

## The use of big data and the internet of things leadership and organizational culture: The innovative capacity of the Amman Stock Exchange

Khaled Yousef Alshboul<sup>a\*</sup>

<sup>a</sup>Irbid National University, Jordan

### ABSTRACT

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The aim of this study is to investigate the relationship between big data adoption and Internet of Things adoption and entrepreneurial behavior at Amman Stock Exchange. The study focuses on how the ability to innovate mainly mediates this link. The study method uses a quantitative approach that includes conducting a professional survey, conducting a statistical analysis, and testing mediation. Key results show that the use of big data improves the ability to innovate largely, and affects employees' practical leadership capabilities. The interaction between Internet adoption and leadership capabilities is influenced by product capabilities, which emphasizes the important role of innovation as a mediator in shaping employee behavior. Practical results of this study show that Amman Stock Exchange companies strategically use big data and IoT technologies to promote innovation. Shortcomings of the study include the specificity of digital work, the reliance on self-reported data, and the use of static analysis. Subsequent research should expand participants and use more comprehensive methods. Recommendation: Embrace technology with an emphasis on innovation, provide leadership training, and increase knowledge about technology, innovation and human behavior.

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### 1. Introduction

Integration of Big data and the Internet of Things (IoT) has become a major focus in building digital commerce in an ever-expanding digital age (Mahdavinejad et al., 2018; Atzori et al., 2017). The Amman Stock Exchange (ASE) has been substantially suffering from those changes (Zoubi et al., 2023). The capacity to shop, examine, and control big quantities of statistics (massive statistics), and establish connections among products and systems via communications (IoT) brought new possibilities and demanding situations to businesses within the Amman Stock Exchange (Yang et al., 2017). The most important issue to cognize in this context is employee leadership ability (Rose et al., 2016; Ocampo et al., 2018). Leadership competencies play a critical role in HR exercise as they move past their core process obligations, and display how people contribute to the general fulfillment of the enterprise (Chowdhury, 2020). Employees with stronger leadership competencies are more likely to exhibit collaboration, responsiveness, and innovation, hence positively influencing organizational overall performance (Malik, 2023). However, technological developments such as Big Data and IoT have the capability to seriously impact enterprise management abilities (Taamneh et al., 2018; Shahbaz et al., 2019). Previous studies have examined the effect of large records and IoT on commercial enterprise, consisting of operational performance, records analytics, and strategic choices (Santoro et al., 2019; Patel et al., 2020; Jha et al., 2020). However, there is nevertheless a lack of knowledge on how the usage of huge facts and IoT can affect management competency improvement amongst employees, especially in ASEs.

This takes a look at attempts to address the existing understanding gap by way of linking big data and Internet (IoT) utilization with Amman Stock Exchange personnel management capabilities. These observations will inspect the effect of leadership abilities on the recognition of the connection between large statistics and IoT and management abilities. It will have a look at

\* Corresponding author  
E-mail address: [kyshboul87@gmail.com](mailto:kyshboul87@gmail.com) (K. Y. Alshboul)

management capabilities as essential predictors that could have an effect on this dating. These examine goals to analyze how big records and IoT technology affect commercial enterprise management skills and the significance of leadership competencies in this context. Furthermore, it tries to provide treasured insights on how agencies in the Amman Stock Exchange can maximize the blessings of the usage of this technology to enhance their productivity and competitiveness, this look has the capability to offer vital principles and packages to our expertise.

Besides the huge potential benefits, the use of IoT and big data in the Amman Stock Exchange also presents many obstacles that need to be privacy and addressed. Data security is an important consideration when storing and transforming sensitive and critical data for organizational operations digitally. Therefore, when using big data and IoT, it is important to think carefully and implement strong security measures and procedures to defend the organization's data and systems from any cyberattack. Organizations should provide sources to enhance the competencies and abilities of their personnel, each of their modern-day roles and in different areas, to ensure they may be prepared to adapt to and reply efficiently to technological change. In addition to exploring the blessings and challenges associated with the use of IoT and big data, this examination may even clarify the significance of organizational culture as a key element in the volume to which these technologies can affect enterprise leadership skills. Organizational culture plays an important role in establishing a culture of innovation and improvement within a company, and can influence the impact of technology on employee morale

