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Risk Mitigation Strategies For Business Operations In The Industrial Sector

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Abstract
Risk is an opportunity or an uncertain event that may prevent plans or operations from achieving their intended objectives. Such risks can result in both financial loss and damage to an organization's reputation and public image. This study aims to explore risk mitigation strategies in the industrial sector. A mixed-methods approach comprised in-depth interviews with nine experts and a focus group discussion involving eleven distinguished professionals. Quantitative data were collected through a survey of 500 executives in the industrial business sector. The research applied descriptive statistics, inferential statistics, and multivariate analysis. The findings reveal four key components of risk mitigation strategies ranked in order of importance: 1) Policy and Activity, 2) Good Corporate Governance, 3) Monitoring Activities, and 4) Information Management. Hypothesis testing showed statistically significant differences at the 0.05 level between the two business groups.The developed structural equation model met acceptable criteria and was found to be consistent with empirical data, with a chi-square probability level of 0.068, a relative
chi-square of 1.132, a goodness-of-fit index (GFI) of 0.954, and a root mean square error of approximation (RMSEA) of 0.016.

Keywords: Structural Equation Modeling, Risk Mitigation, Industrial Business

INTRODUCTION

In the conduct of business, every organization inevitably encounters risks arising from both internal and external factors. External risks include economic fluctuations, political instability, changing consumer behavior, social trends, and technological disruptions. Internal risks usually originate from a lack of skilled labor, financial issues, and limited production capacity. Its closures have been increasing, especially in times of economic breakdown, where external factors exacerbate operational challenges. Moreover, analysis of the causes lists shows weakened economic conditions reducing consumer spending, businesses with low flexibility or working capital are usually exposed and unable to sustain extended declines in value (Bao et al. 2024). Furthermore, changes in the operating environment, such as corporate strategy, organizational structure, internal resources, and external factors, can significantly influence an organization's ability to accomplish its operational and strategic plans (Rauniya et al. 2023). The risk, in this context, results in financial losses, outstanding damage, or disruptions in business continuity (Nocco et al. 2022). Therefore, industrial businesses should explore a wide range of unpredictable and quickly evolving risks, including changes in technological advancements.

In addition, these aspects provide an increasingly unpredictable and complex business environment (Alina et al. 2023). However, the industrial sector should adopt effective risk management and control measures to moderate potential obstacles and increase organizational resilience to face uncertainty.

Literature Review and Theoretical Background

Business Operational Risk

Operational risk in business refers to unexpected events that have the potential to cause significant disruption or damage to an organization, particularly when adequate preparation and risk mitigation strategies are lacking. Every business must inevitably face risks, and the ability to overcome them largely depends on the extent to which preventive measures and contingency plans are established in advance.

Proactively identifying and preparing for risks greatly reduces potential operational disruptions. Operational risk poses a critical threat to an organization's ability to achieve its business objectives (Ali & Govindan, 2023). Furthermore, operational risks may lead to cumulative damage, intensifying the negative impact on overall performance and organizational sustainability (Dvorsky et al., 2021). As such, understanding and addressing operational risks is essential for safeguarding long-term business success.

Risk Management

Enterprise-wide risk management enhances decision-making across governance, strategy, objective-setting, and operations. By aligning business strategies and objectives with identified risks, organizations can improve performance and ensure continuity in value creation, preservation, and realization (Landi et al., 2022). Strategic alignment should begin with the organization's mission and vision, with business objectives cascading from strategic direction down to business units and departments. Once executives fully comprehend the overall risk landscape and the implications of various strategic choices, they can effectively integrate risk management practices into the organization's strategic formulation process (Al-Okaily & Al-Okaily, 2025). This integration ensures that risk considerations are embedded within the core decision-making structure, resulting in more resilient and forward-looking organizational strategies.

Information Management

Historically, information management focused primarily on storage by media type. However, as data volume has grown and its formats have diversified, the complexity of information management has intensified, especially with the rise of information technology (Owusu Kwateng, Amanor & Tetteh, 2022). Modern information management must adapt to the evolving operational environment to meet organizational objectives efficiently. This requires attention to data quality, operational execution, user satisfaction, privacy implications, and enterprise-wide impacts. Consequently, information systems should be emphasized as a critical component of organizational planning and policy-making (Sukhawatthanakun, Roopsing & Silpcharu, 2023). In addition, strategic data management is critical in allowing informed decision-making at all levels of the organization.

