.

Research framework, hypothesis development and methodology
Research framework
Hypothesis development: Effect of use of enterprise resource planning technology on the quality of accounting information systems. Accounting information systems are influenced by information technology, one of the reasons that information technology is important because information technology must be in accordance with and support the accounting information system components[11] as well as research conducted by Mulyani and Endraria[12] that success ERP system implementation has a significant effect on the quality of accounting information. Another study put forward by Aziz, etc. that a successful ERP system will produce quality accounting information (Fig. 1).

Effect of knowledge management management on the quality of accounting information systems: Knowledge management is a process to organize and distribute the collective wisdom of an organization so that the right information is delivered to the right people at the right time. In a study conducted by Kuntjoro[13] that accounting and strategic management information systems are supported by the quality of knowledge management to achieve company goals. Likewise, the same research was carried out by Nurhayati[14] that knowledge management has a significant effect on the success of the application of accounting information systems on corporate pension funds that provide retirement benefits with certainty.
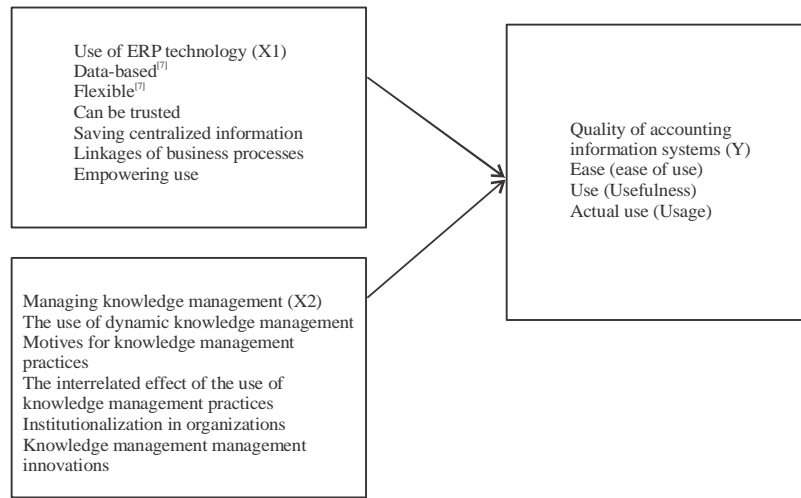
Fig. 1: Thinking framework

MATERIALS AND METHODS

Judging from the research objectives, this research is included in survey research, namely not only giving an overview of phenomena but also explaining relationships, testing hypotheses, making predictions and obtaining the meaning and implications of a problem to be solved. Furthermore Judging from the type of investigation, this type of research is verificative research and is explanatory research or causal study because this study aims to find out what and how far the factors are expected to influence a variable with the aim of testing the hypothesis. This study can explain how much influence the use of Enterprise Resource Planning (ERP) technology, knowledge management and the quality of accounting information systems. The population in this study were all state-owned enterprises in Gorontalo province and the sample in this study was designed (sample design) using a sampling census approach, being sampling in this study were employees of the accounting department and company leaders which included managers, branch heads, supervisors and leaders others who have links. Hypothesis testing is carried out using Structural Equation Modeling (SEM) with Partial Least Square (PLS) approach, PLS approach is distribution free or does not assume certain distributed data can be in the form of nominal, category, ordinal, interval and ratio[15].

RESULTS AND DISCUSSION

Test of validity and reliability: To see the information contained in each dimension can be reflected from each research variable, this is measured by looking at the Average Variance Extracted (AVE) value of each dimension where the value is good if it is >0.50.

Table 1: Test of validity and reliability

Dimension/Indicator	Factor loading	Compisite reliability	AVE
Use of Enterprise Resource Planning (ERP) technology			
X1.1	0.916	0.919	0.851
X1.2	0.930		
X1.3	0.961	0.964	0.930
X1.4	0.968		
X1.5	0.722	0.866	0.684
X1.6	0.870		
X1.7	0.88		
X1.8	0.909	0.909	0.833
X1.9	0.917		
X1.10	0.838	0.851	0.741
X1.11	0.884		
X1.12	1.000	1.000	1.000
Managing knowledge management			
X2.14	0.888	0.767	0.626
X2.15	0.681		
X2.16	0.880	0.849	0.738
X2.17	0.839		
X2.18	0.796	0.832	0.713
X2.19	0.891		
X2.20	0.753	0.781	0.545
X2.21	0.671		
X2.22	0.786		
X2.23	0.873	0.910	0.772
X2.24	0.891		
X2.25	0.872		
Quality of accounting information systems			
Y1	0.820	0.823	0.609
Y2	0.684		
Y3	0.831		
Y4	0.711	0.802	0.575
Y5	0.768		
Y6	0.794		
Y7	0.847	0.858	0.752
Y8	0.887		