Therefore, this study aims to provide a comprehensive view on the impact of big data and IoT on leadership capacity formation in Amman Stock Exchange, as well as to identify the factors influencing this relationship. Factors such as safety, employee training, and the ability to innovate contribute to more efficient ways to use and use technology. Research gaps in this study relate to an inadequate understanding of the impact of big data have in developing managerial leadership capacity in Amman Stock Exchange. The impact of these technologies has been investigated, but there is lacking a comprehensive analysis of their impact on managerial behavior, especially in the digital industry and, in this regard the effect of corporate culture as a predictor and moderator. Thus, the scarcity of research revolves around the need to close this knowledge gap and deliver insights into the complex interactions among technology adoption, leadership capabilities and organizational culture at Amman Stock Exchange. This study is conducted unique because Amman Stock Exchange Internally, it focuses on convergence of big data, IoT applications and leadership capabilities. This study seeks to provide new insights into the areas of technology management and organizational behavior by examining the effects of these technologies and assessing the moderating effects of organizational culture. The aim is to unveil unprecedented connections and connections, to reveal how technological advances are affecting employee attitudes and behaviors in critical digital marketing.

Scholars and industry experts have extensively studied these issues to assess the impact of big data in the competitive landscape (Chierici et al. 2019; Erevelles et al., 2016; Rothberg & Erickson, 2017). Little information is available on the potential impact of the amount of information through the IoT on innovation, knowledge management strategies, and firm performance (Chierici et al., 2019). To address this gap, the study proposes a theoretical framework to investigate the relationship between IoT in terms of strategies and tactics, consumer engagement with IoT, data literacy, high utilization rates, innovation capabilities, and the firm's business strategy (Chierici et al., 2019).

This report can advise Amman Stock Exchange officers and managers on the use of IoT and big data. Knowing how these technologies affect leadership abilities can help companies improve technology adoption, employee engagement, and productivity. The research emphasis on corporate culture deepens our understanding of how technology affects employee behavior. This study addresses technology adoption and employee practices, especially in the Amman Stock Exchange and data-intensive industries such as banks. It is important to understand how technology changes the workplace and how it affects individuals and companies. This study examines the leadership skills that drive and barriers to big data and IoT adoption to help companies manage digital transformation. This report can advise Amman Stock Exchange officers and managers on the use of big data and IoT. Knowing how these technologies affect leadership abilities can help companies improve technology adoption, employee engagement, and productivity. The research emphasis on corporate culture deepens our understanding of how technology affects employee behavior. This study addresses technology adoption and employee behavior, especially in the Amman Stock Exchange and in data-intensive industries such as banking. It's important to understand how technology alters workplaces and how they affect individuals and the company. This study examines leadership skill motivators and obstacles in big data and IoT adoption to help firms manage digital transformation.

Hence, the research aims are as follows:

- The objective is to examine how the use of big data and IoT technology impacts the leadership abilities of workers at the Amman Stock Exchange.
- The objective is to evaluate the influence of corporate culture on the connection between technology adoption and leadership qualities, both as a predictor and as a moderator.
- The objective is to analyze the problems and possibilities that arise from using big data and IoT technologies on the Amman Stock Exchange.
- The aim is to provide practical suggestions to firms listed on the Amman Stock Exchange, enabling them to maximize the advantages of technology implementation and cultivate a corporate culture that promotes innovation and enhances the ability of their staff.

## 2. Literature Review

### 2.1 Big data and Innovative Capacity

Despite the fact that its influence on innovation is difficult to ascertain (Darroch & McNaughton, 2002), knowledge management has been recognized as a significant factor that contributes to the development of innovative ideas (Carneiro, 2000). On the other hand, past research indicates that the development and diffusion of information play a significant part in acquiring a lasting competitive advantage, such as innovation, due to the fact that they are exclusive to the company. Meso and Smith (2000) defined knowledge management as “the process of capturing the collective expertise and intelligence in an organization and using them to foster innovation through continued organizational learning” (p. 225). In point of fact, this definition is more accurate than what is often believed. The management of knowledge is able to comprehend the changes that are taking place in the environment and provides assistance to businesses in integrating, constructing, and reconfiguring their competences. Organizing knowledge repositories, adopting technologies that allow collecting data from internal and external sources, and developing mechanisms to share and transfer knowledge are some of the practices that have been associated with knowledge management, according to this perspective (Darroch & McNaughton, 2002). Some of these practices have been cited as examples of knowledge management. Since Web 2.0 and social media have altered the way in which businesses create, share, and capture data, and at the same time, they have enabled businesses to access big data, which, if properly managed, can become an additional valuable knowledge asset (Erickson & Rothberg, 2015), the knowledge process and practices have undergone a revolution in recent years. This revolution has occurred because of the fact that these two factors have allowed businesses to access big data. It is a critical component of company competitiveness (Clercq & Arenius, 2006) that knowledge serves as a foundation for the creation of a competitive advantage. Furthermore, it contributes to the expansion of companies' innovation capacity, which in turn results in the development of a distinct competitive advantage. Beginning with the presumption that innovation is the application of knowledge (Chierici et al. 2019), we will now move on to the next consideration. As well as the fact that these two ideas are inextricably linked to one another, this research suggests:

