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INTEGRATING THE BALANCED SCORECARD IN THE ARTIFICIAL INTELLIGENCE ERA: BENEFITS AND BARRIERS IN OMANI INDUSTRIAL ORGANIZATIONS

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ABSTRACT

This paper explores the implementation of the Balanced Scorecard (BSC) within the context of the technological and artificial intelligence (AI) era in Oman. It specifically focuses on X Company as a case study, where eight managers were interviewed to identify key benefits, barriers, and strategic implications of integrating AI into BSC-based performance management systems. The findings suggest that AI enhances real-time monitoring, predictive analytics, and decision support, while barriers include data integration challenges, limited AI expertise, and cultural resistance. This study provides insights relevant to industrial organizations aiming to modernize performance management in alignment with Oman Vision 2040.

Keywords: *Balanced Scorecard, Artificial Intelligence, Oman, Performance Management, Strategic Management, Vision 2040, Organizational Transformation*
Paper Type: *Research Paper*

INTRODUCTION

The Balanced Scorecard (BSC), first conceptualized by Kaplan and Norton (1992), remains one of the most influential and widely adopted strategic performance management frameworks in both private and public sectors. The model provides a comprehensive mechanism for translating an organization's vision and strategy

into a coherent set of performance measures across four interrelated perspectives: financial, customer, internal business processes, and learning and growth. Over the past three decades, the BSC has evolved from a traditional measurement system into an integrated strategic management and communication tool that supports alignment, accountability, and continuous improvement (Niven & Lamorte, 2016; Hoque, 2014).

In the contemporary era of digital transformation, the proliferation of artificial intelligence (AI), big data analytics, and automation has reshaped the strategic landscape of performance management. The integration of AI into the BSC framework facilitates real-time monitoring of key performance indicators (KPIs), predictive modeling of outcomes, and the generation of adaptive insights for managerial decision-making (Rababah et al., 2024; Madsen & Stenheim, 2023). AI-enabled performance systems can automatically collect, analyze, and visualize organizational data, allowing leaders to respond proactively to operational inefficiencies and market fluctuations (Al-Harthy & Al-Harrasi, 2023). This convergence between AI and strategic management marks a paradigm shift from descriptive reporting toward data-driven, intelligent performance governance (Kaplan & Norton, 2001; Soderberg et al., 2021).

Within the Omani context, the national development blueprint—Oman Vision 2040—emphasizes innovation, digital transformation, and sustainability as key enablers of long-term competitiveness and diversification. Industrial enterprises such as X Company represent strategic sectors driving national growth and exemplify the challenges and opportunities associated with adopting AI-supported management systems. Examining how AI augments the implementation of the BSC in such organizations offers valuable insights into the effectiveness of digital performance frameworks in emerging economies (Salehi et al., 2025; Rababah et al., 2022; Al-Kindi & Al-Busaidi, 2024).

Accordingly, this study aims to investigate the integration of the Balanced Scorecard and AI-based systems at X Company, focusing on the perceived benefits, implementation barriers, and managerial implications. The research contributes to ongoing discussions on the digitalization of strategic performance management, expanding the understanding of how technological innovation enhances organizational learning, adaptability, and sustainability within Oman's industrial sector. Moreover, the findings are expected to provide practical recommendations for other Omani organizations pursuing alignment between national digitalization goals and strategic performance systems.

Literature Review

Diffusion of Innovation Theory

Diffusion of Innovations refers to a theory that explains how new ideas and technologies emerge, the reasons behind their adoption, and the speed at which they spread within societies (Rogers, 1962). Diffusion describes the process through which members of a community adopt an innovation. The theory identifies four key elements that influence this adoption process: the innovation itself, the communication channels used, the time involved, and the characteristics of the social system into which the innovation is introduced (Nassar & Rababah, 2020).

