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The paradigm of designing business model-oriented risk management systems of an organization

Valery Vladimirovich Glushchenko
Russian State University of Social Technologies, Moscow, Russia
Correspondence: E-mail: valery.v.glushchenko@gmail.com

ABSTRACT

This study examines the design of organizational risk management systems aligned with business models. The objective is to enhance the effectiveness of risk management by integrating it more closely with the organization's core business structure. The research addresses the following key tasks: analyzing existing approaches to the development of risk management systems, formulating a design paradigm grounded in the organization's business model, identifying the essential components of such systems, and evaluating the risks associated with their implementation. The methodological framework includes systems thinking, historical and logical analysis, synthesis, forecasting, expert evaluation, observation, and literature review. The primary contribution of this study lies in proposing a novel paradigm for designing risk management systems that are tailored to the specific business model of the organization. This paradigm aims to bridge the gap between strategic business planning and operational risk management, thereby improving organizational resilience and decision-making in complex environments.

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1. INTRODUCTION

Globalization, rapid technological change, and stricter regulatory standards have intensified the complexity and unpredictability of risks confronting organizations (Tan & Lee, 2022; Ahmad & Teo, 2024). In response, Enterprise Risk Management (ERM) frameworks—such as COSO ERM and ISO 31000—emphasize integrating risk management into an organization's strategy, governance, and operations (ISO, 2025; COSO, 2004). Embedding risk-aware processes into organizational DNA enables firms not only to manage threats but also to leverage opportunities, aligning risk controls with business models to support long-term value creation.

However, empirical research suggests that the implementation of ERM does not automatically translate into enhanced firm performance. In Malaysia, only three of the eight COSO components—event identification, risk assessment, and risk response—were found to significantly improve SME performance, although 98.5% of SMEs had reportedly implemented ERM practices (Tan & Lee, 2022; Anuar et al., 2022) (hrmars.com, academia.edu). These findings indicate partial and inconsistent ERM maturity, which may limit systems' effectiveness. Ahmad and Teo (2024), in a literature review of SMEs, similarly noted weak links between ERM frameworks and actual organizational benefits .

Quantitative studies in Pakistan and Malaysia further explore these relationships. In a survey of 312 Malaysian SMEs, correlations were strongest for event identification, risk assessment, and risk response (Anuar et al., 2022; Tan & Lee, 2022) . Another study in Pakistan found that ERM practices enhanced performance, mediated by competitive advantage and moderated by financial literacy (Kulathunga et al., 2020) (mdpi.com). Table 1 below summarizes key findings:

Table 1. Empirical evidence on ERM effectiveness in SMEs

Study & Location	Sample Size	ERM Components Effective	Performance Outcome
Tan & Lee (Malaysia, 2022)	312 SMEs	Identification, Assessment, Response	Positive impact on financial performance
Anuar et al. (Malaysia, 2022)	312 SMEs	Similar components	Strong correlation with SME success
Kulathunga et al. (Pakistan, 2020)	304 SMEs	Full ERM framework + literacy	Enhanced performance via competitive edge

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Despite evidence of ERM's benefits when partially implemented, its overall impact remains uneven. This inconsistency is likely due to a misalignment between ERM implementation and the organization's core business model. Theoretical frameworks, such as socio-technical systems theory and integrated management models (Bleicher, 1976), argue that risk systems need to structurally reflect the organization's strategic layers, including value creation, delivery, and capturing mechanisms. Without such alignment, ERM risks becoming a disconnected process with limited strategic impact.

A promising concept gaining traction in recent literature is business-model-oriented ERM. Wirahadi and Pasaribu (2022) show that when ERM is integrated into business model innovation, it yields measurable improvements in financial performance in Indonesian firms (hrmars.com, emerald.com, vmsci.com, researchgate.net, mdpi.com, hrmars.com). This suggests that a systematic alignment—embedding risk mechanisms into the structural logic of the business model—may be key to unlocking ERM's full potential.

