

Article

Influence of Business Intelligence on Organizational Performance: The Moderating Role of Employee BI Experiences

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Abstract

The use of business intelligence (BI) is becoming more common in many fields to help managers make better decisions. There are not many empirical studies on BI. The objective of this research is to analyze the influence of business intelligence capabilities, business intelligence infrastructure, and collaboration capability on organizational performance, in addition to investigating the moderating impact of employee BI experiences. The study distributed 500 questionnaires to individuals from various divisions of management, involving managers of IT, supervisors, and directors in banking institutions in Jordan. A total of 212 individuals responded to the questionnaire that was sent out, and 197 of those responses were considered valid for the purpose of statistical analysis. We used structural equation modeling (SEM) to investigate the proposed relationships. The results indicated that business intelligence capabilities, business intelligence infrastructure, and collaboration capability significantly impacted organizational performance ($p < 0.05$), thereby supporting all relevant research hypotheses. There is a strong link between employee BI experiences and how well a bank performs. The research found a substantial moderating influence of employee BI experiences on the correlation among business intelligence capabilities, business intelligence infrastructure, and bank performance. However, no substantial moderating effect was determined between the collaboration capabilities and bank performance in Jordan. The results of this study offer pragmatic insights for the top management of commercial banks as well as for other banking industries and stakeholders.

Keywords: business intelligence capabilities; business intelligence infrastructure; collaboration capability; organizational performance; employee BI experiences



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1. Introduction

Business Intelligence (BI) encompasses a set of applications, infrastructure-related tools, and best practices that facilitate data access and analysis. This process helps in gathering information that improves decision-making and organizational performance, consequently leading to competitive advantages (Jasim et al., 2020). Business intelligence

consists of systems and tools that facilitate data collection, storage, and analysis for users across various organizational roles. These resources present information in a timely and suitable manner, helping in rational decision-making, which improves organizational competitiveness and performance (Maaitah, 2023). In the business world of today, organizations face challenges such as heightened competition, technological advancements, and financial crises, which require top management to add value for shareholders. Organizational performance is a critical factor for assessing the outcomes of an organization's operations, especially when using rare resources and unique capabilities to fulfill market opportunities as well as threats (Ping et al., 2018).

The technological environment has changed rapidly over time, extensively affecting a wide range of business activities, including organizational performance (Ali et al., 2025; Alsarayrah & Ali, 2025; Atta et al., 2024b).

Improving organizational performance has always been a priority for company managers and professionals (Atta et al., 2024a; Oudat et al., 2024; Qeshta et al., 2024; J. O. Saleh et al., 2023). Al-Jedaia and Mehrez (2020) describe performance appraisal capabilities as a collection of actions that company managers use to enhance business operations and achieve corporate goals by using available information.

BI has been presented as a tool, product, and system for making accurate and intelligent decisions for business in the shortest amount of time, with applications and analytics based on operational and analytical databases. It generates and contributes to decisions on creative business activities (Abu-AlSondos, 2023; Maaitah, 2023). BI provides business information in a timely and appropriate manner for use, as well as the ability to interpret and comprehend the buried meanings of BI (Skyrius, 2021). The effectiveness and productivity of intelligent business systems are essential to the success of a business and competitive advantage (Moussas et al., 2024).

Furthermore, various research has shown that organizational performance is a crucial strength (Shniekat et al., 2022). As a consequence, researchers and practitioners have focused their studies on understanding the factors that affect the success of organizations. They analyzed how particular variables and techniques affect organizational performance positively or negatively (Al-Hosaini et al., 2023; Shniekat et al., 2022).

The banking industry has a lot of challenges to deal with in a world that is changing quickly (Oudat et al., 2024; J. O. Saleh et al., 2023). In particular, the rapidly shifting needs and wants of customers have made banks compete more with each other, which has led them to use IT for business intelligence and take advantage of new opportunities (Ebrahim et al., 2021).

Increasing consumer awareness and understanding necessitate that banks develop and apply creative strategies that take into account customer behaviors and attitudes in order to remain competitive. In addition to that is the incredible development in information technology, which forces banks to provide a wide range of products and services (M. H. Saleh et al., 2023).

The purpose of the study is to investigate the business intelligence capabilities, business intelligence infrastructure, and collaboration capability on organizational performance among commercial banks in Jordan. The study also aims to investigate the explore the moderating role of employee BI experiences.

2. Literature Review and Hypothesis Development

Based on the combined studies, there is insufficient empirical evidence analyzing the integrated framework of business intelligence capabilities, business intelligence infrastructure, and collaboration capability, in addition to their impact on organizational performance

in the banking industry. This study additionally explores the moderating variable of employee BI experiences, which has not been explored in such an integrated manner.

