

**CRITICAL SUCCESS FACTOR MODEL FOR
THE IMPLEMENTATION OF INFORMATION
SYSTEM IN INSTITUTIONS OF HIGHER
LEARNING IN INDONESIA**

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CRITICAL SUCCESS FACTOR MODEL FOR THE IMPLEMENTATION
OF INFORMATION SYSTEM IN INSTITUTIONS OF HIGHER
LEARNING IN INDONESIA

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ABSTRACT

The successful adoption of information systems in institutions of higher learning is a critical factor in enhancing the efficiency, productivity, and competitiveness of institutions higher learning in the digital age. However, the influence of organizational culture, particularly hierarchical culture, on the success of information system adoption remains a complex and underexplored area, especially in the context of institutions higher learning Banten Province, Indonesia. The problem with implementing information systems in private universities is the need for more quality, and the role of the information system has not been optimal in supporting institutional operation, so it does not produce the information needed by top management as a basis for decision-making. This research introduces a critical success factor model for the implementation of information system adoption in institutions of higher learning within the region. The success of an Information System (IS) measurement is a step of extended evaluation as it consists of some steps and dimensions used. Organizational hierarchical support is needed to secure funding. It provides a referral strategy and supports the entire Information System (IS) effort and its implementation to ensure the realization of objectives. This research assessed the hierarchical culture that prevails in institutions of higher learning in Banten Province using surveys, interviews and content analysis. This study also investigated how this culture impacts the success of information system adoption, considering system use, use satisfaction, and system effectiveness. The proposed model integrates organizational hierarchical culture theory elements and DeLone and McLean's model for adopting information systems successfully. The proposed model combines organizational hierarchical culture theory elements and DeLone and McLean's theory of successfully adopting information systems. It aims to provide an understanding of the relationship between organizational hierarchical culture and the successful implementation of information systems in the context of institutions of higher learning in Banten Province, Indonesia. The questionnaire was distributed to university leadership respondents using a Google Form link with confirmed reliability and validity. Structural Equation Modeling (SEM) using SmartPLS version 3 software was used to present the data. SEM path analysis shows the central construct relationships in the data. The results obtained from this research indicate the influence of hierarchical culture in organizations on the success of information systems in institutions of higher learning in Banten Province, Indonesia. This research provides a comprehensive picture of organizational hierarchical culture's influence on the success level in evaluating information systems in higher learning. The proposed model can become a reference for future research, especially at universities where researchers combine the success of information systems and contribute to the progress of higher learning in this new area.

Keywords: DeLone and McLean, information system, institutions of higher learning, SEM, SmartPLS

APPROVAL

This is to certify that this thesis conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, for the fulfilment of the requirements for the degree of Doctor of Philosophy.

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DECLARATION

I hereby declare that the thesis submitted in fulfilment of the PhD degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programme and/or exclusion from the award of the degree.

Name: Reni Haerani

A handwritten signature in black ink, appearing to be 'Reni Haerani', written in a cursive style.

Signature of Candidate:

Date: 16 February 2024

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LIST OF ABBREVIATION

IS	Information System
ICT	Information Communication Technology
IHL	Institution Higher Learning
IT	Information Technology
IMS	Information Management System
HCO	Hierarchical Culture Organization
SYQ	System Quality
IFQ	Information Quality
SVQ	Service Quality
USF	User Satisfaction
ITU	Intention to Use
NBF	Net Benefit
PLS-	Partial Least Square Structural Equation
SEM	Modelling
AVE	Averaga Variance Extracted

CHAPTER 1

INTRODUCTION

This Chapter discusses the context of the study, problem statement, Research Objectives, Relating the Research Objectives to the Problem Statements, Research Questions, Scope of Project/Limitations, Justifications and Significance of the Study, Contributions of Research, and finally ended with a Chapter Summary.

1.0 Background of the Study

The rapid improvement of Information Systems (IS) has brought people to the era of information. Today, data and information systems implementation has been widely spread and provides affordable investment value. Therefore, organizations or institutions are competing to adopt the Information System (IS) to improve business capability and prominence in business competition.

Universities in Indonesia have also applied Information System (IS) solutions to assist the administration or lectures. The Indonesian government, in this case the General Director of High Education, has incorporated an IS as one of the evaluation parameters in the accreditation. Information portal is one of the critical factors for the success of information system implementation in a university. The information portal is considered an effective and efficient information centre for the stakeholders (in this case, the lecturers and the learners). Hock-Doepgen et al. (2021) stated that if the information system in an organization is of good quality, the organization will run well. If not, the lack of information will make an organization less competitive. Therefore, data quality is essential for an organization to remain competitive (Ganguly et al., 2019).

