



Analysis of Determination in Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation

Isnawati¹, Hapzi Ali²

¹University of Bhayangkara Jakarta Raya, Indonesia, isnaawatii05@gmail.com

²University of Bhayangkara Jakarta Raya, Indonesia, hapzi.ali@gmail.com

Corresponding Author: isnaawatii05@gmail.com¹

Abstract: Analysis of the Determinants of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation is an analysis of the works that have been published in the subject of ESSB. In order to provide a basis for future research, this article aims to generate hypotheses about the correlation between variables. Academic databases such as Google Scholar, Mendeley, and others are part of the research object. This research utilizes a literature review strategy based on the use of publicly accessible electronic resources, such as e-books and journals. Descriptive qualitative analysis was used. The following are the findings of this analysis: 1) The Role of Database in Determination Analysis of Computer-Based Information System; 2) The Role of Computer Networks in the Determinacy Analysis of Computer-Based Information Systems; 3) The Role of Technological Innovation in the Determination Analysis of Computer-Based Information Systems.

Keyword: Computer-based Information Systems, Databases, Computer Networks and Technology Innovation

INTRODUCTION

Undergraduate students, graduate students, and doctoral candidates are all required to complete a research project that culminates in a thesis, dissertation, or other form of academic writing. The same is true for faculty members, operational staff, and other researchers who are expected to actively engage in research and write scholarly works to be published in peer-reviewed publications.

For students about to graduate from most institutions in Indonesia, scientific papers are an essential component of their degree program. This applies to all academic levels, from writing bachelor theses, master theses, to doctoral dissertations.

However, as is well known, many students and researchers experience difficulties when trying to find articles that support their scientific work. This applies regardless of whether they are looking for relevant past research, articles to help build theory, articles to investigate

relationships between variables, or articles to help them formulate hypotheses. Thus, the article also reviews Determinant Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation by reviewing references to the ESSB domain.

Referring to the above background, the matter with should be addressed and written in the article discussed is to build hypotheses in future research, namely formulating: 1) The Role of Databases in the Determination Analysis of Computer-Based Information Systems; 2) The Role of Computer Networks in the Determination Analysis of Computer-Based Information Systems; 3) The Role of Technological Innovation in the Determination Analysis of Computer-Based Information Systems.

METHOD

The method of writing a Literature Review article involves a Literature Review along with a Systematic Literature Review (SLR), then presented through a qualitative method. Sources of information are obtained online such as Mendeley, Google Scholar, and other academic support tools.

According to Kitchenham et al. (2009), a systematic literature review (SLR) involves finding, assessing and interpreting all relevant review materials to answer the established review question.

It is essential to use literature review consistently in qualitative analysis, which is based on methodological principles. Researchers often turn to qualitative methods when conducting exploratory studies (Ali, H., & Limakrisna, 2013).

RESULTS AND DISCUSSION

Regarding the context of the research, the conclusions of the article based on the methodology used include:

Computer Base Information System

In today's digital era, information can be quickly obtained. Just by surfing the internet, in the palm of a smartphone, updated information can be read immediately. That is one example of the use of information systems involving various advances in information technology (IT), including computer equipment (hardware), software (software), databases, communication systems, the internet, mobile devices and others. The function of the section is to perform certain tasks in communicating and sharing information in the organizational (social) world. And this is widely applied by companies / governments as a decision support system (knowledge based system), expert system, and virtual office by utilizing computer-based information systems / CBIS (Daniel and Wiwik, 2015). Rahayu, P. (2018).

Recent years have witnessed a significant shift in the evolution of computer-based information systems. More and more businesses are implementing Electronic Data Processing (PDE) systems in place of manual accounting systems, lending credence to this claim. Nugrahadi, E. W., & Sukiswo, W. H. D. (2019).

Database

Nowadays, the use of information systems and databases is no longer unusual because databases are the main component for providing various kinds of information, be it in the fields of IT, law, social, psychology, management and other fields certainly require databases. However, there are many things that must be considered in designing a system that uses a database, for example in the selection of a Database Management System (DBMS). Siregar, U. K., Sitakar, T. A., Haramain, S., Lubis, Z. N. S., Nadhirah, U., & Yahfizham, Y. (2024)

A database is a set of interconnected data. Database system is a computerized system that aims to store a number of data to make it easier for users to get and update information as

needed. Information stored in the database can be in the form of text or numbers. Agusdino, Z., & Basry, A. (2024).

The subject of Databases has been the subject of considerable scientific research in the past, as evidenced by the works of Siregar, U. K., Sitakar, T. A., Haramain, S., Lubis, Z. N. S., Nadhirah, U., & Yahfizham, Y. (2024) and Agusdino, Z., & Basry, A. (2024).

Computer Network

With the development of technology and information that is advancing rapidly today. One of the factors that support the country is said to be advanced, because technology is so sophisticated and its development is so good. Computer network-based technology makes everything feel so easy to do. What really plays a role is the use of computer networks to manage information so that work is easier and more efficient. We can all do that when our computer system is in a computer network system (Ratu, 2015). Tangkowitz, A. E., Palilingan, V. R., & Liando, O. E. S. (2021).

A computer network is an operating system consisting of several computers and other network devices that work together in achieving the same goal. Computer networks are also directly related to the delivery of messages that can be carried out through several points or nodes connected to each other, with or without cables. This network is commonly used by computers and telephones to convey messages through several systems on the computer or telephone itself. Pelealu, R. R. A. A., Wonggo, D., & Kembuan, O. (2020).

