The Impact of Digital Entrepreneurship on Competitive Advantage through Business Intelligence in Jordanian Commercial Banks

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Abstract

The study sought to demonstrate the influence of digital entrepreneurship on competitive advantage in Jordanian commercial banks, with business intelligence serving as a mediating factor. In order to accomplish the study's goals and address its inquiries, the researchers opted for a descriptive analytical methodology. The sample comprised 12 commercial banks from Jordan. The study employed the survey methodology to gather data from the study population. A questionnaire was prepared and disseminated to the study sample, with a total of 300 questionnaires being distributed. A total of 257 questionnaires, which accounted for 85.7% of the total distributed questionnaires, were collected for statistical analysis. The study data was examined utilizing suitable statistical analysis tools based on the statistical software SPSS. The study revealed many findings, with the most crucial being the statistically significant influence of digital entrepreneurship on competitive advantage in Jordanian commercial banks. This impact was mediated via business intelligence. The findings demonstrated a statistically significant influence of digital entrepreneurship on competitive advantage in Jordanian commercial banks, with business intelligence acting as a mediating factor. The utilization of business intelligence approaches plays a crucial role in encouraging and supporting the successful and effective investment of digital entrepreneurship, leading to a competitive advantage. Business intelligence is the process of examining and understanding digital data in order to gain important insights and strategic guidance that can aid in decision-making and lead to exceptional performance. The study highlights the crucial recommendations for Jordanian commercial banks to embrace practices and procedures that foster innovation and ongoing advancement. It emphasizes the utilization of digital technology as strategic instruments for growth and development in financial and banking services. This entails investing in a sophisticated technological infrastructure that supports business intelligence applications and digitization techniques.

Keywords: *Digital Entrepreneurship, Competitive Advantage, Business Intelligence, Jordanian Commercial Banks.*

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1. Introduction

Competitive advantage is the main entry for organizations and banks to have the competitive ability to maintain their market share and the possibility of increasing it in light of the tremendous (AlSondos & Salameh, 2020). Development in the technical and technological field that the markets are witnessing at the present time and the near future (Alghizzawi, Habes, et al., 2023; A. Alnaser et al., 2018). Organizations and banks that aim to have the ability to survive in the market or develop in it must modernize and create the necessary competitive advantages for that (F. Alnaser et al., 2023; Rahi et al., 2023). The use of digital leadership with its modern technologies has become one of the very important means of possessing a competitive advantage in organizations and banks (Rahi, Alghizzawi, et al., 2021). As digitization has entered many activities in the fields of marketing, distribution and digital projects related to creating added value and discovering digital opportunities for entrepreneurship, which made digital leadership an important variable that clearly affects in creating that desired competitive advantage (Al Mansoori et al., 2023; Alqurashi et al., 2023), among the modern technologies that have become adopted by organizations and banks is business intelligence. It is an important technology for success and progress in organizations and banks (F. Alnaser et al., 2023; Halim et al., 2023). It was noticed that the use of this technology has a significant impact in improving the correlation between the various variables that affect the desired results, including improving the relationship between digital entrepreneurship and competitive advantage.

The significance of the study is apparent in the worldwide trend towards utilizing digital technology and applications to enhance services, education, training, job, and commerce. Furthermore, digital entrepreneurship plays a crucial part in establishing a competitive advantage. Financial organizations, in particular, are eager to acquire sophisticated methods and technologies that successfully enhance their competitive edge and provide benefits to clients. Ultimately, the aim is to draw the focus of officials and decision makers to the interdependent and reciprocal connections among a set of factors that primarily influence the enhancement of institutional performance and customer satisfaction (Al Shamaileh & Alnaser, 2018; Salameh et al., 2020). Hence, this study aims to investigate the influence of digital entrepreneurship on competitive advantage, with a focus on the mediating role of business intelligence.