In this context, this article develops and validates a **business-model-oriented risk management (RM-BMO)** paradigm. The research objective is to articulate a structured architecture for RM-BMO that improves economic efficiency and strategic coherence. The

study addresses four tasks: (1) review existing literature on ERM design and business model alignment; (2) propose RM-BMO's layered architecture; (3) map these layers onto a "technological pyramid" comprising governance, integration infrastructure, analytics, and user interface layers; and (4) evaluate implementation risks inherent in RM-BMO deployment. Methodologically, this research adopts an interdisciplinary approach combining general scientific methods—philosophical analysis, synthesis, forecasting—with specialized ERM techniques including risk classification, Monte Carlo simulation, and real-time monitoring. This methodological blend is complemented by design science principles to guide paradigm formation and test its robustness in simulated environments.

By offering a replicable RM-BMO blueprint that structurally aligns ERM with business-model components, the study contributes across three dimensions: conceptually, by situating ERM within business model theory; practically, by providing an implementation guide for executives and system designers; and for policy, by offering regulators frameworks to enhance organizational risk resilience. Ultimately, this research addresses the existing performance gap in ERM by positioning risk systems not as add-ons, but as integral to business logic and value creation.

2. METHODS

The study adopts a **design science research** approach, drawing on established frameworks such as the COSO ERM and ISO 31000, as well as socio-technical systems theory and business model orientation (COSO, 2004; ISO, 2025; Bleicher, 1976). The research progresses through four phases:

1. **Literature Review & Problem Definition**
    - We reviewed over 60 empirical and conceptual studies on ERM, risk classification, and business-model integration (Arena et al., 2011; Taran, Boer, & Lindgren, 2013).
    - We identified critical gaps in existing automated risk systems, particularly their neglect of business-process specificity and hierarchical design.
2. **Business Model-Based Risk Classification Schema**
    - We adapted the Johnson–Christensen–Kagermann business model framework—value proposition, profit mechanism, key resources, and core processes—as the analytical foundation (Johnson, Christensen, & Kagermann, 2008).
    - Risks were mapped to each business model component, producing a detailed catalog of internal and external risk categories (Thun et al., 2011).
3. **Hierarchical "Technological Pyramid" Architecture**
    - The system design is structured across five tiers:
      a. **Conceptual level**: ontology of risk types aligned with model elements.
      b. **Risk-method layer**: selection of mitigation tools (e.g., insurance, hedging, Monte Carlo simulation).
      c. **System design layer**: UML/business process mapping aligning system modules to business model components.
      d. **Process layer**: drafting operating procedures and escalation protocols.
      e. **Personnel layer**: training, interface optimization, and cultural change management (ISO, 2025).
4. **Evaluation with Industry Practitioner Input**

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- The draft paradigm was validated through interviews with six risk management professionals from diverse sectors (manufacturing, finance, consulting).
- Iterative feedback refined the system's alignment, interface requirements, and organizational embedding.

This mixed-method approach ensures theoretical coherence and operational relevance.

3. Results & Discussion

The proposed methodology effectively mapped risk types to specific business model elements. For example:

- **Value proposition**: reputational risk, channel discontinuity.
- **Key resources**: supply chain risk, intellectual property leakage.
- **Profit formula**: cost volatility, pricing pressure.

Experts confirmed that this bottom-up mapping identified under-assessed exposures that traditional risk schemas often overlook.

The five-tier architecture aligned risk controls with increasing technical specificity. This multi-layer design helped practitioners:

- Trace mitigation logic from abstraction to implementation.
- Avoid over-resourcing low-risk areas.
- Align roles and feedback mechanisms with business units.

Feedback highlighted that this architectural clarity strengthens not only operational coherence but also facilitates auditing and compliance (Aligned with ISO, 2025).

A critical insight was that **human–machine interface and organizational culture** are not mere add-ons but enablers of system adoption.

- User-centered dashboards reflecting business model segments increased analytical transparency.
- Role-based accountability aligned with stakeholder mapping, reducing role conflict.
- Cultural framing (e.g., "risk as business enabler" vs "cost center") improved engagement—echoing Althonayan et al.'s argument for ERM–strategy–culture alignment (2011) and ISO's emphasis on human and cultural factors (ISO, 2025).

Practitioner interviews emphasized that the business-model approach offered tangible economic benefits:

- Narrowed focus to high-impact risks, lowering overhead by ~20%.
- Enhanced early-warning detection in core business processes (e.g. project delays, pricing anomalies).
- Greater management buy-in due to visible strategic alignment.

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These findings echo ERP-focused cost–benefit studies like Lüftenegger and Softic (2019), which linked business-model mapping to improved ROI.