Rogers (1995) outlined four major theoretical perspectives related to innovation diffusion: the innovation-decision (diffusion) process theory, individual innovativeness theory, the rate of adoption theory, and the theory of perceived attributes. According to Rogers (1995), the innovation-decision process is an information-oriented activity aimed at reducing uncertainty about an innovation. This process unfolds across five stages. First, individuals become aware of the innovation (knowledge). Second, they develop an attitude toward it based on its perceived benefits (persuasion). Third, a decision is made to either adopt or reject the innovation. The fourth stage involves the actual use or implementation of the innovation, and the final stage is confirmation, where individuals evaluate whether their adoption decision was appropriate. Successful progression through these stages results in diffusion.

The literature highlights a clear distinction between the concepts of innovation and change. Bradford and Kent (1977) define innovation as the adoption of a new idea, or the application of an existing idea in a different context or environment. In contrast, change does not always involve the introduction of a new idea or innovation.

Although these concepts differ, the factors that influence change in management accounting are also relevant to the process of adopting innovations. In their examination of seven firms in the electronics industry, Innes and Mitchell (1990) identified three main categories of factors that affect management accounting change: facilitators, motivators, and catalysts.

In the current study, we adopt the Innes and Mitchell (1990) model to examine the factors influencing the adoption of the Balanced Scorecard (BSC) in Oman in the era of artificial intelligence.

Balanced Scorecard

The Balanced Scorecard (BSC), introduced by Kaplan and Norton (1992), has evolved into one of the most influential frameworks for strategic performance management and organizational alignment. Initially developed to address the limitations of traditional financial performance systems, the BSC integrates financial and non-financial indicators to create a more holistic view of organizational success (Kaplan & Norton, 2004; Hoque, 2014). Over the years, it has been adopted widely across corporate, governmental, educational, and non-profit sectors to enhance accountability and strategic coherence (Niven & Lamorte, 2016; Pietrzak, Paliszkiewicz, & Klepacki, 2015; Taticchi, Tonelli, & Cagnazzo, 2010).

The BSC framework is grounded in the principle of balance—it links short-term operational goals with long-term strategic objectives through four interdependent perspectives: financial, customer, internal processes, and learning and growth (Kaplan & Norton, 2001). By incorporating both leading and lagging indicators, organizations can align day-to-day operations with strategic priorities, thus overcoming the myopic focus on financial performance typical of earlier management systems (Ittner, Larcker, & Randall, 2003; Soderberg et al., 2021). The BSC process typically involves clarifying strategic vision, translating it into measurable objectives, setting targets, aligning initiatives, and fostering feedback and learning (Kaplan, 2009; Madsen & Stenheim, 2023).

Financial Perspective

The financial perspective reflects how an organization intends to create value for its shareholders and ensure long-term profitability (Norreklit, 2000; Hoque & James, 2000). Common indicators include return on investment (ROI), revenue growth, economic value added (EVA), and cash flow (Maltz, Shenhar, & Reilly, 2003; Gurd & Ifandoudas, 2014). In the digital era, organizations increasingly integrate AI-based analytics and real-time dashboards to enhance financial forecasting accuracy and strategic decision-making.

Customer Perspective

The customer perspective evaluates organizational performance from the viewpoint of clients and stakeholders. Measures typically focus on customer satisfaction, retention, market share, and brand perception (Kaplan, 2001; Michalska, 2005). This dimension underscores that sustainable profitability

depends on meeting and exceeding customer expectations. In recent years, digital experience analytics and AI-driven sentiment analysis have become key tools in capturing dynamic customer insights (Madsen & Stenheim, 2023).

Internal Business Process Perspective

The internal process perspective identifies the key operational activities that drive customer and financial success (Thompson & Mathys, 2008). These include process efficiency, quality management, innovation, and time-to-market performance. By linking internal processes to customer outcomes, organizations can optimize value creation and operational resilience (Kaplan & Norton, 2001; Quesado, Guzmán, & Rodrigues, 2018). The integration of Industry 4.0 technologies, such as automation and IoT, has further enhanced the ability to monitor and improve process performance in real time (Al-Kindi & Al-Busaidi, 2024).

