



FACTORS AFFECTING MANAGEMENT INFORMATION SYSTEMS: SOFTWARE, DATABASES AND INFORMATION TECHNOLOGY (LITERATURE REVIEW)

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Abstract: Management Information System (MIS) is one of the most important achievements in the field of work administration, which aims to provide reliable, accurate, relevant and complete information to managers to improve organizational performance in organizations. This research reviews other research in the field of MIS adoption in organizations. Synthesizing from the previous literature with several books, articles and related studies, this paper proposes a theoretical framework. Previous research or relevant research is very important in a research or scientific article. Previous research or relevant research serves to strengthen the theory and phenomena of the relationship or influence between variables. This article reviews the factors that influence Information Systems in the academic field, namely: Software, Databases and Information Technology, a literature study on Information Systems Management. The purpose of writing this article is to build a hypothesis of the influence between variables to be used in further research. The results of this literature review article are: 1) Software has an effect on Information Systems; 2) Database affects the Information System; and 3) Information Technology has an effect on Information Systems.

Keywords: Information Systems, Software, Databases and Information Technology

INTRODUCTION

A global phenomenon today is the development of various breakthroughs in the field of information systems. In its application in the real world, the various services in information systems are very diverse, so that there are no more aspects of life and livelihood that are not touched by information systems, both at the individual level, group or organizational level, country level, and even in inter-organizational relationships. included in educational institutions.

In the current era of the digital world that is experiencing disruption, stretching in the field of education which is increasingly competitive and demands competition in providing good services, aiming to satisfy stakeholders in the education world, especially those who are directly involved in the higher education service system; students, lecturers and

administrative staff. In the service system offered today by public servants or in this case is a university in which there are faculties, which implement a system that is connected and integrated and interrelated to be more efficient and effective in providing services to its customers. Efficient in this case is in terms of time in service, so that to achieve some goals it does not take a very long time, and with minimal and rational costs. Meanwhile, in terms of effectiveness, it is related to the achievement of its goals.

Some conditions that occur in many educational institutions, especially universities, the use of information systems in the field of academic services has been integrated and is better, compared to the previous few years, especially before the use of the internet network during the increasing Covid-19 pandemic a few years ago. Utilization of information technology has not been optimal before that. There are also several incidents due to the service of educational institutions that are less than optimal which results in service users feeling disappointed and dissatisfied. As happened at Makassar State University. Administrative and academic services during the lockdown during the Covid-19 pandemic apparently received a lot of complaints from students (*Mahasiswa UNM Curhat Pelayanan Akademik Daring, Dosen Slow Respond Hingga Tak Balas Chat*, 2021). The Work From Home (WFH) decision that is enforced is considered to make it difficult for students to take care of lecture administration. The result must be done online. The performance of leaders, lecturers, and education staff serving students is considered to be bad and sometimes annoying. Not to mention in the process, the academic information system encountered several obstacles, such as the slowness of students registering online, the slowness of students filling out the KRS, the difficulty of controlling courses, the process of taking the KRS, and servers that often experience disturbances that disrupt the service of academic activities. Keputusan Work From Home (WFH) yang diberlakukan, dinilai mempersulit mahasiswa dalam mengurus administrasi perkuliahan. Akibat harus dilakukan secara online. Kinerja pimpinan, dosen, dan tenaga kependidikan melayani mahasiswa dianggap menjadi buruk dan kadang menjengkelkan. Belum lagi dalam prosesnya, sistem informasi akademik dijumpai beberapa kendala, seperti lambatnya mahasiswa melakukan registrasi online, lambatnya mahasiswa mengisi KRS, sulitnya mengontrol mata kuliah, proses pengambilan KRS, maupun server yang sering mengalami gangguan sehingga mengganggu pelayanan aktifitas akademik (Relubun et al., 2019).

A good academic information system can reflect the quality of the management of a university in providing convenience and comfort services to its students. The service is considered satisfactory if the service can meet the expectations of users and the needs of the users themselves.

The academic information system is specifically designed to meet the needs of universities in providing computerized education services in improving the quality of performance, quality of service, quality of competition and quality of human resources produced. Through a website-based information technology system, for example, it can also facilitate the provision of academic information and access the academic system from anywhere and anytime. In its development, website-based information technology services were introduced to provide functional services so that they can be reused and reused to support related systems (Kaparang, n.d.). This is intended within the framework of developing a more integrated academic information system.

