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Three Lines of Défense Model in the Risk Management Process of Higher Education Institutions

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ABSTRACT

Higher education institutions face various uncertainties that may affect academic quality, graduate competencies, student enrolment, institutional reputation, and organizational sustainability. This study aims to develop a conceptual understanding of how the Three Lines of Défense (TLoD) model can support the risk management process in higher education institutions. A descriptive qualitative approach with a literature review method was used by examining journal articles, conference papers, international standards, and relevant academic sources related to ISO 31000, risk governance, internal control, and internal audit. The findings show that the integration of ISO 31000 and the TLoD model can clarify risk ownership, strengthen monitoring and evaluation, improve internal control, and support the protection of organizational value. This study contributes by proposing an integrated conceptual model for strengthening risk governance in higher education institutions.

Keywords: *risk management process, higher education, ISO 31000, Three Lines of Défense, higher education governance.*

1. INTRODUCTION

Higher education institutions are facing several changes in their external environment that create uncertainty and complexity for the governance of the institutions. These changes include the rapid development of information technology, increased competition among universities, changing expectations of students, and increased expectations for the quality of graduates. Therefore, universities need to address uncertainty in a more systematic and structured manner to maintain academic quality, institutional reputation, operational continuity and sustainability. Strategic, operational, academic, financial, reputational, governance, information security and organizational sustainability risks are examples of risks in higher education (Biancardi et al., 2023; Putri & Wijaya, 2023; Syahrullah et al., 2025). In addition, the increasing digitalization of higher education has brought information security and cybersecurity risks, making systematic risk management a crucial part of protecting academic information, institutional information and digital services (López-Vasco et al., 2025; Putri & Wijaya, 2023).

One of the major risks in higher education is related to graduate competencies. The universities are expected to produce graduates who are academically qualified and relevant to industry and society. However, curriculum mismatch, inadequate learning systems, and insufficient practical experience and suboptimal academic evaluation can reduce the competitiveness of graduates. Moreover, the drop in student numbers has become a significant issue because of the competition in the world, digital transformation, online learning platforms, and alternative education models. In the modern higher education environment, risk management and digital technology literacy are crucial to improve the adaptability of institutions and learning innovation performance (Setyadi et al., 2025). The conditions demonstrate that risk management is not just an administrative and financial issue, but also a key element in enhancing academic accountability and institutional transformation (Pradesa et al., 2021).

To overcome these challenges, risk management is now a strategic need for higher education institutions. Risk management is a structured process for identifying, analysing, evaluating and managing risks that may affect the achievement of institutional objectives. One of the most common methods is ISO 31000:2018, which defines risk management as creating and maintaining value for the organization. At the university level, this value includes academic excellence, student success, research productivity, institutional prestige, and social impact. In recent years, the need to enhance the risk management process in higher education quality management systems to align with the goals of the institution, accreditation standards, and the successful implementation of university missions and strategies has been highlighted (Bazaluk et al., 2024). Previous studies have shown that the use of ISO 31000:2018 in higher education institutions can be used to identify, assess and prioritize risks, particularly in the field of information technology infrastructure supporting academic activities (Elly et al., 2022; Lubis et al., 2023).

But the risk management process itself is not enough if there are no effective control, monitoring and evaluation mechanisms. Higher education institutions need to have clear roles and responsibilities, and the risk management should not only be a formal document, but also be embedded in the institutional culture, decision-making, academic management and daily operations. In this context, the Three Lines of Defense (TLoD) model can be used to strengthen risk governance, which divides the responsibilities into three main lines: the operational line (risk owner), the supervisory line (controller/monitor), and internal audit (independent evaluator). Internal audit is also one of the important functions that can help evaluate the risk governance and improve the performance of the organization by implementing risk management based on ISO 31000:2018 (Yuwono et al., 2023).

