

The Impact of Business Intelligence on Strategic Ambidexterity: The Mediating Role of Knowledge Sharing

Rakan Alsarayreh¹ and Ola Buraik² Areej Hijazin³ and Sajead Mowafaq Alshdaifat⁴

¹Independent Research, Amman, Jordan

²Department of Accounting, Amman College for Financial & Managerial Science, Al-Balqa' Applied University, Amman, Jordan

³Business Administration Department, Faculty of Business, Middle East University, Amman, Jordan

⁴Financial and Accounting Sciences Department, Faculty of Business, Middle East University, Amman, Jordan

Rakan.alsarayreh@yahoo.com

Ola.buraik@bau.edu.jo

a.hijazin@meu.edu.jo

s.shdaifat@meu.edu.jo

<https://doi.org/10.34190/eibrm.23.1.3719>

An open access article under [CC Attribution 4.0](https://creativecommons.org/licenses/by/4.0/)

Abstract: This study investigates the mediating role of knowledge sharing in the relationship between business intelligence and strategic ambidexterity within Jordanian telecommunication companies. Utilizing a descriptive analytical approach, data were collected through an electronic questionnaire distributed to 350 managers, yielding 269 valid responses analysed via Structural Equation Modelling (SEM) with Smart PLS 4.1. The methodological rigor of employing SEM allows for a nuanced examination of the complex interplay among latent variables, which include business intelligence (with constructs such as Data Mining, Data Warehousing, OLAP, and Reporting) and strategic ambidexterity (focusing on Exploration and Exploitation). Findings reveal that all latent variables exhibit significant importance, with business intelligence positively impacting strategic ambidexterity, mediated by knowledge sharing. These results advocate enhanced knowledge sharing practices within organizations, enabling internal experts to leverage insights into external opportunities through well-structured business intelligence reports. Overall, this research contributes to the advancement of methodology in business and management by establishing a robust framework for analysing the mediating effects of knowledge sharing, while providing actionable insights for enhancing strategic decision-making in the telecommunications sector. Future studies may further explore the dynamics of these relationships across different industries, thereby enriching the field of business management research.

Keywords: Business intelligence, Strategic ambidexterity, Knowledge sharing, Telecom, Jordan

1. Introduction

In today's rapidly evolving business landscape, organizations are constantly challenged by ongoing technological advancements, shifting consumer demands, and the unescapable impact of globalization (Hijazin, Tamayo-Torres & Nusairat, 2023). For sustainable growth, this has led to the requirement for digital synergies—the balancing of strategy, innovation, and technology (Alshdaifat et al., 2024). Businesses must balance the two imperatives of efficiency and long-term adaptation through innovation in order to achieve these synergies. The key to this is strategic ambidexterity, which is the capacity to take advantage of what you already have while looking for fresh growth prospects (O'Reilly & Tushman, 2013). Strategic ambidexterity is an essential organizational skill, particularly in industries with high levels of technology disruption and market instability, such as telecommunications (Masa'deh et al., 2024). It means managing the balance between exploitation optimizing current operations for efficiency – and exploration – fuelling innovation and positioning the organization for future success (Li et al., 2022). Achieving this balance is essential to developing digital synergies that will enable organizations to adapt and prosper in a rapidly evolving business environment.

Business intelligence (BI), a collection of methodologies and technologies that transform data into insights, is one of the main drivers of these synergies. Decision-making, operational excellence, and innovation are enhanced by BI technologies such as data mining, data warehousing, online analytical processing (OLAP), and advanced reporting (Cardoso et al., 2023; Rialti et al., 2023).

But for BI to really deliver on strategic ambidexterity it needs to be accompanied by knowledge sharing. Knowledge sharing ensures that insights generated by BI systems are shared across organizational units, bridging

the gap between data driven strategies and execution. This practice improves both exploratory and exploitative activities and organizational agility and innovation (Zamiri & Esmaeili, 2024). Digital platforms can promote collaboration and learning, as evidenced by research by Khanchel (2023) that identifies a number of factors impacting Tunisian students' use of social networks for knowledge sharing.

Khanchel (2023) highlighted a number of important elements that influence social network involvement, including perceived utility of online networks, trust in digital platforms, and ease of access. These findings highlight how digital environments support seamless knowledge sharing, which is essential for encouraging innovation and strategic decision-making within businesses. This aligns with the growing role of digital tools in corporate knowledge management. Even though it is crucial, little is known about how information sharing functions as a bridge between BI and strategic ambidexterity, particularly in sectors like telecoms where quick changes in technology necessitate integrated and flexible approaches (Popovič et al., 2012; Eidizadeh, Salehzadeh, & Chitsaz Esfahani, 2016).

Although the importance of business information and knowledge sharing in promoting ambidexterity is becoming more widely recognized, an adequate understanding of the mechanisms underlying these connections is still lacking. While some studies indicate that business intelligence can enhance both exploration and exploitation, others highlight the difficulties that come with complicated decision-making in dynamic settings, which might minimize the usefulness of business intelligence (Ayadi et al., 2024).

Despite its significance, little is known about the function that information sharing plays as a mediator in this situation, which highlights a crucial subject for further research (Zhang, Wang, & Chun 2022). In order to establish long-lasting digital synergies in Jordanian telecom companies, the current study intends to investigate how information sharing mediates the relationship between business intelligence and strategic ambidexterity. The goal of this investigation is to provide insight into how organizations might improve their strategic flexibility by leveraging knowledge exchange and business information. (Alghadi et al, 2024).

The study's findings will offer practical advice to organizations looking to foster a culture of information exchange while effectively utilizing business intelligence to strike a balance between operational optimization and creativity. Organizations seeking to promote a culture of knowledge sharing while efficiently employing business intelligence to facilitate both exploration and exploitation will find useful advice in the study's conclusions.

Jordanian communication companies are facing increasing difficulties in a dynamic and rapidly changing commercial environment. These businesses must improve their capacity to investigate new opportunities, seize them for business continuity, and successfully use business intelligence if they hope to endure and compete (Rialti et al., 2023). However, little is known about how business intelligence affects strategic ambidexterity and how information sharing may operate as a mediator in this relationship (Popovič et al., 2012). The findings of this study may provide valuable information for businesses seeking to strengthen their information systems and ambidexterity in order to attain better and more sustainable performance, guaranteeing long-term competitiveness and flexibility (Badwan, 2024; Alhasnawi et al., 2024).

This study makes significant contributions to achieving sustainable digital synergies in dynamic business environments. First, it addresses a gap in the literature by examining the relationship between business intelligence and strategic ambidexterity, specifically analyzing how components of business intelligence such as data mining, data warehousing, OLAP, and reporting affect the two key dimensions of strategic ambidexterity: exploration and exploitation. Second, the research explores whether knowledge sharing serves as a mediating factor in this relationship, potentially strengthening the link between business intelligence and strategic ambidexterity. Third, it offers a new perspective on how knowledge sharing enhances the connection between business intelligence and strategic ambidexterity, emphasizing its role in amplifying the positive effects of business intelligence on an organization's ability to balance ambidextrous capabilities. Theoretically, the study provides a deeper understanding of how business intelligence, knowledge sharing, and strategic ambidexterity interact. It highlights the critical role of knowledge exchange in balancing exploratory and exploitative activities, contributing to the ongoing discussion on strategic ambidexterity. Additionally, by investigating business intelligence's strategic role beyond its operational functions, this research broadens the scope of the literature on organizational flexibility and strategy. The findings provide valuable insights into the relationship between business intelligence, knowledge sharing, and strategic ambidexterity within the context of ambidextrous strategy development.