2. The intellectual relationship between digital entrepreneurship and competitive advantage through business intelligence in Jordanian commercial banks

(Bandera et al., 2016) described digital entrepreneurship as the utilization of digital cloud technology, mobile phone, big data, and social media to enhance entrepreneurial activities. Additionally, (Ratten, 2018) provided a definition of digital entrepreneurship as the process of converting physical resources into digital form within an organization and financial institutions. Banks and organizations are increasingly utilizing digital initiatives to incorporate information technology, encompassing marketing, online distribution, and customer engagement, as part of their digitalization efforts. Thus,(Anckar, 2016) has characterized the dimensions of digital entrepreneurship as the Digital knowledge: Within this context, the focus is on leveraging digital knowledge in the realm of digital entrepreneurship. The objective is to effectively harness this knowledge to generate value and uncover digital prospects for entrepreneurial endeavors.

This text discusses the utilization of digital systems by prominent companies and banks, and how to evaluate and compare their success, growth, and decline in the digital market. The comparison is based on the specific type of digital system employed by each entity, as well as an examination of the digital business environment, particularly the presence of

incubator digital markets (J. Al-Gasawneh et al., 2023). This text outlines the fundamental components of digital finance, which serve as significant benchmarks in the realm of entrepreneurship. These components include the expenses associated with adhering to tax regulations, the overall tax burden, the accessibility of investment money, and the simplicity of acquiring funds through local stocks and markets (J. A. Al-Gasawneh et al., 2022; Al-Okaily et al., 2019; Alsmadi et al., 2022). Digital leadership is an essential element in the realm of digital entrepreneurship. This refers to the proficiency in digital and electronic abilities that individuals possess, and how to standardize and integrate these skills with the fundamental principles of leadership (Alghizzawi et al., 2019; Salloum et al., 2021)

Electronic entrepreneurial culture refers to a cultural inclination towards self-employment. The electronic entrepreneurial culture signifies the proportion or ratio of individuals in society who are inclined to engage in independent activity inside the community. This is contingent upon the practices, values, traditions, and overall culture of the society in question (Mufeed Mohd Qasim, 2021).To ensure long-term success in the competitive banking sector, banks must effectively utilize digital entrepreneurship (Kraus et al., 2019), They must consistently strive for differentiation from their competitors by possessing either a single advantage or multiple advantages. By harnessing all accessible functionalities and striving for ongoing enhancement in alignment with market demands (Rahi et al., 2019, 2020a; Rahi, Mansour, et al., 2021). Competitive advantage refers to the means by which an economic unit or bank can enhance its market position and generate profits. This is achieved by differentiating and surpassing competitors in areas such as product quality, service excellence, pricing, cost efficiency, and production focus (Kreiterling, 2023). It can also be described as the state of being unique to an economic entity compared to its competitors, achieved by one or more of the key characteristics that contribute to competitive success (Raewf et al., 2021). The essential attributes of competitive advantage must be present, as outlined by (Raewf et al., 2021)

1- Perpetual and enduring: This implies that banks attain a competitive advantage in the long run rather than just in the immediate future.

2- Relativity: This concept implies that the competitive advantage is relative in comparison to competitors or various time periods.

3- Renewable: based on the data from the bank's external environment and its own capabilities and resources.

4- Adaptability: Referring to the ability to easily substitute competitive advantages with others in response to changes in the external environment or advancements in the capabilities of banks.

5- Proportional: This feature is used in a way that is directly proportional to the goals and outcomes that banks achieve in both the short and long term.

The researchers argue that banks require competent and logical leadership, equipped with entrepreneurial business acumen, driven by their conviction to achieve success both locally and globally. Consequently, the researchers concur with (Ukhalkar et al., 2021), Business intelligence refers to the tools, systems, and methods used by businesses to collect, integrate, analyze, and interpret data. This definition is supported by researchers as well (Mariani et al., 2018), Business intelligence serves as a strategic tool for banks seeking to achieve a global competitive advantage through digital leadership. It enhances business operations, decision-making, and the identification of market opportunities and threats. Additionally, it facilitates collaboration between banks, customers, suppliers, and competitors. Financial institutions that depend on business intelligence are capable of making well-informed strategic choices and effectively adjusting to a dynamic environment, enabling them to thrive in the digital business realm.

Based on the previous discussion, the hypotheses were formulate as follows:

H01: There is a positive impact of digital entrepreneurship with its dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital financing) on the competitive advantage in Jordanian commercial banks.

H02: There is a positive impact of digital entrepreneurship with its dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital financing) on business intelligence in Jordanian commercial banks.