In supporting the information technology to be of higher quality, software and database support is very important. Currently, software has become a primary need in every university. The efficiency of the software becomes very important. There are two notions of efficiency in a software. Use of resources in terms of processing (execution) time, and usage of storage media such as memory, space, and bandwidth (Hidayati et al., 2017).

In addition, the information system used in higher education should continue to be developed. This development is inseparable from the use of databases as an important part that cannot be separated from information technology within the framework of an integrated information system (Wibowo, 2014). According to Winarno in Wibowo (2014), the database is a place to store various kinds of data that are processed to be used as information needed by various parties.

From some of the conditions above, we can draw the conclusion that all of these incidents were caused by a system that was not running well, this probably happened because the system used could not meet user needs, so that the existence of an information system would not be an added value for the organization, another possibility is because external factors such as poor software, databases and information technology.

This article discusses the influence of Software, Databases, and Information Technology on Information Systems, a literature review study in the field of Management Information Systems.

Based on the background, the problems to be discussed can be formulated in order to build hypotheses for further research, namely:

- 1) Does the Software affect the Information System?
- 2) Does the database affect the information system?
- 3) Does Information Technology affect Information Systems?

LITERATURE REVIEW

Management Information System (MIS)

According to Deoda MIS or so-called Management Information System refers to the study of how individuals, groups and organizations evaluate, design, implement, manage and utilize systems to produce information (Rahmana et al., 2019). MIS is implemented into an organization to improve the efficiency and effectiveness of the decision-making process. MIS is a people-oriented field that concentrates on service through technology.

According to Hasan in Al-Mamary that a management information system is a type of information system that takes internal data from the system and summarizes it into a useful and useful form as a management report for use in managerial decisions making and managing activities. Management of information systems is basically concerned with the process of gathering, gathering, storing, and transmitting relevant information to support management operations in every organization. (Al-Mamary et al., 2014)

MIS can be defined as an information system that provides information to users with similar needs. The main purpose of a Management Information System is to provide managers with the information they need to make decisions in solving problems. The Management Information System is supported by an enterprise database, which includes data generated by transaction processing. Every organization must make decisions about problems that arise, to solve these problems, need information for solutions to these problems, it can be easily handled by MIS, because it can provide all the information needed to make decisions within the organization (BINUS, 2021).

Penggunaan MIS yang efektif untuk mendukung dalam pengambilan keputusan sebuah organisasi, maka dituntut tersedianya beberapa komponen utama seperti : (1) perangkat lunak yaitu program atau instruksi yang diberikan oleh programmer kepada komputer untuk melakukan pekerjaan tertentu; (2) perangkat keras yaitu komputer yang memadai baik secara kuantitas dan terutama secara kualitas (canggih dan handal) untuk pengolahan data; dan (3) para pekerja “perangkat otak”, yakni sumberdaya manusia yang profesional atau memiliki kualifikasi atau kompetensi (pengetahuan dan keterampilan) yang diperlukan di bidang pengelolaan sistem informasi. (Nugroho & Ali, 2022; Toreh et al., 2014)

An information system is basically a sub system that is part of a larger system. This information system cannot be designed and operated separately from other sub-systems. The information system is only one of several sub-systems owned by an organization. (Nugroho & Ali, 2022)

According to Jogianto (2005) there are six indicators of Management Information System, namely: Software, Hardware, Database, Procedure, Brainware and Network. Meanwhile, according to Susanto (2004) indicators of management information systems include. Hardware, software, brainware, procedures, databases and database systems, as well as communication network technology.

This information system has been widely studied by previous researchers, including: (V. N. Sari & Ali, 2019), (Shobirin & Hapzi Ali, 2019), (Ashshidiqy & Ali, 2019), (Djojo & Ali, 2012), (V. N. Sari & Ali, 2019).

Software

Software is a set of instructions, data or programs used to operate a computer and perform certain tasks. It is the opposite of hardware, which describes the physical aspects of a computer. Software is a general term used to refer to the applications, scripts and programs that run on a device. It can be thought of as a variable part of a computer, whereas hardware is an immutable part.