Indicators that have a loading factor of <0.50 will be reduced from the model while the reliability composite that is considered satisfactory is >0.70 (Table 1).

Based on the measurement model, confirmatory factor analysis can be seen that the factor loading weight

Table 2: Summary of statistical test results

Structure/Path	Coefficient	R^2
Pertama		
ERP→AIS	0.495	0.350
KM→AIS	0.226	

Table 3: Test results of the Effect of using ERP technology and knowledge management on the quality of accounting information systems

Variables	Path coefficient	H_a	t-statistics (t count)	t-table	R^2
ERP→AIS	0.495	Accepted	7.508	1.96	0.350
KM→AIS	0.226	Accepted	3.507	1.96	

Data reprocessed

of each indicator is >0.50. This means that all indicators are valid as a measuring tool for their respective dimensions. Then the Composite Reliability (CR) value of each dimension >0.70 indicates that the indicators have consistency in measuring their respective dimensions.

Structural model: The structural model is a model that connects exogenous latent variables with endogenous latent variables or the relationship of endogenous variables with other endogenous variables. The following is a summary of the values used in the structural model. Based on the coefficient of determination (R^2) contained in Table 2, it can be seen that the total influence of the use of ERP technology and knowledge management on the quality of the accounting information system has an effect of 30.5%. Further hypothesis testing is conducted to prove whether there is an influence of the use of ERP technology and knowledge management on the quality of accounting information systems (Table 3).

H_1: influence of the use of Enterprise Resource Planning (ERP) technology on the quality of accounting information systems

Visually, the path diagram using the Enterprise Resource Planning (ERP) technology on the quality of the accounting information system is described as follows:

Based on the test results in Fig. 2, it can be seen that the variable path coefficient of ERP technology usage is 0.495. Because the variable path coefficient of ERP technology usage is greater than zero, it was decided to reject H_o. So, based on the test results it can be concluded that the stronger the use of ERP technology will improve the quality of the accounting information system in state-owned enterprises in the province of Gorontalo.

H_2: influence of knowledge management on the quality of accounting information systems

Visually the path diagram of managing knowledge management on the quality of accounting information systems is described as follows: Based on the test results in Fig. 3 it can be seen that the path coefficients of knowledge management management variables are 0.226. Because the path coefficient of the knowledge management variable is greater than zero, it was decided to reject H_o. So, based on the test results it can be concluded that the better management of knowledge management will improve the quality of the accounting information system in state-owned enterprises in the province of Gorontalo.

Effect of use of Enterprise Resource Planning (ERP) technology on the quality of accounting information systems: This result is evidenced by the t test where the results of the calculation of the use of Enterprise Resource Planning (ERP) technology on the quality of the accounting information system is 7.508> the t critical of 1.96 so that, the use of Enterprise Resource Planning (ERP) technology affects the quality accounting information system. The results of this study provide empirical evidence that the better use of ERP technology will improve the quality of the accounting information system in state-owned enterprises in the Province of Gorontalo. ERP implementation in Gorontalo State-Owned Enterprises is relevant according to the company's business conditions that are carried out consistently, easily and smoothly and remain kept secret. ERP is an integration of all subsystems in a company such as Human Resource Management system (HRM) and is related to project management system, payroll, inventory, to Accounting Information System (AIS) which will generate a report needed by all departments and integration between departments[16]. The implementation of the ERP system is expected to produce quality and timely information and can be useful in decision making[17].

