

The effect of big data governance on financial technology in Jordanian commercial banks: The mediation role of organizational culture

Mohammad Abdel Mohsen Al-Afeef^{a*}, Osamah Abdul Munim Ali^a, Saqer Al-Tahat^b, Ahmad Fawaz Malkawi^a, Neven Yousef Kalbounhe^a and Zeyad Faisal Al-Azzam^a

^aJerash University, Jordan

^bAl al-Bayt University, Jordan

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ABSTRACT

Big data has become much more widely used in recent years, particularly in the banking sector. Banks have begun to use big data to enhance customer experience, optimize operations, and create novel products and services. This study investigates the effect of big data governance on financial technology in Jordanian commercial banks. The study focuses on the four dimensions of big data governance: strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture. Additionally, the study considers the mediating role of organizational culture in the relationship between big data governance and financial technology. Primary data were collected from 250 IT employees working in Jordanian commercial banks, and the data were analyzed using PLS-SEM. The study findings indicate that big data governance has a significant positive effect on financial technology in Jordanian commercial banks. Additionally, it has been discovered that organizational culture partially mediates the relationship between big data governance and financial technology, emphasizing the significance of creating a culture that encourages the efficient use of data in fintech. In the context of Jordanian commercial banks, this study presents empirical evidence for the connection between big data governance and financial technology. The results indicate that big data governance measures should be applied while taking organizational culture into account as a potential mediator of the effects on financial technology. This study offers guidance on how to successfully integrate big data governance policies in commercial banks to advance financial technology for bank managers and policymakers.

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1. Introduction

Technology advancements, such as the emergence of big data and FinTech, have significantly altered the banking sector. Banks are utilizing big data technology to increase operational efficiency and deliver better services to their customers. But the use of big data technologies in the banking industry has brought about a variety of problems with governance, ethics, data quality, and infrastructure. Big data governance is necessary for the effective and successful use of big data in fintech. Banks must set up the right governance procedures to guarantee the proper management, storage, and analysis of client data. To do this, one must develop a clear big data strategy and plan, ensure adherence to moral and social responsibility norms, keep strict standards for data quality, and invest in a reliable infrastructure and architecture that will support big data operations. Numerous studies have addressed the challenges of big data implementation in the banking sector. For instance, Ahmad and Al-Habashneh's research from 2021 outlined a variety of issues with big data governance, including concerns about privacy and security, issues with the quality of the data, and troubles integrating the data. The report emphasizes the necessity for

* Corresponding author.

E-mail address: dr.mohammad@jpu.edu.jo (M. A. M. Al-Afeef)

effective big data governance practices as a means of overcoming these challenges. Another study by Liu et al. (2019) examined the challenges of using big data analytics in the banking industry. The study identified a variety of problems with data integration, data quality, and a labor deficit. In order to ensure the banking sector's successful use of big data analytics, the study underlines the need for appropriate big data governance structures. The importance of big data governance in the banking industry is further emphasized by a study by Zhang et al. (2021) that focuses on the governance of data sharing in the banking industry. The paper underlines the need for effective governance structures to address issues caused by data sharing, such as worries about privacy and data security. Organizational culture, however, is a crucial factor that could influence the success of big data governance in the banking industry. According to study, a company's culture can affect both the adoption and use of new technologies as well as the adoption of effective governance structures. A supportive corporate culture that encourages creativity, collaboration, and lifelong learning is necessary, according to research, for the deployment of big data governance in the FinTech sector (Molla and Licker 2015; Seethamraju 2015). A workplace that values open communication, teamwork, and knowledge sharing can support the development of a data-driven culture and the use of data analytics to guide business decisions (Laudon and Laudon 2016). On the other hand, the implementation of effective governance systems and the acceptance of new technologies may be constrained by a culture that is resistant to change and is hierarchical in nature (Seethamraju 2015). According to studies (Molla and Licker 2015), a culture of skepticism and reluctance to change has also been connected to a lack of awareness or understanding of big data and its potential benefits. Hence, in order to allow the introduction of efficient big data governance measures in FinTech, banks must establish an organizational culture that emphasizes innovation, collaboration, and constant learning. Big data governance and FinTech are interdependent, and organizational culture is a key mediating factor. Big data projects can produce better results if there is a strong corporate culture that encourages the efficient use of big data in FinTech. The success of big data projects, according to Wang et al. (2020), depends on creating a solid corporate culture that prioritizes data-driven decision-making. Consequently, the aim of this research paper is to examine the effect of big data governance on FinTech in Jordanian commercial banks. Specifically, the study focuses on the dimensions of strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture. The research also examines the mediating role of organizational culture in the relationship between big data governance and FinTech.