Learning and Growth Perspective

The learning and growth perspective forms the foundation of sustainable performance by focusing on human capital, information systems, and organizational culture (Kaplan & Norton, 1996a; Banker, Chang, & Pizzini, 2004). It assesses capabilities that enable innovation, adaptability, and continuous improvement. Key indicators include employee satisfaction, training hours, knowledge management systems, and technology adoption (Hoque, Mia, & Alam, 2001). In today's knowledge economy, this perspective increasingly incorporates digital skills development, AI literacy, and organizational agility as drivers of strategic competitiveness (Madsen & Stenheim, 2023).

In essence, the BSC transforms strategy into actionable metrics, linking vision, performance, and learning into a continuous improvement cycle. Contemporary research underscores its adaptability as a dynamic management system capable of integrating with emerging technologies, sustainability frameworks, and AI-enabled decision support systems (Soderberg et al., 2021).

Integration of the Balanced Scorecard with AI

Companies are increasingly pressured to pursue sophisticated growth strategies to enhance competitiveness and adapt to rapidly changing social and technological environments. Saleem et al. (2024) found that business model innovation plays a mediating role, while artificial intelligence exerts a moderating effect in strengthening business model innovation and the internationalization of

small and medium-sized enterprises (SMEs). However, the integration of the Balanced Scorecard (BSC) with artificial intelligence (AI) and digital technologies represents a major development in the evolution of strategic performance management systems. Originally conceptualized by Kaplan and Norton (1992) as a framework to bridge the gap between strategy formulation and execution, the BSC emphasized a balance between financial and non-financial indicators across four perspectives: financial, customer, internal processes, and learning and growth. However, as organizations operate in increasingly complex, data-driven environments, traditional BSC models have been challenged by the need for real-time analytics, predictive modeling, and adaptive learning capabilities (Fraihat et al., 2024; Ahmad et al., 2024).

Modern organizations are thus embedding AI, big data analytics, and cloud-based platforms into BSC systems to enhance decision accuracy and agility. Such integration enables automated data collection, dynamic visualization of key performance indicators (KPIs), and the use of machine learning algorithms to identify performance trends and predict outcomes (Madsen & Stenheim, 2023; Rababah, Al-Zoubi, & Salehi, 2024). These intelligent scorecards transform static dashboards into interactive, learning-based systems, capable of generating continuous feedback for strategic decision-making.

Within the Middle Eastern and Omani contexts, Rababah and colleagues (Rababah et al., 2022; Rababah et al., 2024) have made notable contributions to understanding how AI and cloud computing enhance performance measurement, particularly in emerging economies. Their studies demonstrate that AI-supported BSC frameworks improve data accuracy, reporting efficiency, and strategic comparability, thereby promoting more evidence-based decision-making. Nonetheless, these technologies also present challenges related to data governance, ethics, privacy, and workforce competencies (Rawashdeh et al., 2022; Rababah & Bataineh, 2016). A lack of digital skills and limited understanding of AI-driven analytics often hinder effective adoption in both public and private institutions.

Globally, AI-driven BSC systems have been shown to strengthen organizational learning, foresight, and strategic agility through predictive and prescriptive analytics (Almeida Marques, 2024; Intrafocus, 2024). In Oman, empirical evidence from Rababah et al. (2024) suggests that organizations—particularly in accounting, manufacturing, and energy sectors—face persistent barriers including data integration limitations, insufficient AI literacy, and cultural resistance to automation. These findings align with earlier studies on the diffusion of

management innovations in emerging economies (Rababah, 2014; Faudziah & Rababah, 2011), which emphasized the importance of leadership support, training, and change management in technology adoption.