This study supports the research of Tijani, the use of ERP systems has a significant contribution to the processing of accounting information because it supports efficiency in transaction processing and the integration of accounting modules. In addition, ERP system implementation improves information flow, reduces costs, establishes relationships with suppliers and reduces response time to customer needs. Benefits that have been achieved by users and the influence of the ERP system on the use of new accounting practices. There is an effect of ERP system success on the quality of accounting information. Quality accounting information by achieving equal success in the Enterprise Resource Planning system[18].
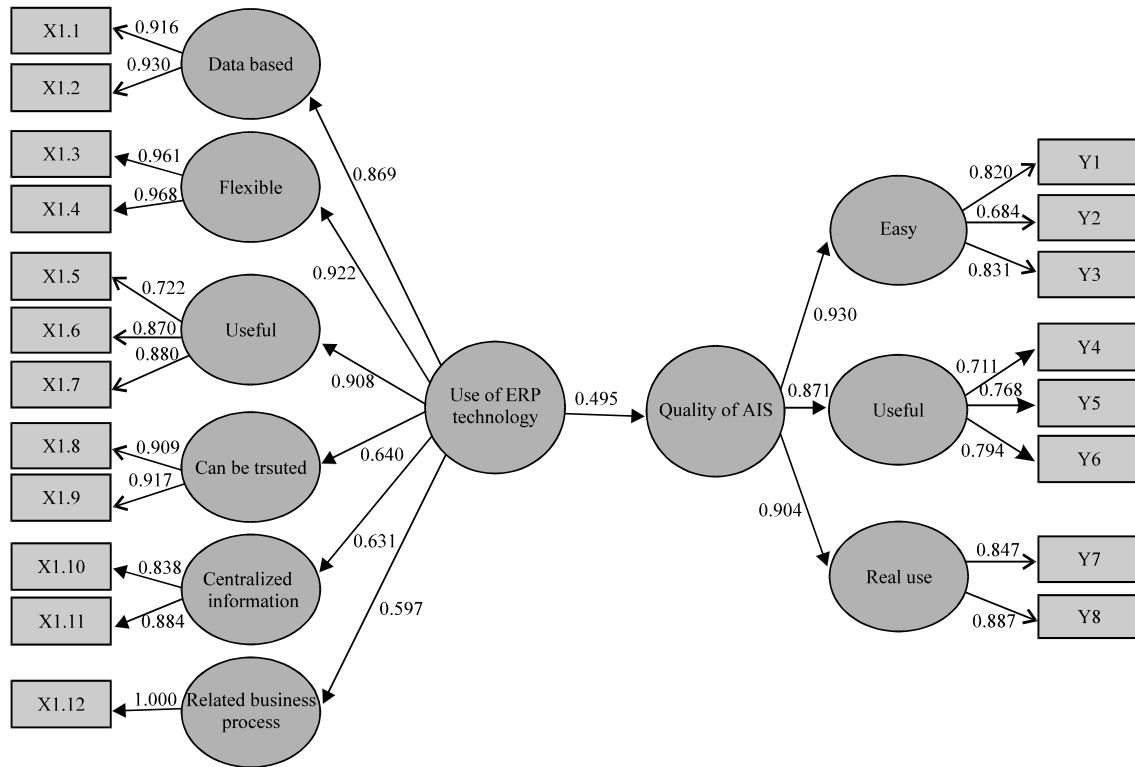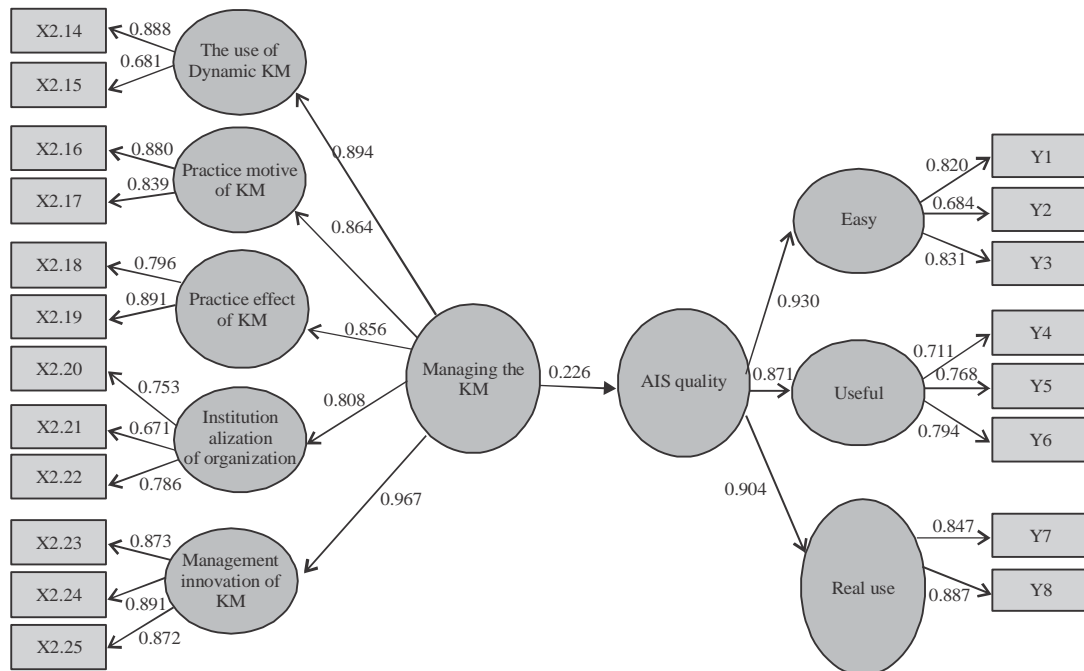
Fig. 2: Hypothesis 1 pathway testing diagram

