“Business intelligence competencies and their impact on organizational ambidexterity”

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BUSINESS INTELLIGENCE COMPETENCIES AND THEIR IMPACT ON ORGANIZATIONAL AMBIDEXTERITY

Abstract

In Jordan's banking sector, organizations face the dual challenge of stability and innovation. Achieving this balance requires a deep grasp of leveraging capabilities for existing opportunities and exploring new ones. The key lies at the intersection of business intelligence and organizational ambidexterity. Therefore, this study has investigated the relationship between business intelligence and organizational ambidexterity within the Jordanian banking sector. It examined the impact of managerial, technical, and cultural competencies of business intelligence on organizational ambidexterity in Jordanian commercial banks listed on the Amman Stock Exchange. The quantitative study involved 449 bank employees. The data were gathered via a questionnaire, and the responses were analyzed using R language version 4.2.2. The results indicated that managerial competencies ($z = 8.26$, $p = 0.000$) and technical competencies ($z = 4.09$, $p = 0.000$) exhibit statistically significant positive direct effects on organizational ambidexterity. Additionally, cultural competencies were found to have a statistically significant direct effect on organizational ambidexterity ($z = 2.083$, $p = 0.037$). Managerial, technical, and cultural business intelligence competencies play crucial roles in the adoption of organizational ambidexterity among Jordanian commercial banks. Achieving organizational ambidexterity necessitates integrating these competencies with organizational capabilities.

Keywords organizational ambidexterity, business intelligence, managerial competencies, technical competencies, cultural competencies, Jordanian commercial banks

JEL Classification M15, O32, O43

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INTRODUCTION

The survival and growth of organizations in a complex environment necessitates them to possess the capacity to handle and foresee their immediate surroundings by adopting modern management methods, such as organizational ambidexterity. Organizational ambidexterity refers to organizations entering new markets in the future through continuous exploration of opportunities as well as exploitation of resources in their surrounding environment. Organizational and innovative renewal is facilitated by a balance between exploration and exploitation operations (Farzaneh et al., 2022; Zhang et al., 2022; Zhang & Sun, 2023).

Meeting the challenges of new markets and facing fierce competition requires the establishment of an appropriate environment within the organization conducive to creativity. This includes providing proper equipment, advanced information technology systems, techniques, and the facilities necessary to explore and exploit opportunities effectively (Asiaei et al., 2023; Saleh et al., 2023).

To thrive and endure in a rapidly changing world, organizations must respond swiftly to shifts, deliver innovative products and services of

superior quality, and make prompt decisions. To achieve these objectives, leveraging business intelligence becomes immensely valuable. It aids organizations in identifying and capitalizing on opportunities, making decisive decisions, and formulating strategies to anticipate the future (Bedford et al., 2019; Hiebl & Pielsticker, 2023; Smara & Bogatyreva, 2023).

Jordan's banking sector is crucial to its economic growth, boasting a diverse range of products and services alongside rapid technological advancements, rendering it a highly competitive sector. To sustain competitiveness and ensure survival, banking management must swiftly adapt and explore new opportunities (Al Sheikh, 2023; Al Dabbas, 2023; Alsayyed & Randall, 2023).

Prioritizing business intelligence competencies in this sector is imperative, as they can significantly improve the sector's work environments. However, the impact of these competencies in the Jordanian banking sector remains largely unexplored, and this study aims to fill this gap.

1. LITERATURE REVIEW AND HYPOTHESES

The term business intelligence was introduced by the Gartner Group in the mid-nineties of the last century (Alsibhawi et al., 2023). By 2005, business intelligence systems were equipped with artificial intelligence and high analytical abilities (Nurdin et al., 2023). Some describe it as a combination of data from various system sources aimed at encouraging business exploitation by using easy-to-use tools (Tavera Romero et al., 2021). Others define it as a collection of applications, techniques, and processes used to evaluate and assess data to enable end-users to make informed business decisions (Basile et al., 2023; Olszak, 2014). Additionally, business intelligence has been described as a set of applications utilized to collect valuable information that can help organizations survive (Trieu et al., 2023; Alsaad et al., 2022; Nuesir et al., 2021).

Olszak (2014) defined business intelligence as the integration of tools, technologies, and software packages used to collect and integrate data from diverse sources, analyze it, and make it available. The diverse definitions of business intelligence reflect different perspectives, with some scholars approaching it from a managerial viewpoint while others focus on the technical and practical aspects. Kimble and Milolidakis (2015) provided a managerial perspective, defining it as an organization's capability to effectively utilize its available data and to identify valuable and pertinent information for decision-making.

Moreover, business intelligence is seen as a collection of structured and systematic processes. It encompasses the use of advanced technologies within an organized managerial system and a unique cultural context to provide operational and strategic value by combining organizational information to assist decision-making at several levels.

The importance of business intelligence has grown due to rapid changes in data and work environments relating to how data are stored and produced. It provides a system to make better decisions through data processing and real-time monitoring, as well as the extraction of reports on an ongoing basis. Business intelligence also offers a more effective and efficient way to distribute and share data, thereby improving the performance of employees and the organization (Jafari et al., 2023).

