

## Risk Management in the Digital Era for SMEs

Sarunyar Jangkhum<sup>1</sup>, Chalita Chayutrakorn<sup>2\*</sup>, Prasong Uthai<sup>3</sup>, Ratna Sari Supriyanti<sup>4</sup>

<sup>1,3</sup>Department of Management, Faculty of Business Administration, Thonburi University, Bangkok, Thailand

<sup>2</sup> Faculty of Business Administration, Thonburi University, Bangkok, Thailand, chalita@thonburi-u.ac.th

<sup>4</sup> Independent Scholar, Indonesia

\*Corresponding Author: chalita@thonburi-u.ac.th

### Abstract

Risk management is a critical component that enables small and medium-sized enterprises (SMEs) to adapt and sustain their operations in the digital era. This study explores the application of two internationally recognized frameworks, ISO 31000 and COSO ERM, to assist SMEs in managing risks systematically and effectively. The research adopts a documentary research methodology, analyzing and synthesizing risk management strategies tailored for SMEs. The findings indicate that ISO 31000 provides a high level of flexibility, making it particularly suitable for small SMEs that require a simple, immediately applicable approach. In contrast, COSO ERM is better suited for medium-sized SMEs seeking to integrate risk management into their organizational strategy to enhance competitiveness. Moreover, this study proposes a risk management model that combines both frameworks, aligning with the size and nature of SMEs in the digital context.

**Keywords:** SMEs, Risk Management, ISO 31000, COSO ERM

### Introduction

The Thai economy has shown continuous recovery, with the National Economic Policy Committee forecasting a growth rate of 2.7% in 2024, increasing to 3.0% in 2025. This growth is driven by the recovery of the tourism and export sectors, along with government economic stimulus measures (Ministry of Finance, 2024). Simultaneously, the Thai business sector has continued to expand, with a significant increase in the number of registered enterprises over the past decade (Business Information Center, Department of Business Development, Ministry of Commerce, 2021). Entrepreneurs play a crucial role in driving Thailand's economy, particularly small and medium-sized enterprises (SMEs), which constitute 99.5% of all enterprises and contribute 71.7% of total employment (Office of Small and Medium Enterprise Promotion, 2023). However, SMEs continue to face multiple challenges, such as limited access to financial resources, technological adaptation, and market expansion constraints, which affect their competitiveness in a rapidly evolving digital economy.

Risk management is therefore a critical approach that enables SMEs to address uncertainties, adapt to technological advancements, and mitigate external threats. This strategy strengthens business stability and fosters sustainable growth opportunities (Office of Small and Medium Enterprise Promotion, 2023). Implementing standardized risk management frameworks, such as ISO 31000 and COSO ERM, can help SMEs manage risks systematically and effectively. ISO 31000 provides a flexible framework applicable to all organizations, while COSO ERM emphasizes the integration of risk management with corporate strategy, making it suitable for SMEs seeking to enhance competitive advantages and achieve long-term growth (Noemi, 2023).

Thus, this study focuses on examining risk management for SMEs in the digital era by identifying strategies tailored to businesses of different sizes. The aim is to provide guidelines for improving SME competitiveness and ensuring business sustainability amid rapid economic changes.

### 1. Definition and Classification of Small and Medium-Sized Enterprises (SMEs)

Small and Medium-Sized Enterprises (SMEs) are businesses that vary in size but play a crucial role in national economies globally. However, the definition of SMEs varies across countries and organizations. Typically, SMEs are classified based on factors such as the number of employees, annual revenue, or total asset value. According to the Organization for Economic Co-operation and Development (OECD), SMEs are defined as businesses with fewer than 250 employees, further divided into small enterprises (10-49 employees) and

medium enterprises (50-249 employees). The World Bank, on the other hand, classifies SMEs as businesses meeting at least two out of three criteria: fewer than 300 employees, annual revenue not exceeding \$15 million, and total assets not exceeding \$15 million. The European Union (EU) defines SMEs as businesses with fewer than 250 employees and annual revenue not exceeding €50 million or total assets not exceeding €43 million. In Thailand, the Office of Small and Medium Enterprise Promotion (OSMEP) classifies SMEs in the manufacturing sector as small enterprises ( $\leq 50$  employees or fixed assets  $\leq$  THB 50 million) and medium enterprises (51–200 employees or fixed assets THB 50-200 million). For the trade and service sector, small enterprises are defined as those with  $\leq 30$  employees or fixed assets  $\leq$  THB 50 million, while medium enterprises have 31–100 employees or fixed assets of THB 50-200 million. Understanding the definition and classification of SMEs is critical for developing policies and support mechanisms to foster their growth and resilience effectively.

