The Role of Business Intelligence Technologies in Organizational Agility and Communication Technologies as a Mediator in Jordanian Telecom Companies

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ABSTRACT

The purpose of this study was to confirm how business intelligence technologies (BIT) contribute to organizational agility (OA) and how communication technologies (CT) function as a mediator in telecom firms in Jordan. A quantitative method was used in this study to gather data from the participants. The study concentrated on how businesses, using CT as a mediating variable, perceived and comprehended the role and significance of BIT in improving OA. The survey instrument was developed by applying the structured questionnaire design. PLS-SEM, a variance-based technique, was employed in the analysis. There were three Jordanian telecom companies included in the study sample. There were 216 surveys sent out in total, and a total of 198 questionnaires were returned. The study's conclusions showed that OA and CT were impacted by BIT. In addition, the findings contribute to the theoretical understanding of the mediating role of CT in the context of OA and BIT. This study focused on how telecom companies can influence BIT and CT to develop agility, improving their operational efficiency and responsiveness in the markets.

Keywords: Business Intelligence Technologies, Organizational Agility, Communication Technologies, Jordanian Telecom Companies.

ARTICLE INFO

Article History:
Received: 16 July 2024
Accepted:17 January 2025
Available online: 1 April 2025

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INTRODUCTION

Business Intelligence (BI) plays a big part in improving how businesses operate and how decisions are made. BI solutions make it simple to carry out duties, tasks, and interactions between workers themselves and other organizational units (Jarrah et al., 2022). BI also aids in managing the interaction between organizations that can manage change and their clients and their needs. As a result, it enables businesses to conduct searches and gather crucial information for better decision-making (Al Aqasrawi & Alafi, 2022). Likewise, the adoption of BI is essential for maintaining the accomplishment of an organization's strategic goals, providing better information, and reengineering business procedures (Alqudah et al., 2023). BI adoption has the potential to improve decision-making processes in the long run, making it a popular information technology innovation (Tjhin et al., 2023). The hypercompetitive nature of today's corporate settings has shifted organizational focus to agility as a strategic competency. It is projected to play an essential role in the development of OA (Chakravarty et al. 2013). Information Technology (IT) infrastructure encompasses network services, database services, and security services that a BI application can employ (Chen & Siau, 2012). In addition, the increase of BI as a data-driven business analytical tool was analysed operating an inclusive method, and this was encouraged as a frontier of explore and growth for efficiency and innovation (Al-Suwaihel, 2023). By streamlining data processing, enhancing decision-making skills, allowing human interaction with computers, and supporting organizational capacity enhancement, BI exemplifies information management. Also, organizations struggle to implement BI due to poor management, insufficient planning, and unmet business requirements (Lateef & Keikhosrokiani, 2023).

Furthermore, OA refers to a company's capacity to do a comprehensive scan of external factors as well as internal processes and variables to meet and engage with client needs (Al-Zubi, 2023). OA is more likely to exchange knowledge and skills and to adapt to changes. Innovative businesses respond to possibilities and dangers by utilizing digital platforms (Hanandeh et al., 2021). Also, a volatile and competitive business climate requires organizations to not only react to changes as they occur but also to foresee changes before they occur in the marketplace (Gadelrab & Al-Jarallah, 2023). As a findings, all company that requirements to survive

and extend in the maximum recent worldwide business climate must be flexible. A business has to respond another way to internal and external modifications in the corporate environment (Hailat et al., 2023). As a result, the direct objective of an agile organization is to adapt to changes and cope with unstable organization situations (Nzewi & Moneme, 2016). To successfully handle the modern big data era, businesses have thus progressed to massive data-centric methods to BI and communication. Examples of these approaches include advancements in techniques, technologies, and governance for data collection, data warehousing, and analytics to extract intelligence from big data (Park et al., 2017).

Therefore, the company climate is categorized by quick and unforeseen changes, several of which are fuelled by high-tech growth and the ability to respond successfully and adapt to changing wants is not just needed, but necessary in such a setting. A thorough and rapid knowledge of the complexities of market shifts enables a corporation to respond more quickly and effectively. OA, BI, and communication technology (CT) are three principles that influence this development. Despite the ability of BI to create OA and, as a result, increase organizational operation, a link involving BI, OA, and CT has yet to be established.

