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The Impact of Business Intelligence on Organizational Performance: The Moderating Role of Innovation Capabilities in Jordanian Banks

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Abstract. This study examines the impact of business intelligence (BI) deployment on organizational performance and the moderating role of innovation capabilities. Data were collected from 320 managers in 13 major commercial banks in Jordan. The results of Smart PLS analysis revealed a significant positive relationship between BI and performance. Innovation was also found to significantly moderate this relationship, such that BI's impact was stronger for firms with greater innovation capabilities. This research makes key theoretical contributions by integrating direct and moderation effects into a holistic model of BI success. The contextual focus on Jordanian banks provides new insights into an under-studied developing economy. The study has important practical implications by guiding banks on how synergizing BI and innovation can enhance performance outcomes.

Keywords: Environmental Factors, Organization, Technology, Organizational Performance

1. Introduction

There has been a growing scholarly and commercial focus on business intelligence (BI) during the past twenty years (Rodrigues, Sousa & Brochado, 2020). Business Intelligence (BI) encompasses a range of methodologies and tools employed in the field of business analysis with the objective of converting unprocessed data into valuable and insightful information (Salhab et al., 2023). According to Alawadhi, Zowayed, Abdulla, Khder, and Ali (2022), the utilisation of this approach enables organisations to effectively recognise, cultivate, or generate novel strategic business prospects that result in the establishment of enduring competitive superiority. The utilisation of business intelligence (BI) enables managers to enhance their decision-making process by converting raw data into valuable insights (Hamad, Al-Aamr, Jabbar & Fakhuri, 2021). In recent years, Business Intelligence (BI) has consistently been identified as the foremost priority among IT investments. The annual investment in business intelligence has witnessed a consistent growth, as indicated by the findings of the Gartner research (Daneshvar & Palvia, 2016). Constantiou, Shollo, and Vendelø (2019) additionally observe that Chief Information Officers (CIOs) consider Business Intelligence (BI) to be one of the most crucial technologies for their respective organisations. The escalating inclination towards investing in business intelligence (BI) calls for a comprehensive evaluation of its resultant effects (Kristoffersen, Mikalef, Blomsma & Li, 2021). The investment in and importance of business intelligence (BI) is steadily increasing; nevertheless, there is still a lack of clarity regarding the mechanisms and reasons behind its impact on firm performance (Alawadhi et al., 2022; Salhab et al., 2023).

Information technology (IT) plays a crucial role in facilitating corporate innovation by boosting knowledge capacities (Le & Lei, 2019; Alqaraleh, Almari, Ali, & Oudat, 2022). According to Antonizzi and Smuts (2020), the integration of business intelligence (BI) with innovation has the potential to facilitate transformative processes within organisations. Organisations are required to promptly adjust their strategies in order to enhance their operational effectiveness and get a competitive edge (Djerdjouri, 2020). While some scholars argue that business intelligence (BI) can foster innovation by promoting distinction, as exemplified by Gupta (2022), the existing body of theoretical and empirical research provides limited support for these assertions, as highlighted by Nuseir, Aljumah, and Alshurideh (2021). The optimal deployment strategy for Business Intelligence (BI) remains ambiguous, since the literature lacks consensus on the most effective approaches in terms of timing, location, and methodology (foud Ali, Zowayed, Showaiter, Khder, & Ali, 2022; Hassan, Aldoseri, Saeed, Khder, & Ali, 2022). The extent to which business intelligence (BI) may enhance firm performance and foster innovation remains undetermined until a comprehensive understanding of the underlying mechanisms and factors is achieved.

Based on the aforementioned reasoning, this study aims to assess the potential correlation between business intelligence (BI) and innovation with regards to organisational success. There is a dearth of comparable studies in this area, therefore highlighting the pressing need to construct a comprehensive framework that can elucidate these interconnections. This study makes a valuable contribution to the existing body of literature by presenting a comprehensive framework that elucidates the mechanisms by which business intelligence (BI) and innovation can enhance organisational performance within the context of commercial banks. Guide for Author (Use “Header 1” Style)

2. Literature Review

This section provides an overview and analysis of pertinent theoretical and empirical literature. The text examines the primary components of bank performance, business intelligence (BI), innovation, and the theoretical frameworks associated with these factors.