2.1. Business Intelligence Capability and Organizational Performance

Capabilities are an essential resource for a firm in achieving uniqueness and competitive advantage (Shi & Zailani, 2025). IT (information technology) capabilities indicate the deployment and use of IT resources, comprising employees, technologies, and relationships with other resources, in order to enhance business operations and achieve competitive advantage (Trieu et al., 2023). In this study, BI capabilities are defined as the application and engagement of BI resources with other resources to improve business processes, hence indicating a more specific category of technical abilities within the framework of BI systems. Business Intelligence resources include technology such as data stores, dashboards, data mining, visualization, reporting, software applications, and other hardware. Resources can cover both real and intangible elements, such as employees, governance structures, cultural aspects, goods, financial assets, skills, and knowledge. Businesses incorporate these resources into business processes to improve operational performance (Wang et al., 2022).

There are two types of business intelligence capabilities: those that focus on the inside and those that focus on the outside (Lloyd, 2011). Internally oriented BI capabilities are all about processing internal information across different areas of the business, such as manufacturing and inspection of quality (Brosig et al., 2020). ERP systems, or enterprise resource planning systems, are instances of internally focused Business Intelligence tools that seek data from internal operations to improve company efficiency and make sure that products are made reliably (Da Silva, 2024).

Externally oriented business intelligence capabilities focus on the external environment, including the needs of customers and suppliers, enabling organizations to respond promptly to market changes and encourage collaboration between internal entities and external clients and partners (Hyun et al., 2023). Internally oriented BI capabilities focus on efficiency, cost reduction, and product reliability, whereas externally oriented BI capabilities focus on differentiated products and help with market research and CRM procedures.

According to the literature review, Wang et al. (2022) found a positive and strong relationship between business intelligence capabilities and organizational performance in Malaysia.

Another study (Jahmani et al., 2025) showed the positive impact of business intelligence capabilities on the competitive performance of supermarkets in Jordan.

Additionally, recent research by Khan et al. (2024) found that BA capabilities improve corporate resources such as information quality and innovative capacity, which then have a significant impact on a firm's agility and permanency.

Likewise, Khawaldeh and Alzghoul (2024) found that business intelligence capabilities have a significant impact on a firm's agility, which influences its overall performance. As a result, this research develops the following hypotheses:

H1. *Business intelligence capabilities positively influence organizational performance.*

2.2. Business Intelligence Infrastructure and Organizational Performance

Business intelligence infrastructure is the integrated technical and organizational framework that supports any BI system within an organization. It helps the collection, processing, storage, analysis, and transformation of data from various sources and transforms sources into accurate and reliable information, thus helping with strategic and operational decision-making for the managers (Alawamleh et al., 2023).

However, the infrastructure includes data warehouses, integrated data tools, database management systems, analytics software, reporting tools, and interactive dashboards. It also includes the organizational and administrative processes that make sure the data is always accurate and of high quality (Qaffas et al., 2023). Infrastructure is an essential part that helps an organization use its BI capabilities (Wamai et al., 2022). This foundation makes it possible to use sophisticated techniques like data mining and predictive analytics. This allows management make decisions based on facts and evidence instead of emotions or guesses. A solid BI infrastructure helps businesses become more flexible, improve performance, give stakeholders greater value, make decisions easier, and support long-term digital change in the overall economy.

Wang et al. (2022) examined the influence of business intelligence (BI) infrastructure on organizational performance in Malaysia, revealing a positive and significant correlation between BI infrastructure and organizational performance. Furthermore, Qaffas et al. (2023) found that talent capabilities in large-scale data analytics positively impact business intelligence infrastructure, resulting in improved financial and marketing performance.

In another study, Judijanto et al. (2024) showed that BI systems improve organizational agility and competitiveness; in addition, data quality, management support, user training, and strong IT infrastructure are among the factors that drive their success and influence organizational performance. Additionally, Wamai et al. (2022) found that there is a favorable association between business intelligence infrastructure capabilities and the performance of commercial banks in Kenya, which improves growth and efficiency. The study also requested that bank management use these capabilities to promote bank performance and, as a result, shareholder returns. As a consequence, this study proposes the following hypotheses.

H2. *Business intelligence infrastructure significantly influences organizational performance.*

2.3. Collaboration Capability and Organizational Performance

Theoretical frameworks for collaboration capabilities have complex connections to the developing theory of the company, namely the resource-based view (Wernerfelt, 1984). Collaboration capability is a broad term that highlights numerous successes in collective knowledge creation and innovation, emphasizing the relational dimension where communication, trust, and commitment are the essential components that differentiate relational from transactional collaboration (Moeliadi et al., 2025).