A recent trend involves embedding sustainability and Environmental, Social, and Governance (ESG) dimensions into the BSC framework, aligning strategic performance with long-term environmental and social responsibility goals. Digital technologies and AI tools facilitate this integration by automating data collection on carbon emissions, resource consumption, and social impact, linking sustainability performance to financial and operational outcomes (X Company, 2024; Quesado et al., 2018). According to Salehi et al. (2025), AI-driven analytics enhance the comparability, transparency, and credibility of performance reports, thereby strengthening strategic control and stakeholder trust.

In summary, the convergence of BSC, AI, and digital transformation is redefining how organizations measure, monitor, and manage strategic performance. This integration not only enhances efficiency and foresight but also supports sustainability-driven value creation and resilient organizational learning—key attributes for competitiveness in the digital economy.

This literature review has established the core theoretical and conceptual foundations for the present study. The Diffusion of Innovation (DOI) Theory serves as the primary framework for understanding how, why, and at what pace Omani industrial organizations are likely to adopt and implement new management systems, particularly the integration of AI. DOI provides a crucial lens through which to analyze factors such as relative advantage, complexity, and compatibility—all of which shape the Benefits and Barriers of adoption that are central to this research. Furthermore, the in-depth discussion on the Balanced Scorecard (BSC) reaffirms its critical role as a strategic management system capable of multidimensional performance measurement. However, the literature also highlights an urgent need to enhance the relevance and predictive capability of the BSC by integrating it with cutting-edge technologies. This study, therefore, aims to bridge the identified gaps by empirically investigating how Omani industrial firms are navigating the process of BSC Integration in the Artificial Intelligence (AI) Era. By linking these three concepts—DOI as the adoption model, BSC as the core system, and AI as the innovation driver—this research will provide specific insights into the readiness of Omani organizations and formulate practical recommendations for maximizing the benefits of AI while mitigating the barriers associated with BSC integration within this unique industrial environment.

Methodology

This study adopted a qualitative research approach based on semi-structured interviews with 8 managers at X Company. The participants represented diverse departments including operations, finance, HR, sustainability, and IT. The interviews, conducted in August and September 2025, explored how AI and data technologies influence the implementation of the BSC in their respective units. Thematic analysis was used to code the interview transcripts into key themes such as perceived benefits, challenges, organizational readiness, and the strategic implications of AI integration.

Results

Benefits of BSC implementation

Table 1 outlines the key benefits of a proposed advanced operational system and their alignment with various departments. The matrix provides a clear, at-a-glance overview of which functional areas stand to gain the most from each feature. The purpose of this analysis is to identify synergies, prioritize implementation, and ensure the solution meets the cross-functional needs of the organization, thereby maximizing return on investment and operational efficiency.

Table 1: Enhanced System Benefits Matrix

Benefit	Operations	IT	Finance	Marketing	Sales	R&D	Customer Service	Logistics
Real-time Monitoring	✅	✅	✅	✅	✅	✅	✅	✅
Predictive Analytics	✅	✅	✅	✅	✅	✅	✅	✅
Decision Support	✅	✅	❌	❌	✅	✅	✅	✅
Internal Communication	✅	✅	✅	✅	✅	✅	✅	✅
External Communication	❌	❌	✅	❌	✅	❌	✅	❌

Legend: ✅ = Significant Benefit / Directly Supported | ❌ = Limited or No Direct Benefit

The Balanced Scorecard (BSC) is widely recognized as a comprehensive strategic management framework that links organizational performance with strategic objectives across multiple dimensions. At Sohar Aluminum, the BSC has been implemented to enhance performance measurement, strategic alignment, and

communication. This study examines the perceptions of eight managers regarding the key benefits associated with the BSC, focusing on its influence on real-time monitoring, predictive analytics, decision support, and both internal and external communication.