2. Research Gap

There is still a great deal to learn about how knowledge sharing mediates the relationship between business intelligence (BI) and strategic ambidexterity, particularly in rapidly changing industries like telecommunications, despite the growing body of research on BI and its role in improving organizational performance. Prior studies, such as Rialti et al. (2020), has looked at how knowledge management can help achieve strategic flexibility in the big data era. However, neither the telecom industry, where maintaining competitive advantage requires striking a balance between exploration and exploitation, nor knowledge sharing as a mediating factor were specifically examined. Furthermore, Popović et al. (2012) highlighted the impact of organizational culture and BI system maturity on analytical decision-making, but they did not thoroughly examine the unique contributions of various BI tools or the mediating function of knowledge sharing in attaining strategic ambidexterity.

Furthermore, rather than describing how particular BI tools—like data mining, data warehousing, OLAP, and reporting—contribute to strategic ambidexterity, existing research has frequently taken a general approach to business intelligence, focusing on big data and artificial intelligence. By investigating how knowledge sharing functions as a mediator between BI and strategic ambidexterity in Jordanian telecom companies, this study seeks to close this gap. This study adds to a more thorough knowledge of how businesses can use BI for both operational efficiency and long-term strategy adaptation by offering empirical evidence through PLS-SEM analysis.

3. Theoretical Foundation and Hypotheses Development

The term "business intelligence" was introduced in 1865 by Richard Millar Devens, who explained how Sir Henry Furnese used knowledge about his surroundings to obtain a competitive advantage. This emphasizes the fundamental idea of business intelligence, which is using data to make strategic business decisions (Bentley, 2017). Business intelligence was described by Howard Dresner in 1989 as a phrase that encompasses ideas and techniques intended to enhance decision-making through data-driven systems (Grossmann and Rinderle-Ma, 2015). Since then, the importance of data-based approaches in assisting with business decisions has been underlined in a number of definitions. According to a 1996 research by the Gartner Group on Business Intelligence and Data Warehousing, enterprises are adopting softer aspects of BI, such as the skills and planning required for effective deployment, and there is a growing emphasis on enterprise-wide BI strategies and best practices (Liebowitz, 2006).

Although society has changed throughout time, intelligence is still fundamentally the capacity for knowledge, comprehension, and judgment (Bratianu and Budeanu, 2023). In order to enhance managerial decision-making, Brijs (2013) defines business intelligence as an application that allows organizations to collect, store, analyze, and access data using specialized technology. By collecting data from many departments and organizational processes, this tool helps managers eliminate risk and gives them a thorough corporate insight (Costa et al., 2024). Data visualization is a crucial component of business intelligence, and analysts utilize it to produce interactive charts and dash boards for decision-makers (Tian, Yang, & Yang, 2024).

Data-driven decision making is made easier by the essential components of business intelligence. These dimensions include reporting, OLAP (Online Analytical Processing), data warehousing, and data mining. Microsoft defined data mining as the process of examining data from many angles and turning it into information that can be used. Data mining, sometimes known as knowledge discovery, is essential for extracting insights and assisting in decision-making in sectors such as retail, banking, and communications (Cristescu, 2016). The study of massive datasets is made possible by methods like classification, clustering, and anomaly detection, which provide strategic direction (Chen, Lian, & Sun, 2024; Zhu and Wang, 2023).

Storing historical data in an organization's long-term repository is known as data warehousing. Data warehousing is a subject-oriented, integrated, time-variant, and non-volatile collection of data that supports management decision-making, according to Bill Inmon, the founder of the field (Bhatia, 2019). Analysts can do thorough long-term performance evaluations with the help of data warehouses (Nagabhushana, 2006).

Online analytical processing, or OLAP, is a powerful tool for multidimensional data analysis that makes it possible to rapidly identify trends and insights. Effective multidimensional analysis is made possible by its star schema architecture, which converts data from conventional databases into data warehouses (Taufik, Renaldi, & Umbara, 2021). By using this method, companies can examine processes from many angles, which enhances decision-making by providing deeper insights (Khalil and Belaisaoui, 2022). Additionally, more dynamic visual representations have replaced simple tabular formats in reporting. In order to help decision-makers better

comprehend performance measures, modern reporting solutions use interactive dashboards, graphs, and charts (Baboo and Prabhu, 2013). In order to help organizations understand complicated information and use it to guide strategic decisions, data visualization is essential (Gandhi and Pruthi, 2020).

The ability of an organization to simultaneously manage two different processes—exploration, which stresses experimentation and the search for new ideas and innovations, and exploitation, which concentrates on improving and optimizing current operations—is known as organizational ambidexterity. This idea demonstrates how businesses may effectively leverage and maximize the value of current resources through exploitation while simultaneously balancing the creation of new capabilities through exploration (Kafetzopoulos, Psomas, & Katou, 2023). Researchers have shown a great deal of interest in the concept of organizational or strategic ambidexterity. Organizations must balance efficiency-driven exploitation efforts with innovation-driven exploratory activities if they are to flourish. Maintaining this balance is essential for maximizing present capabilities while adjusting to shifting business environments (Abuzaid, 2016). Duncan initially introduced the idea of "ambidexterity" to management studies in 1976. He suggested that organizations should simultaneously focus on innovation and optimization, using both exploration and exploitation as strategic ambidexterity indicators (Salih, Ahmed, & Mohammed, 2023).

Alabadi, Abd Alsachit, and Almajtwe (2018) identified a number of essential factors for ambidexterity development in businesses. It is crucial to have a strong strategic commitment to striking a balance between exploration and exploitation. An equitable compensation system, a common goal among many units, and shared values are necessary for this balance. Additionally, addressing the complexity of ambidexterity requires an organizational structure that upholds tactical differentiation and strategic alignment, both of which are bolstered by successful leadership.

Exploration and exploitation are the two main components of strategic ambidexterity. Exploration emphasizes creativity and innovation while concentrating on finding and creating new chances (Matejun, 2018). On the other hand, exploitation involves understanding and addressing customer needs, collecting market information, and responding effectively. By matching market demands and cultivating relationships with stakeholders and customers, this dimension aids businesses in maintaining their competitiveness (Alaboody, Fadel, & Malik, 2024).

Acknowledged as the fourth essential step in knowledge management (Becerra-Fernandez & Sabherwal, 2010), knowledge sharing is the process by the members of an organization share both explicit and tacit knowledge. The broader scope of knowledge management includes tasks like finding, gathering, sharing, and using knowledge with the intention of advancing organizational objectives. Knowledge sharing facilitates communication both explicitly and implicitly by integrating and implementing a multi-stage process that is supported by both people and technology. This method improves organizational performance by capturing and sharing new, useful information and skills (Azeem et al., 2021).

Knowledge sharing refers to the activities involved in distributing and exchanging information and insights within a specific social environment. This process often takes place through interactions among individuals, such as conversations, meetings, collaborative projects, and other forms of social engagement, and The goal is to ensure that valuable knowledge, whether explicit (documented) or tacit (experiential), is shared among members of the organization or community to enhance collective understanding and performance (Badwan, 2024; Xie, 2024).