The subject of Databases has been the subject of considerable scientific research in the past, as evidenced by the works of Tangkowitz, A. E., Palilingan, V. R., & Liando, O. E. S. (2021) and Pelealu, R. R. A. A., Wonggo, D., & Kembuan, O. (2020).

Technology Innovation

Innovations in hardware and software have had an impact on the operational efficiency of economic management work, which in turn has an impact on the way economic resources are managed in the country. In terms of economic management, technological innovation - especially in the field of hardware and software - has become an essential tool related to supporting operational efficiency. Jange, B., Idie, D., Taufan, A., Pattiran, M., & Tindage, J. (2024).

According to Maisharoh and Ali (2020), these technological innovations have substantial consequences for operational efficiency in the domain of economic management. Utilizing sophisticated hardware and software optimizes the administration of economic resources effectively. An illustration of how real-time monitoring of various forms of the economy can enable policy makers to immediately recognize threats and opportunities as well as focus resource allocation refers to optimal data collection (Ardiansyah, 2023). Jange, B., Pattiran, M., Idie, D., Taufan, A., and Tindage, J. (2024).

The subject of technological innovation has been the subject of considerable scientific research in the past, as evidenced by the work of Maisharoh, T., & Ali, H. (2020) and Jange, B., Idie, D., Taufan, A., Pattiran, M., & Tindage, J. (2024).

CONCLUSION

Based on the above-mentioned objectives, findings, as well as discussion, the objective in the conclusion of the paper discussed is to formulate a hypothesis by including a foundation for future research:

- 1) The role of databases in analyzing the determinants of computer-based information systems;
- 2) The Role of Computer Networks in the Deterministic Analysis of Computer-Based Information Systems;
- 3) The Role of Technological Innovation in the Determination Analysis of Computer-Based Information Systems;

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DESCRIPTION OF TABLES AND FIGURES

Table

As shown in Table 1, the formulation of the research hypotheses was based on a review of related articles describing the results of previous studies and comparing their similarities and differences with the design of this study.

Table 1: Relevant Research Results

No	Author (Year)	Results of Previous Research	Similarities with This Article	Differences with this Article	H
1	Siregar, U. K., Sitakar, T. A., Haramain, S., Lubis, Z. N. S., Nadhirah, U., & Yahfizham, Y. (2024)	Development of a database management system using My SQL	Database Implementation	Determination Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation	H1

2	Agusdino, Z., & Basry, A. (2024).	Design of Warehouse Goods Inventory Information System Using Web-Based Average Method at CV. SEJATI STEEL TRUSS	Database Implementation	Determination Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation	H1
3	Tangkowit, A. E., Palilingan, V. R., & Liando, O. E. S. (2021).	Analysis and Design of Computer Networks in Junior High School	Computer Network Implementation	Determination Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation	H2
4	Pelealu, R. R. A. A., Wonggo, D., & Kembuan, O. (2020).	Computer Network Design and Implementation of Smk Negeri 1 Year	Computer Network Implementation	Determination Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation	H2
5	Jange, B., Idie, D., Taufan, A., Pattiran, M., & Tindage, J. (2024).	THE ROLE OF TECHNOLOGICAL INNOVATION IN IMPROVING OPERATIONAL EFFICIENCY IN ECONOMIC MANAGEMENT: A CRITICAL REVIEW OF THE LITERATURE.	Application of Technological Innovation	Determinacy Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation	H3

6	Maisharoh, T., & Ali, H. (2020).	Factors affecting Information Technology Infrastructure: Finance, IT Flexibility, and Organizational Performance	Application of Technological Innovation	Determinacy Analysis of Computer-Based Information Systems: The Role of Databases, Computer Networks, and Technological Innovation	H3
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Figure

With reference to relevant research, problem formulation, and discourse, the conceptual framework of this article was created, as illustrated in Figure 1.

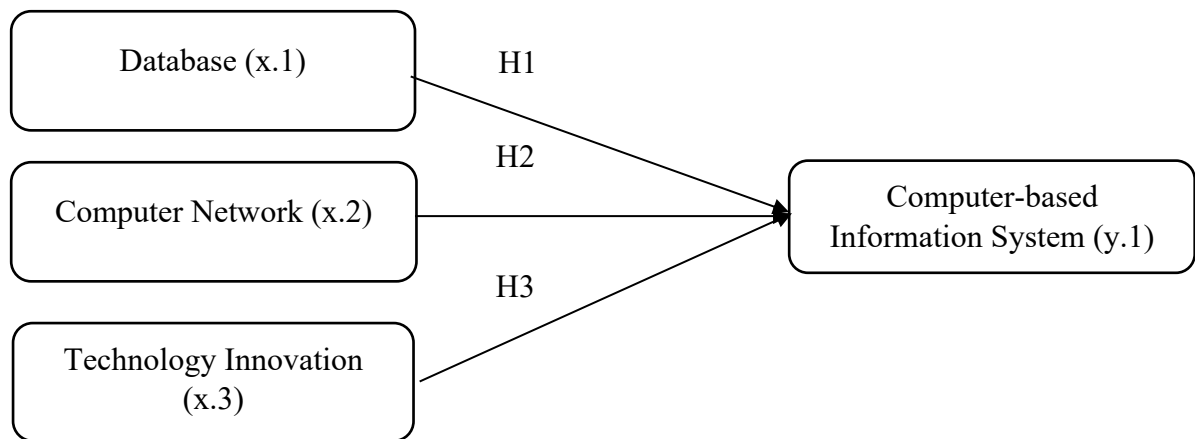


Figure 1: Conceptual Framework