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The impact of business intelligence drivers and organizational agility through taking the moderating role analytical decision-making culture Case Study: Jordanian telecommunication sector

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ABSTRACT

The research main goal is to exploring the effect between business intelligence drivers and the organization agility by taking the moderating role of analytical decision-making culture. The Study was executed in three of the telecommunication firms as a sample of firms which use mobile telecommunication application. 200 research questionnaires collected and valid for the analysis. Structural equation modelling with AMOS was utilized to test the proposed research hypotheses. The research findings agreed with the result that there is a positive statistical effect of business intelligence, external drivers, and innovation capacity on organizational agility. Finally the research shows the importance of analytical decision-making culture as a mediator on the relationship between business intelligence, external drivers, and innovation capacity and organizational agility.

Keywords: Business intelligence, External drivers, Innovation capacity, Organizational agility, Mobile telecommunication application

Introduction

In our days, rapid response to market changes leads to economic development and increase innovation in order to increase the sustainable development in business model (Lee, Sambamurthy, Lim, and Wei, 2015). Also, Business intelligence includes application, online analytical report, and integrated data to help organizations make better decisions and accumulating user knowledge skills, and obtain more experience in the goal of helping organizations to enhance decision making process. BI Summarized those different orientations of measuring BI maturity leads to different impact on orientation of organization agility (Popovič et al., 2012). Most of research are considered organizational agility (ORA) as the fundamental for competency, flexibility and speed, and accesses the real analytical data to meet the needs for changing market rapidly and increase market share (Trong et al, 2005). Liu et al. (2013), Due to The speed characteristics of the current context (i.e., resource providers) are considered to be an external change for quick adapting and reforming in order to respond to market competition and expansions. Furthermore, Liu et al. (2013) the ability to external changes, it is seen as being competitive in the global market and has an increasing chance of organization agility increase potential for profit. The paradigm of agility is an opportunity to meet unexpected changed to influence at the organization profitability to increase the market share and increase the traffic of

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customers (Yusuf et al, 2001; Zhang and Sharifi, 2007). Organizational agility structured to predict changes in the business model and they deal with their restructured to design organization and process to respond to any new change to achieve the goals of the organization (Balaji et al., 2014).

However, The transition from old paradigm to the use of the best IT applications, and despite the high cost that is lead to increase the agility of the company (Battleson et al., 2016); The entry of globalization leads to increased economic competition. Companies must maintain competitive advantages in a competitive environment in which companies tend to develop new services or products and develop these specifications in terms of integrating their capacities and resources in order to increase the sensitivity of changes in the market and customers and provide new solutions to deal with complexity and customer demands (Overby et al., 2006). Christensen (2013) claimed that organizational agility refers to the ability of companies to making a full scan of external variables and internal processes and variables, in order to reach and interact with customers' demands.

Changes in the corporate environment require that they modify their procedures and strategies and adapt them very quickly. In a highly competitive environment, corporate competencies are associated with organizational agility that has profound effects on institutional performance. Decision making is the way of dealing with huge amount of data in order to produce useful information which can help managers in making a mental and innovative decisions which able to change the business environment, the continuous processing required to become computerized in terms of the constant flow of information and direct communication with all parties using modern technological applications (Farjami, 2015). Organizational agility is the constant ability to deal with changes that unexpectedly appear in the business environment by increasing speed and innovation that uses changes to improve corporate agility and increase the ability to enter the market proactively, allowing companies to modify their plans and strategies and to organize new business models to gain advantages Early competition in variable conditions (Chakravarty et al. 2013). Companies and their customers can use the best technological applications and use IT resources to get the same services delivered in real time, enhancing the company's ability to respond to external variables to customers in exploring the needs of customers to develop new competitive procedures. Technology applications and the use of IT resources allow information sharing between companies and their customers, improving the company's ability to respond quickly to customer needs (Gonul Kochan, Nowicki, Sauser and Randall, 2018). Christensen in (2013) defined the innovative capacity as the involving in learning and experimentation, being able to overcome a high degree of change and be more likely to take on current risks. Thus, innovative companies benefit from the use of advanced technology to exploit opportunities and introduce new models that lead companies to excellence in service delivery to customers.