According to Husien, Alhamdany, and Kataa (2020), the emphasis on business intelligence systems has been complemented by organizational creative thinking, which has facilitated the development of comprehensive strategies. These strategies have resulted in pivotal decisions about achieving excellence and differentiation within the business sector. Although there are varying opinions on the precise elements of organizational ambidexterity, researchers generally concur on the essential framework, recognizing these elements as vital capabilities (Kowalczyk & Buxmann, 2015). These capabilities allow organizations to adapt to external conditions, capitalize on opportunities, and address threats by utilizing or reconfiguring existing resources. This highlights a crucial link between business intelligence and organizational ambidexterity, where business intelligence provides the necessary in-sights and data to help organizations manage the balance between exploration and exploitation (Popović et al., 2018). Based on this understanding, the following hypothesis is proposed:

H1. *Digital synergies driven by business intelligence (data mining, data warehousing, OLAP, reporting) increase strategic ambidexterity by balancing exploration and exploitation.*

According to Baraka et al. (2023), business intelligence tools significantly influence knowledge sharing within organizations. The tools with the greatest influence, in descending order, are Online Analytical Processing (OLAP), Data Warehousing, and Data Mining. In the current competitive landscape, efficient knowledge sharing is essential for gaining a competitive edge. By utilizing business intelligence, organizations can enhance knowledge dissemination, promote continuous learning, and support strategic decision-making. Kowalczyk & Buxmann (2015) identified that a crucial element of successful data mining for business intelligence is the phase of knowledge sharing and planning. They suggested that integrating the business intelligence team with the knowledge-sharing team helps ensure that the insights gained from data mining are accurately interpreted and effectively utilized in strategic decision-making. Based on the preceding discussion, the following hypothesis is proposed:

H2. *Business intelligence (data mining, data warehouse, OLAP, reporting) positively influences knowledge sharing*

A culture of knowledge sharing fosters the exchange of information and creativity among employees, which supports strategic ambidexterity. This culture facilitates the enhancement of existing capabilities and the exploration of new ones by boosting knowledge sharing among staff. It flourishes in environments where employees are dedicated to continuous learning, mutual respect, openness, and trust, resulting in increased collaboration within the organization (Badwan, 2024; Faisal and Hamed, 2022). Vakili and Shahriari (2017) also found that knowledge sharing positively influences strategic outcomes. Based on the preceding discussion, the following hypothesis is proposed:

H3. *Knowledge sharing is part of digital synergies and increases strategic ambidexterity by combining exploration and exploitation.*

Research highlights the crucial role business intelligence plays in enhancing strategic ambidexterity by enabling organizations to process large volumes of data for more informed decision-making. Knowledge sharing serves as an important mediator, ensuring that insights gained from business intelligence are effectively distributed across the organization. This dissemination of information facilitates a balance between exploration (innovation) and exploitation (efficiency). According to Eidizadeh, Salehzadeh, and Chitsaz Esfahani (2017), business intelligence positively influences knowledge sharing, which in turn enhances both organizational performance and strategic flexibility. The research reveals that business intelligence tools like data mining, OLAP, and reporting play a crucial role in promoting both exploratory and exploitative innovations within organizations. Similarly, Hijazin, Tamayo-Torres, and Nusairat, 2023 (2023) emphasizes that the synergy between business intelligence and knowledge sharing enhances the exploitation of current capabilities while also encouraging the exploration of new opportunities. Helbin and Van Looy (2019) highlight the value of integrating business intelligence tools with knowledge-sharing practices to support strategic ambidexterity. They argue that aligning business strategies with actionable insights from business intelligence enables a more cohesive approach to innovation. Additionally, Popovič et al. (2018) demonstrate that organizations leveraging business intelligence systems are better equipped to balance the exploitation of existing resources with the exploration of new opportunities, particularly when knowledge sharing is effectively incorporated. This collaboration between business intelligence and knowledge sharing fosters an adaptable environment, allowing organizations to stay competitive by maintaining a balance between innovation and operational efficiency (Badwan, 2024; Zhang et al., 2024). Overall, the evidence supports the notion that combining business intelligence with knowledge sharing creates the conditions necessary for strategic ambidexterity, enabling firms to strike a balance between exploration and exploitation.

H4. *Knowledge sharing is the link between business intelligence and strategic ambidexterity, reinforcing sustainable digital synergies by harmonizing exploration and exploitation.*

Now we can suggest the study model, **Figure 1** below shows the research model is constructed based on the hypotheses developed earlier in the study, serving as a framework for examining the relationships between the variables.

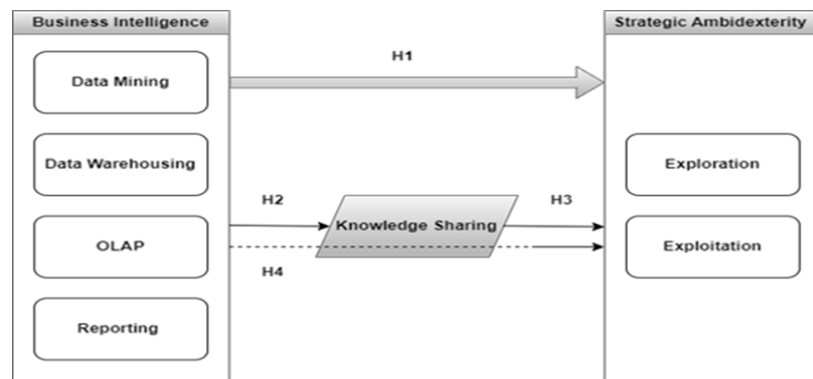


Figure 1: Represents the research model

4. Methodology

The study employed a descriptive-analytical quantitative methodology, with the relative importance of the variables assessed using SPSS. Additionally, the hypotheses were evaluated through structural equation modeling using Partial Least Squares Structural Equation Modeling (PLS-SEM).

The research employs PLS-SEM, a method well-suited to both exploratory research and the extension of existing theoretical models. This study aims to build upon previous research on business intelligence, knowledge sharing, and strategic ambidexterity by investigating these relationships within a specific contextual setting. The exploratory nature of the research, seeking to discover novel pathways and potentially refine existing models, is complemented by the aim of extending current theory. The ability of PLS-SEM to handle complex relationships and formative indicators, combined with its predictive capabilities, makes it the ideal methodology to achieve these aims. (Hair, Ringle, & Sarstedt 2011; Sarstedt, Ringle, & Hair, 2017).

4.1 Population and Sample of the Study

The study employed a stratified random sampling technique to select participants from the three major telecommunication companies in Jordan (Umniah, Orange, and Zain). Given that these companies represent the entire landscape of major players in the Jordanian telecommunications market, this approach ensured comprehensive coverage of the sector's managerial population. A target sample size of 350 managers was set, resulting in 269 usable responses (a response rate of 76.86%). While this high response rate indicates strong participation, the limitations of relying solely on these three companies and the potential for non-response bias are discussed in the limitations section. Data collection was conducted using self-administered questionnaires, and subsequent analysis utilized Partial Least Squares Structural Equation Modeling (PLS-SEM).

4.2 Instrument Development and Design

This study utilized established measures from prior research to capture the relevant variables. Business intelligence was assessed through four dimensions: data mining, data warehousing, OLAP, and reporting, with a total of 24 items adapted from Kowalczyk and Buxmann (2015). Strategic ambidexterity was measured using two sub-dimensions: exploration and exploitation, with 12 items adapted from, Salehzadeh, and Esfahani (2017). Finally, knowledge sharing, as a mediating variable linking business intelligence and strategic ambidexterity, was operationalized using 9 items adapted from Vakili and Shahriari (2017). All variables were rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire underwent a back-translation process, where two bilingual business professors fluent in English and Arabic ensured accuracy. Following translation, a comprehensive pilot test was conducted in both academic and field settings to confirm the instrument's validity, reliability, and clarity of the questions for participants.