In addition, collaboration capability, in the context of globalization, is an important skill for firms because they cannot successfully run their businesses on their own (Moeliadi et al., 2025). collaboration is the ability of an organization to work together with suppliers, clients, vendors, and employees (Chen, 2024). External collaboration is all about carefully coordinating and sharing information with outside parties like suppliers, customers, and other companies (Najafi-Tavani et al., 2018). Internal collaboration, on the other hand, is all about making sure that employees in different departments can communicate clearly so that they can come up with innovative concepts for how to run the business (Oh et al., 2014).

The research conducted by Hidayat and Pok (2023) shows that the capacity for collaboration significantly improves the performance of small and medium-sized firms (SMEs) in a rising economy, with this effect being greater when accounting for the company's capabilities. This shows the significance of the collaborative capacity variable in improving the competitiveness and operational efficiency of SMEs in developing countries.

A further study by Ping et al. (2018) confirmed this finding, showing that the utilization of business intelligence and collaborative capabilities is a significant determinant of business performance. A study conducted by Pundziene and Geryba (2022) in the United

States, Sweden, and Lithuania showed that the influence of dynamic capabilities on the performance of digitally born SMEs increases when mediated by collaborative innovations inside these enterprises. As a result, this study formulates the subsequent hypothesis:

H3. *Collaboration capability positively influences organizational performance.*

2.4. Moderator's Effect on Employee BI Experiences

The employee experience in BI refers to the accessibility, efficiency, and participation of employees with the institution's data analytics tools. This can indicate the easy availability of data, the readability of reports for users, and the relevance of information to their everyday duties. Effective business intelligence facilitates speedy and precise decision-making grounded in data that is accessible (Djedid, 2025).

Employee talent expectations remain an ongoing problem in employee engagement. The concept of engagement and its relevance for talent retention undergoes considerable transformation each decade. The employee engagement experience is rapidly changing. A new approach to talent motivation and retention is emerging post-epidemic. The concept of considering employees as resources is growing to encompass the notion of employees as customers. Every business allocates resources toward improving the customer experience. Customers offer significant value, and a unique experience serves to attract and retain them. This concept is similarly applicable to employee experiences.

Companies use a variety of methods to try to get their employees more involved in the experience economy. Some companies have changed the way their jobs and departments work to put more emphasis on the employee experience. In the modern age, it has become more and more necessary to focus on the employee experience and how it impacts engagement and performance. Employee involvement is anticipated to vary across businesses and sectors, leading to a variety in employee experiences (Kulkarni & Mohanty, 2022).

Prior studies show that employees' job performance and satisfaction are greatly affected by their interactions with BI systems. The researcher argues that employee experience strengthens the relationship between organizational and technological factors and the use of BI systems. The association between environmental factors and the use of BI systems in commercial banks, however, remained unaffected (Mohammed et al., 2024). Also, according to a different study (Dwivedi & Mahanty, 2024), incorporating AI tools enhances employee experiences in a number of areas, such as hiring and performance management, which raises employee satisfaction and productivity in businesses. In addition to another study, one of the factors influencing internal auditors' adoption of Computer-Aided Auditing (CAAT) techniques in Jordanian companies was employee experience. The study found that employee experience plays a significant role in improving the relationship between independent and dependent variables, and highlighted its importance (Alsarayrah & Ali, 2025). In this context, our theoretical framework integrates a significant moderator by including employee BI experiences as a variable in our study. Our research shows that this component can be analyzed through survey-based methodologies. As a result, this study formulates the subsequent hypotheses:

H4. *Employee BI experiences positively influence organizational performance.*

H5. *Employee BI experiences moderate the relationship between business intelligence capabilities and organizational performance.*

H6. *Employee BI experiences moderate the relationship between business intelligence infrastructure and organizational performance.*

H7. *Employee BI experiences moderate the relationship between collaboration capability and organizational performance.*

2.5. Dynamic Capacity Theory

The Dynamic Capability (DC) theory was first put forward by Teece and Pisano in 1994 and further extended upon by Teece in 1997 (Teece & Pisano, 1994). DC is founded on previous concepts such as “combinative capabilities” and the concept of “routines” under the evolutionary theory of economic change. It was created to overcome the shortcomings of the resource-based perspective (RBV) and remains an area of investigation alongside RBV in modern strategic management discussions (Eisenhardt & Martin, 2017).

Dynamic capacity theory is mainly focused on an organization’s or business’s capacity to continually and effectively develop internal abilities and assets in order to be successful in the face of rapid environmental changes (Bleady et al., 2018). According to this theory, an organization must be able to restructure, update, and develop its resources in response to market developments. This theory is certainly applicable to the variables in my study, which investigate the impact of business intelligence capabilities, business intelligence infrastructure, and collaboration capability on organizational performance. Business intelligence is frequently seen as a critical tool for improving decision-making and operational procedures.