Bank performance

The topic of performance is widely discussed in several management disciplines (Al-Hosaini et al., 2023; Al-Rawashdeh, Jawabreh, & Ali, 2023; Jawabreh et al., 2023). The definition and measurement

of this concept varies across different studies (Jawabreh, Shniekat, Saleh, & Ali, 2022; Li, Zhao, Bai, & Ali, 2022; Shniekat, AL_Abdallat, Al-Hussein, & Ali, 2022). The variability in question is contingent upon the specific context and attributes of a business performance system (Al-Rawashdeh et al., 2023; Ali, Ali, & Fatima, 2023). Performance is often characterised as a collection of indicators that evaluate the efficacy and efficiency of activities (Jahmani, Jawabreh, Fahmawee, Almasarweh, & Ali, 2023; Jawabreh et al., 2023). According to the scholarly work of Espinoza, Martins, and Gomes (2023), there exist many prevalent metrics that are used to assess the success of businesses. These indicators include return on investment (ROI), market share, profitability, sales growth, and customer happiness. Prominent performance indicators in the field of marketing research include sales growth, market share, and profitability (Hezabr, Qeshta, Al-Msni, Jawabreh, & Ali, 2023). Performance in the field of operations management is often assessed by many metrics, including market share, customer satisfaction, return on investment (ROI), profitability, and return on sales (ROS) (Fan, Pan, Liu & Zhou, 2017). In the field of information systems research, it is well recognised that profitability and sales growth serve as prevalent performance indicators (Ali, Bakar & Omar, 2016).

Bank performance

Business Intelligence (BI) encompasses a range of methodologies and technologies used in the field of business analysis with the objective of converting unprocessed data into valuable insights (Alawadhi, Zowayed, Abdulla, Khder, & Ali, 2022; Hassan, Aldoseri, Saeed, Khder, & Ali, 2022). The implementation of business intelligence (BI) necessitates organisations to acquire the essential hardware and establish mechanisms for data exchange and knowledge development (Ali, Zowayed, Showaiter, Khder, & Ali, 2022). According to Cole, Stevenson, and Aitken (2019), these technologies facilitate the sharing, implementation, and interpretation of information throughout organisations' supply chains. Therefore, it is essential to invest in this infrastructure as a requirement for the use of Business Intelligence (BI). According to Nair (2019), this infrastructure facilitates the collection of data that may contribute to the expansion of sales and the advancement of company. The measurement of investment in business intelligence (BI) in this research is operationalized via the degree of BI deployment. Furthermore, it serves as an indicator of the analytical proficiency of the sampled banks. BI investment refers to the allocation of resources by banks to acquire the essential infrastructure required for the successful application of business intelligence (BI) (Caserio, Trucco, Caserio, & Trucco, 2018).

Innovation

From an ecological standpoint, innovation refers to a newly developed or enhanced procedure, item, service, or style of organisation or marketing that offers more environmental advantages compared to alternative options. The potential environmental advantage might manifest either during the manufacturing phase or when used by the end user (Hatamlah et al., 2023). Innovation encompasses the process of effectively commercialising novel combinations of materials, processes, markets, and organisational structures. The term "innovation" generally pertains to modifications within the realm of business, whereas "invention" pertains to modifications within the realm of technology (Thuneibat, Ali, Alqaraleh, & Thneibat, 2022).

Innovation offers a multitude of advantages, such as enhanced competitiveness (Al & Anwar, 2021), improved access to financial resources (Abdu & Jibir, 2018), enhanced marketing and export performance, as well as improved communication and networking capabilities (Prange & Pinho, 2017). Certain scholars, however, caution that the failure to acknowledge the adverse consequences of innovation may result in environmental deterioration and development that is not sustainable (Hatamlah et al., 2023).

Hypotheses development

This research is underpinned by three rationales. According to Al-Matari, Amiruddin, Aziz, and Al-

Sharafi (2022), it is imperative for organisations to have the essential information technology (IT) infrastructure in order to facilitate the process of knowledge production, which in turn may enhance their overall performance. Business intelligence (BI) systems provide the capability to generate tailored reports that cater to the unique requirements of businesses. According to Salhab et al. (2023), these reports provide valuable insights into the functioning of corporate processes, hence aiding managers and other users in the process of making informed decisions. According to a recent study conducted by Hassan, Aldoseri, Saeed, Khder, and Ali (2022), this phenomenon ultimately results in enhanced organisational performance. The integration of business intelligence (BI) technologies into business processes has the potential to enhance human decision-making and thus lead to enhanced organisational performance (Aydiner, Tatoglu, Bayraktar, & Zaim, 2019). The existing body of research has examined the favourable impacts of business intelligence (BI) on several aspects of corporate performance. company analytics has been shown to have a positive impact on sales performance, as shown by the findings of Nocker and Sen (2019). Similarly, marketing analytics has been found to enhance sales and overall company performance, as well as other financial indicators, as demonstrated by the research conducted by Daneshvar and Palvia (2016). Dsouza and Sharma (2021) contend that marketing analytics may enhance consumer satisfaction by enabling a more comprehensive comprehension of their demands, hence facilitating the customization of products and services to cater to those needs.
Furthermore, there is a convergence between the literature on IT investment and business intelligence (Richards, Yeoh, Chong, & Popovič, 2019). While there is less research specifically examining the impact of business intelligence (BI) on financial performance, insights may be derived from the extensive body of literature exploring the relationship between investment in information technology (IT) and financial success. El-Chaarani and El-Abiad (2018) discovered a favourable correlation between investments in information technology (IT) and financial performance metrics such as return on assets (ROA) and return on equity (ROE).