Furthermore, the rapid changes in data and work environment have led to the growing importance of business intelligence (Nawaz et al., 2023). Business intelligence enables real-time monitoring, data processing, and reporting, promoting better decision-making. Moreover, business intelligence provides an efficient way to distribute and share data, enhancing employee and organizational effectiveness (Chamoun, 2023). Business intelligence is critical for firms because it aids in understanding and adapting to the business environment, allowing them to reap numerous benefits in the complex competitive landscape. It serves as a mechanism for improving business performance to ensure survival and longevity. Companies achieve these advantages by forecasting future business activities, identifying opportunities and threats, facilitating informed decision-making, and providing valuable insights through several sources.

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The concept of business intelligence competencies encompasses a company's capacity to develop and utilize business intelligence tools and programs for effective and efficient decision-making. It is characterized as a higher-order construct consisting of three dimensions: managerial competence, technical competence, and cultural competence (Obidat et al., 2023; Al-Maaitah, 2018; Sangari & Razmi, 2015).

Managerial business intelligence competencies encompass the organization's ability to diagnose the causes of problems, plan solutions, predict problem occurrences, think abstractly, creatively absorb knowledge, and engage in learning to enhance knowledge for achieving strategic goals (Seguer & Hasna, 2022). These competencies rely on the effectiveness and efficiency of business intelligence processes, which involve creating information and knowledge to enhance decision-making efficacy by acquiring reliable information and understanding actions and decisions impacting both internal and external organizational environments (Grigorescu et al., 2020).

Cultural business intelligence competencies refer to an organization's ability to cultivate an environment conducive to efficient and effective information gathering. This entails fostering a culture within the organization that is adept at creating business intelligence products and facilitating the exchange and utilization of knowledge in decision-making processes (Skyrius et al., 2016; Al-Maaitah, 2018).

These competencies involve developing a culture of business intelligence throughout the organization's operations, emphasizing the importance of utilizing business intelligence tools for maximum benefit. This includes promoting information and knowledge sharing and instilling a shared understanding of the significance of these tools as strategic assets. These strategic assets contribute to organizational success and excellence by facilitating informed decision-making. Moreover, organizational awareness and recognition of information as a strategic asset are deemed essential for achieving success (Arefin et al., 2021).

Technical business intelligence competencies refer to an organization's capability to effectively utilize business intelligence tools and software applications, leveraging historical and real-time data analysis (Petrini & Pozzebon, 2009). This encompasses the organization's utilization of various applications, techniques, tools, systems, and intelligence programs for storing, analyzing, categorizing, and presenting data using models and visualizations to support decision-making. Moreover, having a dedicated database aids decision-makers in formulating strategies based on directional analysis and trend identification. Furthermore, the application of diverse models to forecast the organization's future environment by uncovering unique relationships enables organizations to respond proactively and enhance their competitive position. This underscores the critical role of technological infrastructure in implementing business intelligence and managing organizational processes. Consequently, the technical competence of the organization enables the technological infrastructure to support knowledge management and the effective utilization of appropriate techniques and tools. This includes gathering information and knowledge about organizational activities and the business environment, as well as employing suitable technologies and tools to process, analyze, organize, distribute, and disseminate knowledge and information throughout the organization (Sangari & Razmi, 2015).

Researchers have varying perspectives on defining organizational ambidexterity. However, there is a consensus that it involves optimizing available resources and capabilities to enhance competitive positioning and explore new opportunities while maintaining a balance between exploration and exploitation activities (Smara & Bogatyreva, 2023; Ngammoh et al., 2023; Adamu & Onuoha, 2023). This capability enables organizations to achieve superior performance and sustainability in dynamic and competitive environments (Hwang et al., 2023; Yunita et al., 2023; Shi et al., 2024; Hadi, 2023). Organizational ambidexterity also requires effectively managing complex and diverse components simultaneously, including balancing exploration and exploitation, pursuing innovation, and adapting to customer needs and market changes (Park et al., 2020; Da Silva et al., 2023; Aziz & Long, 2023).

Given the rapid pace of change, ambidexterity is crucial for developing new products and services and employing exploratory and investment strat-

egies (Trieu et al., 2023). It enhances an organization's adaptability to a changing environment and requires coordination across various organizational levels, including culture, strategy, and leadership (Trieu et al., 2023; Lopez-Zapata & Ramirez-Gómez, 2023).

Exploration is a process reliant on accurate information to anticipate changes and meet customer needs innovatively, potentially leading to the launch of new products or services that fulfill clients' desires (Zhang et al., 2022). It aids companies in identifying new opportunities to attract customers and adapting to market demands. Moreover, exploration contributes to the creation of new markets, the development of distribution channels, the adoption of advanced technology, and the enhancement of the organization's competitiveness, ultimately fostering growth, survival, and development (Farzaneh et al., 2022; Bedford et al., 2019).

Exploitation involves continual changes and enhancements in existing products and processes to maximize available capabilities and resources in meeting the needs of current clients and markets (Clauss et al., 2021). By seizing new opportunities, businesses can cater to consumer and market demands, enhance current operations, achieve peak productivity and efficiency, and focus on meeting customer needs realistically and measurably (Konrad et al., 2021). It also involves the application of modern management techniques and optimal investment in equipment and technologies available to organizations (Bedford et al., 2019; Zhang & Sun, 2023; Maletič et al., 2014).