Policy and Activity

Assessing the implementation of organizational policies and procedures is important, especially under the framework of a new public management that emphasizes results-based management (RBM). This approach outputs outcomes and also broader impacts stemming from policy execution (Al-Thaqeb et al. 2020). Moreover, evaluation is a critical component of the policy process and a reflection for stakeholders to observe success or failure in measurable terms, increasingly important in demonstrating the effectiveness, efficiency, and value of policy interventions. In addition, evaluation gives feedback across multiple dimensions, helping policymakers and implementers make data-driven improvements that address the needs and concerns of all stakeholders (Kulerttrakul, Silpcharu & Wattanakomol, 2024).

Monitoring Activities

Monitoring is a key tool for ensuring effective improvement and quality control in organizational operations. It plays an essential role in translating plans into action and in achieving defined objectives. Through ongoing tracking, managers and those responsible for performance indicators can understand the current status of each task and determine whether progress aligns with expected targets. As such, monitoring is not just a support function—it is a core managerial responsibility that facilitates timely project completion and helps ensure accountability (Um & Han, 2021). Continuous monitoring allows organizations to detect obstacles, assess progress, and make necessary adjustments in real time. From the initial execution phase to the final stage of a project or operational plan, tracking data related to progress and problems enables swift corrective actions. This improves overall performance and ensures that the final outcomes meet strategic goals and performance indicators effectively (Al-Muntaser, Mohamad & Ammar, 2023).

Good Corporate Governance

Good corporate governance involves overseeing and managing an organization in a way that fulfills its objectives while adhering to structured principles, both formal and informal. Every organizational decision should be made within a governance framework that upholds integrity and long-term sustainability (Abigail & Dharmastuti, 2022). Core principles of good governance include legal compliance, accountability, transparency, ethical conduct, and stakeholder recognition. These elements serve as a foundation for fair and responsible decision-making. Organizations that integrate these values not only promote ethical operations but also enhance trust among stakeholders and maintain long-term legitimacy in the marketplace (Fajriah & Jumady, 2022).

Research Objectives

1. To examine the overall structure and operational characteristics of the industrial sector.
2. To analyze the components of the risk reduction approach within the industrial sector.
3. To create a structural equation model for the risk reduction approach in the industrial sector.

Conceptual Framework

The researchers then developed the research concept as presented in Figure 1.

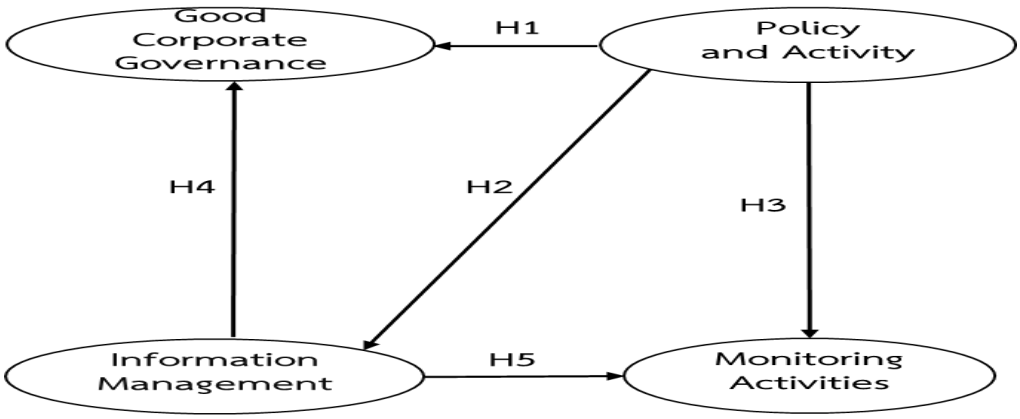

Figure 1: Conceptual Framework of the Study

Research Hypotheses

This study, Risk Mitigation Strategies for Business Operations in the Industrial Sector, is guided by the following hypotheses:

H1: Policy and Activity has a direct influence on Good Corporate Governance.

Effective good corporate governance requires clearly defined and transparent policies and operational guidelines for the board of directors and audit committees. To ensure effective oversight, the roles of governance and auditing should remain separate, avoiding conflicts of interest that could compromise transparency and control mechanisms (Karwowski & Raulinajtys-Grzybek, 2021).