The notion of resource-based view (RBV) offers an explanation for the potential impact of business intelligence (BI) on corporate performance. According to Nithya and Kiruthika (2021), the Resource-Based View (RBV) theory posits that the knowledge derived through collaborative efforts between suppliers and customers represents a distinctive resource that has the potential to be used for gaining a competitive edge. The first hypothesis pertains to the impact of Business Intelligence (BI) deployment on organizational performance. The hypotheses are formulated in the following manner:

H1: There is significant and positive relationship between organization Intelligence and bank performance.
H2: There is significant and positive relationship between Technology Intelligence and bank performance.
H3: There is significant and positive relationship between environment Intelligence and bank performance.

According to Thuneibat, Ali, Alqaraleh, and Thneibat (2022), innovation refers to the systematic integration of new information and ideas into existing product or service offerings. Innovation has the capacity to serve as a moderating factor in the relationship between an independent variable and a dependent variable. According to Namazi and Namazi (2016), it is recommended that the independent variable be linked to the moderate, which in turn should be linked to the dependent variable. Therefore, the ultimate hypothesis may be stated as follows:

H4: Innovation positive moderating the relationship between business intelligence and bank performance.

3. Research Methodology

A research design is similar to a research master plan in that it specifies the methods and procedures for gathering and analysing research data (Alqaraleh, Thuneibat, & Nour, 2020; Al tarawneh, Alqaraleh,

Ali, Bani Atta, 2023). To describe the data and estimate the model, SPSS and SmartPLS are utilised (Hair et al., 2021).

Primary data is collected through a questionnaire. It is divided into four sections. Part 1 inquires about the sample's general information; Part 2 assesses bank performance; Part 3 assesses BI adoption; and Part 4 assesses innovation. The items are derived from previous research (e.g., Nithya and Kiruthika, 2021; Thuneibat et al., 2022; Rajnoha, tefko, Merková, and Dobrovi, 2016) and scored on a five-point Likert scale. Data are first descriptively analysed to provide a straightforward interpretation of the data. The responses are then ordered according to their frequency. Cronbach's alpha (with a recommended alpha of.7-0.9) is used to measure internal consistency (the intercorrelation of the items). Cronbach's alpha, according to Hair et al. (2019), is a measure of dependability rather than a statistical test. The items are reliable if they measure a shared idea.

The survey approach is also used in this study because it enables for the collecting of primary data from the community. As a result, it is one of the most essential methods for social science research. There are 1,228 branch managers and assistant managers from Jordanian commercial banks in the population. According to the Central Bank of Jordan, there are 13 commercial banks (Table 1). According to Sekaran and Bougie (2016), the sample size is 297 people. Thus, the questions are dispersed probabilistically to 320 respondents. These respondents are well-versed in the internal functioning of the banks.

Table 1. Population of The Study:

NO	Name of Bank	Number of branches	The sample
1	Arab Bank	76	152
2	Jordan Ahli Bank	49	98
3	Jordan Commercial Bank	35	70
4	Jordan Investment Bank	12	24
5	Jordan Kuwait Bank	66	132
6	ABC Bank (Jordan)	23	46
7	Housing Bank	110	220
8	Cairo Amman Bank	92	184
9	Bank al Etihad	15	30
10	Capital Bank	23	46
11	Societe Generale De Banque Jordan	18	36
12	Bank of Jordan	60	120
13	Arab Jordan Investment Bank AJIB	35	70
	Total	614	1,228

Sources: Central Bank of Jordan and the websites of each bank (2023)

Theoretical framework

A theoretical framework has been developed to test the hypotheses. It is shown in Figure 1.