5. The Results

Table 1 shows that all study variables had high relative importance, indicating that Jordanian telecommunications companies have business intelligence systems and work on data mining, analysis, and storage in data warehouses to provide necessary reports to senior management. They are also capable of exploring and exploiting opportunities in the external environment and show a keen interest in knowledge-sharing activities among employees.

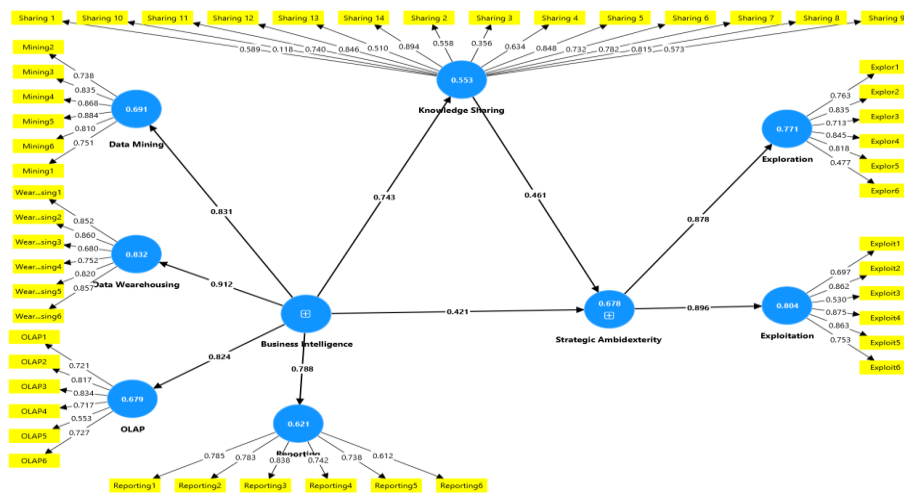
Table 1: Relative Importance

Variable	Mean	Std. Deviation	Importance
Business Intelligence	3.87	0.65	High
Strategic Ambidexterity	4.24	0.52	High
Knowledge Sharing	4.24	0.52	High

Source: Prepared by the researchers using SPSS.

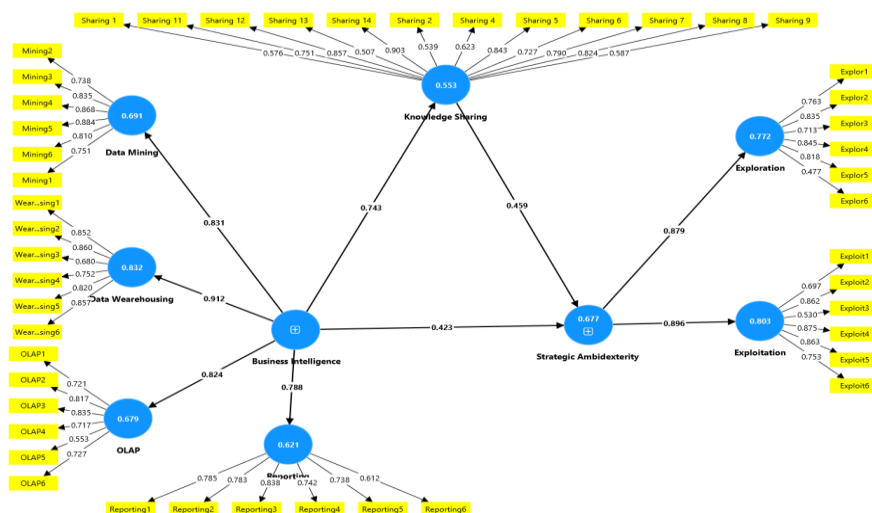
5.1 Measurement Model Validity and Reliability

Figure 2. shows outer loadings for the study's construct items, all loading factor values were above 0.40, except for items 3 and 10 related to knowledge sharing, which were below 0.40. Additionally, the AVE for knowledge sharing before deletion was 0.456, noting that the recommended threshold should be higher than 0.50. However, no items were deleted, as all AVE values were above 0.50. Therefore, it is necessary to review the items with low factor loadings to improve the reliability and robustness of the model (Sarstedt, Ringle, & Hair, 2017).



Source: Prepared by authors using Smart PLS 4.1.

Figure 2: Outer Loading for Questionnaire Items Before Deleting



Source: Prepared by Researchers using Smart PLS 4.1.

Figure 3: Outer Loading for Questionnaire Items After Deleting

5.2 Construct Reliability and Validity

Table 2 displays two indicators used to assess the internal consistency of the study's questionnaire: Cronbach's Alpha and rho-c. As indicated in the table, both Cronbach's Alpha and composite reliability exceeded the recommended threshold of 0.60, and all values were statistically acceptable (Sarstedt, Ringle, & Hair, 2021). and the third indicator is AVE (Average Variance Extracted) to measure the convergent validity, the suggested threshold is higher than (0.50) and all values for all constructs are acceptable (Sarstedt, Ringle, & Hair, 2021).

Table 2: Cronbach's Alpha, and Composite Reliability (CR), AVE

Variable	Cronbach's Alpha	rho_c	AVE
Data Mining	0.899	0.923	0.666
Data Warehousing	0.891	0.917	0.650
OLAP	0.825	0.873	0.539
Reporting	0.846	0.886	0.567
Exploration	0.862	0.901	0.646
Exploitation	0.839	0.884	0.566
Knowledge Sharing	0.911	0.927	0.522

Source: Prepared by Researchers using Smart PLS 4.1.

5.3 Discriminant Validity

HTMT test is used to validate the discriminant validity which compares correlations between homogeneous and heterogeneous constructs, The correlation values between homogeneous constructs should not exceed 0.90, and the correlations between different heterogeneous constructs should not exceed 0.85, as shown in Table 3 all values accepted (Henseler et al., 2015).

Table 3: HTMT Discriminant Validity

Variables	1	2	3	4	5	6	7
Data Mining							
Data Warehousing	0.783						
OLAP	0.648	0.746					
Reporting	0.523	0.739	0.676				
Exploration	0.644	0.594	0.581	0.695			
Exploitation	0.535	0.749	0.644	0.746	0.655		
Knowledge Sharing	0.649	0.706	0.633	0.707	0.773	0.729	

Source: Prepared by Researchers using Smart PLS 4.1.

5.4 Structural Model Validity and Reliability

Table 4 shows the first indicator the SEM used to make validity and reliability for the structural model is variance inflation factors for exogenous (Business Intelligence and Knowledge Sharing), According to Sarstedt et al. (2021) the threshold for VIF is less than (5) to assure that our exogenous are free from multicollinearity.

Table 4: Variance Inflation Factors (VIF)

Variable	Strategic Ambidexterity	Knowledge Sharing
Business Intelligence	2.235	1
Knowledge Sharing	2.235	

Source: Prepared by Researchers using Smart PLS 4.1.

It is shown from Table 5 that the coefficient of explanation for strategic ambidexterity is (0.677), which means that business intelligence and knowledge sharing explain (67.7%) of the variance in strategic ambidexterity. Additionally, the coefficient of explanation for Knowledge sharing is (0.553), which means business intelligence

explains (55.3%) of the variance in knowledge sharing. It is important to note that an explanatory power of (0.75) is regarded as high, (0.50) as mediate, and (0.25) as weak (Sarstedt, Ringle, & Hair, 2017).