## 2. Risk Management in the Digital Era for SMEs

Risk management is a systematic process that focuses on risk identification, assessment, and mitigation across various business functions. This is particularly crucial for small and medium-sized enterprises (SMEs), which face unique challenges compared to large corporations due to limited resources and a highly volatile business environment. Effective risk management helps SMEs minimize the impact of unexpected events and strengthens their competitiveness in the digital era (Yudhaningsih & Syah, 2023).

Risk management for SMEs covers multiple dimensions, including financial risk, supply chain risk, and cybersecurity risk. In the digital era, SMEs encounter increasing technological risks such as cyber threats, data breaches, and system failures. Managing these risks requires systematic analysis and assessment to develop appropriate preventive and response strategies (Lobo, 2022).

A key approach for SMEs is to integrate ISO 31000 and COSO ERM frameworks to establish a structured risk management framework suited to SME-specific characteristics. ISO 31000 provides a structured approach to systematic risk management, while COSO ERM focuses on enterprise-wide risk management using internal control principles. This integration helps SMEs make informed decisions and enhance operational efficiency (Verma & Singh, 2023).

Key strategies for risk mitigation in SMEs include Failure Modes and Effects Analysis (FMEA) and Root Cause Analysis (RCA), which help identify and assess potential risks while developing mitigation plans to minimize future impacts. Additionally, adopting technology-driven solutions such as data analytics and artificial intelligence (AI) can enhance risk prediction capabilities and improve response efficiency (Risk Management, 2022).

However, an imbalanced risk management approach can negatively impact SMEs. Over-control can lead to operational complexity and reduced business agility. Furthermore, supply chain disruptions can increase costs and inventory management challenges. Thus, SMEs must develop adaptive risk management strategies tailored to their business context (Meutia, 2022).

### Risk Management in the Digital Era for SMEs in Southeast Asia

Risk management is increasingly critical for small and medium-sized enterprises (SMEs) in Southeast Asia, especially as businesses transition to the digital age. In this rapidly evolving environment, SMEs face a unique set of challenges, including technological risks, cybersecurity threats, and economic volatility. The increasing adoption of digital tools, e-commerce platforms, and cloud-based solutions presents both opportunities and vulnerabilities for SMEs in Southeast Asia. The digital transformation process can significantly enhance business operations, but it also exposes SMEs to a broader spectrum of risks that need to be carefully managed.

In Southeast Asia, the SME sector is crucial to economic development. According to the ASEAN Secretariat (2022), SMEs contribute around 97% of all businesses and 67% of the workforce in ASEAN member countries. Despite their importance, these businesses are often at a disadvantage compared to larger corporations due to limited access to resources, infrastructure, and skilled human capital. In the context of the digital era, risk management becomes a vital tool for ensuring that SMEs can not only survive but thrive amid new technological challenges and opportunities.

## 3. COSO ERM Framework

COSO ERM (Enterprise Risk Management) is a risk management framework developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to help organizations manage

risks systematically and integrate them into business strategies. The framework was first published in 2004 and was later revised in 2017 to align with the increasing complexity of the business environment. COSO ERM consists of five key components:

1. Risk Governance and Culture – Establishing a systematic risk management approach.
2. Risk Integration with Business Strategy – Defining an acceptable risk level.
3. Risk Identification and Prioritization – Determining key risks and appropriate responses.
4. Risk Monitoring and Evaluation – Ensuring risk management processes align with changing conditions.
5. Risk Communication and Reporting – Disseminating risk-related information across all organizational levels.

Although COSO ERM was initially designed for large organizations, it can be adapted for SMEs by implementing a more flexible governance structure and tailoring risk management strategies based on available resources. A study by Westri and Tongkong (2022) examined the adoption of COSO ERM 2017 in SME accounting firms and found that comprehensive risk management led to significant improvements in work efficiency, task quality, workload management, time efficiency, and cost control. These findings suggest that medium-sized SMEs can leverage COSO ERM as a critical tool to mitigate operational risks, prevent accounting errors, and enhance overall competitiveness.

#### 4. ISO 31000:2018 Framework

ISO 31000:2018 is an internationally recognized risk management standard developed by the International Organization for Standardization (ISO). It is designed to be applicable to all types of organizations, providing a structured approach to managing risks effectively. The framework consists of three core components:

1. Principles – Focuses on creating and protecting organizational value through a systematic risk management process.
2. Framework – Ensures that risk management is integrated into corporate strategy and supported by senior management.
3. Risk Management Process – Covers risk identification, assessment, monitoring, and communication.

For SMEs, implementing ISO 31000:2018 can enhance proactive risk identification and assessment, flexible risk management strategies, and a robust risk management system, leading to greater stability and reliability within the organization.

A study by Muthmainnah and Immawan (2023) examined risk management in SMEs within the manufacturing sector and found that applying ISO 31000 enabled businesses to identify up to 38 failure modes in production processes. The highest Risk Priority Number (RPN) recorded was 162, prompting corrective actions in the highest-risk failure modes. Improvements included process optimization and employee training, resulting in enhanced production stability and significant cost reductions in defective products.