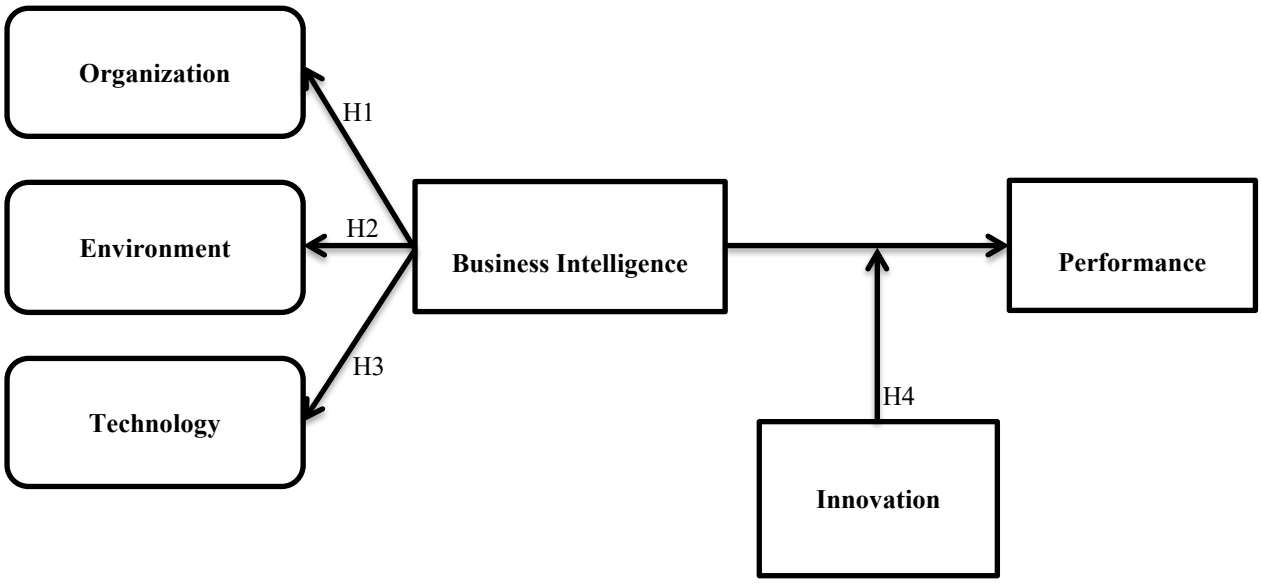

Fig.1: Theoretical Framework

4. Analyses of Data

Table 1 displays the results of the tests conducted to ascertain the reliability and validity of the primary constructs examined in our study. Integrating statistical measures is critical to ensuring the validity of our research findings. When assessing the reliability of a set of data relevant to a given concept, Cronbach's Alpha is a generally accepted and used statistic. It's useful for gauging how closely related things are. Table 1 displays values between 0.771 and 0.891, indicating good internal consistency between the various measures. Because it shows how different parts of each construct consistently evaluate the same notion, the occurrence can be seen as strong evidence for the measures' dependability (Cronbach, 1951).

Because it takes into consideration the loadings of various components inside their respective structures, Composite Reliability is a crucial statistic for evaluating internal consistency. Table 1 displays a range of Composite Reliability values from 0.786 to 0.895. The results shown above show that the constructs are more internally consistent than the required minimum of 0.7 (Fornell & Larcker, 1981), lending credence to the findings. This emphasizes the need for trustworthy measuring instruments and the interconnectedness of things within each component.

To compare the effectiveness of a construct in capturing variation to the impact of measurement error, researchers use a metric called the Average variation Extracted (AVE). Table 1 displays numerical values between 0.591 and 0.777, all of which are significantly more than 0.5. This claim suggests that a sizeable percentage of the variance in each construct may be attributed to the form of the questions employed, rather than being impacted by mistakes in measurement, as stated by Fornell & Larcker (1981). Convergent validity is strong if the value is larger than 0.5. Table 2 summarizes substantial empirical data about the dependability and validity of the investigated constructs. The table includes references to reputable academic papers that back up the adequate ranges for the various measurements.

Table 2. Construct reliability and validity:

	Cronbach's alpha	Composite reliability	(AVE)
Environment	0.771	0.786	0.591
Innovation	0.856	0.858	0.777
Organization	0.857	0.863	0.636
Performance	0.853	0.855	0.630
Technology	0.891	0.895	0.757

Loading loadings:

Table 3: displays the outer loading metrics of the variables, which indicate the degree of alignment between each indication and its corresponding construct. It is important to notice that all items for each variable have achieved loading rates that meet the acceptable requirements set by Hair (Hair, 2010). The items presented in this study exhibit strong correlations with the construct of "Environment," and all of them satisfy the criteria for acceptable loading rates outlined in Hair's guidelines (Hair, 2010).

