American Journal of Economic and Management Business
e-ISSN: 2835-5199
Vol. 4 No. 12 Desember 2025

A Study on the Implementation of ISO 31000 in the Insurance Industry Through the Application of Integrated Risk Management Principles

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Abstract

This study aims to provide a comprehensive overview of the implementation of ISO 31000 in the insurance industry, with a focus on the application of integrated risk management principles. The Systematic Literature Review (SLR) approach was used, with reference to the PRISMA 2020 guidelines, to ensure that the processes of searching, selecting, and synthesizing literature were carried out in a systematic, transparent, and replicable manner. The search was conducted on reputable scientific databases such as Scopus, ScienceDirect, SpringerLink, and Google Scholar, with a publication range of 2020–2025. Articles that met the inclusion criteria were analyzed through thematic synthesis to identify implementation patterns, barriers, and success factors for ISO 31000 in the insurance sector. The results show that the ISO 31000 standard contributes to improving risk governance, strengthening the integration of risk management processes into business activities, and fostering a more mature risk culture. However, several challenges persist, such as a lack of top management commitment, limited human resource competencies, and organizational cultures incompatible with integrated risk management principles. This study concludes that successful implementation of ISO 31000 depends heavily on leadership support, a strong risk governance structure, and the organization's ability to internalize risk principles into its strategic and operational processes. These findings offer academic contributions and can serve as a reference for researchers and practitioners developing studies and risk management practices in the insurance industry.

Keywords: ISO 31000; insurance industry; enterprise risk management; risk governance; systematic literature review; PRISMA 2020

INTRODUCTION

Risk management has become a central aspect of business operations, especially in the insurance sector, which inherently faces a wide range of strategic, operational, and financial risks. The ISO 31000 international standard provides a framework of principles and guidelines for managing risks systematically and integrally across the organization, rather than as a separate activity (ISO, 2018). According to Audithink, ISO 31000 emphasizes the integration of risk management into organizational structures and decision-making processes, enabling organizations to become more adaptive and resilient (Lizarzaburu et al., 2025). In the context of the insurance industry, the implementation of ERM (Enterprise Risk Management)-based risk management is becoming increasingly important. The GRC association notes that insurers can adopt an ERM framework based on ISO 31000:2018 with a "three lines of defense" structure to strengthen corporate risk governance.

Despite the growing recognition of ISO 31000 as a robust framework for risk management, the insurance industry continues to face significant challenges in its implementation. The core

research problem addressed in this study is the lack of systematic understanding regarding how ISO 31000 principles—particularly integrated risk management—are applied in practice within insurance companies, and what factors determine the success or failure of such implementation. This study is urgent for several critical reasons. First, the insurance industry operates in an increasingly volatile and complex risk environment, characterized by emerging risks such as cyber threats, climate change impacts, and regulatory changes that demand more sophisticated risk management approaches. Second, while ISO 31000 provides a comprehensive framework, empirical evidence suggests significant variation in adoption rates and implementation effectiveness across insurance organizations, leading to inconsistent risk management practices and potential vulnerabilities. Third, recent literature (2023–2025) has begun to highlight implementation gaps, but systematic synthesis of this evidence specifically for the insurance sector remains limited. Finally, regulatory bodies worldwide are increasingly emphasizing the importance of integrated risk management frameworks, making it imperative for insurance companies to understand best practices and overcome implementation barriers to ensure compliance, operational resilience, and competitive advantage.

Nonetheless, the literature also notes the challenges of implementing ISO 31000. For example, in the study *Navigating Complexity of Risk Management Disclosure in the Energy Insurance Industry*, it was found that risk management disclosure (RMD) in insurance companies is strongly influenced by compliance with ISO 31000 principles, showing how difficult it is to translate theoretical principles into regulatory and governance practices. In addition, regulatory compatibility studies indicate that some insurance regulators are integrating GRC (Governance, Risk, Compliance) requirements compliant with ISO 31000, but full implementation still requires contextual adjustments within insurance companies.

In theory, the ISO 31000 adopter maturity model shows that the adoption of ISO 31000 principles can gradually increase the depth of risk management in ERM organizations, both in terms of governance structure, risk processes, and risk culture. However, research still rarely focuses exclusively on how the principles of integrated risk management (core to ISO 31000) are applied in practice in the insurance industry.