This study highlights that ISO 31000 is a highly effective risk management approach, particularly for small SMEs seeking a simple and immediately applicable framework. Its implementation helps SMEs mitigate potential risks, seize business opportunities, and align risk management with rapidly evolving business environments.

**Table 1** Comparison of ISO 31000 and COSO ERM

Aspect	ISO 31000	COSO ERM	Similarities
Objective	Focuses on general risk management principles, suitable for all types and sizes of organizations.	Emphasizes governance, internal control, and risk management system assessment.	Both frameworks aim to support organizational goals through effective risk management.
Flexibility	A broadly applicable framework adaptable to any organization while considering its specific context.	Also adaptable but more aligned with business sector practices.	Both frameworks provide flexibility and can be tailored to organizational needs.
Integration	Integrates risk management into strategic decision-making.	Integrates risk with internal audits and business operations.	Emphasizes the importance of embedding risk management in decision-making processes.
Continuous Improvement	Encourages regular updates to risk management systems.	Supports continuous improvement and assessments to address changes.	Promotes adapting risk management systems to evolving business environments.
Origin and Development	Developed by an international standardization body with a global perspective.	Developed by a group of professional associations, with stronger connections to business practices.	Both frameworks are internationally recognized.

Aspect	ISO 31000	COSO ERM	Similarities
Structure and Content	Simple, concise structure focusing on fundamental principles.	More complex structure with detailed processes and implementation steps.	Aims to provide a comprehensive risk management approach.
Risk Concept	Emphasizes risk criteria.	Emphasizes risk appetite.	Helps organizations manage risk appropriately.
Goal	Aims to enhance organizational value.	Aims to reduce risks and prevent fraud.	Supports achieving business objectives.
Target Audience	Suitable for general risk management practitioners.	Designed for accounting and auditing professionals.	Can be applied across different user groups based on their specific needs.

## 5. Enterprise Risk Management (ERM)

Enterprise Risk Management (ERM) is a strategic process that enables organizations to identify, analyze, and manage risks that may arise, reducing their impact on operations and supporting the achievement of business objectives effectively (Yasmin, 2024). The risk management process consists of key components that align across multiple frameworks, which can be summarized into five essential steps:

1. Risk Identification – Identifying and analyzing factors that may contribute to risks, such as financial risk, operational risk, technological risk, and other external factors (Anik, 2024).
2. Risk Analysis & Evaluation – Assessing the likelihood and impact of each risk type and prioritizing risks accordingly (Petros, 2023).
3. Risk Treatment – Developing and selecting strategies such as risk reduction, risk transfer, or risk acceptance for unavoidable risks (Yasmin, 2024).
4. Monitoring & Review – Evaluating the effectiveness of risk management measures to ensure efficiency and making adjustments to align with changing environments (Anik, 2024).
5. Communication & Integration – Engaging stakeholders and integrating risk management approaches into organizational strategy (Petros, 2023).

Thus, enterprise risk management is a critical process that helps organizations reduce uncertainty and improve adaptability in response to business changes. Implementing appropriate risk management strategies enables organizations to operate with stability and achieve sustainable growth (Meutia, 2022).

**Table 2** Comparison of Risk Management Approaches Across Different Frameworks

Process	ISO 31000:2018	COSO ERM	Yasmin (2024)	Anik (2024)	Petros (2023)
Governance & Principles	Integrates risk within the organization and promotes continuous improvement.	Encourages a strong risk culture and governance framework.	Defines the organizational context.	Not specified.	Not specified.
Risk Identification	Covers all organizational levels.	Involves participation from all departments.	Identifies potential risks.	Identifies potential risks.	Identifies potential risks.
Risk Analysis	Analyzes the likelihood and impact of risks.	Assesses impact and probability of risks.	Evaluates probability and impact.	Assesses likelihood and impact.	Evaluates probability and impact.
Risk Evaluation	Compares risks against organizational criteria.	Assesses and prioritizes risks.	Compares against organizational standards.	Not specified.	Compares against predefined criteria.
Risk Treatment	Establishes risk control measures.	Develops strategies such as avoidance, mitigation, or risk transfer.	Plans strategic risk management approaches.	Implements avoidance, mitigation, or risk transfer strategies.	Plans strategies for risk reduction and control.
Monitoring & Review	Ensures continuous review and improvement.	Tracks and evaluates risk management systems.	Assesses and improves risk management systems.	Evaluates and enhances strategies.	Conducts ongoing system evaluation and development.

## Research Objectives

1. Analyze and compare the ISO 31000 and COSO ERM frameworks to assess their suitability for risk management in SMEs within the digital era.
2. Establish guidelines for applying ISO 31000 and COSO ERM for small and medium-sized SMEs to enhance their risk management effectiveness.
3. Develop a risk management model that integrates both frameworks and aligns with the SME context to improve competitiveness and ensure business sustainability.