H03: There is a positive impact of business intelligence on competitive advantage in Jordanian commercial banks.

H04: There is a postive impact of digital entrepreneurship with its dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on competitive advantage through business intelligence as a mediating variable in Jordanian commercial banks.

3. Methodology

The study employed an analytical descriptive strategy in order to attain its objectives and address its research issues (Habes et al., 2019; Rahi et al., 2020b, 2022), This is a frequently employed method in this area (Alghizzawi, Al-ameer, et al., 2023). The procedure involves utilizing suitable statistical techniques to analyze and interpret the data collected from the research population, with the aim of describing and understanding the relationships between variables and testing hypotheses (Habes, Alghizzawi, Ahmad, et al., 2023; Habes, Alghizzawi, Elareshi, et al., 2023; Habes, Ali, et al., 2021; Salloum et al., 2019).

The sample comprised 12 commercial banks from Jordan. The study sample comprised all Jordanian commercial banks, thereby representing the entire study population. The sampling and analysis unit consisted of the top executives, their deputies, managers, deputies, and assistants from various departments in Jordanian commercial banks. These departments included credit management, human resources, information systems, central operations, operations development and engineering, project management, marketing and corporate communication, digital innovation, administrative and engineering affairs, business banking, financial control, and strategic planning.

The study employed the survey methodology to gather data from the participants of the study population by means of a specifically crafted questionnaire that was created and sent to the individuals in the study sample (Al-Shibly et al., 2019; Habes, Alghizzawi, et al., 2021). A total of 300 questionnaires were distributed, out of which 257 were retrieved and considered valid for statistical analysis. This accounts for 85.7% of the total disseminated questionnaires. The table below displays the distribution of the study sample based on personal and vocational characteristics:

Table 1 presents the distribution of the study sample based on personal data.

Variable	Category	Frequency	Percentage
Gender	Male	152	59.1
	Female	105	40.9
Age	Less than 30	11	4.3
	From 30 - less than 40	82	31.9
	From 40 - less than 50	126	49.0
	50 years and over	38	14.8
Qualification	Bachelor's	187	72.8
	Higher Diploma	6	2.3
	Master's	60	23.3
	PhD	4	1.6

Specialization	Accounting	109	42.4
	Business management	40	15.6
	Banking and Financial Sciences	99	38.5
	Others	9	3.5
Total		257	%100

Table (1) shows that in terms of gender, it was found that (59.1%) of the study sample were males, and (40.9%) were females. This indicates a higher percentage of males compared to females, which may be due e to the nature of the administrative work in the Jordanian commercial banks, which requires the greatest amount of commitment to working hours, and the performance of some tasks outside the official working hours, which may be considered one of the hardships for females. In terms of age, the study sample individuals whose ages ranged between (40-less than 50) constituted the largest percentage, which amounted to (49.0%). This indicates the interest of Jordanian commercial banks in preserving their human resources. The high percentage may be due to the targeting of the study at the upper and middle administrative levels, which require relatively long periods of time to reach them.

Regarding educational qualifications, the survey revealed that the majority of participants possessed a bachelor's degree, accounting for 72.8% of the sample. This indicates a high level of scientific and cognitive proficiency among the study population. In terms of specialization, the majority of the study sample consisted of professionals in the field of accounting, making up 42.4% of the total. This was followed by specialists in the field of financial and banking sciences, comprising 38.5% of the sample. This pertains to the inherent characteristics of labor in Jordanian commercial banks and the specific operations and tasks they undertake.

4. Data analysis and hypothesis testing

4.1 The durability of the study tool

The stability of the study instrument was assessed by calculating Cronbach's Alpha Coefficient, which evaluates the degree of cohesion among the items of the questionnaire. This assessment was based on the variables of the study and the responses of the participants to the relevant items. The stability coefficient for the dimensions of the investigation is presented in Table (2). From the table, it is evident that all alpha values surpassed the minimum permissible threshold of 0.70 for statistical analysis (Hair et al., 2010) The alpha values fell between the range of 0.772 to 0.936.