H2: Policy and Activity has a direct influence on Information Management.

Organizations should establish policies for data governance that enable centralized access and standardized data usage across departments. Centralized data storage and clear role definitions reduce redundancy, improve data quality, and support organizational efficiency through clearly delegated responsibilities approved by executive management (Grandhi, Patwa & Saleem, 2021).

H3: Policy and Activity have a direct influence on Monitoring Activities.

Implementing strong internal controls helps mitigate risks and prevent potential damage. A transparent and trustworthy internal control system ensures financial statements are reliable and verifiable, supporting sound and effective economic decision-making based on credible accounting practices (Levytska et al., 2022).

H4: Information Management has a direct influence on Good Corporate Governance.

Modern governance paradigms emphasize performance outcomes and resource efficiency, with a growing reliance on advanced information technology to support operations and enable continuous monitoring. Information systems play a crucial role in enhancing transparency and accountability in governance (Cut Sri, Islahuddin & Nuraini, 2021).

H5: Information Management has a direct influence on Monitoring Activities.

Leveraging information technology in organizational planning and data management facilitates systematic operations. It enables time-bound task scheduling, real-time tracking, and the use of analytics to support business decisions across areas such as sales, marketing, procurement, inventory, production, and process optimization (Huang et al., 2022).

H6: The structural equation model of risk mitigation strategies differs significantly by business size.

However, small and medium-sized industrial enterprises often focus on niche production and targeted markets. These businesses typically rely on external consultation for budgeting and depend more heavily on government or institutional financial support. In contrast, large-scale enterprises possess stronger capital resources, professional personnel, and managerial capabilities, allowing them to develop strategic risk mitigation plans, forecast performance, and manage uncertainty more comprehensively (Crovini, Santoro & Ossola, 2021).

Research Methodology

This study adopts an inductive research approach to generate new knowledge, utilizing a mixed-methodology research design that integrates both qualitative and quantitative methods.

1. Qualitative Research – In-depth Interviews

The qualitative phase employed in-depth interview techniques with nine experts across three sectors: (1) three entrepreneurs or business executives, (2) three representatives from government agencies and related organizations, and (3) three academic professionals. The interviews were structured around four main components: (1) Information Management, (2) Policy and Activity, (3) Monitoring Activities, and (4) Good Corporate Governance

2. Quantitative Research – Questionnaire Survey

A draft questionnaire was developed and reviewed by five experts to assess its validity through Item-Objective Congruence (IOC), which yielded scores ranging from 0.60 to 1.00, exceeding the threshold of 0.50. A try-out test followed, and the item discrimination index ranged from 0.32 to 1.16 (above the acceptable minimum of 0.30). The reliability of the questionnaire, measured using Cronbach's Alpha Coefficient, was 0.98, indicating high internal consistency (greater than 0.80).The study involved a sample of 500 participants, selected through the lottery method, with 250 respondents from each subgroup. The general data were analyzed using descriptive and inferential statistics via SPSS. Furthermore, the structural equation model (SEM) was examined using multivariate statistics with the AMOS software (Thanin, 2024). The model fit criteria followed four key indicators: 1) Chi-square probability (CMIN–p) > 0.05 2) Relative chi-square (CMIN/DF) < 2.00 3) Goodness-of-Fit Index (GFI) > 0.90 4) Root Mean Square Error of Approximation (RMSEA) < 0.08 (Arbuckle, 2016)

3. Qualitative Research – Focus Group Discussion

To validate the proposed model, a focus group discussion was conducted with 11 experts in relevant fields, serving as the qualitative phase for model confirmation and refinem

Results

Table 1: Importance Levels of Risk Mitigation Strategies in Industrial Business Operations Classified by Years of Operation.

Risk Mitigation Strategies for Industrial Business Operations	Less than 15 years			More than 15 years		
	$\bar{X}$	S.D.	Scale	$\bar{X}$	S.D.	Scale
Overall Perspective	4.28	0.31	High	4.46	0.30	High
1. Policy and Activity	4.32	0.33	High	4.53	0.33	Very High
2. Good Corporate Governance	4.31	0.35	High	4.49	0.32	High
3. Monitoring Activities	4.27	0.39	High	4.46	0.38	High
4. Information Management	4.21	0.39	High	4.35	0.34	High

The findings from Table 1, indicate that organizations operating for more than 15 years place greater emphasis on risk mitigation strategies within the industrial sector compared to those operating for 15 years or less. The overall level of importance was found to be high, with a mean score of 4.46. In terms of specific dimensions, organizations with over 15 years of operational experience assigned the highest importance to Policy and Activity, with a mean score of 4.53, highlighting a strong focus on structured and proactive risk mitigation policies. The results from statistical tests comparing the perceived importance of risk mitigation strategies based on operational duration revealed a statistically significant difference at the 0.05 level.