One of the models used to evaluate the success of an Information System (IS) is the model of success developed by DeLone & McLean (1992). The model depends on six measurements of information system success, i.e. system quality, information quality, user satisfaction, use, individual and organizational impact. Updated in 2003, the included new variables like net benefits, intention to use, usage, user satisfaction, information quality, system quality, and service quality (Delone and McLean, 2003). This study adopted information system success model by (Delone and McLean, 2003). Problems in implementing an Information System (IS) include assessing the relationship of organizational culture in the organizational hierarchy of the effectiveness of information systems, especially the utilization of information systems in institutions of higher learning (Abdullah et al., 2022). According to (Tallon et al., 2019) Information systems are influenced by organizational structure, while organizational structure is significantly related to the quality of information systems. Organizational hierarchical culture plays an essential part in acting as a corporate value, resolving issues, and assisting in the achievement of the goals and objectives of an organization (Putra, 2017).

One factor that can significantly influence the success of an Information System (IS) is the perceived benefits (Al-Fraihat et al., 2020). Full management support has shown to support technology implementation success (Teixeira et al., 2023). Previous study shows that the information managing mechanism with the help of top management facilitates and maintain the success of the information system model (Al-Kurdi et al., 2020) (Chowdhury et al., 2022); (Lam et al., 2021); (Haerani et al., 2022) ; (Vom Brocke et al., 2020). Top management support improves the levels and the quality of knowledge sharing and influences the commitment of each individual in an

organization (Lee et al., 2021). The hierarchical support of an organization facilitates the knowledge of some elements that can contribute to the institution's success.

The organizational culture strongly influences the Information System (IS) implementation in institutions of higher learning implementation. A study by Žalėnienė & Pereira (2021) to determine whether the organizational hierarchical culture of Institution Higher Learning contributes to the success of information system implementation. However, some challenges must be overcome inside and outside the institution, such as implementing information systems, sustainability, stakeholders and intensity.

The hierarchical organization of integration can influence information systems integration to support real-time decision-making (Tabim et al., 2021). An organizational hierarchy culture that pays attention to information systems influences the increase in the success of implementing information systems within the organization (Maier et al., 2019). Organizational hierarchy is the formal configuration of individuals and groups regarding job allocation responsibility and the authority (Child, 2021). The organizational hierarchy describes the permanent legal relationship between the people in an organization. Measuring the IS success used in institutions of higher learning is essential to provide a comprehensive picture of the organizational hierarchical culture in ongoing implementation (Syakur et al., 2020).

The success of the information system (IS) implementation in an organization is one of the essential missions of an organization (Khando et al., 2021). Martínez-Caro et al. (2020) stated that if the information in the organization is of good quality, the organization will run well. This is based on the organization's investment in developing an Information System (IS), which is very expensive (Jöhnk et al., 2021). Organizational hierarchical support is needed to secure funding. It provides a referral

strategy and supports the entire Information System (IS) effort and its implementation to ensure the realization of objectives. Organizational hierarchical support can reduce organizational problems, influence and encourage organizational involvement. Hence, minimizing resistance will lead to the acceptance of the specification and package IS (Hardcopf et al., 2021). The advancement of integrated information systems has a high role in increasing the professionalism of providing advanced and quality institutions of higher learning (Bastari et al., 2021). Therefore, the success of institutions of higher learning need to be seen from the many factors that influence both internally and externally. Internal factors include the number and quality of lecturers, facilities and infrastructure, facilities, services, and students as input in the learning process. While, external factors are associated with the interaction of higher learning institutions with the community, government, and other institutions.

IS has shown to help higher learning institutions to accelerate in getting information, services, learning systems, data processing and meeting other needs. IS Management is the application of information systems in Institution Higher Learning to provide information needed by all levels of management. Moreover, Information Systems Management is vital in providing information required for crucial decision-making, directly affecting the organization's performance (Alerasoul et al., 2022).

The Information System supports the learning and operational processes at every tertiary institution in Indonesia, where almost all active back and front-end processes use information technology. An Information System that is properly managed will provide tangible advantages for the business, such as reducing costs, labour effectiveness, and increasing productivity. In contrast, benefits not realized include the information's accessibility, improved or new procedures, and system integration's advantages from standardization (Daheri, 2023). Furthermore, Information Systems

can help organizations implement their strategies and become more competitive in the marketplace.

The demands of managing a business, staff, faculty, students, and institutional stakeholders are all supported by information systems. Therefore, it is essential to measure the success of information system implementation and to evaluate the influence of the organizational hierarchical culture on the success of information success implementation (Jardioui et al., 2020). With the changing business environment, globalization, competition, changing consumer needs and the influence of technology, modern competitive organizations have sought to adopt strategic information systems to improve their performance (Nudurupati et al., 2021). Moreover, it allows the organizational hierarchy to adjust, control, and monitor all business processes, which will accelerate decision making (Brajer-Marczak & Marciszewska, 2023).