In this study, the research problem attended to the gap in understanding how BIT and CT can enhance OA, especially in the context of Jordan's telecom business. While past articles have discovered the role of BIT and CT in several organizational results, limited articles have shown how these techniques cooperatively improve agility, a critical factor for businesses facing quick high-tech developments and unstable market environments. Current literature, such as Ying Lu and Ramamurthi (2011) and Afnan and Faisal (2023), has often placed OA as mediator or an independent variable. This study sought to fill that gap by discovering the influence of these technologies and agility, enabling the businesses to increase their responsiveness and adaptability in the digital era. Finally, this study focused on examining the relationship between BIT, OA and CT as a mediator in Jordanian Telecom Companies.

LITERATURE REVIEW

The term BI describes the many techniques and procedures applied to change data into information and, finally, knowledge. Examples of these techniques include clickstream analysis and purchase behaviour (Al-Zaqeba et al., 2022). Since its launch, BI's capabilities have also changed (Bani Hani et al., 2017). BI is thought of as a machine intelligence combination, and human intelligence, which allows massive amounts of data to be gathered from many sources, transformed into information and knowledge, then, insights that can be put to use. BI is importance has been emphasized with the increasing interest of firm choice creators and information systems academics (Kuelbour et al., 2016).

Besides, thriving in high-speed environments requires OA. An organization needs to quickly detect changes in the environment and adjust to take advantage of market opportunities (Park et al., 2017). Decision-makers and corporate planners can obtain significant and competitive information from BI systems, via merging operating and historic information with analytical tools (Al-Ajlan & Al-Qenaie, 2023). By enhancing the quality and timeliness of data, BI aims to provide managers with a deeper understanding of their organization's competitive position. For illustration, changes in marketplace divide, earnings, client preferences, and behaviour patterns, business resources, and market conditions can be examined with uses of BI tools and technology. BI also can be used to analysts and managers in order to uncover which changes are most possible to reduce to growing patterns (Bharadiya, 2023).

Business Intelligence

A recent development in business that can benefit companies is BI (Chen & Siau, 2012). BI is one of the newer business concepts that describe how technological tools are used in business organizations to deal with data. According to Işık et al., (2013), BI is a combination of corporate and technical tools that examine historical data or raw tools from several funds and then change them into clear report that facilitates leaders in making decisions. Also, BI is a word that describes a variety of informatics applications with a reasonable foundation that is used in organizations to analyses information and transform it into data that will

serve as the foundation for managerial decisions (Airinei & Berta, 2012). Therefore, strategic entrepreneurship is a novel discipline that is focused on the merger of entrepreneurship and strategic management and is derived from the principles of entrepreneurship and strategy. When entrepreneurship and strategic management are properly integrated, they produce wealth (Al Aqasrawi & Alafi, 2022). BI also comprises apps, online analytical reports, and combined information to support administrations in making well findings, accumulating employer knowledge skills, and gaining additional practice with the purpose of supporting administrations in improving decision-making procedures. Intelligence in business in summary, different approaches of measure BI maturity have distinct effects on the orientation of OA (Popovi et al., 2012).

Organizational Agility

OA is the ability to anticipate events and make accurate, timely adjustments in response to them (Al Zobi & Jarah, 2023). It's also means spotting chances early and seizing them before rivals do. Agile firms are quick to detect and react to changes, flexible to changing conditions and resourceful (Kuilboer et al., 2016). Furthermore, Jebril et al. (2023) indicated that OA is a key organization's ability characteristic to outperform its rivals by promptly and nimbly responding to both external and internal issues. Also, OA is the deliberate and systematic alteration of organizational outputs, processes, structures, and activities to gain a competitive advantage (Bani-Hani et al., 2017). Likewise, Jarah et al. (2023) stated that open innovation is the ongoing capacity to increase inventiveness and speed in reaction to unforeseen modifications in the corporate situation. Additionally, Chakravarty et al. (2013) indicated that it strengthens organization's capacity to enter markets proactively and enhances corporate agility, enabling it to modify its plans and goals, create a new business model, and begin competing in a range of settings. OA is intended to anticipate amends in the organisation model and arrangement with their reform in order to create an organization and processes that can adapt to any new development and still satisfy the objectives of the firm (Hanandeh et al., 2021). Lastly, Shajrawi and Aburub (2023) showed that OA is the ongoing capacity to raise the efficacy and efficiency with which company operations are carried out, or the capacity to predict market dynamics, adapt to them, and outrun change by moving implementing and forward changes.