This research aims to focus on advanced technologies in order for increasing the number of Smartphone users, mobile telecommunication applications that use mobile devices can perform account balances, transfer money and pay bills via mobile devices, smart phones eliminating the need for increased operational cost, and collect data on customer behavior and preferences, mobile phone application motivate telecommunication firms to create unique business models for their users, and analysis of practical measures.

Literature Review

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Independent variable drivers in this research consist of BI, EXD, and INC. BI is derived from a study of Hribar (2010) which provided the examined components, these components are: data integration and analytical capabilities, BI enhances organizational decision-making and processes through having and producing new knowledge (Lönnqvist, 2006). External drivers derived from a study of Esposito and Evangelista, (2014) which provided the examined components, these components are changes in competition and changes in customer requirements that push companies for enhancing competitiveness by improving their operational efficiency. Innovation capacity is useful in understanding how to create new changes and adapting mobile digital application to become agile in meeting and deal with new challenges. Roberts and Grover (2012), the Dependent variables drivers in this research consist of "ORG represents new changes that allows firms to adapt and cope with new environment". Moderate the Analytical decision-making culture can help telecommunication firms in analysis of practical measures to improve services with overcoming the richness of complex data to acquire comprehensive Business analytics, and systematic analytic method for company data (Kolaitis, 2002). In figure (1), this research developed a research model that exploring organization agility by using mobile telecommunication application.

2.1 Business Intelligence

Studies have gained in business intelligence systems applied to business in recent years, although the concept has a long history. Business intelligence uses elements and processes from other areas such as the military, government administration make extension to some companies that rely on smart information to learn about customer behavior (Maune, 2014). It is important to note that access to information affects only the decision-making process but also the change in organizational and planning practices to understand, create and share knowledge, and thus can be considered a cultural dimension in corporate policy. Shollo and Galliers (2015), business intelligence helps organization for better decisions, improvements in business processes and support for strategic business and others.

2.1.1 Data Integration

Business intelligence systems is considered one of the best technological solution to speed decision support in terms of data integration (BDI) and analysis to provide departments with different levels of with valuable information, to adapt the decisions and change their business environment (Turban et al., 2010). The application of business intelligence systems can improve data integration in many ways, such as: easier query and analysis, higher level of interaction, improved data consistency, and data integration processes with other relevant data management activities (online transaction processing). Integrated information include legacy systems, relevance of information, and features related to access to information from multiple sources (online transaction processing). The benefits of business intelligence application to increase competition monitor all level of data from all departments and make sure that key performance indicators (KPIs) we selected are attainable, and marketing BI dashboards that display wide variety of campaigns marketing performance and web traffic performance. Addressing information content and accessibility separately can describe the relations between data integration and extra drivers of business intelligence system (Turban et al., 2010). To use the successful application of the business intelligence system in the telecommunication firms in order to access accurate, timely and integrated data, and to provide data transfer professionals with relevant decision-making information. Data integration involves combining of technical and

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business process data residing in different sources collaboration between internal and external entities as one of the main factors contributing to the long-term benefits of enterprise information system. Thus, organizations must analyze several sources when building a business intelligence system, the integration of large amounts of data from multiple sources and different homogeneous in the business intelligence system (Elbashir et al., 2008). Intelligent business systems provide management levels through data analysis through both the operational strategy of the sector, and the data integration of normal use with traditional information systems are going well, but for organizational and functional planning, new tools are needed to guide more accurate analysis of business analysis, according to as a set of economic patterns of the telecommunication sector (Turban et al., 2010). Based on that, the research proposed the first hypothesis:
H1: BDI has a direct positive influence on ORG.