Table 5: The R² and R² Adjusted

Variable	R2	R2 Adjusted	Explanation Level
Strategic Ambidexterity	0.677	0.675	Moderate
Knowledge Sharing	0.553	0.551	Moderate

Source: Prepared by Researchers using Smart PLS 4.1.

5.5 Hypothesis Testing

The hypothesis testing outcomes, revealing significant associations between the variables under study. The first hypothesis, suggesting that business intelligence positively influences strategic ambidexterity, is substantiated by a path coefficient (β) of 0.423, a T-value of 7.902, and a P-value of 0.000, all of which indicate a strong and significant relationship as shown in the Table 6. These findings suggest that improved business intelligence practices significantly enhance an organization's capacity to balance exploration and exploitation, thus facilitating strategic ambidexterity.

The second hypothesis, which investigates the effect of business intelligence on knowledge sharing, is strongly supported, with a path coefficient of 0.743, a T-value of 23.346, and a P-value of 0.000, indicating a robust positive relationship between these variables as shown in the Table 6. Similarly, the third hypothesis, focusing on the impact of knowledge sharing on strategic ambidexterity, is also confirmed, showing a path coefficient of 0.459, a T-value of 8.354, and a P-value of 0.000 as shown in the Table 6. This confirms that effective knowledge sharing practices significantly improve an organization's ability to achieve strategic ambidexterity. Furthermore, the fourth hypothesis, which examines the mediating role of knowledge sharing in the relationship between business intelligence and strategic ambidexterity, is validated.

The indirect effect of business intelligence on strategic ambidexterity, mediated through knowledge sharing, is significant with a path coefficient of 0.341, a T-value of 9.087, and a P-value of 0.000 as shown in the Table 6. These findings emphasize that fostering a culture of knowledge sharing is pivotal in maximizing the positive impact of business intelligence on strategic ambidexterity.

Table 6: Hypothesis Testing

Hypothesis	Path	B	T Value	P	Significance
H1 (Direct effect)	Business Intelligence → Strategic Ambidexterity	0.423	7.902	0.000	Significant
H2 (Direct effect)	Business Intelligence → Knowledge Sharing	0.743	23.346	0.000	Significant
H3 (Direct effect)	Knowledge Sharing → Strategic Ambidexterity	0.459	8.354	0.000	Significant
H4 (Indirect effect)	Business Intelligence → Knowledge Sharing → Strategic Ambidexterity	0.341	9.087	0.000	Significant

Source: Prepared by Researchers using Smart PLS 4.1.

To confirm the fourth hypothesis, The table 7. shows the total effect of the study model (Business intelligence → Knowledge Sharing → Strategic Ambidexterity), The path coefficient is 0.764, a T- value is 27.776, and P-Value is 0.000. These results confirm the fourth hypothesis about the indirect effect, indicating that knowledge sharing partially mediates the relationship between business intelligence and strategic Ambidexterity. As the total effect for the business intelligence on strategic ambidexterity = B for indirect effect + B for the direct effect, applying this equation the result is 0.341+0.423= 0.764.

Table 7: Total Effect

Path	Path	B	T Value	P	Significance
Total Effect	Business Intelligence → Strategic Ambidexterity	0.764	27.776	0.000	Significant

Source: Prepared by Researchers using Smart PLS 4.1.

5.6 The Effect Size (f^2)

"The effect size (f^2) serves as an indicator of each variable's independent capacity to explain the variance in a dependent variable. This is measured by evaluating the change in the R^2 value when a specific external construct is excluded from the model, thereby assessing whether the removed construct has a substantial impact on the internal constructs. As articulated by Hair et al. (2017, p. 216), values of effect size are interpreted as follows: an f^2 of 0.02 denotes a small effect, 0.15 signifies a medium effect, and 0.35 represents a large effect; additionally, an f^2 value below 0.02 suggests the absence of any significant effect.

The table 8 shows that the effect size for business intelligence on strategic ambidexterity is (0.248), which indicates a large effect size. The effect of business intelligence on knowledge sharing is (1.235), which indicates a large effect size. Finally, the effect of knowledge sharing on strategic ambidexterity is (0.292), which indicates a large effect size.

Table 8: Effect Size

Path	Effect size (f^2)	Variance Size
Business Intelligence → Strategic Ambidexterity	0.248	Large
Business Intelligence → Knowledge Sharing	1.235	Large
Knowledge Sharing → Strategic Ambidexterity	0.292	Large

Source: Prepared by Researchers using Smart PLS 4.1.

5.7 Predictive Relevance (Q^2)

The table 9 shows the Q^2 value which serves as an indicator of the model's predictive power for out-of-sample data, reflecting its ability to accurately forecast new observations not included in the model estimation. When a PLS path model demonstrates significant predictive relevance, it can effectively predict unseen data. Q^2 values greater than zero for specific reflective endogenous latent variables in the structural model indicate the model's predictive relevance for a particular dependent construct. Thus, these values provide evidence of the model's effectiveness in generating accurate predictions (Hire, 2017, p. 217):

Table 9: Predictive relevance (Q^2)

Variable	Q^2 Values
Knowledge Sharing	0.544
Strategic Ambidexterity	0.579

Source: Prepared by Researchers using Smart PLS 4.1.

6. Discussion of Findings

The findings of this study provide significant insights into the interplay between business intelligence, knowledge sharing, and strategic ambidexterity within telecommunications companies in Jordan. The literature review underscores the growing complexity and uncertainty in modern business environments, particularly in industries such as telecoms in Jordan. To sustain innovation and long-term success, companies must implement strategic approaches. While previous studies have investigated the broader effects of business intelligence systems, there remains a significant gap in research that specifically explores how business intelligence contributes to strategic ambidexterity, especially through the mediating role of knowledge sharing. This study aims to fill this gap by examining the effects of key business intelligence elements, including data mining, data warehousing, OLAP, and reporting, on strategic ambidexterity, with knowledge sharing as a crucial mediator.

The first hypothesis, which proposed a positive relationship between business intelligence and strategic ambidexterity, was validated by the analysis. The results indicated a strong path coefficient ($\beta = 0.423$, T-value = 7.902, $P = 0.000$), showing that enhanced business intelligence practices, such as data mining, OLAP, and data warehousing, enable organizations to balance exploration and exploitation—two essential dimensions of strategic ambidexterity. This finding aligns with Abuzaid's (2016) research, which demonstrated that strategic leadership plays a critical role in fostering ambidexterity in Jordan's chemical manufacturing sector. Alabadi et

al. (2018) also concluded that frameworks based on data-driven decision-making enable organizations to manage both short-term exploitation and long-term exploration efforts effectively.

The second hypothesis, which examines the influence of business intelligence on knowledge sharing, received strong empirical backing. A high path coefficient ($\beta = 0.743$, T-value = 23.346, $P = 0.000$) indicated that business intelligence practices significantly enhance knowledge-sharing processes within organizations. This aligns with Barakat et al. (2013), who identified business intelligence as a key facilitator of knowledge flow between departments. Furthermore, Becerra-Fernandez and Sabherwal (2010) emphasized that business intelligence systems provide the essential infrastructure for effective knowledge management, thereby fostering innovation and inter-departmental collaboration.