Communication Technologies

There has been a significant increase in digitization of non-digital services and goods, resulting in significant social, economic and organizational phenomena (Maatouq, 2023). Through introducing new markets and pushing new types of expertise, information and communications technology (ICT) helped service companies increase their productivity and efficiency during this period (Bani Hani et al., 2017). Information can be shared and aggregated when information technology is combined with knowledge and skills, opening new possibilities for combinational innovation and service exchange (Vargo et al., 2015). However, ICT drives societal and economic change towards inclusivity, justice, sustainability and competitiveness. ICT has been shown to support effective and superior development (Chang et al., 2023).

Hypotheses Development

Utilizing OA and having BI are two strategies that help businesses obtain a competitive edge. OA and a higher staff effectiveness index could be indicators of this competitive advantage (Piran et al., 2022). Işk et al. (2013) discovered that technological capacities as data value, employer access, and combining BI with further systems are critical for BI success, regardless of the evaluation situation. The connection between BI success and capabilities, nevertheless, is induced via the decision environment. Illustrations of these involve the extent to which BI permits flexibility and threat in decision-making. Additionally, research by Al Aqasrawi and Alafi (2022) showed that BI significantly improves strategic entrepreneurship. Also, OA acted as a link between Strategic Entrepreneurship and Business Intelligence. ICT functions as a mediator between BI and employee empowerment, according to Alyan's (2022) research. Furthermore, this study demonstrated that in Jordanian institutions, information and CT serve while a mediator and variable between the effect of BI and worker empowerment. The results of this examine via Tjhin et al. (2023) determine that the adoption of BI affects competitive performance, IT infrastructure flexibility affects competitive performance, system quality affects OA, and competitive performance affects OA. According to the results of Lu and Ram (2011), there is a possible answer to the conflicting effect of IT on agility: while more IT expenditure does not lead to higher agility, spending it in such a way that enhances and fosters IT capabilities does.

The findings of Park et al. (2017) showed equational paths to OA as well as the particular limit environment of our middle-range theory that state the role of BI and CT in companies achieving OA. Hanandeh et al. (2021) discovered a statistically significant beneficial influence of BI, outside drivers, and improvement ability on OA. Lastly, the study demonstrates the significance of analytical decision-making background as a mediator between BI, external forces, innovation capability, and OA. According to Cheng et al. (2020), BI has a significant influence on the speed of internationalization, and OA positively mediates such causal relationships. Cultural distance, on the other hand, negatively moderates the relationship between OA and the speed of internationalization.

According to the findings of Chakravarty et al. (2013), managers should take into consideration (many) circumstances (observed and unobserved) when evaluating the effects of IT capabilities on OA and firm performance. Nzewi and Moneme (2016) discovered a substantial association between the selected banks' business agility and competitive advantage. Flexibility and Competence, on the other hand, were not found to be statistically significant, although Reactiveness, Responsiveness, and Speed were. Business agility, according to the study's findings, is a particular capability that provides a competitive advantage in a fast-paced and uncertain corporate environment. According to GhalichKhani and Hakkak (2016), BI has both direct and indirect effects on OA through empowerment. According to Shajrawi and Aburub's (2023) studies, enterprise resource planning system adoption has a significant effect on service differentiation in Jordanian hotels, which is mediated by OA. However, OA and its proportions are a partial mediator in the relationship between ERP system adoption and service differentiation. The findings of Piran et al. (2022) demonstrated that BI had a positive and significant effect on OA. Furthermore, communal knowledge generation was found to need a substantial favourable influence on OA via the mediating role of employee BI.

According to Ahmad et al. (2023) data mining, business process management, competitive intelligence, and data warehousing all directly and favourably affect firm performance. Chen and Siau (2012) exposed that BI and the flexibility of IT infrastructure are two important elements impacting OA. Bani Hani et al. (2017) also found that through redefining present administrative structures, employee empowerment, and different

access to administrative resources, as well as BI improves participants' understanding of supply and demand, increases access to user responds quickly to requests, clickstreams and traffic data, and increases access to source and request navigation performance and operative change quickness.