2.1.2 Analytical capability
Organization elevate their analytical capabilities (BAC) to balance between striving organization capabilities and core business smart competencies to define strategic roadmaps with forecasting insight in the organization along the analytical capability path, an analytical capability in BI allows users to understand the system, modern technological development allows institutions to obtain ways to increase the reliance on valuable data within operational systems, which increases the strategic role of business intelligence. BI systems combine analytical tools with data collection and data storage to support decision making, producing new knowledge, and predicting and forecasting future risks (Negash, 2004). In terms of decision support systems, BI system is considered as a technology complement provides data integration Analytical capabilities to provide different departments and organizational levels to develop a truly multifaceted strategies to drive continues success to analysis all type of data using complicated quantitative methods and data to find opportunities and improve agility effectiveness (Turban, 2010).
BI provides analytical capabilities (such as querying, online analytical processing) to analyse business-inspired business data and design BI system models and Business Intelligence Review. For the quality of the business intelligence system we have designed the business intelligence system maturity model, consisting of two factors of the first class: data integration and analytical capabilities. Based on previous studies, the research proposed the second hypothesis:
H2: BDI have a direct positive influence on 0RG.

2.2 External Changes
Organization strategy adapted based on some drivers that lead the organization to responds to the broader waves of changes, and toward more opportunities, this drivers force the organization to keep update their strategies (Zhang and Sharifi, 2007). The factor of external changes has been defined as unstable market environment with strong competition and large amount of customer demands based on giving customers more power through personalization, differentiation, and mass customization (Tseng and Lin, 2011).

2.2.1 Changes in Competition
organizations aim to enhance their business processes through being more flexible and agile, because of the rapid change in the technological field which need flexible business environment capable to compete and give customers what they want (Johnson, 2003). The competitive change of creating new opportunities for customers has increased by changing strategies, and increasing

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market share. Additionally, organization adopts a policy of change in order to create a competitive environment within the markets in order to meet the needs of consumers. Creating exceptional value for customers is a strategic corporate necessity. With strong competition in many markets, meeting the needs of consumers has become a key factor for success (Mróz, 2010). The pressure to increase competition with foreign products, the introduction of new products by competitors, the contracting of customers, and the rapid increase in the information and communication applications industry on companies, prompting many telecommunication firms and companies to improve their efficiency in order to increase competition opportunities (Vázquez-Bustelo et al., 2007). Thus, we posit the third hypothesis:
H3: ECC has a direct positive influence on ORG.

2.2.2 Changes in Marketplace

Changes in Marketplace (ECM) the strength of the market indicates the company's ability to conduct good operational activities with partners and open channels and markets to adapt or respond to changes within the market in an agile way. Instead, market interest should be seen as an indirect determinant of customer behaviour, while recognizing that the change of other overlapping operations affects the increased correlation between interest and market behaviour (Bamberg, 2003). Market research is a powerful influence of the governance and behaviour of the nature of work, which leads to environmental concern and increases consumption for the development of products, where many customers focus on the relationship between perceived consumer behaviour and individual efforts that can make a difference in solving the needs of markets. Organizations have recognized the potential of new business model; they keep updating their strategies by adding marketplace to their business operations, the context of creation new marketplaces through the impact of the individual in the market (Cho et al., 2013). Thus, the researcher proposed the fourth hypothesis:
H4: ECM has a direct positive influence on ORG.

2.3 Innovation Capacity

Innovation capacity (INC) holds strong implications and capabilities of the organizations; Innovation Capacity can depend on the effective utilization of these resources. INC is the ability of companies to innovate is critical and the use of technological applications and the integration of all activities of companies to become more flexible and innovative. Information technology and institutional innovation are two factors to renew the company and adapt to external variables, The rapid enhancement of companies 'ability to innovate will directly impact organizational agility and mitigate the impact of IT applications' capabilities (Liu et al., 2011). INC differs among most companies in terms of using the best technological applications of less creative companies. Organizational agility is likely to share learning and skills and be able to overcome changes. Innovative companies use digital platforms to respond to the opportunities and threats they face. As well as how to embrace innovations, Some studies have called for the integration of the best modern creations and the use of other IT organizations such as the creation of new channels of communication to reach markets or customers where they require the company to increase the company's existing resources and change business models in new and innovative ways and increase research and development efforts, Information technology arises from business units and requires the use of new technological applications to rethink organizational systems and activities. New business models can succeed in INC efforts to achieve this resource impact and

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use best business practices (Govindarajan and Trimble, 2005). Thus the research posits the fifth hypothesis:
H5: INC has a direct positive influence on ORG.