## Research Methodology

This study employs a documentary research approach, focusing on collecting, analyzing, and synthesizing information from reliable academic sources, including peer-reviewed journals, online databases, international standards, and reports from relevant organizations. The objective is to explore the ISO 31000 and COSO ERM risk management frameworks within the SME context.

The research process begins with a systematic literature review, gathering relevant documents from academic databases such as Google Scholar, Scopus, and IEEE Xplore. Only publications from the last five years are selected to ensure up-to-date and relevant insights.

Subsequently, the study conducts a comparative analysis of ISO 31000 and COSO ERM, examining their key principles, advantages, limitations, and practical applications for small and medium-sized SMEs. The research also identifies critical factors influencing SME risk management in the digital era, including challenges and limitations that may arise during implementation.

Finally, the study synthesizes the findings to propose a risk management model tailored to SMEs by integrating ISO 31000 and COSO ERM. This model is designed to provide practical risk management solutions and enhance SME competitiveness in an evolving business environment.

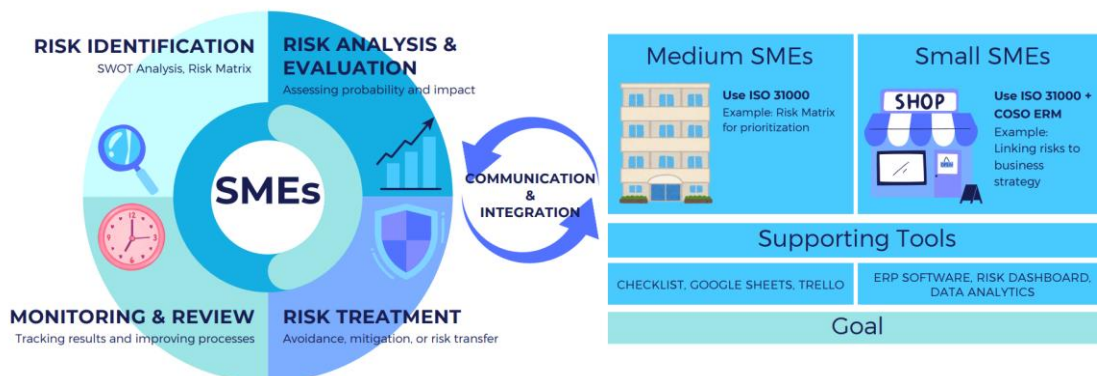
This study aimed to: (1) Analyze and compare the ISO 31000 and COSO ERM risk management frameworks for SMEs in the digital era, (2) Establish practical implementation guidelines for small and medium-sized SMEs, and (3) Develop a risk management model that enhances competitiveness and business sustainability.

The findings indicate that ISO 31000 is a highly flexible framework that can be applied across SMEs of all sizes, particularly small businesses seeking a simple and immediately applicable approach. The structure of ISO 31000:2018 enables SMEs to identify and assess risks proactively, implement preventive measures, and establish an efficient risk management system. A case study in the manufacturing sector demonstrated that ISO 31000 helped identify 38 failure modes in production processes and significantly reduced costs associated with defective products (Muthmainnah & Immawan, 2023). This highlights that ISO 31000 is well-suited for SMEs requiring a flexible and easily adaptable risk management framework.

Conversely, COSO ERM is structured to integrate risk management with organizational strategy and is more suitable for medium-sized SMEs that require effective internal control systems and governance. Research by Westri and Tongkong (2022) found that implementing COSO ERM 2017 in SME accounting firms improved employee efficiency, work quality, task volume, time management, and cost control. This suggests that COSO ERM is particularly beneficial for businesses seeking to enhance their risk management structure, minimize errors, and improve competitiveness.

The study suggests that SMEs should adopt risk management approaches tailored to their business size and structure. Small SMEs can rely on ISO 31000 as the primary framework to develop and implement a simple and flexible risk management strategy. In contrast, medium-sized SMEs should adopt COSO ERM alongside ISO 31000 to enhance internal controls and integrate risk management into corporate strategy.

These insights led to the development of the Risk Management Model for SMEs in the Digital Era (Figure 1), illustrating the application of ISO 31000 and COSO ERM based on business size. Small SMEs should prioritize ISO 31000 to ensure systematic risk identification and assessment. Meanwhile, medium-sized SMEs can benefit from combining COSO ERM and ISO 31000 to create a comprehensive and effective risk management framework.



**Figure 1** Risk Management Model for SMEs in the Digital Era

This model illustrates a risk management approach tailored to SMEs based on business size. Small SMEs should primarily adopt ISO 31000 to establish risk criteria and utilize analysis tools such as SWOT Analysis and Risk Matrix to prioritize risks.