Vahdati and Naemi (2020) confirmed that there is a noteworthy and beneficial correlation between ICT and OA also between ICT and targeted organizational forgetting and OA. Besides, the relationship between OA and ICT demonstrated a mediation role for targeted organizational forgetfulness. Chen and Siau (2020) demonstrated a close connection between the flexible IT infrastructure, use of business analytics, and open access. According to the results, businesses may also need to create a more flexible IT infrastructure in order to take use of business analytics. The evidence, however, refuted the theory that linked the two OA variables. Lastly, Lateef and Keikhosrokiani's (2023) asserted that key success factors contributed to BI adoption in SMEs include knowledge management, technological orientation, market intelligence, and orientation, and entrepreneurial approach. Organizational culture, management structure, and organizational resources were considered to be unimportant success factors for SMEs for BI implementation.

This study aimed to analyze how BIT contributed to enhancing OA in telecom businesses in Jordan, with CT as a mediating factor. The study sought to provide insights into the direct and indirect effects of BIT and CT on OA, assisting businesses to improve their responsiveness and adaptability in dynamic environments. Thus, this leads to the following hypotheses:

H1: Business intelligence technologies have a positive influence on communication technologies.
H2: Communication technologies have a positive influence on organizational agility.
H3: Business intelligence technologies have a positive influence on organizational agility.
H4: There is a mediating effect of communication technologies on the relationship between business intelligence technologies and organizational agility.

METHODOLOGY

The descriptive analysis in this part shows the main demographic characteristics of the responding sample that was made up of 193 cases to describe the frequencies of all answers calculated from personal information - Gender, Education, Experience, and Managerial level- (see Table 1). The perceptions or the level of agreement of top and middle managers of manufacturing companies listed in Amman stock exchange under the Jordanian telecom companies included in the study sample were measured through employing a five-point-Likert scale.

Table 1: Summary of Demographic Characteristics

Respondents		Frequency
Gender	Male	127
	Female	41
Experience	01 to < 05	33
	05 to < 10	51
	10 to < 15	40
	15 to < 20	39
	Over 20	30
Education	Bachelor	129
	Master	35
	Doctoral	19
	Others	10
Managerial Level	Top Management	73
	Middle Management	120
Total		**193**

OA is intended to anticipate changes in the business model and deal with their reform in order to create an organization and processes that can adapt to any new development and still satisfy the objectives of the firm (Hanandeh et al., 2021). According to Shajrawi and Aburub (2023), OA is the ongoing capacity to raise the efficacy and efficiency with which company operations are carried out, or the capacity to predict market dynamics, adapt to them, and outrun change by moving forward and implementing changes. Moreover, a survey instrument was created using the structured questionnaire design (see appendix). A five-point Likert scale was used to categories each item: 5 denotes “strongly agree,” 4 denotes “agree,” 3 denotes “neutral,” 2 denotes “disagree,” and 1 denotes “strongly disagree.” A quantitative method was used in this study to gather data from the

participants. The study concentrated on how businesses perceived and comprehended the value and purpose of BI technology (Web Analytics, Data Warehouses, and Data Mining) for the enhancement of OA (Sensing and acting Agility, Administrative Agility, and Decision-Making Agility) through CT as a mediating variable based on their experience and/or understanding. An appropriate study data-collecting technique was provided by the quantitative approach, which made it possible to gather a significant amount of data from a sizable population in an incredibly cost-effective manner. Lastly, the Advanced Package for Statistical Analysis (SEM-PLS, V.4) program was used to carry out the statistical analysis.

A field study related to the subject of the study was provided through a survey list that was prepared following what was previously explained, which will be distributed to the study sample, and then statistical analyses appropriate to the nature of the data obtained. There were three Jordanian telecom companies included in the study sample. There were 216 surveys sent out in total. There were 198 questionnaires received in all, 193 of which were completed and 5 of which were not. 18 surveys were not returned in total. The sample size overview is displayed in Table 2.