2.4 The moderating effect of analytical decision making culture

Analytical decision making culture (ADM) analysed to give details of business intelligence systems compared to operational information systems, which focuses on the processing of activities and effective information analysis, is a system of business intelligence is one of the best systems for data analysis, which mainly support the decision-making process and activities that need to know better. In knowledge-intensive activities need less structured processes, the business intelligence environment faces most of the challenges in ensuring the quality of information content when looking at the success of the business intelligence system (Jordan, 20018). Studies focused on the behaviour of the activation of companies to use information systems, these institutions rely on the implementation of decision support systems to reach the best parameters provided to the decision to adopt the appropriate decision to support the women and increase the expectations and adoption in order to make the organization excel and change and build new products increase the capacity of the company To reach the largest number of customers after analysing the appropriate decision in order to improve the provision of information to decision-makers and support their decision-making activities that to measure the culture of analytical decision-making gives companies the appropriate decisions to adopt(Alwis, 2001). Thus, we posit:
H6: ADM moderates the effect of BID on ORA that the effect of BID on ORG is stronger when ADM increases.
We have mention five drivers determinants from business intelligence drivers, external drivers and innovation capacity. Thus, we posit:
H6a: ADM moderates the effect of EDI on ORG such that the effect of EDI on ORG is stronger when ADM increases.
H6b: ADM moderates the effect of BAC on ORG such that the effect of BAC on ORG is stronger when ADM increases.
H6c: ADM moderates the effect of ECC on ORG such that the effect of ECC on ORG is stronger when ADM increases.
H6d: ADM moderates the effect of ECM on ORG such that the effect of ECM on ORG is stronger when ADM increases.
H6e: ADM moderates the effect of INC on ORG such that the effect of INC on ORG is stronger when ADM increases.

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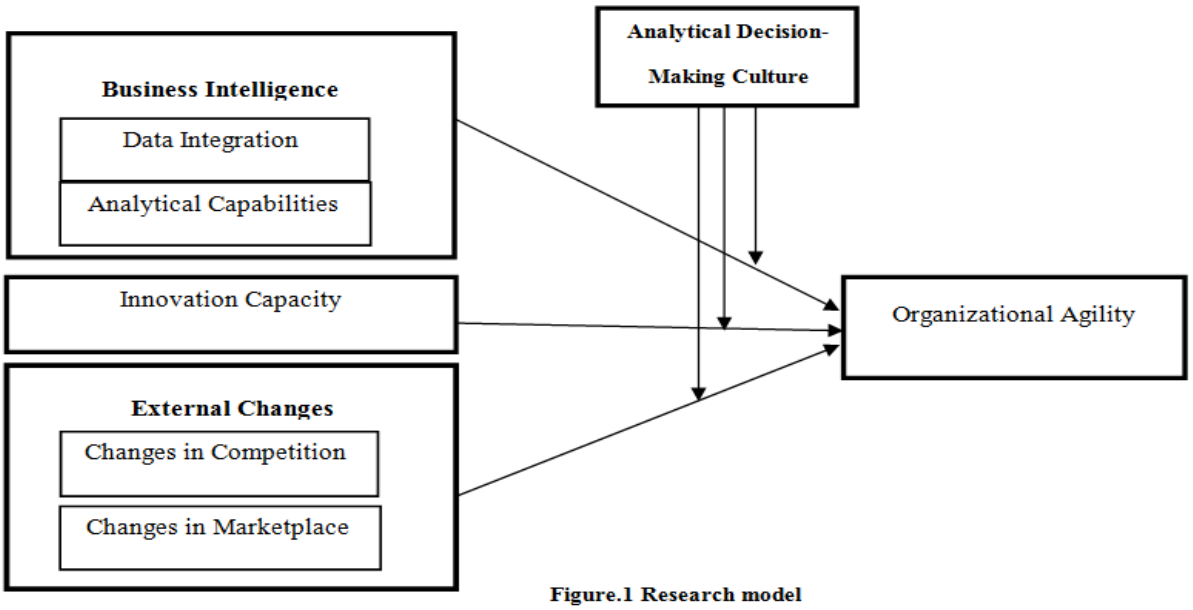

Figure.1 Research model

Theoretical Framework

The research used SEM in order for validating the study model and testing the research hypotheses. And used descriptive a cross-sectional survey for collecting all the needed data. The services offered by telecommunication in Jordan we chose the employee telecommunication firms as our sample. A questionnaire survey allocated to 220 employees in Jordanian telecommunication firms.