The demand for innovation, leadership, and creativity has grown over time, with organizational creativity now seen as a basic and necessary requirement. Today's organizations strive to perform activities efficiently and effectively in a rapidly changing environment, as customers' demands for new products have increased in tandem with the accelerating pace of technological progress and the intensity of competition, necessitating management adaptation to these conditions and the search for new means of confrontation.

Organizations must be ambidextrous to prosper and remain competitive for as long as feasible. Building ambidexterity is a difficult task that needs several factors, such as invention, effectiveness, exploration, and exploitation. Ambidexterity is one of the most essential possibilities that modern businesses use to stay up with changing conditions and overcome problems. Organizational ambidexterity is an important choice for businesses to stay up with changes in the business environment and handle obstacles, as it demonstrates the organization's capacity to cope with changes intelligently (Al ani & Hussein, 2018).

Being open to advanced modern technology has turned into a challenge for business organizations that strive for excellence and competition, forcing organizations to depend on managerial strategies to keep pace with these changes. Examples are business intelligence systems. To be able to grow and compete, an organization requires a more comprehensive data analysis (El-Gharib, 2022).

Business intelligence is a technology development that involves analyzing massive volumes of data (Dey et al., 2018) and accurately forecasting future outcomes. It is necessary to have the various nature of information in settings defined by speed, which assists in making decisions and strategic planning to assist businesses in managing their company efficiently, adjusting to future changes in the environment, and achieving the highest degree of organizational ambidexterity. This is the goal that organizations strive to achieve, a goal that is reflected by their abilities for exploitative and exploratory performance (Katou et al., 2021).

According to Niu et al. (2021), to achieve organizational ambidexterity, there must be business intelligence that allows the organization to explore and exploit capabilities, as well as effectively use information. There is a positive relationship between business intelligence system components and organizational ambidexterity. Business intelligence introduces new technologies, methods, and enhancements to organizational ambidexterity practices of opportunity exploration and exploitation (Božič & Dimovski, 2019).

Ram et al. (2016) demonstrated that business intelligence plays a vital role in increasing organizational performance by discovering new opportunities, emphasizing potential threats, recognizing, exploiting, and exploring new visions, strengthen-

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ing decision-making processes, and providing accurate information that can be exploited.

Therefore, this study seeks to explore the effect of business intelligence competencies on organizational ambidexterity. The elaborated hypotheses are:

H1: Managerial competencies have a significant positive effect on organizational ambidexterity.

H2: Cultural competencies have a significant positive effect on organizational ambidexterity.

H3: Technical competencies have a significant positive effect on organizational ambidexterity.

2. METHOD

The study adopted a descriptive research design to determine the impact of business intelligence competencies on organizational ambidexterity among Jordanian commercial banks listed on the Amman Stock Exchange. In addition, the study used both qualitative and quantitative techniques to arrive at its conclusions. The population consisted of all employees in Jordanian commercial banks listed on the Amman Stock Exchange. The Amman Stock Exchange currently lists 14 commercial banks. Table 1 displays the number of employees of each bank.

Table 1. The number of employees of each bank

Name of the bank	Total employees
Jordan Islamic Bank	2433
Capital Bank of Jordan	550
Cairo Amman Bank	1401
Bank of Jordan	867
Jordan Ahli Bank	677
Arab Bank	2155
Invest Bank	441
Jordan Kuwait Bank	880
Jordan Commercial Bank	433
Safwa Islamic Bank	658
The Housing Bank for Trade and Finance	1834
Bank Al Etihad	715
Arab Jordan Investment Bank	536
Arab Banking Corporation (Jordan)	341
Total	13921

Krejcie and Morgan's (1970) and Sekaran and Bougie's (2009) standards were used to establish the appropriate sample size for these employees. As a result, 493 questionnaires were distributed, and 460 were retrieved, of which 449 were valid for analysis. Table 2 summarizes the demographics of the study's sample.

Table 2. Demographic characteristics of participants

Criterion	Items	Number of respondents	(%)
Gender	Male	321	72%
	Female	128	28%
Age	Less than 25 years	50	11%
	25-34 years	60	13%
	35-44 years	90	20%
	Above 44 years	249	56%
Educational level	Undergraduate	49	11%
	Graduate	301	67%
	Postgraduate	99	22%
Total		449	**100%**

The results revealed that the majority were male, 72.0%, and female represented 28.0%. Most were aged above 44 years, 56%, followed by those aged between 35-44 years, 20%. Regarding educational level, most participants were graduates, 67.0%. These results indicated a diversity of the demographic characteristics of the sample.

The questionnaire was divided into two parts. The first contains demographic information, while the second part seeks an assessment of the items comprising the research model's constructs. Four items adapted from Dranev et al. (2020) and Adamu and Onuoha (2023) were used to assess organizational ambidexterity. Three items from Grigorescu et al. (2020) were used to assess managerial business intelligence competencies. Four items from Hiebl and Pielsticker (2023) were used to assess technical business intelligence competencies. Additionally, four items were used to assess cultural business intelligence competencies, adapted from Arefin et al. (2021) and Skyrius et al. (2016).

All constructs were assessed using a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). A panel of specialists and academic professors evaluated the items' validity. The study used the structural equation modeling approach with R language version 4.2.2 for data analysis.