Table 2: Summary of Sample Size

Category		Number of Questionnaire Distributed	Number of Completed Questionnaires Returned	Number of Uncompleted Questionnaires Returned	Number of Questionnaires Unreturned
Jordanian Telecom Companies	First Companies	78	70	2	8
	Second Companies	75	71	1	6
	Third Companies	63	52	2	4
Total		216	193	5	18

Measurement Model Assessment

Factor Loading (Outer Loading)

The reliability of values was reviewed utilizing the factor loading exam. When a construct exhibits high load values, it recommends that the associated indicators share frequent elements, as emphasized by Hair et al. (2017). Hair et al. (2014) have shown that factor loadings exceeding 0.70 are considered statistically significant. In this study, all items exceeded the

mentioned value of 0.7, as illustrated in Table 3, where the factor loadings for all items are represented. Figure 1 shows the model applied in Smart PLS 4 and before deleting items. Figure 2 illustrates the factor loadings after take-off items with factor loadings less than 0.7. The retained items in the model met the criteria for creating convergent validity, which determined the degree to which a measure can completely correspond to other measures of the same construct.

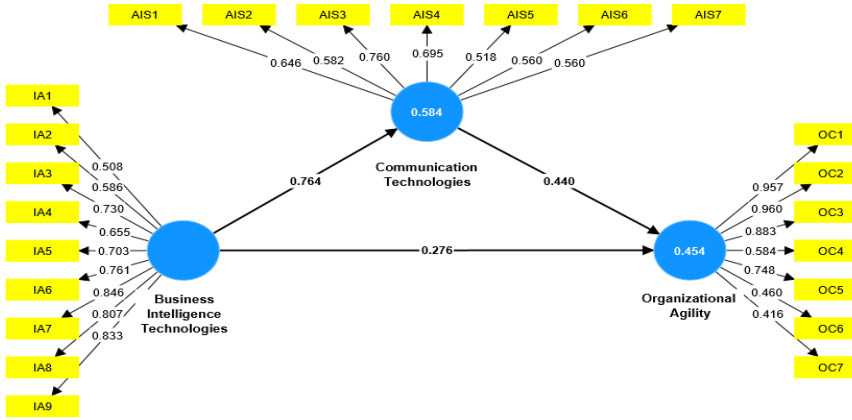

Figure 1: Model Before Delete Items

Table 3: Factor Loading Results

Construct	Factor Loading ≥ 0.70	Factor Loading ≤ 0.70
BIT	5,6,7,8, and 9	1,2,3 and 4
OA	1,2,3, and 5	4,6, and 7
CT	2,3 and 4	1,5,6, and 7

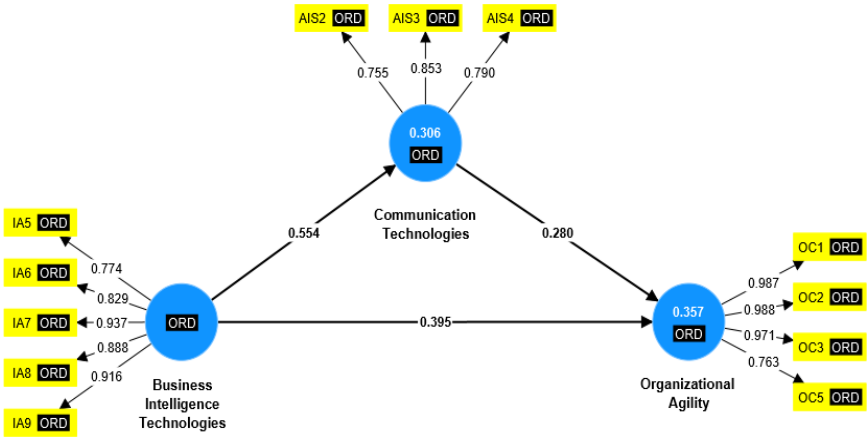

Figure 2: Factor Loading After Excluding Items

Cronbach's Alpha, Composite Reliability, and Average Variance Extracted

In this study, we were able to determine the measurement model's reliability using Cronbach's alpha coefficients. This evaluation was designed to gauge the reliability of each core variable. The results indicated that the individual Cronbach's Alpha factors ranged from 0.749 to 0.947, all of which were the recommended upper limit of 0.60, as recommended by Hair et al. (2014). Additionally, when assessing composite reliability, the composite reliability values, ranged from 0.730 to 0.979, exceeded the reference value of 0.70, as required by Hair et al. (2014), affirming the system's overall reliability. These results are shown in Table 4. Therefore, the Cronbach's alpha and composite reliability achieved for all constructs were believed to be adequately free of errors.