In his genuine work, Mintzberg and Bruce (1998) argue that a company’s business capabilities are intrinsically connected to its strategy, illustrating that an authentic, disciplined strategy emerges from the cultivated skills, daily operations, and operational competencies of the organization.

The theory improves effectiveness, creativity, and assessment by utilizing dynamic capability principles, including business intelligence competencies. It describes how the integration of human resources, technological advances, and infrastructure affects a business’s stability and productivity. Dynamic capabilities allow businesses to close resource gaps in accordance with management needs. Decision makers and managers utilize these capabilities to reorganize the company’s resource base in accordance with the needs of the environment.

Consequently, this theory offers a valuable framework for examining the influence of business intelligence capabilities and proves particularly pertinent in this context. The researcher aims to close this gap by additionally investigating the business intelligence infrastructure and collaboration capabilities’ impact on organizational performance in achieving a sustainable competitive advantage.

3. Materials and Methods

The study employed a qualitative design to examine how business intelligence capabilities, business intelligence infrastructure, and collaboration capabilities affect organizational performance. It also investigates how employee BI experiences can moderate the relationship.

3.1. Study Design

To accomplish this, a questionnaire was made based on prior research. To get the information needed to test the study’s hypotheses, the questionnaire has six main parts with 33 questions. At first, the study had seven descriptive questions that were used to analyze the sample, mainly demographic questions about the employees’ education level and work experience. A five-point Likert scale was employed to gather the requisite data pertaining to the study variables.

Five questions were utilized for the business intelligence capabilities variable, derived from the previous research (Huy & Phuc, 2023); five questions were employed for the business intelli-

gence infrastructure variable, adapted from an earlier study (Ismail, 2018); five questions were utilized for the collaboration capability variable, adapted from a previous study (Blomqvist & Levy, 2006); and four questions were used for the moderating effect of employee BI experiences variable, adapted from a prior study (Alsarayrah & Ali, 2025). The organizational performance dependent variable was assessed using seven questions adapted from prior research (Al-Hosaini et al., 2023; Atta et al., 2024a; Jawabreh et al., 2023; Shniekat et al., 2022).

Additionally, maintain the validity of the questionnaire's design, the content was adapted to align with the study's context and the particulars of the study population, depending on feedback from three professors with expertise in this domain.

3.2. Study Population and Sample

The study population consisted of Jordanian commercial banks that use business intelligence in the running of their businesses. Accordingly, the study respondents were employees of banks utilizing business intelligence in their operations, representing various management levels, including IT managers, senior managers, and supervisors, due to their extensive expertise in the field of business intelligence. Given the difficulty of enrolling every employee within the study population, a convenience sampling strategy was used. This strategy helped us to obtain the necessary data while confirming it accurately represented the entire population. Data was collected from IT managers, senior managers, and supervisors at commercial banks between June 2025 and October 2025.

Accordingly, we created a self-administered questionnaire using Google Forms to obtain data. Participants were given a link to this survey. The questionnaire received 197 valid and comprehensive responses.

Following running a descriptive analysis with the help of SPSS 26, this study will use the PLS-SEM for further data analysis in order to assess hypotheses. This analysis will use Smart PLS 4, which is based on two types of models: a structural model and a measurement model.

3.3. Research Framework

This study adopted a theoretical framework, illustrated in Figure 1, to analyze the proposed hypotheses. The model below was created to look into how business intelligence capabilities, business intelligence infrastructure, and collaboration capabilities affect organizational performance. It also examines how employee BI experience in the banking industry moderates these relationships.

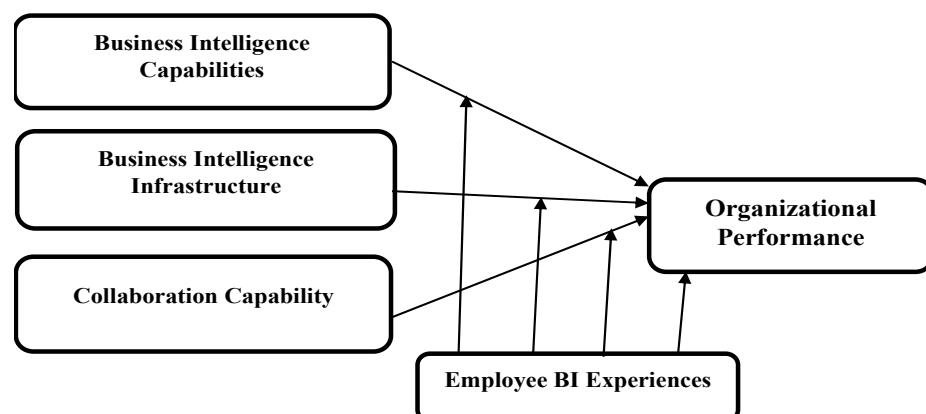


Figure 1. Theoretical framework.

