

## **Implementation of ISO 31000-Based Risk Management in Enhancing the Sustainability of Digital Business Platforms in Indonesia**

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### **Abstract**

*The rapid growth of digital businesses in Indonesia presents significant opportunities along with increasingly complex risks, particularly in technological, operational, and reputational aspects. This study aims to analyze the implementation of ISO 31000-based risk management in enhancing the sustainability of digital businesses. The research employs a qualitative approach using a literature review method by analyzing various relevant scientific journals. The findings indicate that technological and operational risks are the most dominant, categorized as high to extreme risks. The implementation of ISO 31000 risk management, which includes risk identification, analysis, evaluation, and mitigation, has proven effective in improving operational stability, reducing potential losses, and increasing customer trust. Furthermore, this study highlights that risk mitigation strategies must be adapted to industry characteristics to achieve optimal effectiveness. Therefore, risk management becomes a key factor in ensuring the sustainability of digital businesses in the era of technological transformation.*

**Keywords:** Digital Business, ISO 31000, Risk Management, Sustainability.

### **1. Introduction**

The development of information and communication technology in recent decades has brought significant changes across various sectors of life, particularly in the economic and business fields [1]. Digital transformation has become a global phenomenon that drives the emergence of various technology-based business models, such as e-commerce, financial technology (fintech), on-demand services, and other digital platforms [2]. In Indonesia, the growth of digital businesses shows a very rapid trend, supported by increasing internet penetration, smartphone usage, and changes in consumer behavior that increasingly rely on technology in daily activities [3].

These conditions provide significant opportunities for businesses to expand markets, improve operational efficiency, and create more competitive service innovations [4]. However, behind these opportunities, digital businesses also face increasingly complex challenges, particularly related to risks arising from dependence on technology and the rapidly changing business environment. These risks are not only conventional, such as financial and operational risks, but also include more specific risks such as data breaches, cyberattacks, system failures, and reputational risks that can spread quickly through digital media [5].

In addition, external factors such as changes in government regulations, increasingly intense market competition, and economic uncertainty further increase the level of risk in digital businesses [6]. The dynamic and technology-based nature of digital businesses makes risks more difficult to predict and potentially more impactful compared to conventional businesses [7]. Therefore, a systematic and structured

approach is required to manage risks so that organizations can survive and grow sustainably.

Risk management becomes a crucial aspect in addressing these challenges. It not only functions to reduce or avoid losses but also serves as a strategic tool in business decision-making. With effective risk management implementation, organizations can identify potential risks early, analyze their impact levels, and determine appropriate mitigation strategies. This enables companies to be better prepared to face uncertainty and enhance their competitiveness in the market.

One of the widely used international standards in risk management is ISO 31000. This standard provides comprehensive guidelines for managing risk systematically, from risk identification, analysis, evaluation, to risk treatment. ISO 31000 also emphasizes the importance of integrating risk management into all organizational processes so that risks can be managed continuously and become part of the organizational culture [8]. The advantage of this standard lies in its flexibility, as it can be applied to various types of organizations, both small and large, and across different industry sectors, including digital businesses.

Previous studies have shown that the implementation of ISO 31000-based risk management has a positive impact on organizational performance. In the logistics sector, risk management helps identify potential operational disruptions and improve distribution efficiency. In the healthcare sector, it reduces service errors and enhances patient safety. Meanwhile, in the digital startup sector, risk management plays an important role in maintaining operational stability and increasing user trust in the services provided. This indicates that risk management has a universal role across sectors, although its implementation must be adjusted to the characteristics of each industry.

However, in practice, many companies, particularly startups and small and medium enterprises (SMEs), have not implemented risk management optimally. This is due to various factors, such as limited resources, lack of understanding of the importance of risk management, and the absence of integrated systems [9]. As a result, many digital businesses are vulnerable to operational disruptions, financial losses, and even business failure. Therefore, more in-depth studies are needed regarding the implementation of risk management, especially in the context of digital businesses that have a high level of complexity.

Based on this background, this study aims to analyze the implementation of ISO 31000-based risk management in enhancing the sustainability of digital businesses. This research is expected to contribute theoretically to the development of risk management knowledge and practically serve as a reference for business actors in managing risks more effectively. In addition, the findings are expected to provide considerations for policymakers in formulating strategies that support the sustainable development of digital businesses in Indonesia.