In addition, the goodness-of-fit indices from the structural equation model (SEM) after model modification yielded the following values: 1) Chi-square probability level = 0.068, 2) Relative chi-square (CMIN/DF) = 1.132, 3) Goodness-of-Fit Index (GFI) = 0.954, 4) Root Mean Square Error of Approximation (RMSEA) = 0.016.

All four indices meet the recommended thresholds, confirming that the model demonstrates a strong fit with the empirical data, as illustrated in Figure 2 under the Standardized Estimate model.

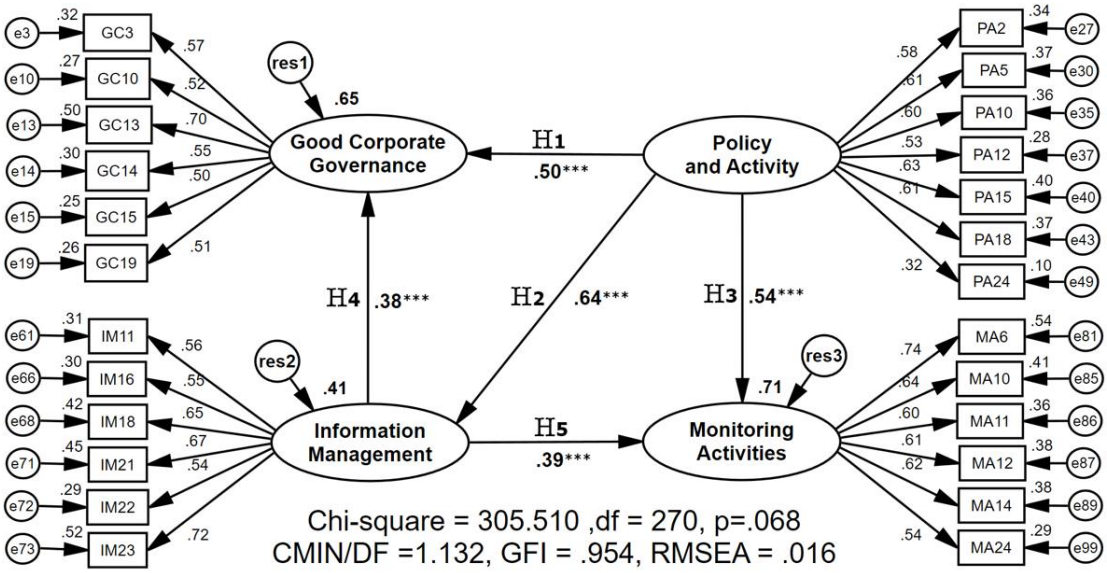

Figure 2: Structural Equation Model (SEM) after Model Modification

Figure 2 presents the results of hypothesis testing aimed at analyzing the causal relationships among latent variables in the structural equation model (SEM) for risk mitigation strategies in the industrial sector. A total of five hypotheses were tested, with results as follows:

H: Policy and Activity has a direct and statistically significant influence on Good Corporate Governance at the 0.001 level, with a Standardized Regression Weight (SRW) of 0.50. This supports the proposed hypothesis.

H2: Policy and Activity has a direct and statistically significant influence on Information Management at the 0.001 level, with a Standardized Regression Weight (SRW) of 0.64, consistent with the hypothesis.

H3: Policy and Activity has a direct and statistically significant influence on Monitoring Activities at the 0.001 level, with a Standardized Regression Weight (SRW) of 0.54, supporting the research assumption.

H4: Information Management has a direct and statistically significant influence on Good Corporate Governance at the 0.001 level, with a Standardized Regression Weight (SRW) of 0.38, in line with the hypothesis.

H: Information Management has a direct and statistically significant influence on Monitoring Activities at the 0.001 level, with a Standardized Regression Weight (SRW) of 0.39, affirming the proposed hypothesis, as shown in Table 2.