The third hypothesis explored the relationship between knowledge sharing and strategic ambidexterity, and the analysis confirmed a strong positive connection ($\beta = 0.459$, T-value = 8.354, $P = 0.000$). This supports the notion that initiatives focused on knowledge sharing strengthen an organization's capacity to manage both exploration and exploitation activities. Previous research by Azeem et al. (2021) and Vakili and Shahriari (2017) highlighted the crucial role of knowledge-sharing frameworks in promoting ambidexterity, particularly by facilitating innovation and the continuous flow of critical information. These studies suggest that aligning knowledge management systems with business intelligence helps organizations become more agile and responsive to both internal and external challenges.

The fourth hypothesis examined the mediating role of knowledge sharing in the relationship between business intelligence and strategic ambidexterity. Results revealed a significant mediating effect, with a path coefficient of 0.341 (T-value = 9.087, $P = 0.000$), showing that knowledge sharing enhances the positive impact of business intelligence on strategic ambidexterity. This is consistent with Ammari's (2022) work, which highlighted the importance of dynamic capabilities such as knowledge sharing in converting business intelligence insights into actionable strategies that foster ambidexterity. Likewise, Alaboody, Fadel, and Malik (2024) stressed the crucial role of leadership in promoting strategic ambidexterity by facilitating effective knowledge dissemination and collaboration across organizational levels. This finding highlights the importance of not only investing in business intelligence technologies but also fostering a culture of knowledge sharing and application to fully realize the benefits of business intelligence for strategic management. Based on these results, the hypothesis is supported, demonstrating that knowledge sharing partially mediates the impact of business intelligence within telecommunications companies in Jordan.

This research significantly contributes to the existing literature by providing empirical evidence that highlights the interconnected roles of business intelligence and knowledge sharing in achieving strategic ambidexterity. The findings offer practical in-sights for Jordanian telecommunications companies, suggesting that investments in business intelligence systems and the cultivation of a strong knowledge sharing culture are key to promoting organizational ambidexterity. These outcomes are in line with previous studies by Bentley (2017), Bratianu and Budeanu (2023), and Costa et al. (2024), which also acknowledge the transformative potential of business intelligence in enhancing an organization's ability to balance innovation with operational efficiency.

Additionally, this study offers a clearer understanding of how knowledge sharing mediates the relationship between business intelligence and strategic ambidexterity, providing actionable strategies for organizations aiming to improve in both areas. By integrating advanced business intelligence practices and fostering a knowledge-sharing culture, organizations can better navigate competitive challenges and achieve long-term adaptability and success.

The findings of this research are consistent with those of scholars such as Hijazin, Tamayo-Torres, and Nusairat, 2023 (2023), Ammari (2022), Azeem et al. (2021), and Abuzaid (2016), who also emphasize the critical roles of business intelligence and knowledge sharing in enhancing strategic ambidexterity. This study addresses a key gap in the literature by providing empirical evidence linking business intelligence, knowledge sharing, and ambidexterity, particularly within the context of telecommunications companies in Jordan.

7. Conclusion

In today's fast-paced and highly competitive markets, businesses must adopt digital tools and solutions to thrive. Although limited research exists on the effective integration of knowledge sharing with business intelligence to enhance strategic ambidexterity, the literature highlights the importance of business intelligence for organizational success. This study aims to explore the impact of business intelligence on strategic ambidexterity and to assess the mediating role of knowledge sharing in this relationship. A survey was conducted among 269 managers from the telecom industry, providing quantitative data for analysis. Structural equation modeling was

used to analyze the data and examine the mediating effect of knowledge sharing. The results revealed a significant positive relationship between business intelligence and strategic ambidexterity. Additionally, the findings indicated that internet marketing mediates the relationship between business intelligence and strategic ambidexterity.

8. Theoretical, Practical, and Social Contributions

8.1 Theoretical Contribution

This study enhances theoretical knowledge by investigating the impact of business intelligence on strategic ambidexterity, with a focus on the Jordanian telecommunications sector. While earlier research has highlighted the role of business intelligence in improving decision-making and operational efficiency (Popovič et al., 2012; Rialti et al., 2020), limited studies have explored how business intelligence directly affects the two dimensions of strategic ambidexterity, namely exploration and exploitation. This research fills that gap by demonstrating how core components of business intelligence, including data mining, data warehousing, online analytical processing (OLAP), and reporting, contribute to both exploratory and exploitative strategies. It builds upon the theoretical framework of organizational ambidexterity, which emphasizes the need for a balance between innovation and optimization (O'Reilly and Tushman, 2013).

Additionally, this study offers fresh insights by exploring the mediating role of knowledge sharing in the relationship between business intelligence and strategic ambidexterity. Previous studies have stressed the importance of knowledge sharing for disseminating information and promoting organizational learning (Zhang et al., 2022; Ei-dizadeh et al., 2017), but its role in amplifying the strategic benefits of business intelligence has been under-researched. By illustrating how effective knowledge sharing strengthens the impact of business intelligence on strategic ambidexterity, this research advances our understanding of how business intelligence and knowledge sharing together foster strategic flexibility, contributing to the broader literature on organizational agility and adaptability (Azeem et al., 2021; Kowalczyk and Buxmann, 2015). This integrated framework provides clarity on how organizations can utilize data-driven insights not only for operational improvements but also for fostering strategic innovation and sustaining long-term competitiveness. Furthermore, this study will provide valuable insights that contribute to cognitive accumulation within the field of business management by examining the relationships among business intelligence, knowledge sharing, and strategic ambidexterity. The findings will serve as a reference point for future researchers, enabling them to explore these latent variables in various sectors beyond telecommunications. By doing so, researchers can leverage the established connections identified in this study to investigate how similar dynamics manifest in different contexts, fostering a deeper understanding of organizational adaptability and innovation. This cross-sector investigation can potentially lead to new theories and frameworks that enhance the overall body of knowledge related to business intelligence and strategic management.

8.2 Practical Contribution

From a practical perspective, this study offers valuable recommendations for managers in the telecommunications industry, highlighting the benefits of combining business intelligence with a strong knowledge-sharing culture. Prior research has shown that tools such as online analytical processing, data warehousing, and data mining enable organizations to process and analyze large amounts of data, supporting both immediate decision-making and long-term strategic planning (Cristescu, 2017; Baraka et al., 2023). However, this research demonstrates that the mere use of business intelligence tools is insufficient without the active dissemination of insights throughout the organization. Knowledge sharing serves as a key motivator that transforms business intelligence insights into actionable strategies, helping companies achieve the dual objectives of exploration and exploitation (Vakili and Shahriari, 2017; Wang and Wang, 2008).

The study's practical implications are clear: managers should invest not only in advanced business intelligence technologies but also in cultivating a collaborative culture that promotes the free exchange of information. Telecommunications companies, in particular, stand to benefit from this approach as they operate in rapidly evolving environments that require both innovation and efficiency. By effectively utilizing business intelligence and fostering knowledge sharing, companies can better navigate market uncertainties, improve their adaptability, and maintain competitive advantages (Lee et al., 2023; Popovič et al., 2012). Additionally, managers are encouraged to implement continuous training and development programs to ensure that employees are proficient in using business intelligence tools and actively engaged in knowledge-sharing activities. This is crucial for fostering both innovation and efficiency within the organization (Bentley, 2017).