3. RESULTS

Following Hair et al. (2018), the model's convergent validity was evaluated using four indicators, which included:

1) standardized factor loading (FL), required to be greater than 0.5;

2) Cronbach's alpha (α), required to be greater than 0.80;

3) composite reliability (CR), required to be greater than 0.80;

4) average variance extracted (AVE), required to be greater than 0.5 for each construct.

Table 3 summarizes the findings of this assessment, which show that the model meets the convergent validity criterion; this implies that the measurement items consistently converge on the intended constructions.

The heterotrait-monotrait (HTMT) correlation ratio was used to examine the measurement model's discriminant validity. According to this method, the HTMT for each pair of constructs should be less than 0.85 (Franke & Sarstedt, 2019). Table 4 shows that the HTMT values for all construct pairings are less than 0.85. The results indicate that the measurement model's discriminant validity is met.

Five fit indices were calculated to examine the goodness-of-fit of the model: standardized root

Table 3. Convergent and discriminant validity of the measurement model

Variable	FL	α	CR	AVE
Organizational ambidexterity		**0.91**	**0.91**	**0.71**
1. The focus is on developing novel services and activities in entirely unexplored domains	0.82			
2. The bank keeps up with business and technology advancements, as well as industry trends	0.81			
3. The company enhances service efficiency in a controlled manner	0.84			
4. All resources are utilized to sustain day-to-day operations	0.90			
Managerial competencies		**0.93**	**0.93**	**0.82**
1. The bank has well-defined systems and techniques for continuously gathering information and knowledge about the external environment	0.90			
2. Obtaining information and knowledge for decision-making is a quick and simple process	0.93			
3. The bank has well-defined procedures and methods for successfully sharing knowledge and information and then analyzing the results	0.89			
Technical competencies		**0.90**	**0.91**	**0.77**
1. The bank's systems allow for the identification of unusual relationships within the bank's operational environment	0.78			
2. The bank's systems offer access to diverse models that can be employed to anticipate the bank's behavior	0.93			
3. The bank possesses suitable software for promptly analyzing and categorizing the data required by employees	0.90			
Cultural competencies		**0.92**	**0.92**	**0.73**
1. The bank fosters strong relationships with business partners when addressing issues and engaging in other information-based activities	0.87			
2. There exists a willingness and eagerness among the employees to share knowledge and teach others	0.90			
3. The flow of information and knowledge between the bank's functional units is effective	0.88			
4. The employee understands the value of information and knowledge in creating operational and strategic success at the bank	0.78			

Table 4. HTMT results

Construct	Organizational Ambidexterity	Managerial Competencies	Technical Competencies	Cultural Competences
Organizational Ambidexterity	1.000			
Managerial Competencies	0.722	1.000		
Technical Competencies	0.638	0.690	1.000	
Cultural Competences	0.525	0.609	0.562	1.000

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Table 5. Goodness-of-fit for the tested structural model

Fit Index	Model Value	Criteria
Comparative Fit Index	0.982	> 0.95
Tucker-Lewis Index	0.977	> 0.95
Relative Non-Centrality Index	0.982	> 0.9
Root Mean Square Error of Approximation	0.055	< .08
Standardized Root Mean Square Residual	0.031	< .08

Table 6. Hypothesis testing

Path	Standardized Coefficient	Z-Value	P(>|Z|)	Decision
H1: Managerial Competencies → Organizational Ambidexterity	0.472	8.260	0.000 ****	Supported
H2: Technical Competencies → Organizational Ambidexterity	0.189	4.090	0.000 ****	Supported
H3: Cultural Competencies → Organizational Ambidexterity	0.104	2.083	0.037 *	Supported

Note: Significance Codes: 0.000 ****; 0.001 ***; 0.01**; 0.05*.

mean square residual (SRMR) (Hu & Bentler, 1999), comparative fit index (CFI) (Bentler, 1990), relative non-centrality index (RNI) (Bentler & Bonett, 1980), root mean square error of approximation (RMSEA) (Browne & Cudeck, 1992), and Tucker-Lewis index (TLI) (Kline, 2015). Table 5 shows that the structural model meets all of the criteria.

The outcomes of the structural equation modeling analysis indicated that managerial competencies (z = 8.26, p = 0.000) and technical competencies (z = 4.09, p = 0.000) have statistically significant positive direct effects on organizational ambidexterity. Additionally, cultural competencies were found to have a statistically significant direct effect on organizational ambidexterity (z = 2.083, p = 0.037). Table 6 presents the results of the hypothesis testing.

4. DISCUSSION

The study examined the relationship between managerial, cultural, and technical competencies of business intelligence and organizational ambidexterity. The results provide empirical evidence that management competencies of business intelligence have a positive influence on organizational ambidexterity. The validation of the first hypothesis aligns with the earlier studies that identified managerial competencies as significant drivers of organizational ambidexterity (Asiaei et al., 2023; Nobakht et al., 2021). It includes the abilities and skills of managers or leaders within an organization, such as effective strategizing, planning, and resource allocation for business intelligence initiatives, as well as decision-making, project management, and leadership in guiding business intelligence-related activities.