Table 2: Statistical Values from SEM after Model Modification

Variables	Estimate		R^2	Variance	C.R.	P
	Standard	Unstandard				
Policy and Activity				0.11		
Good Corporate Governance	0.50	0.50	0.65	0.04	6.049	***
Information Management	0.64	0.70	0.41	0.07	8.081	***
Monitoring Activities	0.54	0.75	0.71	0.06	7.241	***
Information Management			0.41	0.07		
Good Corporate Governance	0.38	0.35	0.65	0.04	4.795	***
Monitoring Activities	0.39	0.50	0.71	0.06	5.662	***
Policy and Activity				0.11		
PA2	0.58	1.00	0.34	0.21		
PA5	0.61	1.08	0.37	0.21	10.382	***
PA10	0.60	1.11	0.36	0.24	10.302	***
PA12	0.53	0.99	0.28	0.27	9.450	***
PA15	0.63	1.12	0.40	0.20	10.697	***
PA18	0.61	1.16	0.37	0.25	10.359	***
PA24	0.32	0.57	0.10	0.30	6.233	***
Good Corporate Governance			0.65	0.04		
GC3	0.57	1.00	0.32	0.22		
GC10	0.52	1.04	0.27	0.32	8.924	***
GC13	0.70	1.44	0.50	0.22	10.908	***
GC14	0.55	1.03	0.30	0.26	9.328	***
Good Corporate Governance (ต่อ)			0.65	0.04		
GC15	0.50	0.94	0.25	0.28	8.764	***
GC19	0.51	1.01	0.26	0.31	8.787	***
Information Management			0.41	0.07		
IM11	0.56	1.00	0.31	0.28		
IM16	0.55	0.94	0.30	0.26	9.473	***
IM18	0.65	1.20	0.42	0.25	10.566	***

IM21	0.67	1.31	0.45	0.27	10.737	***
IM22	0.54	0.98	0.29	0.30	9.305	***
IM23	0.72	1.41	0.52	0.23	10.230	***
Monitoring Activities			0.71	0.06		
MA6	0.74	1.00	0.54	0.18		
MA10	0.64	0.88	0.41	0.23	13.208	***
MA11	0.60	0.89	0.36	0.30	12.311	***
MA12	0.61	0.82	0.38	0.24	12.655	***
MA14	0.62	0.91	0.38	0.28	12.673	***
MA24	0.54	0.80	0.29	0.33	11.159	***

***Statistically significant at the 0.001 level

Structural Equation Model Results (Table 2), the structural equation model (SEM) for risk mitigation strategies in the industrial sector—after model modification—consists of four latent variables, divided as follows: One exogenous latent variable: Policy and Activity and Three endogenous latent variables: Good Corporate Governance, Information Management, and Monitoring Activities

The model reveals that Policy and Activity has a direct influence on Good Corporate Governance with a standardized regression weight (SRW) of 0.50, which is statistically significant at the 0.001 level. The squared multiple correlation (R^2) is 0.65, with a corresponding variance of 0.04. It also has a significant direct effect on Information Management with an SRW of 0.64 ($p < 0.001$), an R^2 of 0.41, and a variance of 0.07. Furthermore, Policy and Activity significantly influences Monitoring Activities with an SRW of 0.54, an R^2 of 0.71, and a variance of 0.06, all statistically significant at the 0.001 level.

Information Management likewise exerts a direct influence on Good Corporate Governance, with an SRW of 0.38, statistically significant at the 0.001 level, with an R^2 of 0.65 and variance of 0.04. It also has a direct effect on Monitoring Activities with an SRW of 0.39, significant at the 0.001 level, an R^2 of 0.71, and variance of 0.06.The latent variable Policy and Activity consists of seven observed variables, ranked by their standardized regression weights. The variable related to the continuous analysis and improvement of risk management processes (PA15) had the highest SRW at 0.63 ($p < 0.001$), with an R^2 of 0.40 and variance of 0.20. The next was the ability to quantitatively and qualitatively measure risk management policies and objectives (PA5), with an SRW of 0.61, a critical ratio (C.R.) of 10.382, R^2 of 0.37, and variance of 0.21. Maintenance scheduling for equipment and machinery (PA18) also yielded an SRW of 0.61 (C.R. = 10.359, $p < 0.001$), R^2 of 0.37, and variance of 0.25. Reviewing risk identification following changes in risk factors (PA10) followed with an SRW of 0.60, R^2 of 0.36, and variance of 0.24. The prioritization of risks based on severity and alignment with organizational plans (PA2) showed an SRW of 0.58, R^2 of 0.34, and variance of 0.21. Planning prevention costs to reduce defects and operational non-compliance (PA12) had an SRW of 0.53 ($p < 0.001$), R^2 of 0.28, and variance of 0.27. Finally, efficient planning for inventory storage, covering raw materials, work-in-progress, and finished goods while maintaining appropriate levels (PA24)—produced an SRW of 0.32, R^2 of 0.10, and variance of 0.30.