3.1. Measurement

This study used some measurements for studying the organization agility; and we designed and used a specific research questionnaire to guarantee consistency in content to ensure the validity and reliability of the constructs (Sen et al., 2007). Questionnaire has distributed at employees of the different telecommunication firms offering mobile application technology. The questionnaire were measured by used A seven point Likert scale was applied to measure the main constructs of the conceptual model. The measure of BI was proposed by Hribar et al. (2010) and includes two measurement items: firstly the measure of EDI was proposed by Seddon et al. (2010), and includes two items regarding mobile application technology, secondly the measure for EAC was proposed by Trkman (2010) and includes six items proposed that reflect an organization analytical capabilities to rapidly change its internal model to find out demands or market changes. The measure for EXC proposed by Tseng and Lin (2011) consist of two drivers, firstly ECC Includes three items related to new initiatives of competitors, and increasing pressure on cost, secondly ECM includes three items related to decreasing new products time to market, increasing rate of change in product models, and Product lifetime shrinkage. The measure for INC that includes four items proposed by Hurley and Hult (1998) the firms encourages seeks out innovative ideas from its employees and creativity and risk taking to get value from technological innovations in its telecommunication sectors. ORG this scales have been defined to deal and respond to changes in our customers' service needs, quickly scale to support fluctuations

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in Market demand, and quickly make necessary alternative arrangements and internal adjustments (Roberts and Grover, 2012). For moderating variables, Analytical decision-making culture proposed by de Alwis (2001), all measurement Questionnaire items are shown in Appendix A.

3.2. Data collection

Questionnaire was conducted at the staff of Jordanian telecommunication sector. The current study consist of two parts, firstly, theoretical relied on the scientific studies concerned with related variables and secondly, practical relied on descriptive and analytical methods to collect the data and test hypotheses. Framework and questionnaire will be used to collect data to test the proposed research model. Questionnaires were delivered to 15 branches that were participated in the survey. 200 respondents were received resulting and answer the questionnaire to test the hypotheses. Most of respondents were university educated (100%) it is not allowed to be in this position without university degree, to be more familiar with telecommunication mobile application. The majority of respondents are aged 21 to 45 years old, male (62 %), and female (78 %) as explained in Table 1.

Table1. Demographic Information

Item /Category	***Frequency (Ratio)***
Gender	
Male	***122 (62%)***
Female	***78 (38%)***
Age	
21-25	***55***
26-30	***50***
30- 35 older	***95***
Education Level	
Bachelor's degree	***155***

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Master's degree	***40***
Doctoral degree	***5***

Analysis and results

4.1. Measurement model

CFA is considered a statistical technique which used to verify the factor structure of a set of observed variables CFA use to assess item reliability, convergent validity in order to examination convergent validity with corresponding above 0.70 (Chin et al., 2003). The Average Variance Extracted (AVE) score should be above 0.50 (Fornell & Larcker, 1981) and Cronbach's α value should be above 0.70 (Bhattacherjee & Park, 2014). The results showed that the highest covariance explained was 21%, which is less than 50% of the variance, indicating that there is no problem of common method bias in our study as shown in Table 4.