The items labeled as INN1, INN2, and INN3 have significant associations with the construct of "Innovation." Additionally, all loading rates for these items fall within the acceptable range according to Hair's criteria (Hair, 2010).

The items in the organization (OR1, OR2, OR3, OR4) category demonstrate strong alignment with the concept of "Organization." Additionally, their loading rates are found to be within the acceptable criteria as specified by Hair (Hair, 2010).

The performance indicators (PE1, PE2, PE3, PE4, PE5) demonstrate reliability in measuring the notion of "Performance." Their loading rates are deemed adequate according to the parameters established by Hair (2010). The items labeled as TE1, TE2, TE3, and TE4 successfully capture the construct of "Technology," and their loading rates are in accordance with the acceptable requirements set by Hair (Hair, 2010).

In conclusion, the loading rates for all indicators of each variable have met the established norms set by Hair, hence confirming the validity as well as reliability of the measurement model.

Table 3. Outer Loading

	Environment	Innovation	Organization	Performance	Technology
EN1			0.825		
EN2	0.797				
EN3	0.823				
EN4	0.702				
EN5	0.747				
INN1		0.877			
INN2		0.910			
INN3		0.856			
OR1			0.784		
OR2			0.842		
OR3			0.791		
OR4			0.743		
PE1				0.803	
PE2				0.798	
PE3				0.809	
PE4				0.733	

PE5				0.824	
TE1					0.779
TE2					0.879
TE3					0.924
TE4					0.891

Assessment of Discriminant Validity

Table 4: presents a thorough evaluation of the discriminant validity of the latent components in this investigation, using accepted methods outlined by Fornell and Larcker (1981). Discriminant validity has major importance in the process of construct validation within the framework of structural equation modeling. Its primary objective is to ascertain that each construct effectively captures a distinct and exclusive concept, while minimizing any substantial overlap with other constructs.

The diagonal values in the table correspond to the square roots of the Average Variance Extracted (AVE) for each build. The AVE (Average volatility Extracted) is a statistical measure that quantifies the amount of volatility that a construct captures from its variables. Regarding the construct labeled "Environment," it is noteworthy that the diagonal value stands at 0.769. This figure signifies that about 76.9% of the variance observed in this particular construct can be accounted for by its own indicators.

The variable "innovation" demonstrates a diagonal score of 0.882, indicating that about 88.2% of its variability is accounted for by the indicators associated with it.

The construct of "Organization" exhibits a diagonal value of 0.798, suggesting that around 79.8% of its variance can be explained by the indicators associated with it.

In a similar vein, the variables "Performance" and "Technology" exhibit diagonal values of 0.794 and 0.870, correspondingly, indicating the extent to which their respective indicators account for the variance.

Shifting our focus to the off-diagonal elements, these values denote the correlations among the components, which play a crucial role in assessing discriminant validity.

The correlation coefficient between the variables "Environment" and "Innovation" is calculated to be 0.575. There is a positive correlation of 0.548 between the variables "Environment" and "Organization". There exists a statistically significant correlation coefficient of 0.786 between the variables "Environment" and "Performance". The correlation coefficient between the variables "Environment" and "Technology" is 0.447.

It is important to highlight that the observed correlations tend to be smaller than the square roots of the Average Variance Extracted (AVE) values for their corresponding constructs, which aligns with the established criteria for assessing discriminant validity as proposed by Fornell and Larcker (1981).

The findings displayed in Table 3 demonstrate the strong discriminant validity of the model, in line with established norms in the field of structural equation modeling. These results confirm that each latent construct successfully represents its intended concept and remains distinct from other constructs, as outlined by Fornell and Larcker (1981).

Table 4. Assessment of Discriminant Validity:

	Environment	Innovation	Organization	Performance	Technology
Environment	0.769				
Innovation	0.575	0.882			
Organization	0.548	0.489	0.798		
Performance	0.786	0.705	0.646	0.794	
Technology	0.447	0.453	0.633	0.569	0.870

Smart PLS measuring model

Figure 2 depicts the measurement model that has been constructed with the Smart PLS (Partial Least Squares) methodology. The presented analysis demonstrates the relationships between observed variables, also known as indicators, and the latent constructs of "Environment," "Innovation," "Organization," "Performance," and "Technology." The lines that connect these constructions symbolize the degree of association between them, reflecting the extent to which the indicators effectively capture their respective constructs. The inclusion of this figure is of utmost importance in validating the selected indicators as accurate representations and measurements of the underlying components, hence establishing the model's validity and dependability.