The next step in assessing measurement models required testing a construct's convergent validity. Convergent validity is based on the extent to which a given construct is aligned with its values, as illustrated by Sarstedt et al. (2019). To assess the construct's convergent validity, the average variance extracted (AVE) for all items was contemplated, in accordance with Sarstedt et al. (2019). The AVE was computed as the average of the squared loadings of each indicator connected to a construct (for standardized data). These results are shown in Table 4, satisfactory AVE threshold is 0.50 or higher. When the AVE reaches this level or exceeds it, it indicates that the construction accounts for more than 50% of the variance within its items, as stated by Sarstedt et al. (2019).

Table 4: Measurement Model Assessment Results

Construct	Cronbach's Alpha	Composite Reliability	AVE
BIT	0.919	0.924	0.759
OA	0.947	0.979	0.869
CT	0.749	0.730	0.640

Discriminant Validity

Table 5 shows the Fornell-Larcker discriminant validity exam outcomes. The square root of the AVEs on the diagonal is impressive than the correlations between the constructs, suggesting a strong correlation including the constructs and robust discriminant validity, as considered by Hair et al. (2017) and Chin (1998). Fornell and Larcker (1981) observed that the correlations between another model constructs are indeed strong, but they remain below 0.85, as per their decisions. An effective assessment of a concept's discriminant validity ensures that its validity remains unaffected by other criteria measuring distinct concepts, as highlighted by Hair et al. (2017).

Table 5: by Fornell-Larcker Criterion Outcome

Construct	BIT	CT	OA
BIT	0.871		
CT	0.554	0.800	
OA	0.550	0.499	0.932

Nevertheless, it is worth documenting that the Fornell-Larcker criterion has looked criticism. Henseler et al. (2015) indicated that it may not extend a comprehensive view of discriminant validity in normal study and introduced an alternative technique called the HTMT ratio of correlations. This study wants to evaluate the discriminant validity of the HTMT model. The values shown in Table 6 indicate that the model's discriminant validity has been satisfactorily recognized.

Table 6: HTMT Outcome

Construct	BIT	CT	OA
BIT			
CT	0.679		
OA	0.580	0.589	

Structural Model Assessment

R^2 values achieving an acceptable explanatory power level, as Chin (1998) recommended, indicate a substantial model. Additionally, Chin (1998) suggested that as a guideline measure of R^2, if R^2 is less than 0.19, it is unacceptable; if R^2 is between 0.19 to 0.33, it has a weak effect; if R^2 is between 0.33 to 0.67, it is medium; and if R^2 is more than 0.67, it has a strong effect, as shown in Table 7.

The effect sizes (f^2) of various endogenous and exogenous constructs are assessed. They are used to determine if an external construct has a significant or weak influence on an endogenous one (Gefen et al., 2011). Hair et al. (2017) suggested testing the change in the f^2 value. Cohen (1988) stated that if the value is less than 0.02, it displays no effect size, while if it is between 0.02 and 0.13, it displays medium size. Similarly, if it is between 0.13 and 0.35, it has a large effect size. The result of f^2 is illustrated in Table 7.

Table 7: Structural Model Assessment

Construct	R^2	R^2 adjusted	f^2
BIT			0.442
OA	0.357	0.350	0.169
CT	0.306	0.303	0.085

Hypothesis Results

After collecting data, the researchers came up with a set of four main hypotheses that were appropriate to the study. The structural model was examined using the recommendations of Hair et al. (2014) who stated that the relationship between the T-value and the value of the bootstrapping is significant. As Table 7 supports the hypothesis tests, BIT significantly predicted OA. Hence, H1 was accepted with (Original sample = 0.395, t-value = 5.380, p-value < 0.000). Likewise, BIT significantly CT. Hence, H2 was supported (Original sample = 0.554, t-value = 8.226, p-value < 0.000). Additionally, CT significantly OA. Hence, H3 was supported (Original sample = 0. 280, t-value = 3.801, p-value < 0.000), see Figure 3.