Meanwhile, medium-sized SMEs should adopt a hybrid approach by integrating ISO 31000 and COSO ERM to enhance their internal control system and risk governance. This integration enables effective risk management alignment with corporate strategy, ensuring a more structured and efficient approach to enterprise risk management.

## **Steps for Implementing the Risk Management Model for SMEs Based on Business Size**

### **1. Risk Management for Small SMEs**

Small businesses often have limited resources and require a simplified approach to risk management. ISO 31000 serves as the primary framework, allowing SMEs to conduct risk identification using checklists and SWOT analysis to assess key risk factors such as financial risks, operational risks, and cybersecurity threats (Lobo, 2022).

The next step is risk assessment, where businesses utilize a Risk Matrix to classify risks into low (Low), medium (Medium), or high (High) levels (Yasmin, 2024).

Once risks have been assessed, SMEs must determine risk response strategies, such as:

- Avoiding risks when the impact is severe.
- Mitigating risks by improving processes.
- Accepting risks when they are manageable.
- Transferring risks through insurance or cloud storage to reduce data risks (Meutia, 2022).

For effective risk management, small SMEs should conduct continuous monitoring and review at least quarterly (Anik, 2024). Tools such as Google Sheets or Trello can help track risk items, while internal team workshops encourage collaborative risk identification and management (Yudhaningsih & Syah, 2023).

### **2. Risk Management for Medium SMEs**

For medium-sized SMEs, with more complex organizational structures, a hybrid approach combining ISO 31000 and COSO ERM is recommended to ensure systematic risk management aligned with corporate strategy (Verma & Singh, 2023).

The first step is governance and oversight, adopting the Three Lines of Defense Model, which consists of:

1. Management – Directing and controlling risk.
2. Operational Units – Implementing risk prevention measures.
3. Internal Audit – Evaluating the effectiveness of internal risk controls (Petros, 2023).

The next step is risk identification and analysis, using the COSO ERM framework to integrate risk into corporate strategy, covering:

- Strategic risks (e.g., market competition).
- Operational risks (e.g., IT system failures).
- Compliance risks (e.g., data protection law violations) (Lobo, 2022).

In the risk management process, medium SMEs should use Key Risk Indicators (KRIs) and Risk Registers to track risk trends and evaluate potential impacts (Yasmin, 2024). Additionally, strengthening the internal control system following COSO ERM guidelines can reduce fraud risks and financial errors (Verma & Singh, 2023).

The final step is continuous improvement, where risk management strategies are overseen and refined by an Audit Committee or Risk Committee to keep pace with evolving business conditions (Anik, 2024).

Recommended tools for medium-sized SMEs include:

- ERP software (e.g., SAP or Oracle) for risk data management.
- Risk Dashboards for real-time risk monitoring.
- Data Analytics for predicting future risk trends (Meutia, 2022).

**Table 4** Steps for Implementing the Risk Management Model for SMEs in the Digital Era

Step	Small SMEs	Medium SMEs	References
1. Risk Identification	Use Checklists and SWOT Analysis to identify risks such as financial, operational, and cybersecurity risks.	Use the COSO ERM Framework to identify strategic, operational, and regulatory risks.	Lobo, 2022; Verma & Singh, 2023
2. Risk Assessment	Use a simple Risk Matrix (Low-Medium-High) to prioritize risks.	Use Key Risk Indicators (KRIs) and Risk Registers to analyze future risk trends.	Yasmin, 2024; Petros, 2023
3. Risk Response	Implement strategies such as Avoid, Mitigate, Accept, or Transfer, e.g., using Cloud Storage for data security.	Implement Avoid, Mitigate, Accept, or Transfer strategies, aligning with corporate strategy.	Meutia, 2022; Verma & Singh, 2023
4. Monitoring & Review	Conduct quarterly risk reviews and adjust plans as needed.	Use an Audit Committee or Risk Committee to continuously evaluate and improve risk management.	Anik, 2024; Yudhaningsih & Syah, 2023
5. Support Tools	Use Google Sheets, Trello, Checklists, and Internal Team Workshops to track and manage risks.	Use ERP Software (SAP, Oracle), Risk Dashboards, and Data Analytics for risk tracking and mitigation.	Meutia, 2022; Yasmin, 2024
6. Internal Control	Does not emphasize complex internal control systems.	Uses the COSO Framework to build a strong internal control system and reduce fraud and financial errors.	Verma & Singh, 2023; Petros, 2023

### Technological Risks and Cybersecurity

One of the most pressing risks for SMEs in Southeast Asia is the increased vulnerability to cyber threats. As SMEs adopt more digital platforms and online services, they expose themselves to cyberattacks, data breaches, and the potential loss of sensitive customer and financial information. Cyberattacks such as phishing, malware, and ransomware have become more sophisticated, and SMEs often lack the necessary cybersecurity measures to protect themselves. In fact, a report by Kaspersky (2023) indicates that Southeast Asia is one of the most targeted regions for cybercrime, with small businesses accounting for a significant portion of the victims. Without a dedicated cybersecurity strategy, SMEs in Southeast Asia risk significant financial loss, damage to their reputation, and legal liabilities. Thus, a robust risk management approach that includes the implementation of cybersecurity protocols, regular system audits, and employee training is essential. The integration of digital risk management tools, such as encryption software and cybersecurity platforms, can help mitigate these risks and provide early detection systems for potential threats. Additionally, SME owners in Southeast Asia must adopt a proactive stance in keeping their systems and processes updated to defend against evolving digital threats.