The combination of ISO 31000:2018 and the TLoD model offers a more holistic risk management framework for HEIs. The principles and process of risk management are captured in ISO 31000:2018 and the TLoD model provides the structure of roles and responsibilities, monitoring and assurance. This integration allows universities to make sure that risks are detected by the appropriate units, supervised by the appropriate supervisory functions and assessed separately by internal audit. This holistic approach is crucial for enhancing accountability, bolstering internal control, and safeguarding institutional value in a sustainable way (Yuwono et al., 2023; Marliyah et al., 2023; Syahrullah et al., 2025).

The concept of risk management in higher education has been discussed in the past from various angles such as ISO 31000 based risk analysis, information technology risk management, risk management maturity, organizational transformation and enterprise risk management frameworks integration. But there are still limited studies that specifically combine the ISO 31000:2018 risk management process and the TLoD model in higher education governance. Furthermore, previous studies have primarily concentrated on operational, institutional, and information technology risks, with little attention given to academic risks like declining student enrolment and falling graduate competencies (Dethan et al., 2022; Marliyah et al., 2023; Pradesa et al., 2021; Putri & Wijaya, 2023; Syahrullah et al., 2025).

Based on these research gaps, the research question of this study is: How can the implementation of the risk management process and the TLoD model strengthen monitoring, evaluation, and the protection of organizational value in higher education institutions? This study is expected to serve as a reference for higher education leaders in developing integrated and sustainable risk management policies. In addition, this study is expected to help universities clarify risk ownership, strengthen monitoring mechanisms, improve internal control, and enhance the role of internal audit in evaluating risk management effectiveness.

2. RESEARCH METHODS

This study is descriptive qualitative and literature review method. The selected approach was due to the fact that the study aims to understand how the TLoD model can be used to support the risk management process in higher education institutions. The study is conceptual, so there are no surveys, interviews, or statistical testing. Rather, it focuses on theories, standards, and prior research on risk management, higher education governance, internal control, monitoring, evaluation, and internal audit.

The literature used in this study was gathered from journal articles, conference papers, international standards and other academic sources. The literature search was done in academic databases and publishers such as Google Scholar, Scopus, Springer, Nature Scientific Reports, Emerald, ACM Digital Library, and the accredited national journals, first. The search terms used were: higher education risk management, ISO 31000 in higher education, Three Lines of Défense, risk governance in universities, enterprise risk management in higher education, and internal audit in risk management.

Second, literature collected was chosen for relevance and credibility. The main references were chosen because they were related to ISO 31000:2018, risk management in higher education, enterprise risk management, risk governance, internal control, internal audit, and the TLoD model. Articles were accepted if they mentioned risk management practices, higher education risks, ISO-based risk management, governance mechanisms, or internal audit. Sources that were only used for general management issues, but not directly related to risk management or higher education, were not the primary source of analysis. More recent publications were given priority, particularly those on risk management in universities, digital transformation, information security, academic quality and institutional sustainability.

The literature selected was then analysed by content analysis. The analysis started with a literature review to determine the key concepts associated with higher education risks and risk management processes. The literature was then categorized into different themes including types of risks in higher education, ISO 31000:2018 risk management process, risk ownership, monitoring, internal control, internal audit, and protection of organizational value. The relationship between ISO 31000:2018 and the TLoD model was also examined to gain insight into how both concepts can complement each other in the governance of higher education. The findings of this analysis were then used to develop the conceptual framework of the study.

Lastly, source triangulation and theoretical consistency enhanced the validity of the study. The findings from the international journals, conference papers, national journals and official standards were compared, and source triangulation was conducted. Theoretical consistency was achieved by keeping the discussion in line with ISO 31000:2018, enterprise risk management, TLoD model and the context of higher education governance. This was crucial to ensure that the proposed framework was not based on a single source, but was supported by several relevant studies.

2.1 Research Conceptual Framework

This study's conceptual framework starts from the perspective that uncertainty in higher education may lead to multiple institutional risks. These risks can impact graduate capabilities, student enrolment, academic quality, information security, operational continuity, reputation, governance and organizational sustainability. To manage these risks, ISO 31000:2018 is used as the main risk management process. This process covers context establishment, risk identification, risk analysis, risk evaluation, risk treatment, communication and consultation, as well as monitoring and review.