Table 2 displays the stability coefficient for the items of the research variables' dimensions

Variable	Dimensions	Items number	Alpha value
The independent variable	Digital leader skills	5	0.849
	Digital knowledge	5	0.822
	Digital organizational culture	5	0.844
	Digital strategy	4	0.772
	Digital finance	5	0.848
	Digital entrepreneurship	24	0.936
Dependent variable	Competitive advantage	10	0.863
mediating variable	Business intelligence	10	0.898

4.2 Multi collinearity test

Table (3) displays the Variance Inflation Factor values for the dimensions of the independent variable, indicating the absence of significant correlation and linear overlap among these dimensions.

Table (3): Results of the variance inflation coefficient and variance tolerance test are presented

Variable	Variance inflation factor (VIF).	Tolerance
Digital leader skills	1.709	0.585
Digital knowledge	1.745	0.573
Digital organizational culture	2.186	0.458
Digital strategy	2.551	0.392
Digital finance	2.241	0.446

Table (3) shows that all VIF (variance inflation coefficient) values were below (10), and upon evaluating the tolerance coefficient, it was determined that all values were above (0.10). This suggests that there is no linear link between the dimensions of the independent variable (Pevalin & Robson, 2009).

4.2 Examination of the study data using detailed and informative analysis

Table (4) presents a concise overview of the mean values and significance of digital entrepreneurship and its various components. Jordanian commercial banks displayed a significant level of interest in digital entrepreneurship, as evidenced by an arithmetic mean of 4.322. The dimensions varied in terms of materiality, with the highest arithmetic mean observed in the dimension of "Digital Leader Skills" with a value of 4.379, while the lowest arithmetic mean was found in the dimension of "Digital Knowledge" at a value of 4.282. The study revealed a significant interest among Jordanian commercial banks in gaining a competitive edge, as evidenced by an average score of 4.340. Additionally, there was a notable interest among these banks in utilizing business intelligence, as indicated by an average score of 4.332.

Table 4 presents the arithmetic methods and materiality of cloud computing and its dimensions.

Variable	The arithmetic mean	Rank	Materiality
Digital leader skills	4.379	1	High
Digital knowledge	4.282	5	High
Digital organizational culture	4.335	2	High
Digital strategy	4.305	4	High
Digital finance	4.309	3	High
Digital entrepreneurship	4.322	-	High
Competitive advantage	4.340	-	High
Business intelligence	4.332	-	High

4.3 Hypothesis testing

The study aimed to evaluate four primary hypotheses. The primary objective was to examine the direct causal connection between the independent variable (digital entrepreneurship) and the dependent variable (competitive advantage). The second objective was to examine the direct causal connection between the independent variable (digital entrepreneurship) and the intermediary variable (business intelligence). The third hypothesis sought to examine the direct causal connection between the mediating variable (business intelligence) and the dependent variable (competitive advantage). Meanwhile, the fourth hypothesis aimed to investigate the direct causal relationship between the

independent variable (digital entrepreneurship) and the dependent variable (competitive advantage) by way of the indirect causal influence of the mediating variable (business intelligence).

Multiple Linear Regression analysis was employed to assess the primary and secondary hypotheses. The third primary hypothesis was tested using Simple Linear Regression analysis, while the fourth main hypothesis was tested using Path Analysis with the assistance of the Amos program supported by SPSS software. The results were presented in the following manner:

The primary hypothesis H01 posits that there is no statistically significant influence, at a significance level of $\alpha \leq 0.05$, of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital financing) on the competitive advantage in Jordanian commercial banks.

Table 5 presents the influence of digital entrepreneurship on competitive advantage.

Dependent variable	the independent variable	Unstandardized Coefficients		Standardized Coefficients		
		B coefficient	Standard error	Beta coefficient β	Calculated t	Sig. T
Competitive advantage	Digital leader skills	0.139	0.040	0.160	3.482	0.001
	Digital knowledge	0.299	0.041	0.339	7.289	0.000
	Digital organizational culture	0.086	0.044	0.102	1.949	0.052
	Digital strategy	0.102	0.051	0.113	2.009	0.046
	Digital finance	0.245	0.044	0.296	5.603	0.000
R correlation coefficient			Coefficient of determination R2	The calculated F value	Sig. F	
0.829			0.688	110.722	0.000	

Table (5) displays the outcomes of the multiple regression analysis examining the influence of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on the competitive advantage in Jordanian commercial banks. The correlation coefficient value was found to be (R = 0.829). This demonstrates a correlation between digital entrepreneurship and the ability to outperform competitors. The coefficient of determination, denoted as R2, had a value of 0.688. Consequently, digital entrepreneurship accounts for 68.8% of the variation in the proportional benefit. The F value was determined to be 110.722, with a significant level of 0.000. This verifies the statistical significance of the regression analysis at a significance level of $\alpha \leq 0.05$. It demonstrates that there is a considerable impact of digital entrepreneurship on competitive advantage.