Thus, this study not only focuses on identifying and analyzing risks but also on how risk management can be integrated into business strategies to create competitive advantages. In the era of ongoing digital transformation, the ability to manage risks adaptively and sustainably becomes a key factor in maintaining the continuity and growth of digital businesses in the future.

## 2. Method

This study employs a qualitative approach using a library research method, focusing on the collection and analysis of secondary data from various literature sources relevant to ISO 31000-based risk management in digital businesses. Data sources include national and international scientific journals, books, proceedings, and standard documents such as ISO 31000 related to risk management and digital business development. Data collection is conducted through documentation by identifying, collecting, reviewing, and classifying literature according to the research focus.

Furthermore, the data are analyzed using a descriptive qualitative method through stages of data reduction, data presentation, and conclusion drawing, supported by comparative analysis to examine findings from previous studies. To ensure data validity, source triangulation is applied by comparing relevant and credible references. This study is limited to literature review without involving primary data, so the findings focus on synthesizing theories and previous research related to the implementation of risk management in digital businesses.

## 3. Result and Discussions

Based on the analysis of various literature, it was found that implementing ISO 31000-based risk management in digital businesses involves several main stages: risk identification, risk analysis, risk evaluation, and risk mitigation. Each stage yields findings that indicate the dominant types of risks and their management strategies.

**Table 1.** Identification and Classification of Risks in Digital Business

No	Risk Type	Risk Source	Main Impact	Risk Level
1	Operational	Internal	Service disruption, delays	High
2	Technology	Internal	System errors, cyber attacks	Very High
3	Financial	Internal	Cash flow instability	Medium
4	Reputational	External	Decrease in customer trust	High
5	Regulatory	External	Changes in government policies	Medium
6	Market Competition	External	Decline in market share	High

Source: Researcher Data, 2026

These findings indicate that technological and operational risks are the most dominant risks in digital businesses, particularly those related to system security and service stability.

**Table 2.** Risk Analysis and Evaluation Based on ISO 31000

No	Risk Type	Likelihood	Impact	Risk Category
1	Operational	High	High	High Risk
2	Technology	High	Very High	Extreme Risk
3	Financial	Medium	Medium	Moderate Risk
4	Reputational	High	High	High Risk
5	Regulatory	Low	Medium	Low-Moderate
6	Competition	High	High	High Risk

Source: Researcher Data, 2026

The risk analysis process is conducted by considering the level of likelihood and impact, resulting in more effective risk management priorities.

**Table 3.** Risk Mitigation Strategies

No	Risk Type	Mitigation Strategy	Expected Outcome
1	Operational	Implementation of SOPs and regular monitoring	Improved operational stability
2	Technology	Enhancement of system security & data backup	Reduced risk of cyber attacks
3	Financial	Effective cash flow management	More stable financial condition
4	Reputational	Customer service management	Increased customer trust
5	Regulatory	Policy adaptation and legal compliance	Avoidance of sanctions
6	Competition	Product innovation and marketing strategies	Improved competitiveness

Source: Researcher Data, 2026

This mitigation strategy has been proven to increase business resilience and significantly reduce the impact of risks.

## Discussion

Based on the analysis of various literature used in this study, the implementation of ISO 31000-based risk management in digital businesses plays a crucial role in managing uncertainty and ensuring business sustainability. In general, the risk management process is carried out through the stages of risk identification, analysis, evaluation, and mitigation [10]. The findings of this study are then compared with previous studies to identify similarities, differences, and contributions.

At the risk identification stage, this study finds that digital businesses have more complex risk characteristics compared to conventional sectors. The dominant risks include technological, operational, reputational, and financial risks. Technological risks, such as cyberattacks, data breaches, and system failures, are the most critical because digital businesses heavily depend on technological infrastructure [11]. In addition, operational risks such as service disruptions and system errors frequently occur and directly affect customer satisfaction. Reputational risk is also a major concern, as information spreads rapidly in the digital era and can significantly influence customer trust. These findings are consistent with research [12], which states that technology and data security risks are the highest in digital platforms. Research [13] also confirms that reputational risk resulting from customer reviews and user experience is a key determinant of digital startup success.