The TLoD model is then used to explain the roles in the management and control of those risks. The first line relates to academic and operational units that directly deal with risks in their day-to-day operations. The second line is about supervision, including quality assurance, risk management, compliance and planning units, that support the monitoring and direction of risk management. The third line is internal audit and independent assessment of the effectiveness of risk management, internal control and governance. In this way, the study clarifies the ways in which risk management in higher education can be enhanced by clarifying responsibilities, improving monitoring, improving evaluation, and improving the protection of organizational value.

3. RESEARCH FINDINGS AND DISCUSSION

3.1. Research Findings

The findings of this study indicate that the most dominant risks in higher education institutions include declining graduate competencies, decreasing student enrolment, academic and administrative governance issues, declining institutional reputation, and information technology and data security risks. These risks reflect the increasing complexity faced by universities in maintaining academic quality, operational effectiveness, and institutional sustainability. The literature review also shows that several universities have implemented ISO 31000-based risk management processes. However, the implementation is often still partial and has not been fully integrated with clear organizational control mechanisms. Therefore, the TLoD model is considered relevant for strengthening risk control through clearer role distribution, monitoring, and evaluation.

Figure 1 illustrates the conceptual model for implementing the TLoD in the risk management process of higher education institutions. The model starts with uncertainty in the higher education environment, which can lead to different kinds of risks such as strategic, financial, operational, academic, information technology, and reputational risks. The risks are then managed using the ISO 31000 approach to risk management, which involves risk identification, risk analysis, risk evaluation, risk treatment, monitoring and review.

In addition, the TLoD model enhances risk control. The first line includes operational and academic units, including faculties, study programs, lecturers and administrative units, which directly own and manage risks in their daily activities. The second line is made up of control and supervisory units, such as quality assurance, risk management, compliance and planning units, which offer guidance, monitoring and evaluation. The third line consists of internal audit or the internal supervisory unit (ISU), which provides independent assurance regarding the effectiveness of risk management, internal control, and governance processes. The implementation of these three lines is expected to protect organizational values, such as graduate quality, institutional reputation, academic performance, and the sustainability of higher education institutions. In this way, the TLoD model supports the development of more effective, accountable, and sustainable higher education governance.

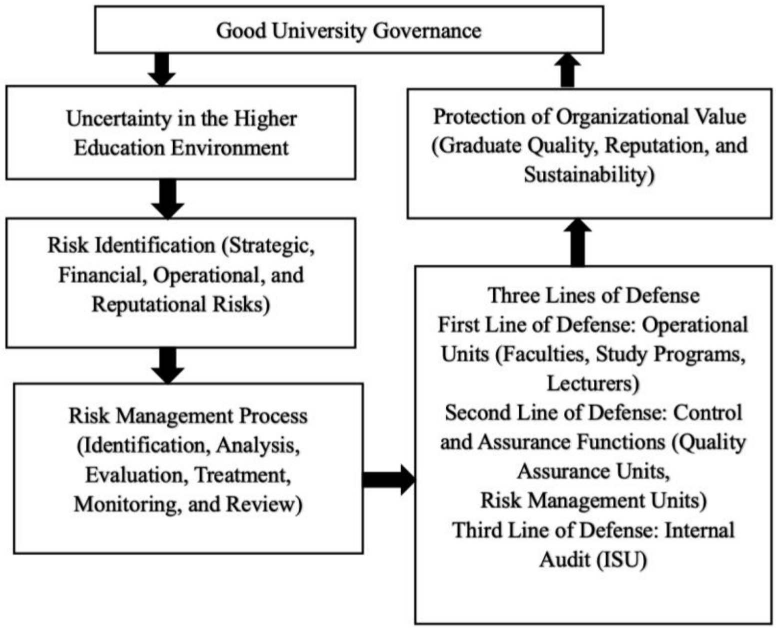

Figure 1. Three Lines of Defense (TLoD) Model in the Risk Management Process in Higher Education Institutions

3.2. Implementation Example and Discussion

A. Graduate Competency Risk

Graduate competency risk is the risk that graduates will not possess the competencies needed by industry, society and the labour market. This risk can be attributed to non-adaptive curricula, ineffective learning methods, inadequate exposure to industry and poor assessment of learning outcomes. If not managed properly, this risk can affect graduate competitiveness, accreditation performance, institutional reputation, and public trust.