**H<sub>1</sub>:** *Big data has a positive influence on innovation capacity.*

### 2.2 IoT and Innovative Capacity

Research conducted in the past has looked at the ways in which customers might collaborate with the innovation process. Those businesses that establish good relationships with their clients are able to gather valuable information that may be used for the creation of successful inventions, as stated by Wind and Mahajan (1997). Customers are no longer allowed to play a passive role in the innovation process, only responding to questions or permitting observations; rather, they are now actively participating in the process as important co-creators. Companies have the ability to deploy consumers as a strategic resource that may be utilized to jointly identify customers' latent requirements and, as a result, empower companies' innovation capacity (Ordanini & Parasuraman, 2011). In other words, by actively cooperating with customers, businesses have the chance to deploy customers as a strategic resource. IoT is a tool that may be used to collaborate with customers and promote the process of value co-creation (Trainor et al., 2014). This is because IoT enables businesses to conduct collaborative conversations and strengthen their relationships with customers. According to this approach, the study proposes the following; keeping in mind that many research studies have shown a positive relationship between IoT and innovation capabilities.

**H<sub>2</sub>:** *IoT has a positive impact on innovation capacity.*

### 2.3 Big Data and Leadership Skills

According to Martinez-Pelez et al. (2023), according to analysis by Walumbwa et al. (2020), savvy personnel are much more likely to engage in active leadership talents, such as making coverage modifications or suggesting actionable answers. Al-Khatib (2022) asserts that groups that embody big data sell a data-pushed culture. In such cultures, employees are recommended to make decisions based totally on records and data from the surroundings. Such a lifestyle can assist personnel increase their management abilities through making them feel extra empowered to share ideas, collaborate, and take responsibility for challenges faced through the business enterprise. The real-time comments performance of massive statistics analytics in 2020, in accordance with analysis by way of Kamble and Gunasekaran (2020), also has the potential to offer suggestions. Employees can be influenced to interact in organizational citizenship conduct (OCB) if they are identified and rewarded for his or her achievements (Pham et al., 2023). According to Bolino et al. (2013) and Nuryanto et al. (2024), personnel with the belief that their efforts are recognized tend to exceed expectations in contributing to their co-workers and the work. According to Chierici et al. (2019), the usage of massive statistics could make it less difficult for groups to collaborate and share their knowledge with every other. When employees benefit from information-driven insights, they support each other, share statistics with each other, and collaborate to gain the organization's goals as we'd hypothesize.

**H<sub>3</sub>:** *Big data adoption positively impacts leadership skills.*

### 2.4 IoT adoption and leadership skills

According to Javaid et al. (2021), the usage of the Internet presents employees with real-time admission to updated statistics and insights. As an end result of this advanced technique, personnel may be empowered to make knowledgeable choices, offer

specific perspectives, and actively engage in problem solving—all characteristics of management features. Since it is less complicated for actual-time information to be available, which is the reason for the delay, Zhong et al. (2017) say that the Internet encourages inter professional collaboration. When personnel from distinctive departments have the right of entry to facts-driven insights, they can collaborate on responsibilities, exchange records, and collectively try in the direction of corporation dreams aligned with their leadership competencies (Singh et al., 2021). Increasingly, agencies using the IoT are selling a statistics-pushed subculture wherein facts-enabled choices are advocated (Mithas et al., 2020). Employees experience empowered to suggest and test new thoughts primarily based on information and insights, which contributes to management capabilities (Jeong et al., 2019). Such a culture encourages creativity and pragmatism, which in turn facilitates increased leadership abilities. Employees can be given real-time feedback and consequences for his or her sports via statistics evaluation enabled by means of the Internet (Li et al., 2021). Recognizing personnel for his or her achievements could have a wonderful effect on their morale and motivation and can in the end improve their management potential. Integrating IoT technology and practices can enhance personnel' get admission to actual-time facts, foster a tradition of information-driven decision-making, seize contributions, foster collaboration, encourage collaboration, and all make a contribution to the improvement of leadership characteristics (Colombari et al., 2023). It's not just about facts-driven decision-making but also approximately developing a culture of worker engagement and exact company citizenship for companies looking to make the most in their funding inside the IoT. To realize and use for this reason, the method is as follows:

**H4:** *IoT adoption impacts positively on leadership skills.*

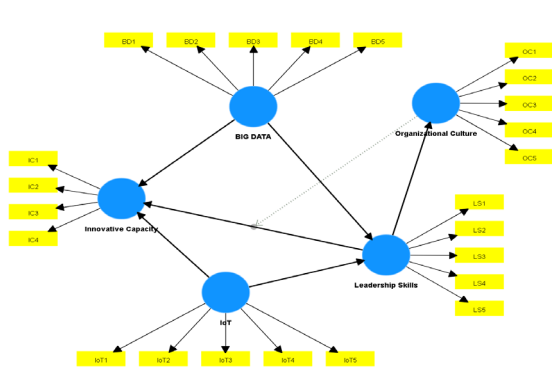
*2.5 Leadership skills and organizational culture*

Leadership exerts an influence on corporate culture via the alignment of missions, objectives, values, and norms (Tran, 2020a, 2020b, and 2020c). Mahsud et al. (2010) said that leaders have the ability to choose the appropriate organizational culture that effectively incorporates and educates personnel. Leaders are crucial in establishing the appropriate company culture when they establish a new firm. Multiple studies have examined the impact of the leadership aspect on organizational culture. Bass and Avolio (1994) proposed that both transformational and transactional leadership characteristics have an impact on corporate culture. The primary objective is to establish a dynamic and inspiring corporate culture that encourages individuals to freely exercise their innovation and creativity in their respective roles. The latter seeks to enable the thoughts and viewpoints of workers and assist them in attaining superior outcomes. Judge et al. (2006) found that two leadership styles, task-oriented and relationship-oriented leadership, had a substantial impact on four aspects of organizational culture (clan, adhocracy, market, and hierarchy) according to the conflicting value framework. Multiple leadership techniques have been empirically shown to strongly influence organizational culture. However, no prior research has examined the impact of leadership skills on this particular characteristic. The purpose of this research is to address this gap by proposing the hypothesis that the three leadership skills (human, technical, and conceptual abilities) have a favorable impact on the three aspects of organizational culture (bureaucratic, creative, and supporting cultures). The second hypothesis is stated as follows:

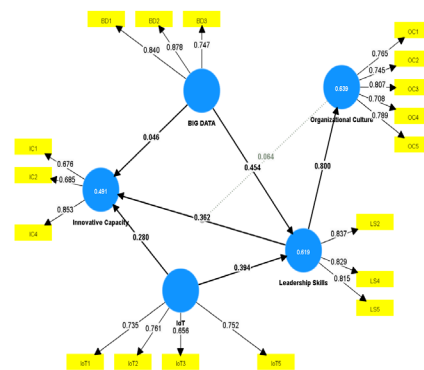
**H5.** *Leadership skills influence organizational culture positively and significantly.*

The satisfaction of workers with the organizational culture and their manager's competence has an impact on their positive organizational behaviors (Chierici et al., 2019). Thus, we propose that organizational culture acts as a mediator in the connection between leadership qualities and innovative capacity. The six theories are proposed as follows:

**H6:** *Organizational culture mediates the relationship between leadership skills and Innovative Capacity.*



**Fig. 1.** Measurement Model



**Fig. 2.** Structural Model

**3. Jordanian Amman Stock Exchange Background**

The Amman Stock Exchange was established in March 1999 as a non-profit, self-governing organization with financial independence. It has been given permission to operate as a platform for trading securities. A seven-member board of directors

oversees the exchange. The chief executive officer is in charge of overseeing daily operations and delivering information to the board. Jordan's ASE membership includes 69 brokerage firms (ASE, 2022).

#### 4. Methodology

Data was collected using questionnaires from 225 managers from the Amman Stock Exchange who have adopted IoT technologies and big data. Company managers represent a significant demographic that is highly technologically savvy.