The second hypothesis posits that the technical competencies of business intelligence will exert a discernible impact on organizational ambidexterity. The results of this study offer empirical substantiation for this hypothesis, positing a favorable association between technical competencies of business intelligence and organizational ambidexterity. Technical competencies involve the skills and knowledge required for implementing and utilizing business intelligence tools and technologies effectively, including expertise in data analysis, modeling, database management, visualization, and proficiency with business intelligence software platforms. This finding aligns with previous studies that identified technical competencies as important drivers of organizational ambidexterity adoption, facilitating information exchange and analytical capabilities across departments to enhance performance (Ting et al., 2020; da Silva et al., 2023).

The third hypothesis posits that cultural competencies of business intelligence will exert a discernible impact on organizational ambidexterity. Similarly, the results of this study offer empirical substantiation that bolsters the third hypothesis, indicating that the positing a favorable association between cultural competencies of business intelligence and organizational ambidexterity. Finally, the study found that cultural competency positively

affects organizational ambidexterity. Cultural competencies pertain to the organizational culture and how well business intelligence practices are aligned with and integrated into that culture, encompassing communication styles, collaboration norms, openness to change, and the encouragement, and valuation of data-driven decision-making within the organization. This discovery is consistent with earlier research that identified cultural competencies as crucial drivers of organizational ambidexterity adoption, fostering exploitative and exploratory capabilities, maintaining a culture of creativity and innovation, and sustaining performance (Lopez-Zapata & Ramirez-Gomez, 2023; Yang et al., 2022).

Business intelligence has a beneficial effect on organizational ambidexterity enhancing organizations' capabilities for achieving and building organizational ambidexterity by encouraging creative and innovative processes based on seeking for new ideas and uses.

The banks studied demonstrated satisfactory keenness to adopt dimensions of organizational ambidexterity, characterized by exploiting and exploring opportunities and a differentiated structure, reflecting their ability to sense, explore, and exploit opportunities. Effectively managing business intelligence processes, utilizing business intelligence tools and technologies, and fostering a culture that values data-driven decision-making and innovation can enhance an organization's ability to explore new opportunities while exploiting existing capabilities. Investing in developing these competencies within the organization can lead to improved overall performance and competitiveness. Organizations excelling in managerial, technical, and cultural competencies of business intelligence are better positioned to navigate complexities, exploit existing capabilities, and explore new opportunities, thus enhancing their organizational ambidexterity.

CONCLUSION

The study is novel as it provides an explanation and experimental examination of managerial, technical, and cultural competencies of business intelligence and their impact on organizational ambidexterity. Conducted in the banking sector of Jordan, the study found that business intelligence competencies significantly influence organizational ambidexterity.

The findings reveal that managerial competencies are statistically significantly associated with organizational ambidexterity. Additionally, results indicate that technical competencies are statistically significantly associated with organizational ambidexterity. Furthermore, cultural competencies were found to be statistically significantly associated with organizational ambidexterity, confirming the validity of the research hypotheses. When an organization possesses strong competencies in the managerial, technical, and cultural aspects of business intelligence, it tends to be more adept at fostering organizational ambidexterity. The synergy between managerial, technical, and cultural competencies within business intelligence contributes to an organization's ability to maintain a balance between exploration and exploitation, thereby enhancing its organizational ambidexterity.

The study concluded that potential recommendations for Jordanian banks should prioritize fostering the creative capabilities of their employees and providing them with the appropriate environment to achieve organizational ambidexterity. Encouraging creativity and innovation among staff members can lead to the identification of new opportunities, ultimately enhancing the competitive edge of banks. Furthermore, supporting the efforts of Jordanian banks to innovate new products requires the development of technical infrastructure in Jordan. This investment will enable banks to quickly absorb and adapt to technological changes, thereby staying competitive in the market.

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AUTHOR CONTRIBUTIONS

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Writing – original draft: Zaid Alabaddi.
Writing – review & editing: Zaid Alabaddi, Rukana Alshweesh, Ahmad Almohtaseb, Jehad Aldehayyat.