The first line of defence is the study program and lecturer who manage this risk directly by reviewing the study program, developing Learning Outcomes (LO) Semester Learning Plan (SLP) based on Outcome Based Education (OBE), monitoring LO, SLP, and enhancing teaching and assessment practices. The second line is the quality assurance unit which monitors the implementation of academic standards, conducts internal academic quality audits, and evaluates the match between curriculum and accreditation standards. In the third line, the Internal Supervisory Unit (ISU) or internal audit provides independent evaluation of the learning process, student assessment validity, and compliance with academic quality standards.

The three-line structure facilitates the management of graduate competency risk not only by lecturers and study programs, but also by quality assurance and evaluation independently. As a result, universities can strengthen academic quality, improve graduate relevance, and protect institutional value.

B. Declining Student Enrolment Risk

Competition between universities, changing preferences of students, digital transformation, online learning platforms, and learning applications based on Artificial Intelligence are the risk factors that can lead to a drop in student numbers. This risk can limit the number of prospective students entering some study programs, and can impact financial stability, program sustainability, and institutional competitiveness.

The first line of defence is the marketing unit and study programs, where they manage this risk by promoting the study programs through digital media, direct contact with high schools and prospective students, development of flagship programs, improvement of academic services, hybrid learning classes, and industry certification programs. The second line consists of risk management and quality assurance units which track the number of admissions, investigate the reasons for decreasing numbers of admissions, create risk maps and prepare mitigation plans. The Internal Supervisory Unit or internal audit assesses the effectiveness of promotional strategies, the efficiency of the admission budget and the coherence of enrolment strategies with institutional objectives in the third line.

The three-line structure provides a framework for universities to address enrolment issues in a more systematic and accountable manner. By clearly defining roles, universities can enhance decision-making, boost institutional competitiveness, and contribute to long-term sustainability.

4. CONCLUSION

The results of the conceptual model development and implementation examples show that the TLoD model is a relevant approach for strengthening risk governance in higher education institutions. The first line plays a role in managing risks directly within academic and administrative units. The second line supports monitoring, guidance, and the development of risk control policies, while the third line, through internal audit, provides independent evaluation of the effectiveness of risk management, internal control, and governance processes.

The combination of ISO 31000 and the TLoD model can enhance the effectiveness of risk monitoring and evaluation, clarify the distribution of control responsibilities and increase the awareness of risk in higher education institutions. This integration also facilitates the safeguarding of organizational value, particularly in terms of the quality of graduates, the reputation of the institution, academic governance and the sustainability of HEIs.

4.1 Research Contributions

Theoretically, this study contributes to the discussion of higher education risk management by incorporating the ISO 31000 and the TLoD model. It also offers a conceptual model that connects organizational uncertainty, the risk management process, and internal control mechanisms in the context of higher education governance.

In practice, this study can assist higher education institutions to establish more formal risk management practices, as it defines the roles of the risk owners, the supervisory units and the internal audit. The proposed model can also be used in monitoring and review in quality assurance, accreditation and institutional governance.

4.2 Future Research Opportunities

Future studies could focus on the combination of ISO 31000, Internal Quality Assurance System), and ISO 21001 in the context of sustainable higher education governance. Additional research can also focus on the creation of risk monitoring dashboards, digital-based audits, and the application of Artificial Intelligence to assist with real-time risk monitoring and review in higher education institutions.

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