3.4. The Pilot Study

After the questionnaire was made, a six-part instrument was created. The first part had demographic information, the second, third, and fourth parts were about the dependent

variables, the fifth part was about the independent variable, and the last part was about the moderator variable. Then, a pilot test was done with fifty employees from Jordan's financial institutions. Each participant had at least two years of experience using business intelligence in financial services.

The aim of this assessment was to further validate the instrument's validity and reliability. The pilot study confirmed that the questionnaire was suitable and clear for the study and statistical analysis, given that Cronbach's alpha, kurtosis, and skewness were all within the appropriate ranges for each variable studied (business intelligence capabilities, business intelligence infrastructure, collaboration capability, organizational performance, and employee BI experiences), which served as mediators. Additionally, 500 questionnaires will be handed out to bank managers in order to encourage analysis of the study and the evaluation of the hypotheses raised.

4. Analysis and Results

The present study employs two models, one for measurement and a second for structural modeling, both of built on Smart PLS 4. This analysis will provide more comprehension of the links between the variables investigated.

4.1. The Outer Measurement Model

Initially, the analysis based on PLS includes the assessment of the measurement model results. This model provides fundamental reliability, convergent validity, and discriminant validity for the assessment of the measurement model in PLS. The results displayed in Table 1 and Figure 2 of the measurement model point out that all elemental loads exceed 0.756, which is considered acceptable to be consistent (Hair et al., 2023). Table 2 displays AVE results exceeding 0.693, showing satisfactory results consistent with Hair et al. (2023). The combined reliability (CR) is greater than 0.887, regarded as acceptable by Henseler et al. (2015); in addition, a Cronbach's alpha coefficient of 0.866 or above is considered acceptable according to Hair et al. (2023). Consequently, convergent validity is verified. Discriminatory validity must be assessed after the evaluation of convergent validity for the constructs presented in Table 3.

Tables 1 and 2 and Figure 2 show that the findings fall within the acceptable range. This facilitates a risk-free assessment of the structural model, which constitutes the second model of this study.

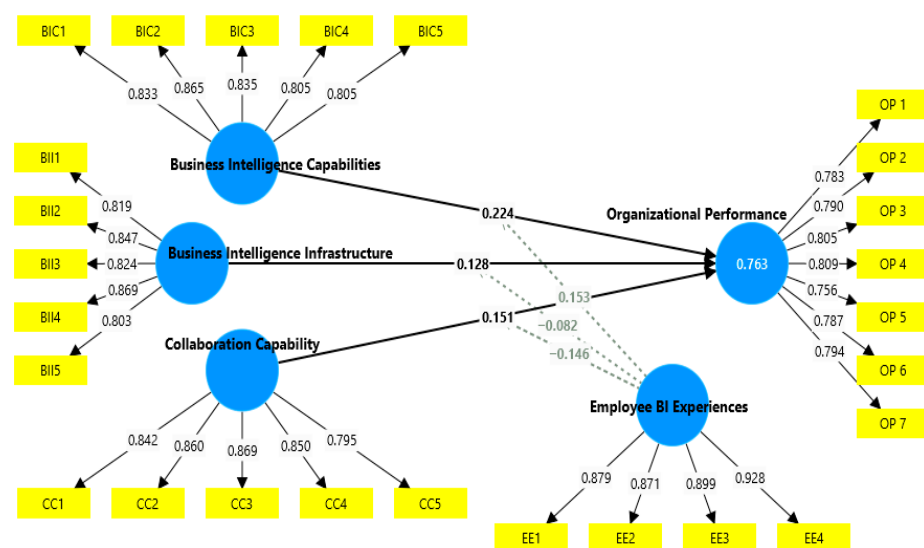


Figure 2. Measurement model.

Table 1. External loading of items.

	Business Intelligence Capabilities	Business Intelligence Infrastructure	Collaboration Capability	Employee BI Experiences	Organizational Performance
BIC1	0.833				
BIC2	0.865				
BIC3	0.835				
BIC4	0.805				
BIC5	0.805				
BII1		0.819			
BII2		0.847			
BII3		0.824			
BII4		0.869			
BII5		0.803			
CC1			0.842		
CC2			0.860		
CC3			0.869		
CC4			0.850		
CC5			0.795		
EE1				0.879	
EE2				0.871	
EE3				0.899	
EE4				0.928	
OP 1					0.783
OP 2					0.790
OP 3					0.805
OP 4					0.809
OP 5					0.756
OP 6					0.787
OP 7					0.794

Table 2. Validity and reliability of the measurement model.