The coefficient table indicates that the digital leader skills dimension has a significant impact on competitive advantage, with a coefficient value of 0.139 and a standard error of 0.040. The Beta value was 0.160, the T value was 3.482, and the level of significance was 0.001. Furthermore, the competitive advantage is influenced by the digital knowledge dimension, with a B value of 0.299 and a standard error of 0.041. The Beta coefficient was 0.339, while the T-value was 7.289, both significant at a threshold of 0.000. Furthermore, the digital strategy dimension has a significant impact on the competitive advantage, as indicated by a B value of 0.102 and a standard error of 0.051. The Beta coefficient was determined to be 0.113, while the T statistic was found to be 2.009. The level of significance, denoted as Sig., was calculated to be 0.046. Furthermore, the digital finance component has a significant impact on competitive advantage, as indicated by a B value of 0.245 and a standard error of 0.044. The Beta coefficient was calculated to be 0.296, while the T-value was determined to be 5.603, both at a significance level of 0.000.

Nevertheless, the digital organizational culture dimension did not have a significant impact on competitive advantage. This is evident from the low value of B (0.086) with a standard error of (0.044), as well as the value of Beta ($\beta = 0.102$) and T (1.949) at a significance level of (Sig. = 0.052).

The findings of the multiple regression analysis indicate that the first main null hypothesis is disproven and the alternative hypothesis is supported. The study states that there is a significant impact, with a level of significance of $\alpha \leq 0.05$, of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on the competitive advantage of Jordanian commercial banks.

The second primary hypothesis, H02, posits that there is no statistically significant influence, at a significance level of $\alpha \leq 0.05$, of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on business intelligence in Jordanian commercial banks.

Table 6 presents the influence of digital entrepreneurship on business intelligence.

Dependent variable	Independent variable	Unstandardized Coefficients		Standardized Coefficients		
		B coefficient	Standard error	Beta coefficient β	Calculated T	Sig. T
Business intelligence	Digital leader skills	0.170	0.056	0.178	3.047	0.003
	Digital knowledge	0.158	0.057	0.164	2.777	0.006
	Digital organizational culture	0.075	0.061	0.081	1.223	0.223
	Digital strategy	0.078	0.071	0.079	1.102	0.272
	digital finance	0.317	0.061	0.350	5.221	0.000
R correlation coefficient			Coefficient of determination R2	Calculated F value	Sig. F	
0.705			0.496	49.495	0.000	

Table (6) presents the findings of a multiple regression analysis that examined the influence of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on business intelligence in Jordanian commercial banks. The analysis revealed a correlation coefficient of (R = 0.705). This implies a correlation between digital entrepreneurship and business intelligence. The coefficient of determination, denoted as $R2$, had a value of 0.496. Consequently, digital entrepreneurship accounts for 49.6% of the variation in business intelligence. The F value was 49.495, with a significance level of 0.000. This validates the importance of the regression analysis at the specified significance level ($\alpha \leq 0.05$), indicating a statistically significant influence of digital entrepreneurship on business intelligence.