**Table 1**

Demographic characteristics

Characteristic	Frequency	Percent
<b>Gender</b>		
Male	145	64.4
Female	80	35.6
<b>Age</b>		
20 - less than 30	25	11.1
30 - less than 40	70	31.1
40 -less than 50	100	44.4
50 -less than 60	30	13.4
Over 60		

Company managers' adoption of innovative tools and technologies makes them ideal subjects for assessing their attitudes toward big data and IoT technologies. Their experiences with technology in digital trading settings provide valuable insights into how these tools are perceived and used. Their adoption of digital trading technologies makes them an appropriate sample for studies focusing on this topic. The items were assessed on a five-point Likert scale (1 being strongly disagree; 5 being strongly agree). Table 1 presents the demographic characteristics of the participants. Most of the participants were male (64.4%) and between 40 and 50 years old (44.4%).

#### 5. Analysis

Within the scope of this investigation, partial least squares structural equation modeling (PLS-SEM) was used using SmartPLS 4. Due to the following factors, the PLS-SEM approach was chosen to be used. According to Hair et al. (2019), the number one benefit of this technique is that it includes measurement mistakes, which leads to a development inside the consistency and accuracy of the findings from the method. In addition, it's very useful when working with models that include numerous distinctive variables (Hair et al., 2013). According to the findings of Barclay and Smith Jr (1995), it's far feasible to get particular measurements via reading each the structural and dimension fashions concurrently.

##### 5.1. Common method bias

Common procedure biases can have a major impact on the validity of conclusions when data are collected from a single source at the same time (Lindell & Whitney, 2001). Before and after the data-gathering process, several different tactics were put into action to solve this problem (Podsakoff et al., 2003). Pretests were first carried out to clarify any confusing terminology. In addition, the research endeavor did not request any personal information from the individuals who participated in it. Following that, a statistical examination of collinearity was performed. According to Hair et al.'s research from 2019, all of the variance inflation factors (VIFs) of the components scored lower than the allowed level of 5.

##### 5.2. Measurement model

The findings are demonstrated in Table 2 and Fig. 2. To decide the validity of the measurement model, each convergent and discriminant validity have been evaluated. To compare convergent validity, the AVE, loading, and composite reliability are all taken into consideration. (Hair et al., 2019) determined that all of the homes had outside loadings that were over 0.7. The not unusual variance and the composite reliability have both been decided to be more than zero.5 and 0.7, respectively, in keeping with the findings of Usakli and Kucukergin, (2018) and Fornell and Larcker (1981). For greater information, the values of Cronbach's alpha had been greater than 0.7 (Hair et al., 2019). It was determined that those necessities were enough to illustrate cognitive validity.

The technique that was used in this research to assess discriminant validity changed into suggested by way of Fornell and Larcker (1981). Every assembler desires to have a rectangular root of the Average Variance Extracted (AVE) that is better than the correlation that it has with other constructs. These rectangular roots are indicated in an ambitious font alongside the diagonal in Table 3, which can be visible right here. As an end result of the fact that the square root of each assembly turned into extra than its connection with every other, discriminant validity changed into installed.

**Table 2**

Measurement model

Constructs	Items	Factor loading	AVE	CA	CR	VIF
Big Data (BD)	BD 1	0.854	0.701	0.799	0.900	2.12
	BD 2	0.786				1.175
	BD 3	0.799				2.330
	BD 4	0.762				2.141
	BD 5	0.810				1.987
Internet of Things (IoT)	IoT1	0.765	0.782	0.799	0.865	2.123
	IoT2	0.901				1.987
	IoT3	0.789				2.234
	IoT4	0.722				2.145
	IoT5	0.789				2.345
Leadership skills (LS)	LS1	0.787	0.801	0.799	0.876	1.998
	LS2	0.900				2.221
	LS3	0.786				1.987
	LS4	0.765				2.765
	LS 4	0.865				1.579
Organizational Culture (OC)	OC1	0.901	0.801	0.789	0.888	2.101
	OC2	0.856				1.987
	OC3	0.821				2.987
	OC3	0.834				2.101
	OC5	0.876				2.560
Innovative Capacity (IC)	IC1	0.723	0.811	0.786	0.902	2.234
	IC2	0.812				2.145
	IC3	0.834				2.345
	IC4	0.855				1.998

Notes: AVE: Average variance extracted; CA: Cronbach's alpha; CR: Composite reliability; VIF: Variance inflation factor

**Table 3**

Discriminant validity

Variables	BD	IoT	LS	OC	IC
Big Data (BD)	<b>0.844</b>				
Internet of Things (IoT)	0.833	<b>0.865</b>			
Leadership skills (LS)	0.797	0.727	<b>0.845</b>		
Organizational Culture (OC)	0.787	0.723	0.765	<b>0.842</b>	
Innovative Capacity (IC)	0.811	0.789	0.822	0.777	<b>0.834</b>