	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Business intelligence capabilities	0.886	0.887	0.916	0.687
Business intelligence infrastructure	0.889	0.892	0.919	0.693
Collaboration capability	0.898	0.899	0.925	0.711
Employee BI experiences	0.917	0.917	0.941	0.800
Organizational performance	0.900	0.902	0.920	0.623

4.2. Discriminant Validity

When we test the measurement model, we can evaluate discriminant validity, which demonstrates how differently each measuring item in the suggested model represents its factor from every other item. The heterotrait–monotrait (HTMT) ratio method and the Fornell and Larcker correlation method can both be used to evaluate the discriminant

validity in the current study. The first method is an alternate approach, as suggested by (Henseler et al., 2015), to evaluating discriminant validity in PLS-SEM. Based on the multifruit and multimethod matrix, or HTMT of correlations, discriminant validity can be assessed. The discriminant validity is insufficient when the HTMT value is close to 1. As a result, Table 3 shows the HTMT criterion values and the new normal, which satisfy the lowest HTMT value and fall within the recommended range (Henseler et al., 2015).

Table 3. Heterotrait–monotrait ratio (HTMT)—Matrix.

	BIC	BII	CC	EE	OP	E BI Es × BII	E BI Es × CC
BIC							
BII	0.784						
CC	0.697	0.592					
EE	0.735	0.693	0.803				
OP	0.812	0.745	0.771	0.873			
Employee BI experiences × BII	0.390	0.432	0.324	0.369	0.443		
Employee BI experiences × CC	0.359	0.334	0.293	0.322	0.432	0.723	
Employee BI experiences × BIC	0.406	0.385	0.345	0.363	0.388	0.811	0.784

Table 3 shows the second way is to evaluate discriminant validity based on the Fornell–Larcker correlation matrix. In this way, discriminant validity is well established when the AVE of a single factor is greater than the squared multiple correlations of that factor with other factors (Fornell & Larcker, 1981). Given that the correlation matrix illustrated in Table 4 satisfied the Fornell–Larcker criterion, all the constructs in the proposed model and the new normal illustrated discriminant validity for the empirical data for the current study are acceptable.

Table 4. The Fornell–Larcker criterion.

	BIC	BII	CC	E BI E	OP
Business intelligence capabilities	0.829				
Business intelligence infrastructure	0.700	0.833			
Collaboration capability	0.622	0.537	0.843		
Employee BI experiences	0.664	0.632	0.730	0.895	
Organizational performance	0.728	0.676	0.703	0.809	0.789

4.3. Examination of Structural Models

Having established the validity of the measurement model, we then evaluated the structural model using smart PLS 4. To guarantee that the number of cases and observations in the sample is comparable, path coefficient evaluations should employ a bootstrap method with a minimum sample size of 5000 (Hair et al., 2023). The initial sample size was 500, and this investigation employed 5000 resampling iterations using bootstrap cases.

The structural model evaluation process involves recommended principal tests, agreed upon across numerous scientific studies, which are crucial for testing the seven research hypotheses presented in the study for the independent and moderating variables, along with the dependent variable. Hair et al. (2023) highlighted this important critical analysis

process, primarily aimed at obtaining the necessary results to clearly assess the model's quality. This study relies on the common principal results obtained in this analysis, such as path estimates, *t*-values, and *p*-values, to conduct a clear review and decide on the seven research hypotheses, either accepting or rejecting them. The analysis employed a bootstrapping approach, as illustrated in Figure 3, to obtain the direct-effects results, shown in Figure 3 and Table 6.

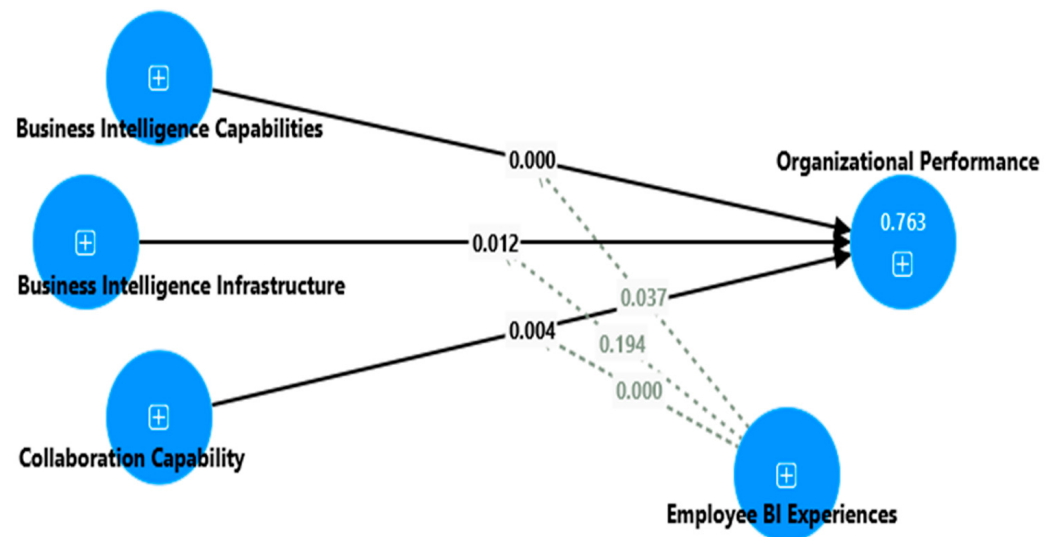


Figure 3. Examination of the structural model (inner model).