Good Corporate Governance comprises six observed variables, ranked by their standardized regression weights (SRWs). The highest weight was found in the variable that emphasizes fair and equal treatment of all customers (GC13), which had an SRW of 0.70 and was statistically significant at the 0.001 level. The squared multiple correlation (R^2) was 0.50, with a variance of 0.22. The second highest weight was associated with the variable reflecting the establishment of a customer complaint system that addresses issues related to product and service quality, quantity, safety, responsiveness, delivery timeliness, and resolution (GC3), with an SRW of 0.57, R^2 of 0.32, and variance of 0.22. The third variable involved

policies for safeguarding trade secrets under non-disclosure agreements (NDA) (GC14), with an SRW of 0.55, R^2 of 0.30, and variance of 0.26. The fourth variable pertained to operational transparency and integrity (GC10), showing an SRW of 0.52, statistically significant at the 0.001 level, R^2 of 0.27, and variance of 0.32. The fifth variable addressed setting production and service standards to ensure safety for both employees and partners (GC19), with an SRW of 0.51, also statistically significant at the 0.001 level, R^2 of 0.26, and variance of 0.31. Lastly, the sixth variable focused on risk management under the rule of law, particularly respecting the rights and freedoms of all stakeholders (GC15), with an SRW of 0.50, statistically significant at the 0.001 level, R^2 of 0.25, and variance of 0.28.

Information Management includes six observed variables. The highest SRW was recorded for the variable involving the use of electronic labeling systems (e.g., barcodes or QR codes) for product traceability and efficient operations (IM23), with an SRW of 0.72, statistically significant at the 0.001 level, R^2 of 0.52, and variance of 0.23. The second was the development of online database systems (cloud computing) that allow personnel to work remotely (IM21), with an SRW of 0.67, significant at the 0.001 level, R^2 of 0.45, and variance of 0.27. Third, the variable related to verification systems for external information (IM18) had an SRW of 0.65, also significant at the 0.001 level, R^2 of 0.42, and variance of 0.25. The fourth variable was about establishing clear backup procedures and protocols for critical business data (IM11), with an SRW of 0.56, R^2 of 0.31, and variance of 0.28. Fifth, the implementation of systems to prevent data breaches, unauthorized access, loss, destruction, or alteration (IM16) had an SRW of 0.55, statistically significant at the 0.001 level, R^2 of 0.30, and variance of 0.26. Finally, the sixth variable emphasized network security systems, including protection for applications, personal networks, and databases (IM22), with an SRW of 0.54, statistically significant at the 0.001 level, R^2 of 0.29, and variance of 0.30

Monitoring Activities consists of six observed variables, ranked in descending order based on their standardized regression weights (SRWs). The highest weight was associated with the variable involving the prioritization of risks based on their severity and impact, which enables the development of accurate control systems for different types of risk (MA6). This item had an SRW of 0.74, a squared multiple correlation (R^2) of 0.54, and a variance of 0.18. The second most influential variable was related to overseeing risk-related operations in alignment with risk management policies and strategies (MA10), which showed an SRW of 0.64, statistically significant at the 0.001 level, with an R^2 of 0.41 and variance of 0.23. The third variable referred to monitoring and evaluating the completeness, accuracy, and timeliness of data collection and recording (MA14), which yielded an SRW of 0.62, R^2 of 0.38, and variance of 0.28. The fourth item emphasized establishing a clear timeframe for risk management oversight and follow-up (MA12), with an SRW of 0.61, statistically significant at the 0.001 level, R^2 of 0.38, and variance of 0.24. The fifth variable related to auditing and reviewing the organization's risk control, inspection, and management systems to ensure suitability and effectiveness (MA11), with an SRW of 0.60, statistically significant at the 0.001 level, R^2 of 0.36, and variance of 0.30. Finally, the sixth observed variable focused on inspecting quality at every stage of the production process and evaluating outcomes before product delivery (MA24), which had an SRW of 0.54, statistically significant at the 0.001 level, R^2 of 0.29, and variance of 0.33.