REFERENCES

1. Adamu, M. M., & Onuoha, B. C. (2023). Corporate innovations and organizational ambidexterity of manufacturing firms in Rivers State. *International Academy Journal of Management Annals, 8*(5), 01-16. Retrieved from https://arcnjournals.org/images/2721425621851.pdf
2. Al Ani, M. K., & Hussien, M. A. (2018). Enhancing Economic Sustainability: An Empirical Study in Banking and Finance Sector in Oman. *IUP Journal of Accounting Research & Audit Practices, 17*(2), 51-61. Retrieved from https://www.researchgate.net/publication/325010354_Enhancing_Economic_Sustainability_An_Empirical_Study_in_Banking_and_Finance_Sector_in_Oman
3. Al Dabbas, M. M. N. (2023). Commercial banks' contribution to expanded investment and credit in Jordan. *International Journal of Professional Business Review, 8*(4), Article e01832. https://doi.org/10.26668/businessreview/2023.v8i4.1832
4. Al Sheikh, M. K. T. H. (2023). Financial technology and its role in achieving economic development in the Hashemite Kingdom of Jordan. *American Journal of Sociology, Economics and Tourism, 3,* 1-8.
5. Al-Maaitah, M. A. (2018). Impact of business intelligence competencies on the organizational capabilities in Jordanian banks. *Journal of Computer Science, 14*(8), 1144-1154. https://doi.org/10.3844/jcssp.2018.1144.1154
6. Alsaad, A., Selem, K. M. Alam, Md. M., & Kayed, L. (2022). Linking business intelligence with the performance of new service products: Insight from a dynamic capabilities perspective. *Journal of Innovation & Knowledge, 7*(4), Article 100262. https://doi.org/10.1016/j.jik.2022.100262
7. Alsayyed, N. M., & Randall, J. (2023). Feminist emergence in a traditionally male industry: Case from Jordan – The Jordanian banking industry. *Administrative Sciences, 13*(2), Article 39. https://doi.org/10.3390/admsci13020039
8. Alsibhawi, I. A. A., Yahaya, J. B., & Mohamed, H. B. (2023). Business intelligence adoption for small and medium enterprises: Conceptual framework. *Applied Sciences, 13*(7), Article 4121. https://doi.org/10.3390/app13074121
9. Arefin, M. S., Hoque, M. R., & Rasul, T. (2021). Organizational learning culture and business intelligence systems of health-care organizations in an emerging economy. *Journal of Knowledge Management, 25*(3), 573-594. https://doi.org/10.1108/JKM-09-2019-0517
10. Asiaei, K., Bontis, N., Askari, M.R., Yaghoubi, M., & Barani, O. (2023). Knowledge assets, innovation ambidexterity and firm performance in knowledge-intensive companies. *Journal of Knowledge Management, 27*(8), 2136-2161. https://doi.org/10.1108/JKM-04-2022-0277
11. Aziz, N. A., & Long, F. (2023). Examining the relationship between big data analytics capabilities and organizational ambidexterity in the Malaysian banking sector. *Frontiers in Big Data, 6,* Article 1036174. https://doi.org/10.3389/fdata.2023.1036174
12. Basile, L. J., Carbonara, N., Pellegrino, R., & Panniello, U. (2023). Business intelligence in the healthcare industry: The utilization of a data-driven approach to support clinical decision making. *Technovation, 120,* Article 102482. https://doi.org/10.1016/j.technovation.2022.102482
13. Bedford, D. S., Bisbe, J., & Sweeney, B. (2019). Performance measurement systems as generators of cognitive conflict in ambidextrous firms. *Accounting, Organizations and Society, 72,* 21-37. https://doi.org/10.1016/j.aos.2018.05.010
14. Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-

246. https://doi.org/10.1037/0033-2909.107.2.238

15. Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588-606. https://doi.org/10.1037/0033-2909.88.3.588

16. Božič, K., & Dimovski, V. (2019). Business intelligence and analytics use, innovation ambidexterity, and firm performance: A dynamic capabilities perspective. *The Journal of Strategic Information Systems, 28*(4), Article 101578. https://doi.org/10.1016/j.jsis.2019.101578

17. Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230-258. https://doi.org/10.1177/0049124192021002005

18. Chamoun, S. (2023). *Unleashing the potential of business intelligence & analytics for SMEs in the Netherlands: A comprehensive analysis* (Master's Thesis). University of Twente. Retrieved from https://purl.utwente.nl/essays/96144

19. Clauss, T., Kraus, S., Kallinger, F. L., Bican, P. M., Brem, A., & Kailer, N. (2021). Organizational ambidexterity and competitive advantage: The role of strategic agility in the exploration-exploitation paradox. *Journal of Innovation & Knowledge, 6*(4), 203-213. https://doi.org/10.1016/j.jik.2020.07.003

20. da Silva, R. R., Larieira, C. L. C., de Souza Meirelles, F., & dos Reis, A. M. P. (2023). Organizational ambidexterity: A path to digital transformation in small and medium enterprises. *Cognitionis Scientific Journal,* 6(2), 480-504. https://doi.org/10.38087/2595.8801.207

21. Dey, N., Hassanien, A. E., Bhatt, C., Ashour, A., & Satapathy, S. C. (Eds.). (2018). *Internet of Things and big data analytics toward next-generation intelligence* (Vol. 35). Berlin: Springer. https://doi.org/10.1007/978-3-319-60435-0

22. Dranev, Y., Izosimova, A., & Meissner, D. (2020). Organizational ambidexterity and performance: Assessment approaches and empirical evidence. *Journal of the Knowledge Economy, 11,* 676-691. https://doi.org/10.1007/s13132-018-0560-y

23. El-Gharib, A. (2022). The role of business intelligence in the private sector in enhancing organizational creativity. *Scientific Journal of Commercial and Environmental Studies, 13*(2), 421-457. https://doi.org/10.21608/jces.2022.248096

24. Farzaneh, M., Wilden, R., Afshari, L., & Mehralian, G. (2022). Dynamic capabilities and innovation ambidexterity: The roles of intellectual capital and innovation orientation. *Journal of Business Research, 148,* 47-59. https://doi.org/10.1016/j.jbusres.2022.04.030

25. Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: A comparison of four procedures. *Internet Research, 29*(3), 430-447. https://doi.org/10.1108/IntR-12-2017-0515

26. Grigorescu, A., Baiasu, D., & Chitescu, R. I. (2020). Business intelligence, the new managerial tool: Opportunities and limits. *"Ovidius" University Annals, Economic Sciences Series, 20*(1), 651-657. Retrieved from https://stec.univ-ovidius.ro/html/anale/RO/2020/Section%204/14.pdf

27. Hadi, P. (2023). Improving firm sustainability through dynamic capability: The mediation role of ambidexterity. *International Journal of Professional Business Review, 8*(5), Article e01511. https://doi.org/10.26668/businessreview/2023.v8i5.1511

28. Hair, J. F. Jr, Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis. Global edition*. Hampshire: Cengage Learning.