The results indicated that business intelligence capabilities, business intelligence infrastructure, and collaboration capability had a significant impact on organizational performance ($p < 0.05$), thus supporting all relevant research hypotheses. A significant relationship was also found between employee experience in business intelligence and bank performance. I also found that there was a significant effect of the moderating variable of employee experience in business intelligence, between business intelligence capabilities, business intelligence infrastructure, and bank performance, but there was no significant effect of the moderating variable, employee experience in business intelligence, between collaboration capabilities and performance of banks in Jordan.

Table 5 shows the R-squared coefficient data. The research found that the model factors, including business intelligence capabilities, business intelligence infrastructure, and collaboration capability, explained 76.3% of the variation in the 0.757 organizational performance, as shown by the resulting figure of 0.763. This shows that various sources of data have made a major contribution, with the goal of aligning with our research variables. The corrected R-value was 0.757, which is a bit lower than the R-value, as shown in Table 5. The prediction inaccuracy caused by adding extra variable-associated predictors is taken into account by this modified R-value. As a result, the model helps clarify why there is some variation in how banks in Jordan assess organizational performance.

Table 5. Squared values.

	R-Square	R-Square Adjusted
Organizational performance	0.763	0.757

5. Discussion

The Smart PLS analysis results demonstrated interrelationships among the three independent variables: (business intelligence capabilities, business intelligence infrastructure,

and collaboration capability) affecting the organizational performance, with (employee BI experiences) serving as a moderator in commercial banks in Jordan. Table 6 shows the findings of the hypotheses, which are as follows:

H1: Business intelligence capabilities positively and significantly influence organizational performance among commercial banks. Based on the statistical analysis of this hypothesis in Table 6, $T = 4.221$ and $p = 0.000$, the results of this research analysis are consistent with previous recent studies, such as [Da Silva \(2024\)](#) and [Wang et al. \(2022\)](#).

This result indicates that business intelligence capabilities strengthen and enhance the capability of the bank to make accurate choices, which in turn leads to a rise in efficiency in operations and an apparent enhancement in the bank's financial performance.

H2: Business intelligence infrastructure significantly influences organizational performance. Based on the statistical analysis of this hypothesis in Table 6, $T = 2.510$ and $p = 0.012$. This result is consistent with the findings of [Judijanto et al. \(2024\)](#) and [Wamai et al. \(2022\)](#). This result indicates that a strong business intelligence infrastructure is very important and helps banks improve the speed of operations, improve service efficiency, and promote more effective banking decisions.

H3: The analysis revealed that collaboration capability positively affects organizational performance. The result for this hypothesis is $T = 2.870$ and $p = 0.004$. This result is consistent with [Hidayat and Pok \(2023\)](#) and [Ping et al. \(2018\)](#). The result of this hypothesis indicates that a bank's success improves significantly when there is effective cooperation among bank employees. This, in turn, leads to increased bank productivity and improved output.

H4: The analysis revealed that employee BI experiences positively affect organizational performance. The result for this hypothesis is $T = 8.415$ and $p = 0.000$. This result indicates that the expertise of employees in the field of business intelligence is essential for improving bank performance because it allows them to make accurate and timely decisions, which helps to improve the bank's overall performance.

H5: The analysis revealed that employee BI experiences moderate the relationship between business intelligence capabilities and organizational performance. The result is $T = 2.085$ and $p = 0.037$. These findings show that when employees have appropriate business intelligence expertise, they have a greater influence on bank performance because it enables them to increase efficiency and facilitate informed decision-making by both bank managers and employees.

H6: The study revealed that employee BI experiences did not moderate the relationship between business intelligence infrastructure and organizational performance. The result in Table 6 shows that $T = 1.299$ and $p = 0.194$. These data showed that staff expertise with business intelligence did not increase the association between infrastructure and bank performance. The resilience of the business intelligence infrastructure has an equal impact on performance, regardless of whether staff members have great business intelligence skills. This relationship is not affected or enhanced by employee experience.