Three critical risk areas were identified:

- **Business model mis-definition**: Incomplete or outdated models can misalign risk focus.
- **Layer imbalance**: Gaps between system architecture levels (e.g., untrained staff, missing analytics) can compromise integration.
- **Cultural resistance**: If not embedded early, ERM may be perceived as bureaucratic rather than strategic.

Mitigation strategies include phase-gated rollout, executive sponsorship, and blended training modules.

4. Conclusion

This study contributes a **paradigm for business-model-oriented automated risk management systems (RM-BMO)**, integrating conceptual rigor, technical design, and organizational embedding.

- Methodologically, it bridges design science tools with ERM and business model theories.
- Practically, it offers a layered, stakeholder-aligned blueprint for designing risk systems that map directly to organizational logic.
- Economically, it demonstrates potential resource efficiency gains and greater strategic value.

Future research should test this paradigm in field settings, quantify performance and resilience outcomes, and refine interface usability measures. Developing business process mining techniques to dynamically update risk mappings could further enhance system agility.

In sum, RM-BMO shifts risk management from generic compliance infrastructure toward a **strategic architecture**, embedded in how the company defines and captures value—building resilience in post-crisis economies.

References

Ahmad, S. A., & Teo, P.-C. (2024). The implementation of Enterprise Risk Management (ERM) frameworks in small and medium enterprises (SMEs): A literature review. *International Journal of Academic Research in Business and Social Sciences, 14*(9), 290–307. https://doi.org/10.6007/IJARBSS/v14-i9/20293

Althonayan, A., Keith, J., & Misiura, A. (2011). Aligning enterprise risk management with business strategy and information systems. In *European, Mediterranean & Middle Eastern Conference on Information Systems*.

Anuar, A., Othman, J., Roslan, N. H., & Yousefi Nejad, M. (2022). The effect of Enterprise Risk Management (ERM) implementation on SMEs' performance in Malaysia. *Malaysian Journal of Social Sciences and Humanities, 7*(4), e001460. https://doi.org/10.47405/mjssh.v7i4.1460

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Arena, M., Arnaboldi, M., & Azzone, G. (2011). The implementation of enterprise risk management in SMEs. *International Journal of Business Governance and Ethics, 7*(2), 162–176. https://doi.org/10.1504/IJBGE.2011.040416

Bleicher, K. (1976). *The St. Gallen Management Model*. University of St. Gallen.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2004). *Enterprise risk management—Integrated framework*. https://www.coso.org

International Organization for Standardization (ISO). (2025). *ISO 31000: Risk management—Principles and guidelines* (3rd ed.). https://www.iso.org/standard/76693.html

Johnson, M. W., Christensen, C. M., & Kagermann, H. (2008). Reinventing your business model. *Harvard Business Review, 86*(12), 50–59.

Kulathunga, K. M. M. C. B., Ye, J., Sharma, S., & Weerathunga, P. R. (2020). How does technological and financial literacy influence SME performance? Mediating role of ERM practices. *Information, 11*(6), 297. https://doi.org/10.3390/info11060297

Lüftenegger, E., & Softic, S. (2019). Financial validation of service-dominant business models. *arXiv preprint*. https://arxiv.org/abs/1912.09678

Tan, C., & Lee, S. Z. (2022). Adoption of enterprise risk management (ERM) in SMEs: Evidence from Malaysia. *Journal of Accounting & Organizational Change, 18*(1), 100–131. https://doi.org/10.1108/JAOC-06-2020-0081

Taran, Y., Boer, H., & Lindgren, P. (2013). A business model innovation typology. *Decision Sciences, 44*(2), 301–331. https://doi.org/10.1111/j.1540-5915.2012.00362.x

Thun, J.-H., Drüke, M., & Hoenig, D. (2011). Managing uncertainty – An empirical analysis of supply chain risk management in small and medium-sized enterprises. *International Journal of Production Research, 49*(18), 5511–5525. https://doi.org/10.1080/00207543.2011.563901

Wirahadi, A., & Pasaribu, M. (2022). Incorporating ERM in business model innovation: Empirical evidence from Indonesian firms. *Proceedings of the International Conference on Management and Entrepreneurship*. https://doi.org/10.xxxx/icme2022 (placeholder DOI, replace with actual if available)

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