Table2. Cross-Loading

	BDI	***BAC***	***ECC***	***ECM***	***INC***	***ADM***	***ORA***
BDI2	***0.90***	***0.30***	***0.02***	***0.34***	***0.22***	***-0.22***	***-0.21***
BDI3	***0.84***	***0.20***	***0.03***	***0.27***	***0.30***	***-0.42***	***0.19***
BAC2	***0.09***	***0.82***	***0.04***	***0.09***	***0.50***	***0.22***	***0.25***
BAC3	***0.05***	***0.79***	***0.05***	***0.15***	***0.35***	***0.32***	***0.53***
BAC4	***0.04***	***0.92***	***0.21***	***0.16***	***0.45***	***0.35***	***0.07***
BAC5	***0.27***	***0.75***	***0.04***	***0.11***	***0.43***	***0.54***	***0.02***
BAC6	***0.32***	***0.80***	***0.07***	***0.08***	***0.31***	***0.35***	***0.25***
ECC1	***0.19***	***0.27***	***0.78***	***0.07***	***0.36***	***0.37***	***-0.04***
ECC2	***0.23***	***007***	***0.69***	***0.02***	***0.21***	***0.40***	***0.45***
ECC3	***0.14***	***0.17***	***0.84***	***0.25***	***0.32***	***0.21***	***0.30***
ECM1	***0.53***	***0.16***	***0.23***	***0.91***	***0.45***	***0.23***	***0.32***
ECM2	***0.44***	***0.02***	***0.35***	***0.90***	***0.34***	***0.34***	***0.45***
ECM3	***0.30***	***0.25***	***0.23***	***0.87***	***0.51***	***0.09***	***0.52***

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INC1	***0.02***	***0.32***	***0.13***	***-0.02***	***0.80***	***0.02***	***0.09***
INC2	***0.08***	***0.36***	***0.32***	***-0.14***	***0.71***	***0.20***	***0.08***
INC3	***0.20***	***0.01***	***0.15***	***-0.13***	***0.83***	***0.20***	***0.02***
INC4	***0.15***	***0.02***	***0.22***	***0.34***	***0.90***	***0.30***	***0.20***
ADM1	***0.32***	***0.03***	***0.25***	***0.45***	***0.45***	***0.70***	***0.26***
ADM2	***0.04***	***0.02***	***0.32***	***0.23***	***0.42***	***0.76***	***0.33***
ADM3	***0.06***	***0.06***	***0.11***	***0.32***	***0.30***	***0.80***	***0.41***
ORA1	***-0.33***	***0.03***	***0.09***	***0.38***	***-0.02***	***0.05***	***0.68***
ORA2	***-0.25***	***0.13***	***0.02***	***0.16***	***-0.04***	***0.07***	***0.90***
ORA3	***0.15***	***0.17***	***0.01***	***0.09***	***0.40***	***0.08***	***0.86***
ORA4	***0.09***	***0.32***	***0.03***	***0.02***	***0.45***	***0.13***	***0.90***

Note: Items were deleted due to poor loading (< 0.70); BDI = Data Integration; BAC = Analytical Capabilities; ECC = Changes in Competition; ECM = Changes in Marketplace; INC = Innovation Capacity; ADM = Analytical Decision-Making Culture; ORA = Organizational Agility.
Note: Bold numbers indicate item loadings on the assigned constructs.

Table3. Item Convergent Validity and Reliability

Construct	***AVE***	***Cronbach's Alpha***
BDI	***0.811***	***0.922***
BAC	***0.702***	***0.901***

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ECM	***0.721***	***0.987***
ECC	***0.590***	***0.823***
INC	***0.665***	***0.755***
ADM	***0.725***	***0.795***
ORA	***0.775***	***0.845***

Table4. Discriminant Validity

	AVE	***BDI***	***BAC***	***ECC***	***ECM***	***INC***	***ADM***	***ORA***
BDI	***0.811***	***0.87***						
BAC	***0.702***	***0.05***	***0.82***					
ECC	***0.721***	***0.19***	***0.17***	***0.77***				
ECM	***0.590***	***0.42***	***0.14***	***0.41***	***0.89***			
INC	***0.665***	***0.11***	***0.18***	***0.21***	***013***	***0.81***		
ADM	***0.725***	***0.14***	***0.04***	***0.33***	***0.33***	***0.40***	***0.75***	
ORA	***0.775***	***-0.17***	***0.16***	***0.04***	***0.16***	***-0.45***	***0.083***	***0.84***

4.2. Test of the structural model

Our structural model using the PLS-SEM to be tested, a theoretical model structure developed from business intelligence drivers on organization agility to study the influence of mobile application in telecommunication sector. The results show that BDI, BAC, ECC, ECM and INC positively influenced ORG, thus, supporting H1, H2, H3, H4 and H5, as indicated in figure 2. To analyze the moderating effect of ADM has strong significant moderating effects between drivers from BID on ORG, the result related to all previous studies have effect of moderating.