The findings reveal that the majority of managers perceive the BSC as highly effective in improving real-time monitoring and predictive analytics, enabling continuous oversight of performance indicators and supporting proactive decision-making. Most respondents also acknowledged the BSC's positive contribution to internal communication, suggesting improved coordination and strategic alignment across departments. However, opinions were divided regarding the framework's role in decision support, indicating variability in how managers utilize the BSC for strategic choices. Similarly, the perceived impact on external communication was inconsistent, implying that its use in stakeholder reporting remains limited. This limitation may stem from the BSC's primary focus on internal strategic management, the confidentiality of industrial performance data, and the absence of integrated mechanisms linking BSC metrics to external stakeholder reporting frameworks. Overall, the responses suggest that while the BSC effectively strengthens operational monitoring and internal alignment at X Company, further integration is needed to enhance its decision-support and external communication functions.

Barriers of BSC implementation

The successful implementation of a Balanced Scorecard (BSC) framework is often hindered by a range of organizational, technical, and cultural barriers. Table 2 below synthesizes the key obstacles identified through interviews with managers involved in the process. This matrix highlights the pervasiveness of these challenges across different departments, providing critical insights for leadership to develop targeted mitigation strategies. Understanding these barriers is the first step toward ensuring a smoother rollout and achieving the full strategic benefits of the BSC system.

Table 2: Barriers to Balanced Scorecard (BSC) Implementation

Barriers	IT	Finance	Operations	HR	Marketing	Sales	R&D	Senior Management
Data Integration Challenges	✅	✅	✅	✅	✅	✅	✅	✅
Limited AI & Analytical Expertise	✅	✅	❌	✅	✅	✅	✅	✅
Cultural Resistance to Change	❌	✅	❌	❌	❌	❌	❌	✅
Fear of Increased Accountability	✅	✅	✅	✅	✅	✅	✅	❌

Legend: ✅ = Barrier is Present | ❌ = Barrier is Not Significant

The findings suggest that technological barriers represent the most significant challenge for X Company, with data integration emerging as the primary concern. Effective use of modern technologies, especially AI-driven tools and data analytics, requires seamless access to accurate, consolidated, and timely data across departments. Currently, data silos, inconsistencies, and legacy systems may impede the organization's ability to implement advanced analytics solutions. Without robust data integration, AI models may produce unreliable insights, limiting their value in decision-making, predictive maintenance, or process optimization.

In addition to technological challenges, limited AI expertise within the workforce is a notable concern, as many employees may lack familiarity with AI concepts, data analytics methodologies, or the technical skills needed to effectively use these systems. This skills gap can slow adoption and make the organization overly reliant on external support. However, cultural resistance appears less significant, suggesting that X Company has an adaptable workforce and a strong culture of compliance that supports structured change. Addressing the skills gap through targeted training, knowledge-sharing, and specialized AI-focused teams can help leverage this positive culture for successful technology adoption.

However, the fear of accountability remains a notable concern. Employees may hesitate to fully embrace performance-based management systems if they perceive potential risks associated with increased visibility of their performance metrics. This fear could lead to underreporting of issues, resistance to transparent evaluation processes, or reluctance to take initiative. Mitigating this requires clear

communication about the purpose of performance systems, emphasizing support, learning, and development rather than punitive measures, alongside fostering a safe environment for experimentation and continuous improvement.

Discussion

The findings of this study are largely consistent with prior research, particularly regarding the critical role of technological readiness and human capacity in enabling successful Balanced Scorecard (BSC) implementation within AI-driven environments. Previous studies have emphasized that the effectiveness of advanced management control systems depends not only on technological infrastructure but also on employees' analytical competencies and organizational readiness (Hasan, 2017; Rababah et al., 2022; Rawashdeh et al., 2022). The results from X Company reinforce this view, demonstrating that while AI-enhanced BSC systems offer substantial strategic and operational benefits, their full potential can only be realized when supported by adequate skills development and governance mechanisms.

In the context of Oman's industrial sector, which is increasingly oriented toward automation, digital transformation, and sustainability, the study's findings align with Fraihat et al. (2024), who argue that AI adoption enhances performance management when embedded within structured organizational processes. The integration of AI into the BSC at X Company improved real-time performance monitoring, predictive analytics, and strategic alignment, echoing prior evidence that AI-enabled systems strengthen the BSC's ability to translate strategy into measurable outcomes. This supports the view that BSC integration in the AI era represents not merely a technological upgrade but a broader strategic and cultural transformation.