Software is data that is programmed in such a way and stored in digital form that is not physically visible but stored in computer storage media. Software can be in the form of a program or activity carrying out a command or instruction through a computer interaction facility. Software can also be said as a media drive and hardware controller. (Rianto, 2021, p. 5)

Software not only makes computer hardware perform important tasks, it can also help organizations work more efficiently. The right software can even lead to new ways of working. Therefore, it is an important organizational asset and one should choose the software carefully to suit the work requirements.

The software has been widely studied by previous researchers including: (Indarsin & Ali, 2017), (Assagaf & Ali, 2017).

Database

As well as a table consisting of several data items following a row and column pattern. Structured data consisting of data identifiers in the form of data items, is known as a database (M. K. Nasution, 2002). Databases are needed to record information from a particular environment (M. K. M. Nasution, 2005).

A database is developed from an environment that requires an information system, in which the database is included. A database for a particular purpose is developed based on an architecture, on the grounds that the different levels mean that each user can reach the same data but have a different view of the desired data.

The database has been widely studied by previous researchers, including: (Djojo & Ali, 2012).

Information Technology

The development of information technology can improve performance and enable various activities to be carried out quickly, precisely and accurately, thereby increasing productivity. The development of information technology shows the emergence of various types of activities based on this technology, such as e-government, e-commerce, e-education, e-medicine, e-laboratory, and others, all of which are based on electronics.

Information Technology is a technology used to process data, including processing, obtaining, compiling, storing, manipulating data in various ways to produce quality information, namely information that is relevant, accurate and timely, which is used for personal, business and governance and is strategic information for decision making. (Wardiana, 2002)

According to Jacques Ellil, information technology is a method that is comprehensive and rational and directive, in which there are characteristics of efficiency in all activities or activities carried out by every human being. (Karim et al., 2020, p. 3)

In another sense, that Information Technology describes a collection of information technology, users and management, for the entire organization. (Simarmata et al., 2020, p. 1)

Information Technology has been widely studied by previous researchers including: (Ashshidiqy & Ali, 2019), (Djojo & Ali, 2012), (Maisharoh & Ali, 2020).

Table 1: Relevant Previous Research

No	Author (year)	Previous Research Results	Similarities to this article	Difference with this article
1	Mulyanto (2016)	The test results show that this academic information system has good quality with a value above 70.	MIS affects the Software	The test in this research uses the McCall framework on the product operation aspect.
2	Isa (2016)	The results showed that the introduction and training of software for educators could increase interest in writing scientific papers.	MIS affects the Software	The management focus is on managing the publication of journal articles.
3	Ardi (2013)	The rapid progress of Information Technology (IT) is also increasing the development of increasingly advanced Accounting Information Systems, as can be seen from improvements in data processing, internal control, increasing the amount and quality of information in financial reporting.	MIS affects Information Technology	This paper uses a literature review and focuses on the study of management accounting.
4	Wardiana (2002)	The growth of information technology can improve performance and enable various activities to be carried out quickly, precisely and accurately, which in turn will increase productivity.	MIS affects Information Technology	This article is written in discourse, without using a research methodology approach.
5	Lisnawati (2017)	The sophistication of information technology has a positive and significant effect on the effectiveness of accounting information systems.	MIS affects Information Technology	The research method in this article uses quantitative research methods with primary data.
6	Sari (2013)	The results of the study	MIS affects Information	The research method

		indicate that the use of technology for accounting information systems is very influential in management policy.	Technology	used is a qualitative descriptive type using a case study method.
7	Belluano (2017)	The results of this study indicate the application of a real time replication system as an alternative form of sending large amounts of data, guaranteeing synchronization of database integration from the origin server to the destination server, and the DBMS replication system using PostgreSQL helps the Study Program DBMS to be integrated and directly correlated with PDPT-Universitas	MIS affects the Software	Research testing in this paper uses software.
8	Iskandar (2019)	The management information system to support decision making in the company consists of support for three decision-making processes, namely intelligence, design and selection.	MIS affects the Database	Focusing discussion on management within the company.
9	Syah (2020)	The results of the study show: first, local governments have started and initiated the digitization of data and personnel services, although in practice they have different design and feature compositions; second, the staffing database developed by local governments achieves different degrees of development quality.	MIS Affects Database	The discussion regarding the database is located in the Personnel Database. The method in this research uses interview and documentation studies.
10	Setiawan (2012)	Management information systems with information technology are closely related, because both are engaged in information (processing) and information technology is part of the information system. Because information systems can be composed of several information technologies, so that if information technology is damaged, it	MIS affects Information Technology	Does not use a research approach, so it cannot fully be used as a scientific reference.

will affect the
information system or
information system will
also experience
interference.