The coefficient table indicates that the dimension of digital leader abilities has a significant impact on business intelligence, with a coefficient value of 0.170 and a standard error of 0.056. The Beta coefficient was calculated to be 0.178, while the T statistic was found to be 3.047, both at a significance level of 0.003. Furthermore, the digital knowledge dimension has a significant influence on business intelligence, with a coefficient value of 0.158 and a standard error of 0.057. The Beta coefficient was determined to be 0.164, while the T-value was found to be 2.777, both at a significance level of 0.006. Furthermore, the digital finance component has a significant impact on business intelligence. The coefficient B is 0.317 with a standard error of 0.061. The

coefficient Beta (β) is 0.350 and the T-value is 5.221, with a level of significance (Sig.) of 0.000. Nevertheless, the digital organizational culture component did not have any significant influence on business intelligence, as indicated by the value of B (0.075) and the standard error (0.061). The Beta coefficient was calculated to be 0.081, while the T statistic had a value of 1.223. The level of significance, denoted as Sig., was determined to be 0.223. Furthermore, the digital strategy dimension had no effect on business intelligence, as indicated by the insignificant value of B (0.078) with a standard error of (0.071). The Beta value (β = 0.079) and T value (1.102) also did not reach statistical significance (Sig. = 0.272).

The findings of the multiple regression analysis indicate that the second main null hypothesis is rejected in favor of the alternative hypothesis. The study states that there is a statistically significant impact, with a level of significance (α≤0.05), of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on business intelligence in Jordanian commercial banks.

The third primary hypothesis, H03, posits that there is no statistically significant influence, at a significance level of α < 0.05, of business intelligence on the competitive advantage in Jordanian commercial banks.

Table (7): The impact of business intelligence on competitive advantage

Dependent variable	Independent variable	Unstandardized Coefficients		Standardized Coefficients		
		B coefficient	Standard error	Beta coefficient β	Calculated T	Sig. T
Competitive advantage	Business intelligence	0.682	0.038	0.747	17.966	0.000
R correlation coefficient			Coefficient of determination R2	Calculated F value	Sig. F	
		0.747	0.559	322.770		0.000

Table (7) presents the findings of a simple regression analysis examining the influence of business intelligence on competitive advantage in Jordanian commercial banks. The correlation coefficient value was determined to be (R = 0.747). This suggests a correlation between business intelligence and competitive advantage. The determination coefficient had a value of R2=0.559. Business intelligence accounts for 55.9% of the variance in competitive advantage. The F-value was 322.770, with a significance level of 0.000. This validates the importance of the regression analysis at a significance level of α≤0.05, suggesting that there is a statistically significant influence of business intelligence on competitive advantage.

The coefficient table indicates that the business intelligence dimension has a significant impact on competitive advantage, with a coefficient value of 0.682 and a standard error of 0.038. Furthermore, the Beta coefficient was determined to be 0.747, while the T-value was found to be 17.966. Both of these values were statistically significant, with a significance level of 0.000. The results of the simple regression analysis indicate that the third primary null hypothesis is rejected, and the alternative hypothesis is accepted. The alternative hypothesis states that there is a statistically significant impact, with a significance level of α≤0.05, of business intelligence on the competitive advantage in Jordanian commercial banks.

The fourth primary hypothesis, H04, posits that there is no statistically significant influence, at a significance level of α≤0.05, of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital

strategy, and digital finance) on competitive advantage, mediated by business intelligence, in Jordanian commercial banks.

Table 8: The path analysis test results aim to confirm the direct and indirect influence of digital entrepreneurship on competitive advantage, with business intelligence acting as a mediating variable.

Sig significance level	Model Fit							
	RAMSEA	NFI	IFI	CFI	GFI	df	Chi2	Statement
0.000	0.078	0.966	0.977	0.977	0.957	5	14.890	Competitive advantage
	Goodness of Fit mus proximity							GFI
	Comparative Fit Index							CFI
	Incremental Fit Index							IFI
	Normed Fit Index							NFI
	Root mean square error of approximation							RAMSEA

The findings from Table (8) indicate that the Chi-square value (Chi2 = 14.890) is statistically significant, as the significance threshold (Sig = 0.000) is less than 0.05. Furthermore, the quotient of dividing the value of Chi squared by the degree of freedom is 2.978, which is below the threshold of 5. The root mean square error of approximation, denoted as RAMSEA, was equal to 0.078, which was below the threshold value. However, the Goodness of Fit (GFI = 0.957) and the comparative fit index (CFI = 0.977) both imply a strong level of fit, as they are close to one. The Incremental Fit Index (IFI) was 0.977, which is in close proximity to one. Similarly, the Normed Fit Index (NFI) was 0.966, again near to one. These values suggest that all indicators demonstrate strong agreement with the model.