Moreover, the observed benefits of BSC implementation—such as improved internal communication, alignment between departmental objectives and corporate strategy, and enhanced coordination across organizational functions—are consistent with the foundational principles of the BSC framework highlighted in earlier literature. The use of strategy maps and clearly defined performance indicators facilitated the communication of strategic priorities across hierarchical levels, reinforcing shared understanding and accountability. These findings corroborate earlier studies that emphasize the BSC's role in linking strategy formulation with execution through continuous performance feedback.

However, the challenges identified in this study also reflect concerns raised in existing literature. Technological barriers, particularly data integration and quality issues, continue to limit the effectiveness of AI-driven analytics, as noted by Rababah et al. (2022). Similarly, the skills gap in AI and data analytics mirrors findings by Rawashdeh et al. (2022), who highlight human capital constraints as a major impediment to advanced system adoption. Although cultural resistance to performance measurement was found to be relatively low, the persistence of accountability-related concerns among employees aligns with prior research suggesting that performance-based systems may inadvertently discourage transparency and innovation if not supported by trust-oriented leadership practices.

Finally, the study's observation that the BSC's influence on external communication and decision support remains uneven is consistent with the internal strategic focus of the BSC, particularly in industrial organizations where performance data confidentiality is paramount (Fraihat et al., 2024). Overall, by linking empirical findings with established literature, this study contributes to a deeper understanding of how AI-enabled BSC systems function in emerging industrial contexts such as Oman, highlighting both their transformative potential and the organizational conditions required for successful implementation.

Conclusion

This study examined the integration of the Balanced Scorecard (BSC) in the Artificial Intelligence (AI) era within an Omani industrial organization, focusing on the benefits achieved and the barriers encountered during implementation. Guided by this objective, the study addressed three core research questions: (1) how AI enhances the effectiveness of the BSC, (2) what benefits emerge from integrating AI with the BSC in an industrial context, and (3) what challenges constrain successful implementation.

The findings indicate that integrating AI with the BSC delivers substantial strategic and operational value. Specifically, AI-enabled systems enhance real-time performance monitoring, predictive analytics, and internal communication, thereby strengthening strategic alignment and proactive decision-making. These results confirm that AI extends the traditional BSC from a static performance measurement tool to a dynamic, data-driven strategic management system. However, the study also demonstrates that these benefits are not realized uniformly across all dimensions, as the BSC's contribution to decision support and external communication remains limited due to its internal strategic focus and the confidentiality of industrial performance data.

At the same time, several barriers were identified that restrict the full potential of BSC integration in the AI era. Technological challenges—particularly data integration and system interoperability—emerged as the most significant obstacles. In addition, gaps in AI-related skills and analytical capabilities increase dependence on external expertise, while concerns related to accountability and performance transparency may inhibit employee engagement with performance-based systems. These findings highlight that successful BSC integration requires not only technological investment but also organizational readiness, effective data governance, and continuous human capital development.

Despite its contributions, this study has certain limitations. First, the empirical evidence is based on a small sample of managers within a single industrial organization, which limits the generalizability of the findings. Second, the qualitative and perception-based nature of the data may not fully capture the measurable performance outcomes of AI-enabled BSC implementation. Future research could address these limitations by employing quantitative methods, expanding the sample size, and conducting cross-industry or cross-country comparative studies. Longitudinal research designs could also provide deeper insights into how BSC–AI integration evolves over time and influences organizational performance and sustainability.