Fig. 3: Hypothesis 2 pathway testing diagram

Effect of knowledge management on the quality of accounting information systems: Significant influence of knowledge management on the quality of accounting information systems is evidenced by the t test where the results of t count the knowledge management management pathway to the quality of the accounting information system is 3.507 greater than t critical ie 1.96 so, it was decided that knowledge management affects the quality of accounting information systems. The results of this study provide empirical evidence that the better management of knowledge management will improve the quality of the accounting information system in state-owned enterprises in the province of Gorontalo.

Knowledge management is a process to organize and distribute the collective wisdom of an organization, so that, the right information is delivered to the right people at the right time. This research is in line with research conducted by Nurhayati[14] which states that simultaneously or jointly organizational commitment and knowledge management significantly influence the success of the application of accounting information systems. This study also supports research conducted by Kuntjoro[13] that the accounting and strategic management information systems are supported by the quality of knowledge management to achieve company goals.

Other research is also in line with Bozdogan that organizations with excellence in a competitive environment in this context, the generation of knowledge and its use in accordance with relevant objectives by the organization can be realized through efficient and effective knowledge management. To get the desired benefits from knowledge management can be realized by creating a leadership structure that is oriented to knowledge in the organization, Accounting Information System (AIS) as a mechanism that allows measurement, evaluation and development of the company's financial structure.

CONCLUSION

Based on the results and discussion of the research that has been described, the results of the study can be summarized as follows: use of Enterprise Resource Planning (ERP) technology/company resource planning affects the quality of accounting information systems. The use of ERP technology in state-owned companies in Gorontalo province has been integrated from all subsystems and interconnected all lines including payroll, inventory and accounting information systems to produce a report.

Knowledge management influences the quality of accounting information systems. Knowledge management in state-owned enterprises in Gorontalo province is illustrated by the distribution and coordination of knowledge implemented in the form of modules, so that, all employees can learn, so that the company's operations run effectively.

SUGGESTION

To encourage the innovative power of every employee in BUMN in encouraging the level of aggressiveness of employees, so, as to create creative employees and be able to solve problems by using ERP technology in SOEs, it is better to use outside services. For example, taking financial, tax and marketing consultants, to make employees more creative in creating new ideas and utilizing information systems used to support these ideas, such as using information systems to see sales trends, the tendency of customers to consume products offered and etc.

In the current technological era, senior officials who are slow to adapt to ERP technology in state-owned enterprises and formal education discrepancies are the cause, do special training to follow system changes, if they cannot then senior age above 45 years is retired early.

To improve the quality of the accounting information system in addition to building a physically integrated information system, whether it is software, hardware or networking, it takes time to complete each job by default. especially in the BUMN sector in the fields of insurance, forestry and fisheries.

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