Table5. Structure model testing

Relations	**Coefficients**	**T Statistics**	**Results**

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H1 Data Integration → Organizational Agility	**0.375*** **	**4.55**	**supported**
H2 Analytical Capabilities → Organizational Agility	**0.544*** **	**5.46**	**Supported**
H3 Changes in Competition → Organizational Agility	**0.365*** **	**7.57**	**Supported**
H4 Changes in Marketplace → Organizational Agility	**0.532*** **	**5.65**	**Supported**
H5 Innovation Capacity → Organizational Agility	**0.643*** **	**6.35**	**Supported**

Significance levels: * < 0.05, ** < 0.01, *** < 0.001

Relations	*Coefficients*	*T Statistics*	*Results*
H1 Data Integration → Organizational Agility	***0.432 ** ***	***4.33***	***supported***
H2 Analytical Capabilities → Organizational Agility	***0.344****	***3.52***	***Supported***
H3 Changes → in Competition Organizational Agility	***0.527****	***5.63***	***Supported***
H4 Changes → in Marketplace Organizational Agility	***0.472****	***4.28***	***Supported***
H5 Innovation Capacity → Organizational Agility	***0.478****	***3.45***	***Supported***

Significance levels: * < 0.05, ** < 0.01, *** < 0.001

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Discussion

The research study aims to test the EBD the effect on ORG by using mobile telecommunication application. This study supported our expectation the test show that the drivers of BI like EDI (H1), and BAC (H3) have strong support on ORG. Most of the respondent has carry bachelor degree to be so east to deal with mobile telecommunication application one of the reduction of operational costs. With the development of smart mobile telecommunication application to make their customers feel comfortable, making transactions for shopping and transfer to different accounts, instant messaging and view transaction history (Turban, 2010). "The big decision-makers are really leaning on the idea of, 'Mobile technology is taking over and there is a digital-first movement that is taking hold in the marketplace,'" and "have a burning need to innovate faster but have been very successful with digital innovation through in-house efforts".

Mobile telecommunication application allows telecommunication firms to "develop a much more agile and a much more customer demand and more modernized experience for the customer." We assume Mobile telecommunication application will become easier to use and interact and provide more functionality for customers and accelerate provide telecommunication in customer heavier to obtain more feedback from customer experiences become more enriched and data-informed. This study indicated that the strong effect of BID and design of mobile telecommunication application Perceived ease of interaction and more applicable, the strong effect of EXD and ORG to contribute in new solution. When telecommunication firms started implementing new technology to simplify processes through mobile application, helps telecommunication firms to expose business model data that has been traditionally flow up in complex analytical core systems and to find actually quite different behaviors in their buying demands, and motivators, so telecommunication firms will increasingly invest in BI to become more agile to maintain lean operations while offering new exceptional customer experience at lower costs and targeting demographic-based clusters such as aspirations, income and transaction, and targeting customers based on lifestyles, and to develop personal structure communication model. To upgrade the level of innovative capacity structure until reach to advanced analytics and digital technologies, we found that there is moderating effect of ADM on the relationship between BID and ORG.

Limitation and future research

This study reflect the effect of BID on ORG by using mobile telecommunication application in telecommunication sector, and maintain reflections on the practical field, in particular, because it has helped to expand our understanding of the factors of three dimensions (BI, EXD, and INC). The contribution of new drivers of BI obtained from previous studies. The obtained data regarding BI drivers from several studies affected by different variable applied in other studies. Structured research model consisting of the different factors firstly BI, EXD, and INC and data collected from distributed survey in telecommunication sector. To increase the quality of information from data collection we can use other platforms can be adopted such as Chatbot technology and Customer relationship management (CRM). The feedback obtained from employees working in different telecommunication firm's department some kind of right decision, and this mobile telecommunication application adapted new agility toward increase the new service. This study contributed in different telecommunication firms and the applied variable give the organization the agility to any change in business model. The use of mobile telecommunication application gives the telecommunication sector some kind of analytical data to adapt the best business model. In order to upgrade organization agility the information technology department and marking department should applied qualified people to teach and encourage the customer how to use this kind of application and to increase the awareness of using this application that will reflect the use of new model and tactics toward the sustainability. The limitations in this study the awareness of using mobile application should be enlarge among customer, Second, our study reflect the feedback of some telecommunication firms not all telecommunication firms in Jordan use mobile telecommunication application technology, so the data is restricted at due to small sample the result give positive support of moderated variable due to the importance of using this technology. Future research could benefit when increase the number of customer using this kind of technology and some other online application like Chatbot to increase the agility toward the competitiveness. Since this study is carried out in Jordan, This research also includes several limitations, not all telecommunication firms implement mobile application technology in addition to that not all customers are able to use mobile application due to several reasons not ease to use, security and privacy reasons preventing them not to use this kind of applications. Furthermore, it is also important to compare the results in different countries using same