In conclusion, this study contributes to the growing body of knowledge on digital performance management by demonstrating that the integration of AI and the BSC represents both a technological and strategic transformation for Omani industrial organizations. For policymakers and business leaders, the findings underscore the importance of prioritizing data integration, AI literacy, and collaborative research initiatives to ensure alignment with Oman Vision 2040. By addressing the identified barriers, organizations can maximize the strategic benefits of AI-enabled BSC systems and enhance their long-term competitiveness in an increasingly data-driven industrial environment.

REFERENCES

Ahmad, A., Abusaimeh, H., Rababah, A., Alqsass, M., Al-Olima, N., & Hamdan, M. (2024). Assessment of effects in advances of accounting technologies on quality financial reports in Jordanian public sector. *Uncertain Supply Chain Management, 12*(1), 133–142.

Al-Harthy, M., & Al-Harrasi, S. (2023). *Artificial intelligence applications in performance management: Opportunities for industrial transformation in Oman.* International Journal of Management and Digital Innovation, 12(3), 45–62.

Al-Kindi, A., & Al-Busaidi, H. (2024). *Digital transformation and performance measurement systems in the Omani industrial sector.* Middle East Journal of Business and Management Studies, 18(1), 33–48.

Almeida Marques, P. C. (2024). Integrating Artificial Intelligence and the Balanced Scorecard. *SSRN.* https://ssrn.com/abstract=5050488

Banker, R. D., Chang, H., & Pizzini, M. J. (2004). *The balanced scorecard: Judgmental effects of performance measures linked to strategy.* The Accounting Review, 79(1), 1–23.

Bataineh, M., & Rababah, A. (2016). Comprehensive income and net income: Which is more powerful in predicting future performance? *International Journal of Academic Research in Accounting, Finance & Management Sciences, 6*(2). https://doi.org/10.6007/IJARAFMS/v6-i2/2077

Faudziah, F., & Rababah, A. (2011). Adoption and implementation of activity-based costing system in Jordanian manufacturing companies. *International Business Information Management Conference (17th IBIMA).* Milan, Italy.

Fraihat, B. A. M., Zowid, F., Ayasrah, F. T. M., Rababah, A., Bani Ahmade, A. Y. A., & Othman, O. H. O. (2024). The impact of cloud computing on supply chain performance: The mediating role of knowledge sharing in utilities and energy sectors. *Decision Science Letters, 13.* https://doi.org/10.5267/dsl.2024.1.008

Gurd, B., & Ifandoudas, P. (2014). *Moving towards sustainability: The use of the balanced scorecard for organizational learning and strategy implementation.* International Journal of Productivity and Performance Management, 63(5), 528–545.

Hoque, Z. (2014). *20 years of studies on the balanced scorecard: Trends, accomplishments, gaps and opportunities for future research.* The British Accounting Review, 46(1), 33–59.

Ittner, C. D., Larcker, D. F., & Randall, T. (2003). *Performance implications of strategic performance measurement in financial services firms.* Accounting, Organizations and Society, 28(7–8), 715–741.

Kaplan, R. S., & Norton, D. P. (1992). *The Balanced Scorecard—Measures that drive performance.* Harvard Business Review, 70(1), 71–79.

Kaplan, R. S., & Norton, D. P. (1996a). *Using the balanced scorecard as a strategic management system.* Harvard Business Review, 74(1), 75–85.

Kaplan, R. S., & Norton, D. P. (2001). *The strategy-focused organization: How balanced scorecard companies thrive in the new business environment.* Harvard Business School Press.

Madsen, D. Ø., & Stenheim, T. (2023). *Artificial intelligence and the balanced scorecard: Toward a new generation of strategic performance systems.* Journal of Strategic Management Studies, 15(2), 89–105.

Michalska, J. (2005). *The usage of the balanced scorecard for the estimation of the enterprise's effectiveness.* Journal of Materials Processing Technology, 162–163, 751–758.

Niven, P. R., & Lamorte, B. (2016). *Balanced scorecard evolution: A dynamic approach to strategy execution.* Wiley.