Table (9) presents the direct and indirect impact coefficients, as well as the overall impact, of the fourth key hypothesis.

Variable	Direct impact		indirect impact		overall impact	
	Digital Entrepreneurship	Business Intelligence	Digital Entrepreneurship	Business Intelligence	Digital Entrepreneurship	Business Intelligence
Business Intelligence	0.822	-	-	-	0.822	-

Competitive advantage	0.702	0.217	0.178	-	0.880	0.217

Table (9) indicates that the direct and significant influence of digital entrepreneurship on competitive advantage was 0.702, while the direct and significant influence of digital entrepreneurship on business intelligence was 0.822. However, the direct and substantial influence of business intelligence on the competitive advantage was measured at 0.217. Table (9) indicates that the indirect influence of digital entrepreneurship on competitive advantage, mediated by business intelligence, was measured at 0.178. The study provides evidence of the substantial influence of business intelligence as a mediator in the relationship between digital entrepreneurship and competitive advantage. The overall impact, with a value of 0.880, is statistically significant at a significance level of less than 0.05. Thus, business intelligence is seen as a partial median.

This study provides evidence supporting the idea that business intelligence plays a beneficial role in mediating the relationship between digital entrepreneurship and competitive advantage, particularly when considering the various aspects of digital entrepreneurship together. Therefore, it can be concluded that the combined characteristics of digital entrepreneurship have an indirect influence on competitive advantage in Jordanian commercial banks, mediated by business intelligence. The path analysis results led to the rejection of the fourth main null hypothesis and the acceptance of the alternative hypothesis. The study states that there is a significant impact, with a level of significance of $\alpha \leq 0.05$, of digital entrepreneurship and its various dimensions (digital leader skills, digital knowledge, digital organizational culture, digital strategy, and digital finance) on competitive advantage in Jordanian commercial banks. This impact is mediated by the variable of business intelligence.
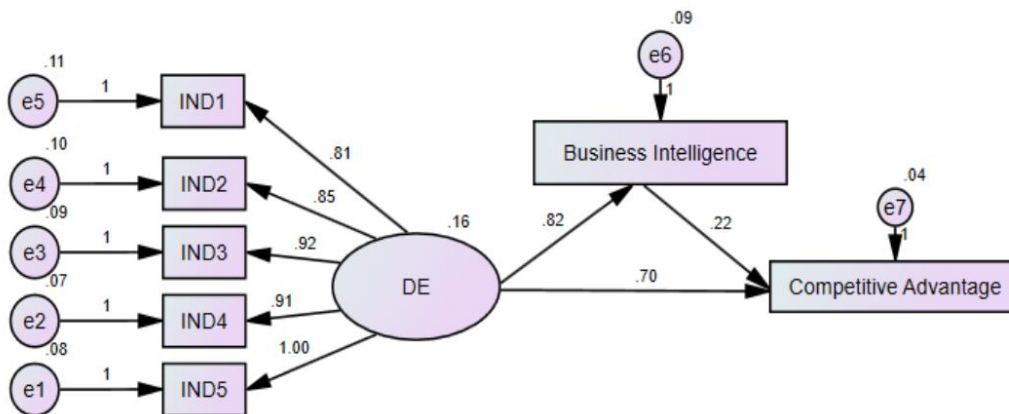

Figure 1: research framework

5. Findings & suggestions

5.1 Findings

The results obtained were based on the outputs of data analysis and hypothesis testing. The analysis revealed a significant degree of interest among Jordanian commercial banks in digital entrepreneurship. This suggests that Jordanian commercial banks recognize the significance of digital transformation and strive to fulfill customer needs and preferences by innovating in the advancement of financial services. They are willing to invest in technology and broaden the range of digital financial services, thereby bolstering their competitiveness. in addition to The investigation revealed a significant level of interest

from Jordanian commercial banks in gaining a competitive advantage. These findings demonstrate that Jordanian commercial banks have a strong understanding of the significance of attaining excellence in the financial services market. They prioritize promoting business growth, increasing returns, revenues, and profitability. They also focus on leveraging modern technology, developing innovative solutions, and offering unique services that cater to customer needs, ensuring customer retention and attracting new customers.