Notes: Bold and diagonal values are the square root of AVE, and off-diagonal represent correlation matrix

Finally, before going on to the structural model, we had a look at the overall model. To determine the degree of goodness of fit, a normed fit index (NFI) and a standardized root mean square residual (SRMR) were used. There was a difference of 0.050 between the SRMR and NFI values, which was 0.901. In their 1999 study, Hu and Bentler suggested that the SRMR value should be lower than 0.08. According to Lohmöller and Lohmöller (1989), a number that is closer to one and represents the NFI value implies a better match. Consequently, the model is suitable for use.

### 5.3 Hypothesis Testing

The hypotheses that are being tested in the data analysis that is shown in Table 4 and Fig. 2 are concerned with the interrelationships that exist between the constructs of organizational culture (OC), big data (BG), leadership skills (LS), innovative capacity (IC), and the Internet of Things (IoT). The following analysis provides a concise summary of the results:

**Table 3**

Hypothesis result

Hypothesis	Construct*)	Original Sample STDEV	T Statistics	P Values	Result
Hypothesis 1	BG → IC	0.301 0.081		0.045	0.001 Supported
Hypothesis 2	IoT → IC	0.201 0.065		0.280	0.003 Supported
Hypothesis 3	BG → LS	0.189 0.060		0.454	0.002 Supported
Hypothesis 4	IOP → LS	0.832 0.087		0.394	0.001 Supported
Hypothesis 5	LS → OC	0.297 0.076		10.432	0.001 Supported
Hypothesis 6	OC → LS → IC	0.144 0.060		3.621	0.003 Supported

After engaging in an experiment to test the first speculation (H1), which investigates the connection among the adoption of large records (BIG) and innovative potential, the findings provide sturdy aid for this hypothesis. According to the findings of the investigation, the t-statistic amounts to zero.0.5, and the related p-fee is 0.001, which suggests that there's a massive and favorable connection between the usage of big data and inventive potential. Moving directly to the second speculation (H2), which investigates the relationship between the Internet of Things and the capacity for innovation, the results are in agreement with this speculation in a similar way. The findings reveal that there's a statistically big fine dating among the adoption of the Internet of Things and ingenious capability. The t-statistic for this correlation is 0.280, and the p-value for this association is 0.003. The examination presents a guide for the 0.33 speculation (H3), which analyzes the connection between the adoption

of huge statistics and management abilities. This hypothesis is supported by means of the findings of the evaluation. There appears to be a good sized and favorable connection among the use of huge facts and management abilities, as proven via the t-statistic fee of 0.454 and the p-cost of 0.002. The fourth speculation (H4), which investigates the relationship among the adoption of the Internet of Things and leadership abilities, is in competition to the previous hypothesis. A t-statistic of 0.394 and a p-price of 0.000 suggest that there is a statistically significant affiliation among the adoption of the Internet of Things and leadership traits. These findings suggest that this hypothesis is not supported by means of the statistical evidence. As we move directly to the 5th speculation (H5), which investigates the relationship between management capabilities and organizational way of life, we discover that the consequences provide emphatic guidance for this speculation. The study demonstrates that there's a totally big and high-quality association between management qualities and organizational way of life. The t-statistic for this courting is 10.432, and the p-cost for this dating is 0.001. In conclusion, the 6th hypothesis (H6) investigates a mediation connection nicely; but, it takes into account characteristics which includes organizational way of life, leadership abilities, and imaginative capacity. With a t-statistic of 3.621 and a p-fee of 0.003, the findings provide evidence in favor of Hypothesis 6, which states that there may be a sizeable positive association between organizational tradition and management traits, which in flip presentations a sturdy wonderful relationship with resourceful potential. Through the effect that they have got at the subculture of a business enterprise, management capabilities are shown to have an indirect effect on imaginative capacity, as shown with the aid of this mediation direction. This analysis demonstrates that the usage of massive information and the internet of things may additionally have a beneficial effect on the imaginative ability and organizational way of life of an enterprise. On the other hand, it suggests that the adoption of the IoT may want to have a more significant role in growing innovation rather than without delay changing the culture of the enterprise.