Utilization of information systems in institutions of higher learning is one of the efforts in imparting knowledge to equalize and expand access. It can increase relevance and competitiveness and strengthen governance and public image. Based the need for examining the role of hierarchical culture in the nformation system's successful implementation in the institutions of higher learning, this study examines the impact of organizational hierarchical culture on the success of information system implementation. This study is essential because organizational hierarchical culture can influence the success of implementing information systems in institutions of higher learning. Organizational culture can shape leadership actions and making decisions, including the choice of control information systems. Therefore, the culture of organizational hierarchy in the implementation of information systems needs to be developed in such a way as to increase the efficiency of the use of internal information

systems in private universities in Banten Province, which will have an impact on the quality of adopted information systems and optimize the use of information systems.

1.1 Problem Statement

Based on the observation of the researcher, there are five problems statements of this research are identified as follows:

- a. Some complaints from the higher management of Institutions of higher learning in the implementation of information systems that lack of management participation in designing the system, controlling the efforts of system development and motivating the involved personnel resulted in the higher management not using the existing information system this is because is not user-friendly and not understood by the higher management (Shaturaev, 2021).
- b. The Information System investment value differs in every Institution of higher learning. Therefore, the interface and this tool system are limited according to the institutions capability. Eventually, this will influence the overall utilization of IS. This is because IS Development investment is costly (Iriarte & Bayona, 2020); (Roztock et al., 2019). Each organization began to increase funds for information system development, increasing in organizational expenses (Petter et al., 2008).
- c. The failure of Information Systems in Institutions of higher learning business processes depends on the human resource roles of employees and executive management. The problem with implementing information systems in private universities is that they need more human resources with skills that can

support employee and organizational performance (Heslina & Syahrani, 2021).

- d. Top management still feels uncomfortable using the information system in Institutions of Higher Learning. They need help using the existing system due to the absence of knowledge transfer and detailed operation manuals. The development of IS ignores top management needs (Järlström et al., 2018).
- e. The quality of information systems in Institutions of Higher Learning is not good making them easy for hackers to break into (Hina et al., 2019). The lack of quality of the information systems is because it is still not to be integrated, and the role of the information systems is not running optimally in supporting institutional operations, so it does not produce the information required by top management as a basis for decision making (Effendi, 2019).

1.2 Research Objectives

The objectives of this research are:

- a. To identify the reliable factors of hierarchical culture in organizations that influence the success of IS adoption in private Institutions of Higher Learning in Banten Province, Indonesia.
- b. To develop a new model for evaluating the effect of hierarchical organizational culture on the success of information systems implementation in private Institutions of Higher Learning.
- c. To evaluate the relationship between organizational hierarchical culture and the success of information system implementation in Institutions of Higher Learning in Banten Province, Indonesia.

1.2 Relating the Research Objectives to the Problem Statements

Referring to numerous circumstances shown by various studies, this research helps to identify the problems and challenges faced by the university as the system user. Furthermore, this research recommends that information system developers design the appropriate university system to avoid idle implementation functions. Using the new model, the researcher would evaluate the success level of information system implementation based on the managerial hierarchy. The relationship between the research objectives and problem statements is given in Table 1.1.

Table 1.1: Relationship between the research objectives and problem statements

Relating the Research Objectives	Problem Statements
RO1 : To identify the reliable factors of hierarchical culture in organizations that influence the success of IS adoption in private Institutions of Higher Learning in Banten Province, Indonesia.	PS1: Some complaints from the higher management of Institutions of higher learning in the implementation of information systems that lack management participation in designing the system, controlling the efforts of system development and motivating the involved personnel resulted in the higher management not using the existing information system this is because is not user-friendly and not understood by the higher management.

	<p>PS4:</p> <p>Top management still feels uncomfortable using the information system in Institutions of Higher Learning. They need help using the existing system due to the absence of knowledge transfer and detailed operation manuals. The development of IS ignores top management needs.</p>
	<p>PS5:</p> <p>The quality of information systems in Institutions of Higher Learning could be better, making them easy for hackers to break into. The lack of quality of the information systems is because it is still not to be integrated, and the role of the information systems is not running optimally in supporting institutional operations, so it does not produce the information required by top management as a basis for decision making.</p>
<p>RO2 :</p> <p>To develop a new model for evaluating the effect of hierarchical culture in organization to the success</p>	<p>PS1:</p> <p>Some complaints from the higher management of Institutions of higher learning in the implementation of information systems that lack management participation in designing the system, controlling the efforts of system development and motivating the involved personnel resulted in the higher management not</p>