### Regulatory Risks and Compliance

Another significant risk that SMEs in Southeast Asia face in the digital age is regulatory compliance, particularly as countries in the region begin implementing more stringent digital and data protection laws. For example, the General Data Protection Regulation (GDPR) in Europe has set a global precedent for data privacy, and several Southeast Asian countries, such as Singapore with the Personal Data Protection Act (PDPA), have followed suit. Compliance with these regulations is mandatory for SMEs, especially those that operate across borders within the ASEAN Economic Community (AEC).

Failure to comply with local and international data privacy laws can result in significant penalties, legal disputes, and a loss of consumer trust. SMEs in Southeast Asia need to invest in legal counsel and compliance systems that help them navigate the complexities of these regulations. A risk management framework that integrates compliance checks and balances with operational risk assessments is essential for ensuring adherence to these evolving laws.

### Financial Risks and Economic Instability

Southeast Asia's economic environment presents financial risks for SMEs, particularly in a digital context. While digital technologies open up new opportunities for growth, SMEs in the region still face challenges with access to financing and capital. A report by the Asian Development Bank (2022) highlighted that more than half of SMEs in Southeast Asia face difficulties in obtaining financing, with many resorting to informal lenders, which often come with high-interest rates and unfavorable terms.

Financial risks are further exacerbated by the region's vulnerability to economic fluctuations, such as currency volatility, inflation, and external shocks. For example, the COVID-19 pandemic significantly impacted SMEs in Southeast Asia, particularly in sectors such as tourism, retail, and hospitality. As SMEs increasingly adopt e-commerce and digital platforms to sell products or services, they also face the risk of revenue loss from fluctuating demand in online markets or interruptions in the supply chain.

To mitigate these financial risks, SMEs in Southeast Asia must adopt risk management frameworks that include financial forecasting, credit risk analysis, and budgeting strategies. Additionally, exploring digital payment systems, online lending platforms, and government support programs can provide SMEs with more flexible and secure financial solutions. In the digital age, integrating financial risk management systems that analyze cash flow, debt levels, and external economic factors is essential for sustaining long-term viability.

### **Supply Chain and Operational Risks**

The digital era has transformed the way businesses in Southeast Asia manage their supply chains. E-commerce has led to a more interconnected global supply chain network, but it has also made SMEs more susceptible to disruptions. Supply chain risks, including delays, interruptions in raw material supply, transportation issues, and geopolitical tensions, have become more prevalent in the region.

For instance, the COVID-19 pandemic exposed the vulnerability of global supply chains, with SMEs in Southeast Asia experiencing significant operational disruptions. As more SMEs embrace digital supply chain management tools, such as Enterprise Resource Planning (ERP) systems and real-time inventory tracking software, the risk of disruptions can be mitigated. However, SMEs must be prepared for potential external shocks, including the impact of natural disasters, political instability, or global health crises, that could disrupt their supply chain operations.

Implementing a comprehensive risk management framework that includes contingency plans, alternative suppliers, and real-time monitoring systems is crucial. SMEs should also consider diversifying their suppliers and leveraging digital platforms to connect with a broader network of suppliers, which can reduce their dependency on a single source and enhance supply chain resilience.

### **Integration of ISO 31000 and COSO ERM for SMEs in Southeast Asia**

In light of these challenges, integrating internationally recognized risk management frameworks such as ISO 31000 and COSO ERM can significantly improve risk management capabilities for SMEs in Southeast Asia. ISO 31000 provides a flexible and scalable risk management framework that is applicable to all organizations, including SMEs. Its emphasis on systematic risk identification, assessment, and treatment allows SMEs to develop proactive risk management strategies that address both operational and strategic risks.

COSO ERM, with its focus on enterprise-wide risk management and internal control systems, is particularly useful for medium-sized SMEs looking to integrate risk management with their overall corporate strategy. By adopting COSO ERM, medium-sized SMEs can establish a robust internal control framework, enhance governance, and improve strategic decision-making.

Combining both frameworks provides SMEs with the flexibility of ISO 31000 while also ensuring a more integrated and strategic approach to risk management through COSO ERM. This hybrid model can help SMEs in Southeast Asia effectively navigate the digital era's complexities and ensure their long-term sustainability and competitiveness.