The investigation revealed a significant level of interest from Jordanian commercial banks in business intelligence. Jordanian commercial banks demonstrate a proclivity for utilizing technology and data to enhance their performance and create additional value for customers and shareholders. They employ these tools to comprehend customer behavior, analyze trends and expectations in the financial services market, and optimize the strategic decision-making process. This approach improves business performance, fosters growth, and ensures profitability by leveraging predictive analytics and models. Furthermore, it enables banks to anticipate potential risks, identify emerging opportunities, and proactively respond by implementing measures that align with their strategic objectives. The testing of the first main hypothesis revealed a statistically significant influence of digital entrepreneurship on the competitive advantage of Jordanian commercial banks. This suggests that digital entrepreneurship plays a crucial role in attaining excellence and success in the financial services industry. It enables Jordanian commercial banks to effectively adapt to digital transformation, implement innovative digital strategies, and provide user-friendly financial and banking services to meet customer demands and surpass competitors. Additionally, it aids in the examination of large datasets and the production of valuable insights through the utilization of analytics and artificial intelligence. This allows for informed business decision-making and the ability to forecast market trends, resulting in a competitive edge over rivals and continued advancement and triumph.

The testing of the second primary hypothesis revealed a statistically significant influence of digital entrepreneurship on business intelligence in Jordanian commercial banks. The role and positive impact of digital technology in the financial services industry are evident in its utilization of data, graphical analysis, and artificial intelligence techniques. These tools enable a comprehensive understanding of customer and market behavior and trends, as well as the ability to predict future events. Additionally, digital technology facilitates the identification of growth and expansion opportunities, the development of innovative products and services, the formulation of effective business strategies, and the making of informed decisions. The third main hypothesis revealed a statistically significant influence of business intelligence on the competitive advantage in Jordanian commercial banks. This pertains to the significance and beneficial influence of business intelligence technologies in attaining superior performance and surpassing rivals. These technologies furnish dependable and up-to-date information concerning customers, business operations, and the market. This information aids in comprehending market obstacles, evaluating product and service performance, and identifying competitive prospects and areas for internal enhancement. Consequently, rational decisions can be made and strategies can be formulated to attain a competitive edge.

Finally, the testing of the fourth main hypothesis revealed a statistically significant influence of digital entrepreneurship on competitive advantage in Jordanian commercial banks. This influence is mediated by the variable of business intelligence. The utilization of business intelligence techniques plays a crucial role in promoting and supporting the successful investment of digital entrepreneurship. By analyzing and interpreting digital data, business intelligence provides valuable insights and strategic guidance to facilitate decision-making and achieve superior performance, thereby enhancing competitive advantage.

5.2 Suggestions

According to the aforementioned results, the study suggests the following:

1-   Jordanian commercial banks must adopt innovative digital strategies, improving technological capabilities, investing more in business intelligence techniques, using them effectively, and promoting a culture of innovation to achieve better performance and outperform competitors in the market, excellence and success in the financial services industry.

2-   Jordanian commercial banks must adopt practices and procedures that support innovation and continuous development and the use of digital technology as strategic tools for growth and development in financial and banking services, by investing in an advanced technological infrastructure that supports business intelligence applications and digitization techniques. They also must conduct continuous updates and improvements on existing systems and technology used to ensure absorbing processing large amounts of data, provide powerful and customizable analytics tools, and encourage employees to bring new ideas and develop innovative solutions using digital technology.

3-   Jordanian commercial banks should direct towards improving their capabilities in analyzing data, predicting trends and making sustainable strategic decisions, by increasing the cognitive and technical competence of employees by using business intelligence tools and techniques, and analyzing and interpreting data and converting them into valuable insights.

4-   Enhancing coordination, cooperation and communication between the various departments within the Jordanian commercial banks, including the financial, technological and customer departments, and exchanging information and data between them to achieve deeper insights and make informed strategic decisions.

5-   Jordanian commercial banks should use clear and measurable performance indicators to measure the impact of the use of business intelligence and digital entrepreneurship on competitive advantage, and conduct continuous and regular monitoring and evaluation of results and data analysis to identify strong and weak points and take corrective actions that enhance performance and competitiveness.

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