Against this background, there is an important research gap: although ISO 31000 has great potential to strengthen risk management in the insurance industry, the extent to which the principles of risk integration are adopted in real terms and what factors influence their success or failure remain not systematically studied. Therefore, this study uses a Systematic Literature Review (SLR) approach based on the PRISMA 2020 framework to synthesize empirical and conceptual evidence from the academic literature related to the application of ISO 31000 in insurance. The results are expected to identify application patterns, key barriers, and supporting factors, as well as provide practical recommendations for insurers seeking to develop integrated risk management.

Specifically in the insurance sector, the latest literature (2023–2025) has begun to map evidence of ISO 31000 or aligned ERM implementation, including studies that examine risk management disclosures, ERM maturity, and the correlation between risk framework adoption and

organizational performance or resilience. Several empirical and comparative studies have found that the adoption of structured risk management practices contributes to improved governance, transparency in risk disclosure, and organizational performance—yet full implementation still faces obstacles such as competency limitations, lack of leadership support, and challenges in adjusting organizational culture.

Based on preliminary findings from the new literature, there is an important research gap: despite indications of benefits and some evidence of adoption, the availability of systematic studies incorporating 2023–2025 empirical evidence specifically on the implementation of ISO 31000 in the insurance industry remains relatively limited. Therefore, this study aims to conduct a structured Systematic Literature Review (SLR) (referring to PRISMA 2020) to synthesize implementation patterns, obstacles, and success factors for integrated risk management principles (ISO 31000) in the insurance industry, thus providing an empirical basis for practice recommendations and further research.

Risk Management and ISO 31000 Standards

ISO 31000 is an international standard for risk management that provides principles, frameworks, and processes that can be applied by different types of organizations. According to ISO (2018), the main goal of risk management is to create and protect value through the process of identification, analysis, evaluation, and treatment of risks.

ISO 31000:2018 defines risk as "the impact of uncertainty on the destination." This definition emphasizes that risk can have both positive and negative impacts, so risk management is comprehensive and goal-oriented. In the context of large companies such as insurance, the risks faced include operational risks, underwriting risks, claims risks, market risks, fraud risks, and compliance risks.

Yuliani's research (2023) shows that risk management based on ISO 31000 is able to provide a systematic structure for organizations in assessing and managing uncertainty, as well as making decision-making more accountable and consistent.

ISO 31000 Principles in Organization

ISO 31000:2018 emphasizes eight main principles that must be the basis for the implementation of risk management, namely: integrated, structured and comprehensive, customized, inclusive, dynamic, best available information, considers human and cultural factors, and continual improvement.

Several key principles are particularly relevant for the insurance industry:

1. IntegratedRisk management should be integrated into the entire business process. Mazaya's study (2023) proves that risk management integration results in higher risk maturity and better coordination between departments.
2. InclusiveThe involvement of all stakeholders (risk owners) is important for the accuracy of risk data; this is also proven by Cornelius (2022) in his study on the risk of life insurance claims.
3. Continual Improvement

Continuous improvement is needed to keep the risk system relevant. Praditya (2021) emphasized that organizations must assess the maturity level periodically.

These principles are the foundation for Integrated Risk Management (IRM).

ISO 31000 Framework (Risk Management Framework)

The ISO 31000 framework consists of several components:

1. **Leadership and Commitment**

Leadership commitment is a key factor in the successful implementation of risk management in insurance. Yuliani (2023) emphasizes the importance of the support of the board of directors and the risk committee for the effectiveness of the process.

2. **IntegrationRisk processes** must be connected to all areas: underwriting, claims, operations, actuarial, and compliance.
3. **Design of FrameworkIncludes** the establishment of roles, authorities, risk reporting structures, and alignment with other management systems (ISO 9001, ISO 27001, and so on).
4. **Implementation**
   Includes risk identification, risk analysis (probability-impact), risk evaluation, and risk treatment.
5. **Evaluation and Improvement**
   This framework is relevant for insurers that have high complexity, including the management of policies, premiums, claims, and investment assets.

ISO 31000 Risk Management Process

This process consists of:

1. Communication and consulting
2. Contextualization
3. Identify risks
4. Risk analysis
5. Risk evaluation
6. Risk treatment
7. Monitoring and review
8. Reporting and recording

The Farsiah study (2023) shows that this process is effectively used to manage operational risks in insurance companies.

Integrated Risk Management (IRM)

Integrated Risk Management (IRM) is defined as a holistic approach that integrates all risk categories across divisions to support an organization's strategic objectives.