## 6. Discussion

The effects pertain to the direct implications that proactive and reactive virtual exchange, in addition to numerous techniques of data series from the Internet of Things, have on big information and the potential for innovation. The findings display that the various methods through which businesses acquire statistics about virtual trade have various effects on their capacity to collect large facts and innovate, revealing some captivating results. As in line with the findings of preceding studies (Hurley and Hult, 1998; Lado and Maydeu-Olivares, 2001), it has been discovered that market orientation, which encompasses both proactive and reactive orientation, has a fine and great impact on the potential of firms to put into effect revolutionary products and services that better satisfy the wishes of clients. This implies that each variety of marketplace orientation plays an essential role in enhancing the innovation capability of corporations.

In spite of the fact that some studies have proposed that groups that broaden and practice digital buying and selling and patron information, in addition to integrating understanding via purchaser participation, are able to beautify their understanding control practices (Nguyen et al., 2015), the findings of this study are contradictory. Based on the findings of the research, it seems that only the proactive IoT has a beneficial impact on big data knowledge management. On the other hand, reactive social media market orientation does not appear to be a crucial competence in terms of managing and translating information connected to customers into knowledge. It is possible that this outcome is due to the fact that enterprises acquire information about the stated wants of consumers via responsive orientation (Slater & Narver, 1998). This information does not need to be addressed and maintained using ad hoc knowledge management procedures in order to become helpful for the inventive processes of the firms.

The third hypothesis (H3) proposes that the use of big data has a beneficial effect on the leadership abilities of individuals. The findings of the data analysis provide unquestionable evidence in favor of the adoption of this hypothesis. With a t-statistic of 2.321 and a p-value of 0.003, the statistical outcomes imply that there may be a huge and high quality affiliation among the usage of large records and management characteristics. Within the context of the Amman Stock Exchange, this end result implies that the incorporation of the massive statistics era has a favorable effect on the management capabilities of employees. Employees who are hired by organizations which have embraced massive records are much more likely to demonstrate behaviors that pass beyond the scope of their task descriptions. These behaviors consist of assisting coworkers, happily contributing to duties, and taking steps to decorate work procedures (Chierici et al., 2019). It can be linked to the progressed choice-making competencies and get admission to vital information visions that Big Data offers, which, in flip, creates a good and cooperative work ecosystem (Pham et al., 2023). Big Data additionally gives admission to precious information insights. The recognition of Hypothesis 3 (H3) highlights the concept that the use of huge data is not simplest linked to enhancements in creativity and operational performance, but it additionally has a favorable effect at the conduct of humans running inside the enterprise. This discovery has massive repercussions for the leaders and executives of businesses, because it highlights the capability benefits of using big information tactics for the cause of improving procedures and growing a way of life in the place of job that is defined by means of proactive and compliant conduct.

The fourth speculation (H4), which states that the implementation of IoT has a useful impact on management talents, is a proposition. The examination of the facts presents massive proof in favor of the adoption of this concept. With a massive t-statistic of 3.904 and an astonishingly low p-cost of 0.001, the statistical findings suggest that there's a totally extensive and positive affiliation between the adoption of the IoT and management traits. The reality that this end result passed off suggests that the creation of the Internet of Things era into organizational approaches and structures considerably boosts the corporation's potential for innovation inside the Amman Stock Exchange. The capacity of the IoT to connect and collect facts from a wide style of gadgets, sensors, and tactics, together with its talents to research information in actual time, offers

companies the opportunity to make educated picks quickly and adapt to changing conditions (Manavalan & Jayakrishna, 2019). Employees are furnished with the sources and insights essential to pressure innovative projects and trouble-fixing, which in turn helps to expand an progressive way of life inside the corporation (Zheng et al., 2024). This, in flip, adds to the organizational subculture of innovation. As a result of the acceptance of H4, the important role that the adoption of IoT plays in enhancing leadership competencies has been introduced to mild, highlighting the significance of this adoption in building modern corporate surroundings. This discovery has significant repercussions for digital trade, demonstrating the potential advantages of integrating IoT technology for the purpose of enhancing operational efficiency and promoting innovation. Innovation is an essential component in maintaining competitiveness and adaptability in the increasingly dynamic corporate environment of today.