29. Hiebl, M. R., & Pielsticker, D. I. (2023). Automation, organizational ambidexterity, and the stability of employee relations: New tensions arising between corporate entrepreneurship, innovation management, and stakeholder management. *The Journal of Technology Transfer, 48*, 1978-2006. https://doi.org/10.1007/s10961-022-09987-1

30. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

31. Hwang, B. N., Lai, Y. P., & Wang, C. (2023). Open innovation and organizational ambidexterity. *European Journal of Innovation Management, 26*(3), 862-884. https://doi.org/10.1108/EJIM-06-2021-0303

32. Jafari, T., Zarei, A., Azar, A., & Moghaddam, A. (2023). The impact of business intelligence on supply chain performance with emphasis on integration and agility – A mixed research approach. *International Journal of Productivity and Performance Management, 72*(5), 1445-1478. https://doi.org/10.1108/IJPPM-09-2021-0511

33. Katou, A. A., Budhwar, P. S., & Patel, C. (2021). A trilogy of organizational ambidexterity: Leader's social intelligence, employee work engagement, and environmental changes. *Journal of Business Research, 128,* 688-700. https://doi.org/10.1016/j.jbusres.2020.01.043

34. Kimble, C., & Milolidakis, G. (2015). Big data and business intelligence: Debunking myths. *Global Business and Organizational Excellence, 35*(1), 23-34. https://doi.org/10.1002/joe.21642

35. Kline, R. B. (2015). The mediation myth. *Basic and Applied Social Psychology, 37*(4), 202-213. https://doi.org/10.1080/01973533.2015.1049349

36. Konrad, A. M., Richard, O. C., & Yang, Y. (2021). Both diversity and meritocracy: Managing the diversity-meritocracy paradox with organizational ambidexterity. *Journal of Management Studies, 58*(8), 2180-2206. https://doi.org/10.1111/joms.12752

37. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607-610. https://doi.org/10.1177/001316447003000308

http://dx.doi.org/10.21511/ppm.22(3).2024.05

38. Lopez-Zapata, E., & Ramírez-Gómez, A. D. J. (2023). Intellectual capital, organizational culture and ambidexterity in Colombian firms. *Journal of Intellectual Capital, 24*(2), 375-398. https://doi.org/10.1108/JIC-08-2020-0286

39. Maletič, M., Maletič, D., Dahlgaard, J. J., Dahlgaard-Park, S. M., & Gomišček, B. (2014). Sustainability exploration and sustainability exploitation: From a literature review towards a conceptual framework. *Journal of Cleaner Production, 79,* 182-194. https://doi.org/10.1016/j.jclepro.2014.05.045

40. Nawaz, M., Hameed, W. U., & Bhatti, M. I. (2023). Integrating business and market intelligence to expedite service responsiveness: Evidence from Malaysia. *Quality & Quantity, 58*, 1303-1324. https://doi.org/10.1007/s11135-023-01689-6

41. Ngammoh, N., Mumi, A., Popaitoon, S., & Issarapaibool, A. (2023). Enabling social media as a strategic capability for SMEs through organizational ambidexterity. *Journal of Small Business & Entrepreneurship, 35*(2), 197-217. https://doi.org/10.1080/08276331.2021.1980682

42. Niu, Y., Ying, L., Yang, J., Bao, M., & Sivaparthipan, C. B. (2021). Organizational business intelligence and decision-making using big data analytics. *Information Processing & Management, 58*(6), Article 102725. https://doi.org/10.1016/j.ipm.2021.102725

43. Nobakht, M., Hejazi, S. R., Akbari, M., & Sakhdari, K. (2021). Exploring the relationship between open innovation and organizational ambidexterity: The moderating effect of entrepreneurial orientation. *Innovation, 23*(1), 71-92. https://doi.org/10.1080/14479338.2020.1758566

44. Nuesir, T. A., Aljumah, & Alshurideh, M. T. (2021). How the business intelligence in the new startup performance in UAE during COVID-19: The mediating role of innovativeness. In M. Alshurideh, A. E. Hassanien, & R. Masa'deh (Eds.), *The Effect of Coronavirus Disease (COVID-19) on Business Intelligence, Studies in Systems, Decision and Control* (vol. 334). Springer. https://doi.org/10.1007/978-3-030-67151-8_4

45. Nurdin, A. A., Salmi, G. N., Sentosa, K., Wijayanti, A. R., & Prasetya, A. (2023). Utilization of business intelligence in sales information systems. *Journal of Information System Exploration and Research, 1*(1), 39-48. https://doi.org/10.52465/joiser.v1i1.101

46. Obidat, A., Alziyadat, Z., & Alabaddi, Z. (2023). Assessing the effect of business intelligence on supply chain agility. A perspective from the Jordanian manufacturing sector. *Uncertain Supply Chain Management, 11*(1), 61-70. http://dx.doi.org/10.5267/j.uscm.2022.11.010