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technology; Future research carry out on using way of analysis by using a longitudinal method to observe the change of consumers' behavior over time.

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Conclusion

Mobile telecommunication applications are important to innovate and develop new solutions that benefit from data, analytics, digital technologies and new platforms that are more important than previous releases. The new innovation is expanding the range of services provided by offering proactive new solutions. Mobile telecommunication applications strategically advanced responsive to consumer behavior, expectations, and needs in order to increase the market for greater competitiveness in the telecommunication sector. The adoption of mobile applications has led to increasing innovation and collaboration, which could include more than just financial services to improve consumer behavior. The adoption of mobile applications has made customer behavior and needs an essential part of the telecommunication strategy placing an increasing emphasis on customer value propositions. In other words, if the enhanced value is not part of the open telecommunication consumer view, the customer will not allow the data to be shared. Instead, companies that offer the best value propositions to consumers will be winning in the relationship.

Appendixes

Appendix A. Measurement Questionnaire items

Construct	***Items***	***Descriptions***	***Sources***
Data Integration	***BDI1***	***Mobile application provides data everywhere in databases***	***Seddon et al. (2010)***
	BDI2	***Mobile application provides data in the sources are mutually consistent***	
	BDI3	***Mobile application provides Data are***	

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		completely integrated	
Analytical Capabilities	***BAC1***	***Mobile application provides Paper reports***	***Trkman (2010)***
	BAC2	***This mobile application provides Interactive reports***	
	BAC3	***Mobile application provides On-line analytical processing (OLAP)***	
	BAC4	***Mobile application provides Analytical applications, including Trend analysis***	
	BAC5	***Mobile application provides Data mining tasks***	
	BAC6	***Mobile application provides Dashboards, including metrics, key performance indicators (KPI)***	
Changes in Competition	***ECC1***	***This mobile application provides New initiatives of competitors in telecommunication sector***	***Tseng and Lin (2011)***
	ECC2	***Mobile application provides Competitors technological advance in telecommunication sector***	
	ECC3	***Mobile application provides Increasing pressure on cost in telecommunication sector***	
Changes in Marketplace	***ECM1***	***Mobile application provides Decreasing new products time to market in telecommunication***	***Tseng and Lin (2011)***

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		sector	
	ECM2	***Mobile application provides Product lifetime shrinkage in telecommunication sector***	
	ECM3	***Mobile application provides Increasing rate of change in product models in telecommunication sector***	
Innovation Capacity	***INC1***	***Mobile application provides risk taking is encouraged in our firm***	***Hurley and Hult (1998)***
	INC2	***Mobile application provides Creativity is encouraged in our telecommunication firm***	
	INC3	***Mobile application provides management actively seeks innovative ideas***	
	INC4	***Mobile application provides management is tolerant to mistakes when taking risks***	
Analytical Decision-Making Culture	***ADM1***	***Mobile application provides process is well established and known to its stakeholders***	***de Alwis (2001)***
	ADM2	***Mobile application provides policy to incorporate available information***	
	ADM3	***Mobile application provides information regardless of the type of decision to be taken***	
Organizational Agility	***ORA1***	***Mobile application provides quickly respond to changes in our customers' service needs***	***Roberts and Grover (2012)***

	ORA2	***Mobile application provides a rapid response and include special requests of our customers***	
	ORA3	***Mobile application provides quickly scale our service levels to support fluctuations in Market demand***	
	ORA4	***Mobile application provides quickly make necessary alternative arrangements and internal adjustments***	

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