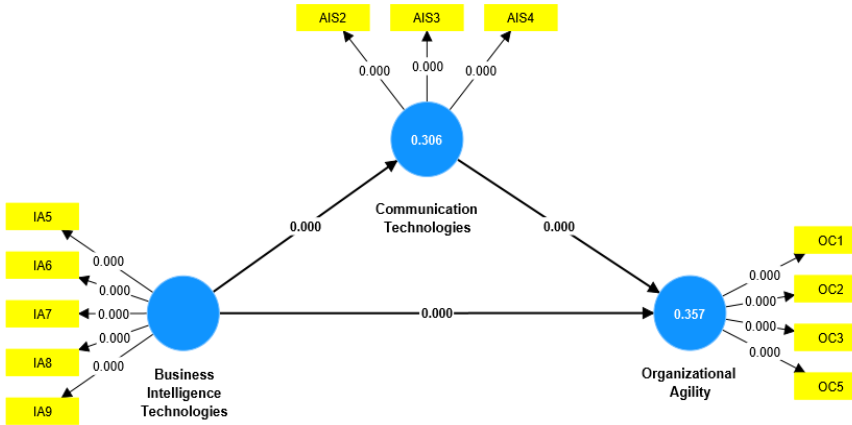

Figure 3: P-value Statistics Using Bootstrapping

Hayes and Preacher (2004, 2008) identified the problems with the Kenny and Baron approach to statistical analysis in the new millennium. they then offered a set of results that would allow researchers to test the effect of the mediation method using the bootstrapping method. Hair et al. (2017) advised that scholars follow the recommendations of Hayes and Preacher, (2004, 2008) when it comes to testing the mediating effects.

The test for the indirect effect (mediation effect) of BIT on OA through the CT in this study was based on the method employed by Preacher and Hayes (2004, 2008). Table 8 shows the outcome of the bootstrapping analysis, indicating that the indirect effect (Original sample = 0.155) was significant with a T-value of 3.153. Preacher and Hayes (2008) suggested that when the 0.262, 95% Boot CT: [Low Level (LL) = 0.070, Upper Level (UL) = 0.262] does not straddle a zero in between, then there is mediation. This study could determine that the mediation effect of the CT was statistically significant between BIT and OA, indicating that H4 was also supported, as demonstrated in Figure 3.

Table 8: Hypothesis Results

	Original Sample	Sample Mean	Stander Deviation	T Statistics	P Values	LL	UL	Decision
H1	0.395	0.393	0.073	5.380	0.000			Supported
H2	0.554	0.557	0.067	8.226	0.000			Supported
H3	0.280	0.282	0.074	3.801	0.000			Supported
H4	0.155	0.158	0.049	3.153	0.002	0.070	0.262	Supported

The primary findings of this study include that BIT had a significant positive impact on OA in Jordanian telecom companies. Moreover, CT improved as an effective mediator, increasing the relationship between BIT and OA. These findings emphasized the significance of combining BIT and CT to enhance a business's capacity to modify and respond to market changes. The results are significant to the research question, confirming that BIT and CT are critical to drivers of OA in businesses operating in fast paced, technologically environmentally.

RESULTS AND DISCUSSION

BI is important in enhancing how firms run and make choices (Jarrah et al., 2022). BI also supports the management of interactions between organizations capable of managing change and their clients and their demands (Al Aqasrawi & Alafi, 2022). Furthermore, OA refers to a company's ability to conduct a full examine of external and internal components to fulfil and connect with customer demands (Al-Zubi, 2023). OA increases the likelihood of knowledge and skill interchange and change adaptation. Innovative organizations apply digital stages to respond to occasions and risks (Hanandeh et al., 2021). As a result, strategic entrepreneurship is a new discipline built from the ideas of entrepreneurship and strategy that focuses on the union of entrepreneurship and strategic management (Al Aqasrawi & Alafi, 2022). In this context, ICT is a driving force for societal and economic transformation in the direction of justice, inclusiveness, sustainability, and competitiveness. It has been demonstrated that ICT promotes excellent and effective development (Chang et al., 2023). Furthermore, Al Aqasrawi and Alafi's (2022) findings revealed a substantially beneficial influence of BI on Strategic Entrepreneurship. Furthermore, OA acted as a partial mediator between BI and Strategic Entrepreneurship. According to Alyan, (2022), information and CT operate as a variable and a mediator between the impact of BI and employee empowerment in Jordanian organizations.