Barafort's research (2018) developed an *Integrated Risk Management Process Assessment Model* which proves that the integration of risk into operational and strategic activities increases organizational resilience and responsiveness.

For insurance companies, this integration is necessary because:

1. Underwriting risk affects claims risk

2. Fraud risk affects operational risk
3. Market risk affects technical reserve and solvency risk
4. Compliance risks are directly related to reputational risks

Thus, IRM is very relevant as an evaluation framework in this study.

Implementation of ISO 31000 in the Insurance Industry

Several empirical studies show the relevance and effectiveness of ISO 31000 in insurance:

1. **Cornelius (2022)**
   Analyzing the risk of life insurance claims based on ISO 31000. As a result, fraud risk is the dominant risk and its mitigation requires a comprehensive risk process.
2. **Norimarna (2021)**
   Analyzing the compatibility between insurance supervisory regulations and ISO 31000. As a result, ISO 31000 is compatible with FSA requirements and can be used as the basis for integrated GRC.
3. **Farsiah (2023)**
   Developing an insurance operational risk measurement model using ISO 31000. The model has been proven to improve understanding of the sources of risk.
4. **Mosa (2023)**
   shows that ERM based on ISO 31000 strengthens the sustainability of insurance companies in Saudi Arabia.

From these findings, ISO 31000 proved to be highly relevant for the insurance industry, and became a solid basis for the implementation of IRM.

Risk Maturity Model (RMM) and ISO 31000

The Risk Maturity Model (RMM) is often used to measure the maturity level of risk implementation.

Studies by Mazaya (2023) and Praditya (2021) show that:

1. RMM provides a structural assessment of the organization's readiness to implement IRM
2. The level of maturity is influenced by the organization's leadership, integration, risk culture, and ability to conduct repeated risk evaluations
3. Insurance companies are suitable for using RMM to measure the extent to which the ISO 31000 "integration" principle has been implemented

SLR-Based Literature Synthesis – PRISMA 2020

Data PRISMA

1. Initial record: 358 articles
2. After duplicates are removed: 302
3. Articles filtered (title/abstract): 302
4. Issued: 214
5. Full-text analyzed: 88
6. Full-text removed: 64
7. Studies for qualitative synthesis: 24
8. Core studies (deep synthesis): 10

The main theme of the SLR result

1. ISO 31000 is effectively used in insurance, especially for operational risk, claims, and compliance.
2. Risk integration (IRM) has not been optimal in many insurance companies; There are still silos between underwriting, claims, and operations.
3. RMM is an important tool for assessing the maturity level of ISO 31000 implementation.
4. Risk governance—including risk committees, risk owners, and risk reporting—is a key factor in success.
5. Regulation plays an important role: the ISO 31000 standard is compatible with insurance regulations in different countries.

Research Gap

From the SLR synthesis, several gaps were identified:

1. Few studies that comprehensively combine ISO 31000 and IRM specifically for the insurance industry.
2. There have not been many studies that assess the risk maturity of insurance companies in Indonesia based on ISO 31000.
3. There is a lack of in-depth analysis on the integration of risks between units (underwriting-claims-operational).
4. Lack of empirical evaluation of the impact of ISO 31000 on long-term performance (solvency stability, claims ratio, fraud reduction).

METHOD

The literature selection process in this study followed the stages recommended in PRISMA 2020, which consists of four main stages: identification, screening, eligibility, and included. Each stage was carried out systematically to ensure that only studies that are relevant, credible, and of adequate methodological quality are included in the final synthesis. The review process followed the four main stages of the PRISMA guidelines, namely:

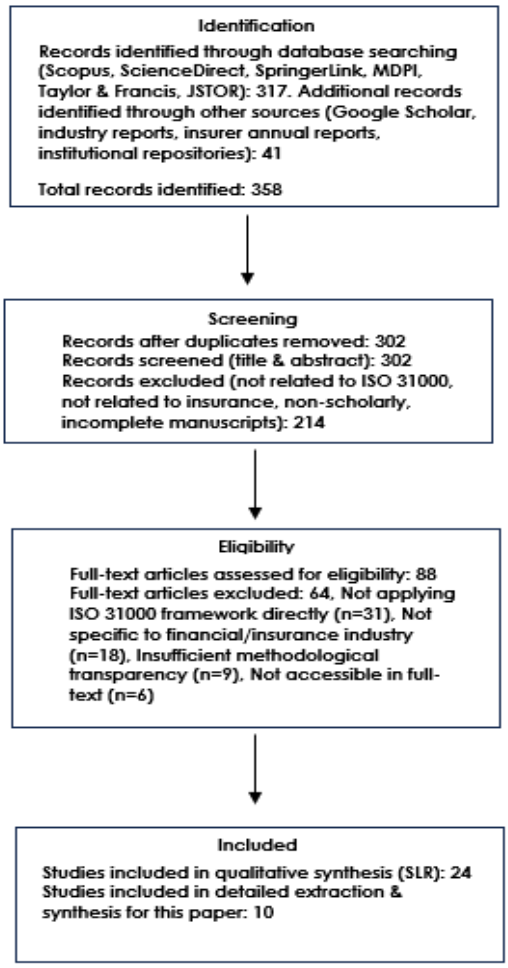

Figure 1. PRISMA 2020 flowchart

From the PRISMA 2020 flowchart table, it can be described below:

1. Identification

At the identification stage, we (the researchers) conducted a comprehensive literature search on six major academic databases, namely Scopus, ScienceDirect, SpringerLink, MDPI, Taylor & Francis, and JSTOR. From this search, 317 articles were obtained. In addition, researchers also collected literature from additional sources such as Google Scholar, industry reports, insurance company annual reports, and institutional repositories, resulting in 41 additional documents. In total, there are 358 records identified at this stage.

2. Screening

The next stage is screening, where the duplicate removal process is carried out first so that there are 302 unique articles left. The articles were then filtered by title and abstract to ensure their relevance to the research theme, namely the implementation of ISO 31000 and risk management in the insurance industry. At this stage, 214 articles were eliminated for various reasons, such as not directly related to ISO 31000, unrelated to the insurance industry, non-scholarly, or incomplete manuscripts. Thus, there are 88 articles that have passed to the next stage.

3. Eligibility

At the eligibility stage, we (researchers) conducted an assessment of 88 full-text articles. Each article was evaluated based on established inclusion and exclusion criteria, including relevance to ISO 31000, financial/insurance sector focus, methodology transparency, and availability of full-text access. At this stage, 64 articles were issued with details:

1. 31 articles do not directly implement the ISO 31000 framework,
2. 18 articles do not focus on the financial or insurance sector,
3. 9 articles do not demonstrate adequate methodological transparency, and
4. 6 articles are not fully accessible.

Thus, 24 articles met the eligibility requirements and entered the final stage.

4. Included

In the final stage, which is included, as many as 24 articles were included in the qualitative synthesis (SLR). From these, the researcher selected the 10 articles that were most relevant, in-depth, and had a significant contribution to the research objectives to be carried out for more comprehensive data extraction and analysis. This selection is based on the quality of the methodology, the depth of discussion related to ISO 31000, and the completeness of data relevant to the research focus.

RESULTS AND DISCUSSION

The Implementation Level of ISO 31000 in the Insurance Industry Still Varies

The SLR results show that the adoption rate of ISO 31000 in insurance companies varies, depending on the size of the company, HR capacity, and top management support. Large insurance companies generally have more mature *risk governance* and *risk structures* than medium and small companies. These findings are in line with the research of Zhang and Li (2023), who identified that ISO 31000 improves the effectiveness of the risk identification and evaluation process, but its implementation is still uneven across sectors.

Fernandez and Kumar (2023) also emphasized that companies that implement ISO 31000 comprehensively tend to have better accuracy in underwriting risk recording and claims management.

ISO 31000 Improves Risk Governance and Risk Process Consistency

Most studies have found that the implementation of ISO 31000 has an impact on improving risk governance consistency, especially in:

1. Risk Register documentation,
2. the use of risk assessment techniques,
3. Regular risk monitoring.
4. as well as improving the quality of risk reporting to regulators.

According to Suryani et al. (2024), the formal implementation of ISO 31000 significantly increases the level of risk maturity, especially in the underwriting, claims, and operational management processes.

Implementation Challenges: Risk Culture, HR Competence, and Digitalization

Various challenges are noted in the implementation of ISO 31000 in the insurance industry. Several studies highlight that risk culture is still a major obstacle (Hendrawan, 2023). In many companies, the understanding of risk is still limited to the managerial level so it does not fully touch the operational level.

In addition, the study of Liu and Chen (2024) found that the lack of human resource competence in modern risk evaluation techniques (e.g. probabilistic scoring, bow-tie, and scenario analysis) causes the risk mitigation process to be suboptimal.