8.3 Social Contribution

On a broader societal scale, this research contributes to the ongoing conversation around digital transformation and its role in enhancing organizational capabilities. By showing how business intelligence and knowledge sharing can support strategic ambidexterity, the study highlights the importance of digital literacy and collaboration within companies. This has significant implications for workforce development, as organizations must invest in training programs that equip employees with both the technical expertise to use business intelligence tools and the interpersonal skills necessary for effective knowledge sharing. Furthermore, the findings suggest that organizations that embrace digital transformation and foster a collaborative culture are better positioned to create long-lasting value, not only for their businesses but also for the wider economy. This is particularly relevant in sectors like telecommunications, where innovation and efficiency drive growth and societal progress.

9. Recommendations, Limitations and Future Research Directions

Telecommunications companies should prioritize the implementation of advanced business intelligence systems, such as data mining, data warehousing, OLAP, and re-reporting tools, to enhance their decision-making capabilities and support strategic ambidexterity. Additionally, fostering a culture of knowledge sharing is essential to fully unlock the potential of these systems. Leadership must actively encourage collaboration and provide ongoing training to ensure employees can effectively utilize business intelligence tools. Strengthening cross-departmental cooperation will further enable organizations to apply business intelligence insights more effectively, promoting both innovation and operational efficiency.

Nevertheless, this study has some limitations that should be addressed in future re-search. The focus on telecom companies in Jordan limits the general applicability of the findings to other sectors or regions. Broadening the research to include different industries and geographic areas could offer a more thorough understanding of the relationships explored. Although a high response rate (76.86%) was achieved, the possibility of non-response bias cannot be entirely ruled out. Non-respondents may hold different views regarding knowledge sharing and the utilization of BI tools, potentially influencing the generalizability and overall interpretation of the study's findings. Furthermore, investigating emerging technologies like artificial intelligence and machine learning could provide deeper insights into the role of business intelligence in supporting strategic ambidexterity and knowledge sharing. Finally, using objective performance measures or supplementing the study with qualitative data could help address potential biases from self-reported responses.

Ethical statements: This study received ethical approval from participants. All participants provided informed consent prior to their inclusion in the study.

Author Declaration on AI Tools and Services: The authors affirm that no artificial intelligence (AI) tools or services were utilized in the creation, analysis, writing, or editing of this manuscript. All content, including text, analysis, and figures, is the result of the authors' independent efforts and original work.

References

- Abuzaid, A.N., 2016. Testing the impact of strategic leadership on organizational ambidexterity: A field study on the Jordanian chemical manufacturing companies. *International Journal of Business and Management*, 11(5), pp. 328-339. doi:10.5539/ijbm.v11n5p328.
- Alabadi, H.F., Abd Alsachit, H. and Almajtwe, M., 2018. Impact of strategic ambidexterity on organizational success: Strategic scenario as a moderating variable. *International Journal of Academic Research in Business and Social Sciences*, 8(5), pp. 18-29. doi:10.6007/IJARBS/v8-i5/4079.
- Alaboody AA, Fadel KA, Malik AA. Soft leadership and its role in achieving strategic ambidexterity views of a sample of senior leaders in technical colleges in the Al-Furat Al-Awsat. *Univ J Innov Educ*. 2024;3(1):43-56.
- Alaskar, T.H., Alsadi, A.K., Aloulou, W.J. and Ayadi, F.M., 2024. Big data analytics, strategic capabilities, and innovation performance: Mediation approach of organizational ambidexterity. *Sustainability*, 16(12), p. 5111. doi:10.3390/su16125111.
- Alhasnawi, M.Y., Alshdaifat, S.M., Aziz, N.H.A. and Almasoodi, M.F., 2024. Artificial intelligence and environmental, social and governance: A bibliometric analysis review. In: Alnoor, A., et al., eds. *International Conference on Explainable Artificial Intelligence in the Digital Sustainability*. Cham: Springer Nature Switzerland, pp. 123-143. doi:10.1007/978-3-031-63717-9_8.
- Alshdaifat, S.M., Aziz, N.H.A., Alhasnawi, M.Y., Alharasis, E.E., Al Qadi, F. and Al Amosh, H. (2024) 'The role of digital technologies in corporate sustainability: a bibliometric review and future research agenda', *Journal of Risk and Financial Management*, 17(11), p. 509. doi: 10.3390/jrfm17110509.

- Ammari, S. (2022) 'The role of dynamic capabilities in enhancing strategic ambidexterity - A case study of some economic institutions in the wilaya of M'sila', *JEF*, 8(1), pp. 67-81.
- Azeem, M., Ahmed, M., Haider, S. and Sajjad, M., 2021. Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. *Technology in Society*, 66, p. 101635. doi:10.1016/j.techsoc.2021.101635.
- Baboo, S.S. and Prabhu, J., 2013. Designing Real Time Business Intelligence Reporting for Better Business Insights. *International Journal of Computer Applications*, 76(14), pp. 12-16.
- Barakat, S., Al-Zu'bi, H.A. and Al-Zegaier, H., 2013. The role of business intelligence in knowledge sharing: a Case Study at Al-Hikma Pharmaceutical Manufacturing Company. *European Journal of Business and Management*, 5(2), pp.237-242.
- Becerra-Fernandez, I. and Sabherwal, R., 2014. *Knowledge management: Systems and processes*. Routledge.
- Bentley, D., 2017. Business intelligence and Analytics. *Internet*, link: <https://www.pdfdrive.com/business-intelligence-and-analytics-e56416503.html>.
- Bhatia, P., 2019. *Data mining and data warehousing: principles and practical techniques*. Cambridge University Press.
- Bratianu, C. and Budeanu, N.A., 2023. National Security Intelligence and Business Intelligence: A Comparative Analysis. *Review of International Comparative Management/Revista de Management Comparat International*, 24(2). doi:10.24818/RMCI.2023.2.188.
- Brijs, B., 2016. *Business analysis for business intelligence*. CRC Press.
- Cardoso, A., Pereira, M.S., Sá, J.C., Powell, D.J., Faria, S. and Magalhães, M. (2023) 'Digital culture, knowledge, and commitment to digital transformation and its impact on the competitiveness of Portuguese organizations', *Administrative Sciences*, 14(1), p. 8. doi: 10.3390/admsci14010008.
- Chen, T., Lian, J. and Sun, B., 2024. An exploration of the development of computerized data mining techniques and their application. *International Journal of Computer Science and Information Technology*, 3(1), pp. 206-212. doi:10.62051/ijcsit.v3n1.26.
- Costa, H.C.S., de Lima Carneiro, F.L., Pereira, J.R.L.A., Pereira, M.A., Neto, A.T.P. and da Silva Júnior, H.B., 2024. Optimizing industrial data analysis: The convergence of business intelligence and dynamic simulations in chemical process management. *Revista De Gestão Social E Ambiental*, 18(3), pp. 1-15. doi:10.24857/rgsa.v18n3-025.
- Cristescu, M.P., 2017. Using OLAP data cubes in Business Intelligence. *Scientific Bulletin*, 21(2), pp. 80-86. doi:10.1515/bsaft-2016-0039.
- Eidizadeh, R., Salehzadeh, R. and Chitsaz Esfahani, A., 2017. Analysing the role of business intelligence, knowledge sharing and organisational innovation on gaining competitive advantage. *Journal of Workplace Learning*, 29(4), pp. 250-267. doi:10.1108/JWL-07-2016-0070.
- Fisal, M.Z. and Hamed, S.A., 2022. Strategic knowledge management and its impact on strategic ambidexterity. *International Journal of Research in Social Sciences & Humanities*, 12(2), pp. 530-556. doi:10.37648/ijrssh.v12i02.035.
- Gandhi, P. and Pruthi, J., 2020. Data visualization techniques: Traditional data to big data. In: *Data Visualization: Trends and Challenges Toward Multidisciplinary Perception*, pp. 53-74. doi:10.1007/978-981-15-2282-6_4.
- Grossmann, W. and Rinderle-Ma, S., 2015. Fundamentals of business intelligence.
- Hair, J.F., Ringle, C.M. and Sarstedt, M., 2011. PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), pp. 139-152. doi:10.2753/MTP1069-6679190202.
- Helbin, T. and Van Looy, A., 2019. Business process ambidexterity and its impact on business-IT alignment: A systematic literature review. In: 2019 13th International Conference on Research Challenges in Information Science (RCIS), pp. 1-12. IEEE. doi:10.1109/RCIS.2019.8877073.
- Henseler, J., Ringle, C.M. and Sarstedt, M., 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43, pp.115-135.
- Hijazin, A., Tamayo-Torres, J. and Nusairat, N. (2023) 'Moderating the synergies between business intelligence and strategic foresight: Navigating uncertainty for future success through knowledge management', *Sustainability*, 15(19), p. 14341. doi: 10.3390/su151914341.
- Husien, W.A., Alhamdany, S.N. and Kataa, I.A., 2020. The mediating role of organizational ambidexterity in the relationship between business intelligence systems and the learning organization: Exploratory study at the Ramadi's hospitals. In: 2020 2nd Annual International Conference on Information and Sciences (AiCIS), pp. 213-221. IEEE. doi:10.1109/AiCIS51645.2020.00041.
- Jaradat, Z., Al-Dmour, A., Alshurafat, H., Al-Hazaima, H. and Al Shbail, M.O., 2024. Factors influencing business intelligence adoption: evidence from Jordan. *Journal of Decision Systems*, 33(2), pp.242-262.
- Kafetzopoulos, P., Psomas, E. and Katou, A.A., 2023. Promoting strategic flexibility and business performance through organizational ambidexterity. *Sustainability*, 15(17), p. 12997. doi:10.3390/su151712997.
- Khalil, A. and Belaissaoui, M., 2023. An Approach for Implementing Online Analytical Processing Systems under Column-Family Databases. *IAENG International Journal of Applied Mathematics*, 53(1).
- Khanchel, H., 2023. Factors affecting social network use by students in Tunisia. *Human Systems Management*, 42(2), pp. 131-148. doi:10.3233/HSM-22001.
- Kowalczyk, M. and Buxmann, P., 2015. An ambidextrous perspective on business intelligence and analytics support in decision processes: Insights from a multiple case study. *Decision Support Systems*, 80, pp. 1-13. doi:10.1016/j.dss.2015.08.010.
- Lee, B., Kim, B. and Ivan, U.V., 2023. Enhancing the competitiveness of AI technology-based startups in the digital era. *Administrative Sciences*, 14(1), p.6.