Therefore, this study aimed to verify the Role of BIT in OA and CT as a mediator in Jordanian Telecom Companies. The results indicated that there is an impact of BIT on CT and OA. Also, the results of the study indicated the mediation impact of CT between BIT and OA. Therefore, the findings of this study have several broader implications to improve productivity and effectiveness at work and make sure that organizational goals are met more

clearly and sustainably in the changing business environment, recommend implementing these technologies completely. To maximize data and enhance the efficiency of everyday operations, telecommunications firms also need to stay up to date with business intelligence technologies, new communications technology, and organizational flexibility. This improves productivity and helps achieve objectives more successfully. Additionally, from a practical perspective, the study highlights the importance for telecom companies, particularly in Jordan, to invest in and integrate BIT and CT to adjust to the quick changes in the economy and market. Organizations that operate with a flexible mindset are better equipped to overcome obstacles and consistently innovate. Also, researchers recommend businesses use contemporary communication methods as well since they enhance both external and internal communication, which in turn improves team dynamics and facilitates efficient information sharing. The integration of communication technology also helps to improve cooperation amongst team members and the way work is organized.

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APPENDIX

Questionnaires Design: Business Intelligence Technologies, Organizational Agility, and Communication Technologies.

The aim of the Questionnaire. The Role of Business Intelligence Technologies in Organizational Agility, Communication Technologies as a Mediator in Jordanian Telecom Companies. Your answers to the questions below are highly appreciated, and all the information provided will be dealt with confidentially. The intention of the Questionnaires below is intended for research purposes only.

Questionnaire Design

The questionnaire below has been divided into two main parts. The first part consists of personal information that is related to the participant profile; the second part encompasses statements that reflect the relationship between the research model variables that are under academic examination. Please answer all the parts.

Part One: Personal Information

Respondents		Frequency
Gender	Male	□
	Female	□
Experience	01 to < 05	□
	05 to < 10	□
	10 to < 15	□
	15 to < 20	□
	Over 20	□
Education	Bachelor	□
	Master	□
	Doctoral	□
	Others	□
Managerial Level	Top Management	□
	Middle Management	□

Part Two: Questions Related to Constructs

Please put √ under level of agreement you have for each of the following questions:

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Business Intelligence Technologies					
1. Business Intelligence Technologies can cure the find the best possible solutions					
2. Business Intelligence Technologies can handle large amounts of structured and unstructured data to create new strategic business opportunities.					
3. Business Intelligence Technologies will make on reducing risk.					
4. Business Intelligence Technologies will improve strategic decisions					
5. Business Intelligence Technologies will improve operational decisions					
6. Business Intelligence Technologies will improve management functions					
7. Business Intelligence Technologies will improve knowledge sharing					
8. Our company wants to view data visually					
9. Business Intelligence Technologies help our company make better decisions by showing present and historical data within their business context.					
Organizational Agility					
1. Organizational agility insure the survival of our companies in light of knowledge based economy					
2. Our company encourages innovation					
3. Our company shares financial strategy information with all employees					
4. Our company has a well-developed change capability					
5. Our Leadership Teams Regularly Shift Focus and Resources to Address New Challenges					

6. Our Employees Empowered to Make Decisions in the Best Interest of Our Customers					
7. Our company Allocate Resources to Provide Ongoing Education for Our Employees					
Communication Technologies					
1. Our company owns systems in Place to Rapidly Test New Product.					
2. Communication Technologies will improve Getting information about services.					
3. Communication Technologies will improve the information provided on the follow-up of the request.					
4. Communication Technologies helps to streamline communication between employee.					
5. Communication Technologies leads to more effective planning					
6. Communication Technologies keep unauthorized eyes from viewing classified information.					
7. Communication Technologies makes it easy to find and deliver data to employees					

Thank you for your time and effort which are highly appreciated