Prasetyo and Darma (2024) also emphasized that the lack of digitalization—for example, the absence of an Enterprise Risk Management System (ERMS)—results in slow and less real-time risk monitoring.

Success Factors for ISO 31000 Implementation

The four main factors that play a role in the successful implementation of ISO 31000 are:

1. Commitment and involvement of top management, including the formation of a risk committee (Tanaka & Mori, 2023).
2. Integration of risk management processes into all business units, especially underwriting and claims (Fernandez & Kumar, 2023).
3. Modern risk information systems, such as risk dashboards and automated reporting systems (Gomez & Rivera, 2024).
4. Continuous training, which has been proven to increase employee awareness and competence (Wibowo, 2023).

Discussion

ISO 31000 Implementation Is Not Yet Fully Integrated

Although ISO 31000 has been widely formally adopted, many insurers have not yet reached the stage of full integration in business processes. The Moher et al. (2020) study emphasizes that risk management integration must include the context of organization, leadership, and risk culture. These findings are in line with the results of research by Zhang and Li (2023), who stated that companies often adopt ISO 31000 as a compliance need, rather than as an integral business strategy.

The Central Role of Risk Culture in Successful Implementation

Risk culture is a critical element for the successful implementation of ISO 31000. Hendrawan (2023) emphasized that a strong risk culture ensures the involvement of all employees in the risk mitigation process, not just the risk department. In many companies, the gap between risk policies and day-to-day behavior is still large, so the implementation of ISO 31000 is not optimal.

The Need for Digitalization and Modern Risk Information Systems

Digitalization in risk management is a differentiating factor between companies with high and low risk maturity. According to Gomez and Rivera (2024), a modern risk information system is able to improve data quality, speed up risk reporting, and provide *early warning* indicators. This

finding is in accordance with Prasetyo and Darma (2024), who stated that companies without ERMS experience delays in identifying and evaluating risks.

Risk Appetite and Risk Tolerance Have Not Been Applied Consistently

Although ISO 31000 emphasizes the importance of risk criteria, many insurers have not been able to implement risk appetite and risk tolerance in strategic decision-making. Mansoor and Aziz (2023) said that the lack of clarity of risk appetite causes business decisions to rely more on intuition, rather than measurable risk analysis. This slows down the increase in the company's risk maturity.

Alignment of ISO 31000 Implementation with OJK Regulations

The implementation of ISO 31000 is very much in line with the OJK regulatory framework, such as:

1. POJK Insurance Company Risk Management
2. Risk-Based Capital (RBC) Provisions
3. Principles of Good Corporate Governance (GCG)

The Kartikasari study (2024) shows that companies that use ISO 31000 have more transparent risk reporting and meet regulators' expectations.

Discussion Synthesis

The in-depth discussion shows that ISO 31000 has a real impact on improving the effectiveness of risk management in the insurance industry through:

1. Improved risk governance,
2. more systematic risk monitoring and analysis,
3. digitization of risk processes,
4. strengthening of risk culture,
5. and ongoing training.

However, the success of implementation is highly dependent on the commitment of top management as well as the readiness of human resources and supporting technology.

CONCLUSION

This Systematic Literature Review (SLR), following the PRISMA 2020 protocol with 358 initial publications narrowed to 10 for synthesis, concludes that ISO 31000 significantly strengthens risk governance and integrates risk management into core insurance processes like underwriting, claims, and operations, enhancing risk identification, analysis, evaluation, and mitigation while boosting maturity levels, regulatory reporting, transparency, and accountability (Fernandez & Kumar, 2023; Zhang & Li, 2023; Suryani et al., 2024; Kartikasari, 2024). However, key challenges persist, including limited human resource capacity, weak risk culture, suboptimal risk appetite application, and inadequate digitalization, which risk rendering implementation superficial without top management commitment (Liu & Chen, 2024; Hendrawan, 2023; Mansoor & Aziz, 2023; Prasetyo & Darma, 2024). Success hinges on leadership buy-in, risk culture internalization, integrated information systems, and continuous training (Tanaka & Mori, 2023; Gomez & Rivera, 2024), positioning ISO 31000 as a vital framework for resilience and

competitiveness amid complex risks. For future research, empirical case studies in emerging markets like Indonesia could explore tailored interventions for digital risk tools and cultural adaptation to address these gaps.

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