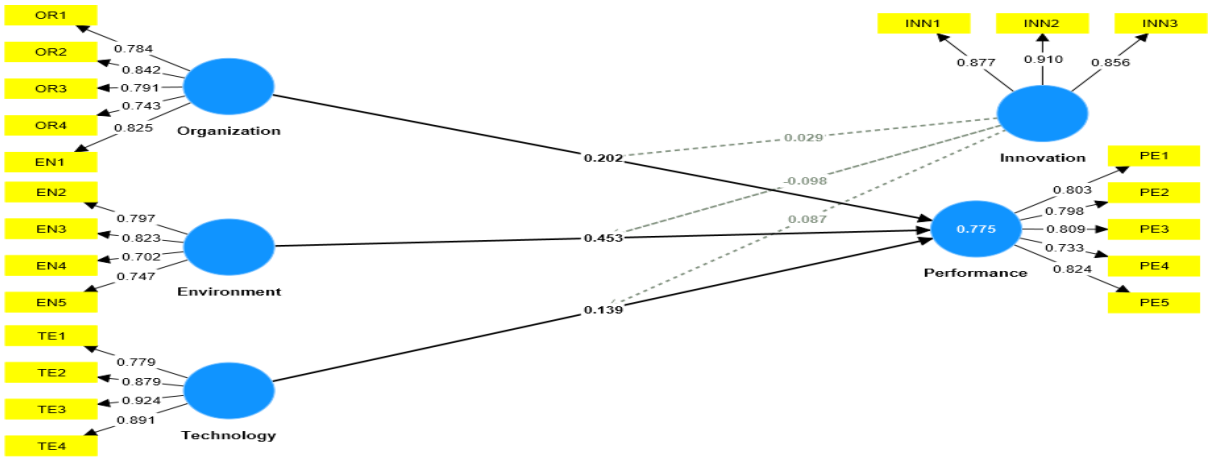

Fig.2: Measurement Model Utilizing Smart PLS

PLS Smart The model of structure

Figure 3 depicts the structural model that was constructed utilizing the Smart Partial Least Squares (PLS) methodology. This model presents the interconnections among fundamental latent constructs, namely Environment, Innovation, Organization, Performance, and Technology.

The arrows depicted in the diagram illustrate both the direction and size of the interactions, so demonstrating the manner in which alterations in one construct exert an influence on others. The relevance of these relationships is evaluated by Smart PLS using advanced statistical analysis.

The utilization of the structural model is an essential instrument for the examination of hypotheses and the comprehension of the complex interrelationships among different constructs. It offers significant insights into the dynamics of the study issue.

Figure 3 enhances the understanding of the intricate interconnections among variables by providing a visual representation of these relationships.