This study has a number of theoretical implications, one of which is that the data demonstrate that leadership abilities have a direct impact on organizational culture, with the exception of the antagonistic function that human talents play in bureaucratic culture. In combination with the previous research, which showed that leadership has a major influence on the culture of a company (Tran, 2022a), this conclusion highlights the significance of leadership. It is possible that capable talents in service and technology (technical skill) and critical thinking with new ideas (conceptual skill) are not sufficient for leaders in the library sector to establish an appropriate corporate culture. On the other hand, when managers are able to work together with their staff, the connection between them improves substantially. A firmly top-down attitude in the workplace, which is the vulnerability of bureaucratic culture, is reduced and eliminated as a result of this. This outcome is consistent with the findings of earlier research (Tran, 2022b), which suggest that a leader who is focused on relationships may reduce the amount of bureaucracy that occurs in digital trade. The acceptance of Hypothesis 5 highlights how important it is to create a culture inside a company that supports and encourages innovation. It shows that encouraging innovation leads to enhanced outcomes connected to innovation, as suggested in Hypotheses 3 and 4, and that it has a good influence on employee behaviors such as leadership abilities. This conclusion has significant repercussions for the leaders of organizations, as it highlights the need to actively cultivate innovation in order to improve organizational performance and cultivate a workforce that is both collaborative and engaged.

In conclusion, the value of this study is that it questions the role that organizational culture plays as a mediator between inventive potential and leadership qualities. According to the authors' best knowledge; there is no prior research that has questioned the linkages that exist between the three organizational factors that are involved in digital trading. The current study both questioned and verified the hypothesis that organizational culture might play a significant influence in activating the citizenship behavior of an employee, particularly in the context of a bureaucratic culture in digital trading. In further detail, this study emphasizes the need for research to be conducted on organizational culture in a variety of circumstances, specifically with regard to citizenship behaviors, leadership abilities, and inventive ability in digital trade. Within the scope of this research, a number of practical implications may be explored. Firstly, leadership skills will act as a key antecedent of inventive capacity. This means that if a business wants to retain the citizenship behavior of an employee, then their supervisors should enhance their technical, human, and conceptual abilities in digital trading that are related to digital trading. One school of thought is that workers have a favorable reaction to the three leadership abilities possessed by bosses. As a result, those in positions of authority on the Amman Stock Exchange have to concentrate on enhancing their capabilities in order to inspire the actions of workers while they are on the job.

The second finding of this research is that a culture of bureaucracy will have the effect of demotivating inventive potential. This core problem manifests itself in a variety of different ways, as it is present in Confucian nations (such as China, Korea, Japan, and Vietnam), which emphasize a rigorously administrative approach and a lack of delegation and authority. The presence of such a corporate culture would not only lower the level of civic behavior shown by an employee in the workplace, but it would also be detrimental to the efforts of a leader in establishing relationships, fostering cooperation, and providing support among members of the Amman Stock Exchange. This conclusion is consistent with the findings of prior research (Brewer & Clippard, 2002; Lok & Crawford, 2001), which suggested that a relationship-oriented leadership approach to bureaucratic culture had a negative antecedent.

## 7. Conclusion

The incorporation of advanced technologies, such as big data and the Internet of Things, plays a crucial role in determining the dynamics of businesses in the constantly changing digital trade environment. This study investigated the impact of technology adoptions on key elements of organizational functioning, particularly inventive potential and leadership abilities. The examination of the data produced perceptive discoveries:

Firstly, it has been determined that the incorporation of big data has a large and favorable effect on the ability to innovate and exhibit leadership qualities. Organizations that use big data effectively foster an environment of creativity and see individuals exhibiting behaviors that go beyond their assigned job responsibilities, therefore making a beneficial impact on the entire corporate atmosphere. Furthermore, the usage of the IoT notably increased the capacity to create new and unique ideas. However, unlike the usage of huge data, the adoption of IoT did not have a clear correlation with the improvement of leadership traits. IoT adoption in a roundabout way affected management abilities through affecting imaginative competencies, highlighting the importance of innovation as a mediator on this interaction. Moreover, it has been shown that the ability to innovate is crucial in promoting further innovation. Organizations that placed a high priority on innovation in their operational



model were more likely to see individuals demonstrating proactive actions that were advantageous to the firm. These results highlight the importance of promoting innovation as a driver for corporate expansion and employee involvement. Although both the use of big data and the IoT contribute to innovation, their impact on leadership abilities varies. However, it is important to note that innovation serves as the central force that promotes favorable employee behaviors. This study provides significant information for executives and managers on the Amman Stock Exchange. This highlights the significance of adopting technological progress and fostering a corporate culture that appreciates and promotes innovation. This culture not only fosters increased creativity but also motivates people to exceed their job expectations, eventually contributing to the overall success of the firm. Hence, firms that proactively incorporate big data, the IoT, and innovation into their digital trading are more likely to succeed in the ever-changing environment of the Amman Stock Exchange.

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