However, compared to studies in other sectors, there are differences in dominant risk types. Research [14] in the logistics sector shows that operational risks, such as delivery delays, shipping errors, and logistics system disruptions, are more dominant than reputational risks. Meanwhile, research [15] in the healthcare sector emphasizes medical service errors and patient safety as primary risks. These differences indicate that risk characteristics are highly influenced by the type of industry, although they still fall within the same risk management framework [16].

At the risk analysis and evaluation stage, this study applies the ISO 31000 approach by considering two main parameters: likelihood and impact. The results

indicate that technological risk falls into the extreme risk category due to its high probability and significant impact on business sustainability [17]. Meanwhile, operational and reputational risks are categorized as high risk, while financial and regulatory risks fall under moderate risk. These findings are consistent with research [18], which states that the use of risk matrices in ISO 31000 is effective in determining risk priorities systematically. Research [19] also highlights that high-impact risks should be prioritized in risk control processes.

Nevertheless, this study finds that digital businesses have a higher level of risk dynamics compared to other sectors. This is due to rapid technological advancements, causing risks to change quickly. Therefore, a more adaptive and sustainable risk management system is required to keep up with these changes.

At the risk mitigation stage, this study shows that effective strategies include enhancing technological system security, implementing standard operating procedures (SOPs), strengthening financial management, and improving customer service quality. Strengthening system security, such as through data encryption, firewalls, and backup systems, becomes a top priority in reducing technological risks. In addition, the implementation of clear and consistent SOPs can minimize operational errors [20]. From an external perspective, improving customer service quality is also essential to maintain business reputation. These findings are in line with research [21], which states that improving user experience and system security can enhance customer trust in digital services. Research [22] also emphasizes the importance of SOPs in reducing service errors, particularly in the healthcare sector.

On the other hand, research [23] in the logistics sector shows that mitigation strategies are more focused on improving distribution efficiency and operational control. This indicates that although the same risk management framework (ISO 31000) is used, mitigation strategies must be adapted to the characteristics and needs of each sector.

The results of this study demonstrate that the implementation of ISO 31000-based risk management has a significant impact on the sustainability of digital businesses [24]. These impacts include improving operational stability, reducing potential financial losses, increasing customer trust, and supporting more accurate, data-driven decision-making. This is consistent with research [25], which states that risk management plays a vital role in maintaining the long-term sustainability of digital platforms.

However, this study also finds that challenges still exist in the implementation of risk management, particularly among startups and small and medium enterprises (SMEs). These challenges include limited resources, lack of understanding of risk management, and the absence of integrated systems. Therefore, increased awareness and commitment from management, along with adequate technological support, are needed to ensure optimal implementation of risk management.

Overall, the findings and discussion of this study indicate that while there are similarities in the use of the ISO 31000 framework across previous studies, differences exist in dominant risk types and mitigation strategies. This study contributes by emphasizing that, in the context of digital businesses, risk management must be more adaptive, dynamic, and integrated with technological developments. Thus, effective risk management can become a key factor in enhancing competitiveness and ensuring the sustainability of digital businesses in the era of digital transformation.

#### 4. Conclusion

Based on the research results and discussion, it can be concluded that the implementation of ISO 31000-based risk management plays a crucial role in enhancing the desirability of digital businesses. The risk management process, which encompasses risk identification, analysis, evaluation, and mitigation, enables organizations to understand potential risks in a more systematic and structured manner. The research findings indicate that technological and operational risks are the most dominant risks, with high to extreme impact levels, thus requiring more serious priority handling. Furthermore, reputational and financial risks also significantly impact business stability, particularly in maintaining customer trust. The implementation of appropriate risk mitigation strategies, such as enhancing security systems, implementing standard operating procedures, and improving service quality, has been shown to reduce the impact of risks and improve organizational performance. However, the implementation of risk management still faces various obstacles, particularly for small companies and startups with limited resources and understanding. Overall, this research confirms that risk management is not only a control tool but also a crucial strategy in increasing the competitiveness and desirability of digital businesses amidst the ever-evolving dynamics and communication of the technological environment.

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