DISCUSSION

A comparison of the importance levels of risk mitigation strategy components in the industrial sector, classified by the operational duration of businesses, was conducted using an independent sample t-test. The results revealed that the perceived importance of risk mitigation components significantly differed at the **0.05** level between the two groups of organizations based on how long they had been in operation.

Moreover, across various aspects, the Policy and Activity appeared as the most important factors in relieving the risk of business in the sector of industrial. The finding of this study focuses on the key role of strategic planning and objective-setting for risk reduction in organizations. Especially, effective risk mitigation comes with a well understanding of risk and the potential influencing factors. It includes assessing internal and external environments to encourage the formation of a strategy. Furthermore, organizations possibly determine the overall risk exposure and conduct an acceptable level of risk by

assessing these internal and external factors, including assessing alternative strategies by analyzing the probability and consequences of positive and negative decisions made from inaccuracy.

In addition, organizational objectives include setting comprehensive business goals for all aspects of operations, ensuring long-term sustainability and strength (Nguyen Ngoc et al. 2021). Prioritizing risks according to the difficulty of their potential impact, accurately, clearly, and in consistent with organizational plans, was noticed as the most important individual factor. It shows the significance ranking of risk systematic as a foundation for both operational and strategic control.

Within the industrial sector, organizational operations span multiple dimensions, including finance and accounting, human resources, general administration, production, sales, and services, all of which directly influence overall performance and business outcomes. Establishing structured work systems and comprehensive internal control mechanisms across all departments is therefore essential. Effective risk management that encompasses all organizational dimensions enables firms to prepare for unforeseen circumstances and disruptions. Although risk management may not eliminate the effects of crises, it plays a vital role in mitigating the impact from high to moderate or low levels, where the organization can maintain control and respond appropriately. Such resilience strengthens the capacity for stable and sustainable business operations, allowing organizations to move forward with greater efficiency and effectiveness (Abbas et al., 2021).

The finding that Policy and Activity has a direct influence on Information Management provides empirical evidence that an organization's vision and mission must be closely aligned with strategic planning and operational risk management. This consistency is crucial for improving business goals and adding value for themselves. However, to encourage this integration, organizations should conduct a continuous process for collecting and sharing key information within their departments. Using integrated information systems enables organizations to collect, process, and manage data regarding risk management effectively. In this system context, risks and operational results are possible to report systematically and used to inform strategic decision-making (Hock-Doepgen et al. 2021).

CONCLUSION

Thailand's industrial sector is facing numerous risks and uncertainties in business operations, which negatively influence corporate value, assets, liquidity, and share, deriving from various sources, such as economic volatility, political instability, and natural disasters. Therefore, business executives are required to consider the probability and impact of potential risks by prioritizing them according to the difficulty of their consequences and the consistency of the organizational plans. Moreover, effective risk mitigation includes confirming and analyzing risk points from operational levels through to executive levels, monitoring previous incidents and losses to assess both the difficulty and probability of reoccurrence. In addition, information is a foundation for developing prevention strategies that support proactive decision-making and long-term resilience.

SUGGESTIONS

From the research results, the organization's executives should consider the impact and possibility of the occurrence, including considering other risk factors that may affect the organization.

From the policy level, the research recommends that various government agencies and institutions, such as the Ministry of Industry, Ministry of Digital Economy and Society, Ministry of Higher Education, Science, Research and Innovation, and others, collaborate to support the industrial sector in areas including equipment maintenance, information security, cloud system development, safety standards, risk management, transparency, and education, to enhance operational efficiency, ensure compliance, and promote sustainable and responsible industrial practices.

At the operational level: Organizations should prioritize and manage risks by assessing severity, identifying risks across all levels, analyzing past incidents, considering internal and external risk factors, conducting strong risk management strategies, defining a clear risk appetite across key dimensions, and setting

measurable risk management policies and objectives to effectively navigate an increasing complex risk environment.

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