### **Future Outlook and Challenges for SMEs in Southeast Asia**

As Southeast Asia continues to grow economically, SMEs in the region are poised for substantial opportunities driven by digitalization, the rise of e-commerce, and increasing access to global markets. However, along with these opportunities, SMEs face significant challenges that could impact their long-term sustainability and competitiveness. The future outlook for SMEs in Southeast Asia is shaped by technological advancements, regulatory changes, and external factors such as global economic instability. It is crucial for SMEs to adopt adaptive and robust risk management strategies to thrive in this dynamic environment.

#### **Future Outlook for SMEs in Southeast Asia**

##### **1. Digital Transformation and Technological Innovation**

The ongoing digital transformation across Southeast Asia is expected to continue accelerating, driven by increasing internet penetration, the growth of mobile platforms, and the expansion of digital payment systems.

The digital economy is expected to contribute significantly to the region's GDP in the coming years. According to Google, Temasek, and Bain & Company (2023), Southeast Asia's internet economy could reach \$300 billion by 2025. This growth offers immense opportunities for SMEs to expand their customer base, streamline operations, and leverage digital tools such as Artificial Intelligence (AI), Big Data, and Cloud Computing. However, SMEs need to navigate the associated risks, including cybersecurity threats, data breaches, and system vulnerabilities. As these technologies become more integrated into business operations, the ability to manage digital risks will be paramount for SMEs to secure their competitive advantage and remain sustainable.

## **2. E-Commerce Growth and Global Market Access**

The expansion of e-commerce platforms in Southeast Asia has been a key driver of growth for SMEs, allowing businesses to access both local and international markets with lower barriers to entry. According to the ASEAN e-Commerce Market Report (2022), e-commerce in the region is expected to surpass \$100 billion by 2025. This growth presents a massive opportunity for SMEs to reach broader customer segments, boost their sales, and scale operations. However, the shift to e-commerce brings challenges, such as dealing with cross-border regulations, ensuring supply chain resilience, and maintaining customer trust in an increasingly competitive online environment.

## **3. Government Support and Economic Stimulus**

Many Southeast Asian governments are prioritizing the development of SMEs, recognizing their significant contribution to the region's economy. Government programs aimed at enhancing digital capabilities, improving access to finance, and providing tax incentives will likely continue in the future. For example, in Thailand, the government has implemented programs such as the "Digital Economy Promotion" plan, which encourages SMEs to embrace digital tools. Similarly, other Southeast Asian countries like Indonesia and Vietnam have also introduced initiatives to promote digital adoption. However, the challenge for governments lies in ensuring that these policies reach the SMEs that need them the most, especially those in rural or less-developed areas, and that they are effectively implemented across the region.

## **4. Integration with the ASEAN Economic Community (AEC)**

As the ASEAN Economic Community (AEC) deepens integration, SMEs in the region will increasingly benefit from enhanced trade agreements, reduced tariffs, and smoother cross-border transactions. This greater integration with the global economy presents significant growth prospects for SMEs looking to expand beyond their national borders. However, SMEs will need to overcome challenges related to complex regulations, cultural differences, and market competition, especially as larger enterprises also seek to capitalize on these opportunities.

## **Challenges SMEs in Southeast Asia Will Face in the Future**

Despite the significant opportunities, SMEs in Southeast Asia will face several challenges that could hinder their ability to compete and sustain growth in the digital era. These challenges include:

### **1. Cybersecurity and Data Privacy Risks**

As more SMEs digitize their operations, cybersecurity remains one of the most critical concerns. With the increasing number of cyberattacks targeting businesses in Southeast Asia, SMEs are at risk of experiencing data breaches, financial fraud, and damage to their reputation. According to a report by Kaspersky (2023), Southeast Asia is one of the most affected regions for cybercrime, with SMEs often being the weakest link due to their limited resources and cybersecurity infrastructure. The need for enhanced cybersecurity practices, robust data protection mechanisms, and employee training is essential for SMEs to protect themselves from cyber threats and ensure data privacy compliance.

### **2. Access to Financing and Digital Infrastructure**

While many SMEs are eager to adopt digital technologies, access to financing remains a significant barrier for many. A 2022 study by the Asian Development Bank (ADB) highlighted that over half of SMEs in Southeast Asia face challenges accessing financial resources. Traditional financial institutions often view SMEs as high-risk investments, which limits their access to credit, particularly for digital transformation initiatives. Furthermore, the disparity in digital infrastructure development across Southeast Asia means that SMEs in less-developed areas may struggle to access the technologies and platforms required to compete effectively in the digital economy. Ensuring equitable access to financing and digital infrastructure is a critical challenge that governments and financial institutions must address to ensure that SMEs do not fall behind in the digital race.