47. Olszak, C. M. (2014). Towards an understanding of business intelligence. A dynamic capability-based framework for business intelligence. *2014 Federated conference on computer science and information systems* (pp. 1103-1110). https://doi.org/10.15439/2014F68

48. Park, Y., Pavlou, P. A., & Saraf, N. (2020). Configurations for achieving organizational ambidexterity with digitization. *Information Systems Research, 31*(4), 1376-1397. https://doi.org/10.1287/isre.2020.0950

49. Petrini, M., & Pozzebon, M. (2009). What role is "business intelligence" playing in developing countries? A picture of Brazilian companies. In H. Rahman (Ed.), *Data mining applications for empowering knowledge societies* (pp. 239-259). IGI Global. http://dx.doi.org/10.4018/978-1-59904-657-0.ch013

50. Ram, J., Zhang, Ch., & Koronios, A. (2016). The implications of big data analytics on business intelligence: A qualitative study in China. *Procedia Computer Science, 87,* 221-226. https://doi.org/10.1016/j.procs.2016.05.152

51. Saleh, R. H., Durugbo, C. M., & Almahamid, S. M. (2023). What makes innovation ambidexterity manageable: A systematic review, multi-level model and future challenges. *Review of Managerial Science, 17,* 3013-3056. https://doi.org/10.1007/s11846-023-00659-4

52. Sangari, M. S., & Razmi, J. (2015). Business intelligence competence, agile capabilities, and agile performance in supply chain: An empirical study. *The International Journal of Logistics Management, 26*(2), 356-380. https://doi.org/10.1108/IJLM-01-2013-0012

53. Seguer, Z. S., & Hasna, A. M. (2022). Business intelligence as a challenge for the managerial function: Case study on managerial decision making in Algerian companies. *Business Ethics and Leadership, 6*(3), 35-46. Retrieved from https://essuir.sumdu.edu.ua/handle/123456789/89499

54. Sekaran, U., & Bougie, R. (2009). *Research methods for business: A skill-building approach* (5th ed.). John Willey & Sons Ltd. Retrieved from https://9afi.com/storage/daftar/onTXVlzEDQNtC4khg3Ykl-hj0g5V5wyFsQqNDZOpL.pdf

55. Shi, Y., Van Toorn, C., & McEwan, M. (2024). Exploration–exploitation: How business analytics powers organizational ambidexterity for environmental sustainability. *Information Systems Journal, 34*(3), 894-930. https://doi.org/10.1111/isj.12456

56. Skyrius, R., Katin, I., Kazimianec, M., Nemitko, S., Rumšas, G., & Žilinskas, R (2016). Factors driving business intelligence culture. *Issues in Informing Science and Information Technology, 13,* 171-186. Retrieved from http://www.informingscience.org/Publications/3483

57. Smara, R., & Bogatyreva, K. A. (2023). Moving to ambidextrous organization: A systematic literature review. *Vestnik of Saint Petersburg University. Management, 22*(2), 191-225. https://doi.org/10.21638/11701/spbu08.2023.203

58. Tavera Romero, C. A., Ortiz, J. H., Khalaf, O. I., & Ríos Prado, A. (2021). Business intelligence: business evolution after industry 4.0. *Sustainability, 13*(18), Article 10026. https://doi.org/10.3390/su131810026

59. Ting, D. S. W., Carin, L., Dzau, V., & Wong, T. Y. (2020). Digital technology and COVID-19.

Nature Medicine, 26(4), 459-461. https://doi.org/10.1038/s41591-020-0824-5

60. Trieu, H. D., Van Nguyen, P., Nguyen, T. T., Vu, H. M., & Tran, K. (2023). Information technology capabilities and organizational ambidexterity facilitating organizational resilience and firm performance of SMEs. *Asia Pacific Management Review, 28*(4), 544-555. https://doi.org/10.1016/j.apmrv.2023.03.004

61. Yang, M., Sulaiman, R., Yin, Y., Mallamaci, V., & Alrabaiah, H. (2022). The effect of business intelligence, organizational learning, and innovation on the financial performance of innovative companies located in science park. *Information Processing & Management, 59*(2), Article 102852. https://doi.org/10.1016/j.ipm.2021.102852

62. Yunita, T., Sasmoko, S., Bandur, A., & Alamsjah, F. (2023). Technological capacity and organizational culture: The importance of organizational ambidexterity in the banking sector. *International Journal of Professional Business Review, 8*(5), Article e01479. https://doi.org/10.26668/businessreview/2023.v8i5.1479

63. Zhang, J. A., Chen, G., O'Kane, C., Xiang, S., & Wang, J. (2022). How employee exploration and exploitation affect task performance: The influence of organizational competitive orientation. *The International Journal of Human Resource Management, 33*(5), 930-964. https://doi.org/10.1080/09585192.2020.1745866

64. Zhang, Q., & Sun, X. (2023). How incentive synergy and organizational structures shape innovation ambidexterity. *Journal of Knowledge Management, 27*(1), 156-177. https://doi.org/10.1108/JKM-11-2021-0847

http://dx.doi.org/10.21511/ppm.22(3).2024.05