H7: The analysis revealed that employee BI experiences moderate the relationship between collaboration capability and organizational performance ($T = 3.922$, $p = 0.000$). These findings show that employee business intelligence experience has a greater effect on the relationship between collaboration capabilities and bank performance. This is because employees' business intelligence experience enables them to collaborate more efficiently and quickly to achieve company objectives.

Table 6. Results of the hypotheses.

Hypotheses	Standard Deviation	T Value	<i>p</i> Values	Result
H1: Business intelligence capabilities positively influence organizational performance.	0.053	4.221	0.000	Supported
H2: Business intelligence infrastructure significantly influences organizational performance.	0.051	2.510	0.012	Supported
H3: Collaboration capability positively influences organizational performance	0.053	2.870	0.004	Supported
H4. Employee BI experiences positively influence organizational performance	0.053	8.415	0.000	Supported
H5. Employee BI experiences moderate the relationship between business intelligence capabilities and organizational performance	0.073	2.085	0.037	Supported
H6. Employee BI experiences moderate the relationship between business intelligence infrastructure and organizational performance	0.063	1.299	0.194	Rejected
H7. Employee BI experiences moderate the relationship between collaboration capability and organizational performance	0.037	3.922	0.000	Supported

6. Conclusions

The goal was to look into how business intelligence capabilities, business intelligence infrastructure, and collaboration capabilities affect organizational performance, as well as how employee BI experiences moderate these effects.

The study sample comprised 500 individuals across various management levels, including IT managers, deputy top executives, and supervisors, within commercial banks in Jordan. In total, 212 people answered the survey that was sent out, and 197 of those answers were valid for statistical analysis. The proposed relationships were evaluated using SPSS and Smart PLS software.

The results indicated that business intelligence capabilities, business intelligence infrastructure, and collaboration capability had a significant impact on organizational performance ($p < 0.05$), thus supporting all relevant research hypotheses. A significant relationship was also found between employee experience in business intelligence and bank performance. I also found that there was a significant effect of the moderating variable of employee experience in business intelligence, between business intelligence capabilities, business intelligence infrastructure, and bank performance, but there was no significant effect of the moderating variable, employee experience in business intelligence, between collaboration capabilities and performance of banks in Jordan.

7. Theoretical and Practical Implications of This Study

The study expands current knowledge by providing insights pertinent to the banking sector, stakeholders, and policymakers worldwide, particularly in Jordan. Theoretical consequences: This study strengthens the theoretical framework by demonstrating that business intelligence capabilities, infrastructure, and collaboration are among the most fundamental factors for improving performance in Jordanian commercial banks. It also highlights the growing importance of employee expertise in business intelligence, which enhances the effectiveness of these capabilities, infrastructure, and collaboration, thus

underscoring the pivotal role of human factors in leveraging technological and organizational resources. Furthermore, this study addresses a research gap by integrating several variables not previously studied, in addition to including a significant moderating variable that contributes significantly to the overall performance of these variables. The results expand the framework of resource-based and socio-technical theories by incorporating business intelligence, organizational capabilities, and employee expertise. This study also gives educational institutions, researchers, and future researchers a solid theoretical base.

This part shows that the performance of Jordanian banks is significantly and favorably dependent on business intelligence (BI) capabilities, BI infrastructure, and collaboration capabilities. Employee BI expertise improves BI capabilities and collaboration, but not business intelligence infrastructure and organizational performance. In real life, bank managers, supervisors, and stakeholders need to acquire BI tools, keep a strong BI infrastructure, and encourage employees at all levels to work together. Giving employees chances to learn and share what they know helps them get the most out of technology and working together. In general, integrating technology, organizational capabilities, and employee expertise is essential for enhancing banking performance.

8. Limitations and Further Research

The primary drawback of this study is that it was limited to the banks in Jordan in a specific geographical and time-based context, which may restrict the generality of the findings to other industries.

Another drawback is the reliance on data gathered through a questionnaire, which may be subject to the individual biases of the participating bank staff and might not have considered every external variable impacting bank performance.

This study examined commercial entities in Jordan. A similar study may be conducted on Islamic banks, or a comparison between commercial and Islamic banks could possibly be explored in this setting.

The study sample comprised 500 individuals across various management tiers, including IT managers, deputy managers, and supervisors, within commercial banks in Jordan. Another study like this one could be done with a different group of non-managerial bank workers, like small and medium-sized businesses (SMEs).

Business intelligence capabilities, business intelligence infrastructure, and collaboration capability on organizational performance, along with the moderating effect of employee BI experiences. This variable accounted for 76% of the cases, supporting the notion that additional variables also affect organizational performance. More research could be done to find factors that can help banks perform better as an organization. There are many ways to do this, like using qualitative methods or interviewing bank or company managers instead of giving them questionnaires. More variables, like IT knowledge, IT structures, culture, innovation, and AI factors, may be included in future research.

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