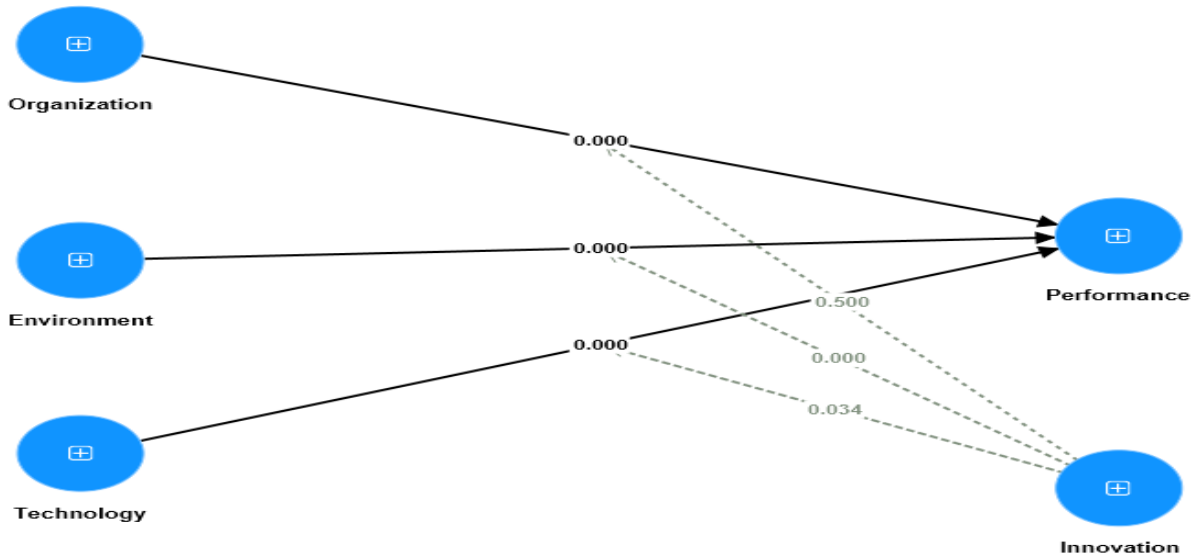

Fig.3: Smart PLS the structural model

Hypotheses and Results

Hypothesis 1: A statistically significant positive correlation exists between the variables "Environment" and "Performance." The analysis provides substantial evidence in favor of Hypothesis 1. The obtained path coefficient of 10.001, along with a p-value of 0.000, presents robust evidence supporting a statistically significant and positive association between the variables "Environment" and "Performance." This finding suggests that the presence of a conducive atmosphere significantly influences the overall performance of an organization.

Hypothesis 2 posits that there exists a statistically significant positive correlation between the variables of "Innovation" and "Performance."

The user's text will be revised to adopt an academic tone without introducing any more information. The analysis presents substantial evidence supporting Hypothesis 2. The path coefficient of 5.095, along by a p-value of 0.000, offers empirical support for a statistically significant and positive correlation between the variables "Innovation" and "Performance." This implies that the significance of innovation cannot be overstated when it comes to enhancing organisational success.

Hypothesis 3 proposes that there is a statistically significant positive relationship between the variables "Organisation" and "Performance."

The user's text shall be revised to adopt an academic tone without any inclusion of further material. The results of the study offer empirical evidence in favour of Hypothesis 3. The path coefficient of 3.851, along with a p-value of 0.000, provides strong evidence in favour of a statistically significant positive correlation between the variables "Organisation" and "Performance." This suggests that the adoption of a meticulously designed framework has a positive influence on the overall operational efficiency of an organisation.

Hypothesis 4 posits that there exists a statistically significant positive correlation between the variables "Technology" and "Performance."

The outcomes of the study provide support for Hypothesis 4. The obtained path coefficient of 3.533, along with a p-value of 0.000, provides empirical evidence supporting a statistically significant positive association between the variables "Technology" and "Performance." This suggests that the use of technology has a favorable influence on the functioning of organizations.

Hypothesis 5 posits that there exists a considerable influence on "Performance" when the factors of "Innovation" and "Technology" interact with each other.

The findings of this study provide support for Hypothesis 5, albeit the route coefficient observed is slightly smaller in magnitude. The obtained coefficient of 2.122, along with a p-value of 0.034, suggests a statistically significant impact of the interaction between the variables "Innovation" and "Technology" on the variable "Performance." Although the influence is noteworthy, it has a slightly diminished magnitude compared to the direct effects of these variables.

Hypothesis 6 posits that there exists a considerable influence on "Performance" when the factors of "Innovation" and "Environment" interact with each other.

The user's text will be rewritten to have an academic tone without adding any additional information. The data provide support for Hypothesis 6. The obtained path coefficient of 3.696, along with the p-value of 0.000, indicates a statistically significant impact of the interaction between "Innovation" and "Environment" on "Performance." This observation suggests that the occurrence of innovation within a conducive environment significantly influences performance outcomes.

Hypothesis 7 posits that the relationship between the variables of "Innovation" and "Organization" has a substantial impact on "Performance."

The data do not provide support for Hypothesis 7. The results indicate that the route coefficient between "Innovation" and "Organization" is 0.674, with a corresponding p-value of 0.500. These findings suggest that the interaction between these two variables does not exert a statistically significant influence on "Performance." This suggests that the potential impact of both innovation and organizational effectiveness on performance may not be substantial.