### **3. Skills Gap and Talent Shortages**

The rapid pace of technological change in the digital era has led to an increased demand for a skilled workforce, especially in areas like data analytics, cybersecurity, and digital marketing. However, many SMEs

in Southeast Asia face a significant skills gap. According to a report by the International Labour Organization (ILO, 2022), there is a shortage of skilled workers in digital and technological fields, which hampers the ability of SMEs to fully capitalize on digital opportunities. To overcome this, SMEs must invest in employee training, digital upskilling, and partnerships with educational institutions to build a talent pool capable of supporting their digital growth.

#### **4. Regulatory Complexity and Compliance Risks**

As the regulatory environment evolves, SMEs in Southeast Asia must navigate increasingly complex rules around data privacy, taxation, e-commerce, and intellectual property. While some countries have made strides in improving regulatory clarity, the lack of harmonization across ASEAN countries creates challenges for SMEs looking to expand beyond national borders. Regulatory compliance becomes even more difficult when businesses operate in multiple jurisdictions with differing rules. As such, SMEs must stay abreast of regulatory changes and invest in compliance programs, which could strain limited resources.

#### **5. Economic Instability and External Shocks**

Southeast Asia is prone to economic volatility due to external factors such as fluctuations in global commodity prices, geopolitical tensions, and natural disasters. The recent COVID-19 pandemic exposed the vulnerability of SMEs to such external shocks, which disrupted supply chains, led to a decrease in consumer demand, and affected overall business operations. Going forward, SMEs will need to develop resilient strategies that allow them to adapt quickly to economic disruptions and mitigate risks associated with global market changes.

### **Conclusion**

The future outlook for SMEs in Southeast Asia remains optimistic, driven by technological advancements and increased digital adoption. However, the challenges these businesses face in managing risks in the digital era are significant and multifaceted. As SMEs continue to evolve in this digital age, they must prioritize robust risk management strategies to address cybersecurity risks, regulatory compliance, financial constraints, and supply chain disruptions. The integration of international risk management frameworks, such as ISO 31000 and COSO ERM, can help SMEs navigate these challenges effectively, ensuring they remain competitive and resilient amidst rapid economic and technological changes.

In conclusion, while the digital era offers significant growth prospects for SMEs in Southeast Asia, overcoming the challenges associated with digital transformation, financial access, and regulatory compliance will be key to ensuring their long-term sustainability and success in the global marketplace.

### **Reference**

#### **Academic Journals**

- Anik, R. (2024). Monitoring and reviewing risk management processes in SMEs. *International Journal of Business Governance and Ethics*, 19(2), 210-225.
- Lobo, M. (2022). Risk identification and assessment in SMEs: Tools and techniques. *Risk Analysis Journal*, 34(4), 567-582.
- Meutia, I. (2022). Digital tools for risk management in SMEs: A practical guide. *Journal of Innovation and Entrepreneurship*, 11(1), 34-50.
- Muthmainnah, S., & Immawan, T. (2023). Failure risk analysis of SMEs based on ISO 31000. *Teknoin*, 28(2), 1-13. <https://doi.org/10.20885/teknoin.vol28.iss2.art1>
- Petros, K. (2023). Aligning risk management with business strategy in SMEs. *Strategic Management Journal*, 44(5), 789-805.
- Verma, S., & Singh, R. (2023). Integrating ISO 31000 and COSO ERM for effective risk management in SMEs. *International Journal of Risk and Contingency Management*, 12(3), 45-60.
- Westri, N., & Tongkong, S. (2022). Effects of risk management corresponding to the COSO ERM 2017 framework on work efficiency of bookkeepers in accounting firms in Bangkok. *Journal of Administrative and Management Innovation*, 10(2), May-August.
- Yasmin, A. (2024). Risk treatment strategies for SMEs in the digital age. *Journal of Business Continuity & Emergency Planning*, 15(1), 89-104.
- Yudhaningsih, D., & Syah, T. Y. R. (2023). Digital transformation and risk management in SMEs: A systematic review. *Journal of Small Business Management*, 61(2), 123-145.

---

### Reports and Institutional Publications

- European Commission. (2022). *What is an SME? SME definition*. [https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition\\_en](https://single-market-economy.ec.europa.eu/smes/sme-fundamentals/sme-definition_en)
- OECD. (2022). *Reader's guide: Definition of SMEs*. OECD iLibrary. [https://www.oecd-ilibrary.org/reader-s-guide\\_172fb217-en.pdf](https://www.oecd-ilibrary.org/reader-s-guide_172fb217-en.pdf)
- Small and Medium Enterprise Promotion Office of Thailand (OSMEP). (2023). *Definition of SMEs in Thailand*. <https://www.osme.go.th>
- World Bank. (2022). *Small and medium enterprises (SMEs): Finance and development*. <https://www.worldbank.org/en/topic/sme/finance>

### Online Resources

- ResearchGate. (2022). *Definition of SMEs used by the World Bank*. <https://www.researchgate.net/publication/291333981>