RESEARCH METHODS

The method in writing this scientific article uses a qualitative method with a literature review approach (Library Research). In this case, it will examine the theory and the influence between variables from books and journals both offline in the library and online sourced from internet media such as Mendeley, Google Scholar and other internet media.

In qualitative research, literature review must be used consistently through methodological assumptions. This means that it must be used inductively so that it does not direct the questions posed by the researcher. One of the main reasons for conducting qualitative research is that it is exploratory (Ali & Limakrisna, 2013).

FINDINGS AND DISCUSSION

Based on relevant theoretical studies and previous research, the discussion of this literature review article in the concentration of Management Information Systems is:

Effect of Software on Information Systems.

Software is related to Information Systems, where the dimensions or indicators of Software (applications, scripts and programs) affect the dimensions or indicators of Information Systems (Hardware, Software, Brainware, Procedures, Databases and Database Systems, and Communication network technology) (Jogiyanto, 2005; Susanto, 2004).

The impact of the progress of MIS occurs from the change in data processing from manual systems to computer systems. To improve the Information System by paying attention to the Software, what management must do is improve the features in the information system.

The Influence of Databases on Information Systems.

Database affects the Information System, where the dimensions or indicators of the Database (integration, consistency, validation, and consistency of information data) relate to the dimensions or indicators of the Information System (database) (Belluano, 2017).

To improve the Information System by paying attention to the Database, what management must do is in an information system that is built to integrate and replicate data between units within the organization, where an adequate network connection infrastructure is needed to be able to maximize the performance of database replication that integrates all reporting.

Effect of Information Technology on Information Systems.

Information Technology affects Information Systems, where the dimensions or indicators of Information Technology (processing data, processing, obtaining, compiling, storing, manipulating data in various ways to produce quality information) affect the dimensions or indicators of Information Systems (communication/information network technology) (Wardiana, 2002).

In order to improve the Information System by paying attention to Information Technology, what management must do is to improve the ability of human resources in understanding the components of information technology, such as computer hardware and software; network systems in the form of LAN or WAN and telecommunications systems, where this will be used to transfer data.

Conceptual Framework

Based on the formulation of the problem, theoretical studies, relevant previous research and discussion of the influence between variables, the framework for thinking in this article is as follows:

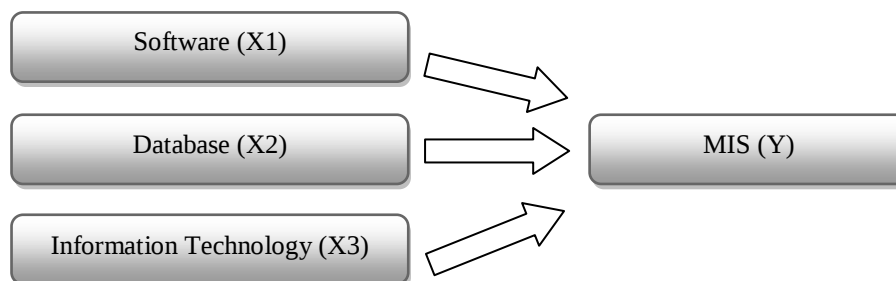


Figure 1: MIS Conceptual Framework

Based on the conceptual framework picture above, then: Software, Databases, and Information Technology have an effect on Information Systems.

Apart from these three exogenous variables that affect Information Systems, there are many other variables that influence them, including:

- a) Hardware: (Jogiyanto, 2005; Susanto, 2004).
- b) Brainware: (Jogiyanto, 2005; Susanto, 2004).
- c) Procedure: (Jogiyanto, 2005; Susanto, 2004).

CONCLUSION AND RECOMMENDATION

Conclusion

Based on theory, relevant articles and discussions, hypotheses can be formulated for further research: Software affects the Information System. Database affects the Information System. Information Technology has an effect on Information Systems.

Recommendation

Based on the conclusions above, the suggestion in this article is that there are many other factors that affect Information Systems, apart from Software, Databases, and Information Technology at all types and levels of organizations or companies, therefore further studies are still needed. to look for other factors that can affect Information Systems other than the variables studied in this article. Other factors such as Hardware, Brainware and Procedures.

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