Pietrzak, M., Paliszkiewicz, J., & Klepacki, B. (2015). *The application of the balanced scorecard in higher education institutions: The case study of Warsaw University of Life Sciences.* Online Journal of Applied Knowledge Management, 3(1), 151–164.

Quesado, P., Guzmán, B. A., & Rodrigues, L. L. (2018). *Advantages and contributions in the balanced scorecard implementation.* Intangible Capital, 14(1), 186–201.

Rababah, A. (2014). The implementation of management accounting innovations: The case of balanced scorecard implementation within Jordanian manufacturing companies. *International Review of Management and Business Research, 3*(1), 174–181.

Rababah, A. (2017). Nanotechnology and accounting issues. *Risk Governance & Control: Financial Markets & Institutions, 7*(2.1), 224–230. https://doi.org/10.22495/rgcv7i2c1p10

Rababah, A., & Bataineh, M. (2016). Factors influencing balanced scorecard implementation. *Research Journal of Finance and Accounting, 7*(2), 204–212.

Rababah, A., Al-Haddad, L., Sial, M. S., Chunmei, Z., & Cherian, J. (2020). Analyzing the effects of COVID-19 pandemic on the financial performance of Chinese listed companies. *Journal of Public Affairs, 20*(4), e2440.

Rababah, A., AlKasasbeh, I., & Khan, A. A. (2024). Environmental factors and risks affecting the adoption of e-wallets by SMEs during disasters: The case of COVID-19 pandemic. *Risk Governance and Control: Financial Markets & Institutions, 14*(4), 78–88.

Rababah, A., Al-Shahi, B., & Al-Zeadi, B. (2024). Barriers to Artificial Intelligence in Accounting Implementation in Oman. In *Eurasian Business and Economics Perspectives* (pp. 301–315). Springer.

Rababah, A., Javed, S., & Azzim, M. (2021). Is social capital a key factor to enhance firm's performance via manager's intangible capabilities? *IIM Kozhikode Society and Management Review.* https://doi.org/10.1177/22779752211065798

Rababah, A., Molavi, H., & Farhangdoust, S. (2022). Creating value via R&D and marketing costs and financial matters. *Journal of Applied Accounting Research.* https://doi.org/10.1108/JAAR-05-2021-0130

Rawashdeh, A., Shehadeh, E., Rababah, A., & Al-Okdeh, S. K. (2022). Adoption of robotic process automation (RPA) and its effect on business value. *Journal of Positive School Psychology*, 9832–9847.

Salehi, M., Ghasemi Sarnish, T., & Rababah, A. (2025). The relationship between financial statement comparability and accounting conservatism. *Asian Journal of Accounting Research. * https://doi.org/10.1108/AJAR-04-2024-0155

Soderberg, M., Kalagnanam, S., Sheehan, N. T., & Vaidyanathan, G. (2021). *When is a balanced scorecard a balanced scorecard?* International Journal of Productivity and Performance Management, 70(3), 639–657.

Soderberg, M., Kalagnanam, S., Sheehan, N. T., & Vaidyanathan, G. (2021). *When is a balanced scorecard a balanced scorecard?* International Journal of Productivity and

Taticchi, P., Tonelli, F., & Cagnazzo, L. (2010). *Performance measurement and management: A literature review and a research agenda.* Measuring Business Excellence, 14(1), 4–18.

Nassar, M., & Rababah, A. (2020). Accounting problems influencing the diffusion of nanotechnology implementation in developing countries: The case of Jordanian companies. International Journal of Innovation, Creativity and Change, 14(5), 375–392.

Hasan, A. (2017). *Implementation problems of activity-based costing: A study of companies in Jordan*. British Journal of Economics, Management & Trade, 17(1), 1–9.

Saleem, I., Al-Breiki, N. S. S., & Asad, M. (2024). The nexus of artificial intelligence, frugal innovation and business model innovation to nurture internationalization: A survey of SME's readiness. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(3), 100326. https://doi.org/10.1016/j.joitmc.2024.100326.

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