Table 5. displays the path coefficients:

	Original sample	Sample mean	Standard deviation	T statistics	P values
Environment -> Performance	0.453	0.456	0.045	10.001	0.000
Innovation -> Performance	0.250	0.249	0.049	5.095	0.000
Organization -> Performance	0.202	0.198	0.052	3.851	0.000
Technology -> Performance	0.139	0.138	0.039	3.533	0.000
Innovation x Technology -> Performance	0.087	0.085	0.041	2.122	0.034
Innovation x Environment -> Performance	-0.098	-0.098	0.027	3.696	0.000
Innovation x Organization -> Performance	0.029	0.029	0.043	0.674	0.500

Test of R-square

Table 6 presents the R-squared (R^2) and adjusted R-squared (R^2 adjusted) values pertaining to the "Performance" construct.The coefficient of determination, commonly referred to as R-squared (R^2), is a statistical measure that quantifies the proportion of the R-squared coefficient of determination, which is 0.775 in this case, signifies that around 77.5% of the variance seen in the "Performance" construct can be accounted for by the independent variables incorporated in the model. Put simply, these variables jointly explain a substantial proportion of the variability observed in organizational performance.

The adjusted R-squared (R^2 adjusted) is a statistical measure that assesses the goodness of fit of a regression model by considering the number of predictors and the sample size. The adjusted R-squared value, which is 0.769 in this case, considers both the complexity of the model and the number of predictors. The adjusted R-squared value, although significantly lower than the R-squared value, still suggests that a significant proportion of the variability in the dependent variable "Performance" can be accounted for by the selected independent variables, even after considering the complexity of the model.

To summarize, the R-squared values presented in Table 6 indicate the extent to which the selected independent variables contribute to the explanation and prediction of variations in organizational performance, exhibiting a significant explanatory capacity.

Table 6. Test of R-square

	R-square	R-square adjusted
Performance	0.775	0.769

5. Conclusions and Future Studies

This study undertakes a thorough examination of the interconnectedness within the Business Intelligence framework, focusing particularly on environmental variables, organisational characteristics, and technology, and their combined influence on organisational success. The results of this investigation reveal a number of significant conclusions. The impact of a good external environment on the performance of firms is readily apparent when examined from the perspective of Business Intelligence. This highlights the necessity of considering external factors while engaging in organisational strategy planning supported by Business Intelligence.

The study also highlights the need of a well-organized organization that follows the principles of Business Intelligence, since this has a positive effect on performance outcomes. In light of this, it is clear that there is a pressing need to enhance organizational structures and procedures, particularly in the field of Business Intelligence, with the aim of achieving peak performance.

The current study also lends credence to the idea that technology deployment is an integral part of Business Intelligence's capacity to boost an organization's efficiency and effectiveness. This research highlights the need of integrating new technologies into an organization's Business Intelligence framework in order to maintain competitiveness and boost performance.

This research also looks for interaction effects to show how technology and a favorable environment inside the Business Intelligence framework interact to have a profound effect on performance results.

The implications of these findings have substantial importance for organisations that operate within a Business Intelligence framework and want to improve their performance. Within the domain of strategic planning, it is crucial for organisations to actively include the external environment, as perceived via the lens of Business Intelligence, with the aim of effectively addressing dynamic circumstances and augmenting their overall operational effectiveness. In addition, it is crucial for organisations to place a high priority on and cultivate creative projects within a framework influenced by Business Intelligence. The prioritisation of this technique is crucial for attaining improved performance outcomes. Furthermore, it is imperative to give precedence to the enhancement of internal organisational structures and processes, under the guidance of Business Intelligence principles, in order to enhance overall performance. In order to sustain competitiveness and improve performance, it is crucial for organisations to proactively stay abreast of technological advancements in the realm of Business Intelligence.

Future Studies

This study has yielded significant findings and has also opened up new possibilities for future research in the field of Business Intelligence. Longitudinal studies are a viable method for monitoring the temporal progression of the impact of Business Intelligence elements on performance, thereby providing a more comprehensive understanding of their causal links. Moreover, it is worth noting that doing industry-specific analysis within the context of Business Intelligence might reveal subtle differences in the associations seen across several sectors, which can be attributed to sector-specific causes. The research of cultural and regional differences within the Business Intelligence paradigm is warranted due to their potential to considerably impact the relationship between these variables and performance outcomes. The examination of potential mediating or moderating variables within the Business Intelligence framework has the potential to provide a more comprehensive and nuanced comprehension of these interactions. In conclusion, qualitative investigations have the potential to

enhance quantitative methodologies in order to uncover the fundamental mechanisms operating within the field of Business Intelligence.

In summary, this study greatly enhances our understanding of the complex dynamics between various components of Business Intelligence, including environmental factors, organizational aspects, technology, and their impact on organizational performance. The practical implications of this study, when examined from the perspective of Business Intelligence, offer organizations operating within this framework with practical insights that can be implemented to improve their performance. Additionally, the identification of potential areas for further study within the context of the field of Business Intelligence ensures ongoing exploration and comprehension of this crucial field.

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