- Liebowitz, J., 2006. *Strategic intelligence: business intelligence, competitive intelligence, and knowledge management*. Auerbach Publications.
- Masa'deh, R.E., Jaber, M., Sharabati, A.A.A., Nasereddin, A.Y. and Marei, A. (2024) 'The Blockchain Effect on Courier Supply Chains Digitalization and Its Contribution to Industry 4.0 within the Circular Economy', *Sustainability*, 16(16), p. 7218. doi: 10.3390/su16167218.
- Matejun, M., 2018. The process of opportunities exploration and exploitation in the development of SMEs' innovativeness. *Management and Production Engineering Review*, 9(3), pp. 3-15. doi:10.24425/119529.
- Nagabhushana, S., 2006. Data Warehousing. OLAP and Data Mining. New Age Intern..
- O'Reilly III, C.A. and Tushman, M.L., 2013. Organizational ambidexterity: Past, present, and future. *Academy of management Perspectives*, 27(4), pp.324-338.
- Popovič, A., Hackney, R., Coelho, P.S. and Jaklič, J., 2012. Towards business intelligence systems success: Effects of maturity and culture on analytical decision making. *Decision Support Systems*, 54(1), pp. 729-739. doi:10.1016/j.dss.2012.08.017.
- Rialti, R., Marzi, G., Caputo, A. and Mayah, K.A., 2020. Achieving strategic flexibility in the era of big data: The importance of knowledge management and ambidexterity. *Management Decision*, 58(8), pp. 1585-1600. doi:10.1108/MD-09-2019-1237.
- Salih, W.Z., Ahmed, A.A. and Mohammed, O.Y., 2024. The effect of organizational ambidexterity on organization agility: Empirical study in some universities in Iraq. *Tikrit Journal of Administrative and Economic Sciences*, 20(65), pp. 371-392. doi:10.25130/tjaes.20.65.1.2.
- Sarstedt, M., Ringle, C.M. and Hair, J.F., 2017. Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.
- Sarstedt, M., Ringle, C.M. and Hair, J.F., 2021. Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.
- Taufik, M., Renaldi, F. and Umbara, F.R., 2021, March. Implementing online analytical processing in hotel customer relationship management. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1115, No. 1, p. 012040). IOP Publishing.
- Tian, S., Yang, Y. and Yang, L., 2024. An inductive heterogeneous graph recommendation model for high-scoring items applied to business intelligence. *Applied Sciences*, 14(4), p. 1601. doi:10.3390/app14041601.
- Vakili, Y. and Shahriari, S., 2016. The effects of knowledge sharing on organizational ambidexterity: Explanation of the mediating role of absorptive capacity (Case: Pharmaceutical companies). *Journal of Entrepreneurship Development*, 9(3), pp. 573-591. doi:10.22059/jed.2016.60923.
- Wang, H. and Wang, S., 2008. A knowledge management approach to data mining process for business intelligence. *Industrial Management & Data Systems*, 108(5), pp.622-634.
- Xie, Z., Chiu, D.K. and Ho, K.K., 2024. The role of social media as aids for accounting education and knowledge sharing: Learning effectiveness and knowledge management perspectives in mainland China. *Journal of the Knowledge Economy*, 15(1), pp. 2628-2655. doi:10.1007/s13132-023-01262-4.
- Zamiri, M. and Esmaeili, A., 2024. Methods and technologies for supporting knowledge sharing within learning communities: A systematic literature review. *Administrative Sciences*, 14(1), p. 17. doi:10.3390/admsci14010017.
- Zarubina, V., Zarubin, M., Yessenkulova, Z., Gumarova, T., Daulbayeva, A., Meimankulova, Z. and Kurmangalieva, A., 2024. Sustainable Development of Small Business in Kazakhstan. *Economies*, 12(9), p.247.
- Zhang, L., Banihashemi, S., Zhu, L., Molavi, H., Odacioglu, E. and Shan, M., 2024. A scientometric analysis of knowledge transfer partnerships in digital transformation. *Journal of Open Innovation: Technology, Market, and Complexity*, p. 10032. doi: 10.1016/j.joitmc.2024.100325.
- Zhang, Z., Wang, X. and Chun, D., 2022. The effect of knowledge sharing on ambidextrous innovation: Triadic intellectual capital as a mediator. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(1), p. 25. doi:10.3390/joitmc8010025.
- Zhu, J. and Wang, J., 2023. Based on Data Mining Algorithm of Data Mining Research. In *Applied Mathematics, Modeling and Computer Simulation* (pp. 1178-1185). IOS Press.