2. Literature Review

2.1 *Financial Technology in Jordanian Commercial Banks*

Jordan's banking industry has seen tremendous change in recent years as a result of the quick advancement of financial technology (FinTech). Commercial banks in Jordan are now implementing new technology to boost their operational effectiveness, boost client satisfaction, and boost their competitiveness on the international market. This has increased the use of digital banking services and spurred the creation of novel products that cater to clients' changing needs. The rising demand for online banking services is one of the main factors influencing the adoption of FinTech in Jordanian commercial banks. Consumers are increasingly asking for anytime, anywhere access to simple and secure digital banking services. This has prompted banks to make significant investments in digital channels, including ATM networks, mobile and internet banking, and mobile banking (Abu Karaki et al. 2018). The requirement to increase operational efficiency is another driver propelling FinTech adoption in Jordanian commercial banks. Digital technology can assist banks in achieving their objectives of cost reduction and a better bottom line, which are under increasing pressure from regulators. Artificial intelligence (AI) and robotic process automation (RPA), for instance, can assist banks in automating their back-office processes and lowering the time and expense associated with transaction processing (Bashir et al. 2021). Another important factor influencing the adoption of FinTech in Jordanian commercial banks is the creation of novel products and services. To adapt to their clients' evolving needs, banks are now providing fresh, cutting-edge products including peer-to-peer (P2P) lending, contactless payments, and mobile wallets. These products are frequently aimed at the underbanked and unbanked parts of the population and are created to be more accessible, easy, and affordable than typical banking products (Zahran et al. 2021). FinTech adoption in Jordanian commercial banks is not without difficulties, though. The absence of a FinTech-specific regulatory framework is one of the main issues. The Jordanian regulatory environment now in place falls short of completely addressing the specific dangers and difficulties brought by fintech, including cybersecurity, data privacy, and consumer protection (Bashir et al. 2021). Lack of knowledgeable workers and ignorance of the potential advantages of FinTech are further problems. Banks are struggling to find qualified employees who can create and deploy digital solutions and offer customer assistance for those who utilize those solutions (Abu Karaki et al. 2018). Also, customers are not aware of the advantages of FinTech, and many of them are afraid to use digital banking services because of worries about their privacy and security (Zahran et al. 2021). Notwithstanding these obstacles, it is anticipated that FinTech adoption in Jordanian commercial banks would increase over the next few years. In order to address the changing needs of their clients, banks are investing more money in digital technology and creating fresh, cutting-edge goods and services. Moreover, the Jordanian government is attempting to increase public awareness and digital literacy while also taking steps to develop a more positive regulatory environment for FinTech (Central Bank of Jordan 2020). In conclusion, FinTech adoption in Jordanian commercial banks is changing the financial industry and promoting innovation and growth. Banks that can successfully manage the complicated terrain of digital technology and regulatory frameworks are likely to emerge as leaders in the industry. While there are some obstacles that need to be addressed, the potential benefits of FinTech are enormous.

2.2 Big Data Governance

The significance of big data governance in assuring the effective use of big data across a range of industries, including the banking sector, has drawn a lot of attention in the literature. Numerous studies have focused on the various facets of big data governance, including strategy and planning, ethics and social responsibility, data quality and administration, and infrastructure and design. Kim and Kim (2017) assert that the financial industry's successful use of big data depends on having a strategic plan that is in accordance with the overall business strategy and objectives. This plan should outline the key participants, assets, and technological requirements necessary to achieve the big data strategy successfully. Particularly in the banking sector, the subject of ethics and social responsibility in relation to big data governance has drawn a lot of attention. When gathering, maintaining, and exploiting customer data, banks are obligated to follow all applicable laws and regulations, claim Singh and Aggarwal (2021). Additionally, they should set up the required security measures to stop illegal access to or use of customer data. It is crucial to have high data quality and management in order to leverage big data in FinTech efficiently. Banks must ensure that the data they collect is accurate, complete, and consistent. According to Zhang et al. (2020), data quality is required to ensure the accuracy and dependability of the information used in decision-making. Strong infrastructure and architecture are necessary for big data governance, particularly in the context of fintech. According to Kim et al. (2020), banks must invest in a scalable and secure infrastructure that can handle the storage, processing, and analysis of big data. In order to manage the enormous amount of data generated by the banking sector and to be extendable in the future, this infrastructure must be constructed. In order to effectively use big data in FinTech, banks must establish big data governance practices that include a variety of subjects, including strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and design. By implementing strong big data governance, banks may increase their operational efficiency, provide better services to their clients, and increase their competitiveness in the market.

2.3 Organizational Culture

The conduct and attitudes of workers toward their work and the organization as a whole are significantly influenced by organizational culture. For Jordanian commercial banks, organizational culture is essential since it influences their productivity and ability to compete in the constantly evolving banking sector (Al-Tamimi & Obeidat, 2018; Ministry of Digital Economy & Entrepreneurship, 2021). Collaboration, innovation, and ethics among employees are all vital for gaining and keeping customers' trust and loyalty. A positive corporate culture can foster these traits. However, establishing a positive organizational culture in Jordanian commercial banks can be challenging for a variety of reasons, including the hierarchical structure of many banks and the lack of diversity in the workforce (Qaisi & Qaisi, 2021). In order to address these challenges, banks can employ a range of strategies to create a supportive organizational culture that promotes innovation, collaboration, and diversity. Promoting diversity and inclusion, providing opportunities for training and advancement, and encouraging open discussion and criticism are a few of these strategies. Recent studies have emphasized the importance of organizational culture in the success of Jordanian commercial banks. A good organizational culture, for instance, can increase employee loyalty and happiness, which in turn can lead to better customer service, according to a study by Qaisi and Qaisi (2021). Al-Tamimi and Obeidat (2018) also highlighted the significance of organizational culture in fostering innovation and adaptability, two qualities that are crucial for banks to survive in the cutthroat banking sector. In conclusion, the organizational cultures of Jordanian commercial banks are crucial to their success and ability to compete in the banking sector. By creating a good culture that values creativity, innovation, and diversity, banks may create an environment that encourages employee engagement and nurtures client trust and loyalty. However, banks must collaborate in order to address the problems and obstacles that limit the development of such a culture.

2.4 Hypotheses Development

2.4.1 Big Data Governance and Financial Technology

Big data governance is an essential process for managing and preserving the security, privacy, and integrity of enormous amounts of data. Due to the processing of vast quantities of sensitive financial data, this method is especially crucial in the financial technology (fintech) industry. Adoption of effective big data governance has a huge impact on the growth and development of fintech organizations. Fintech companies make heavy use of big data to better understand consumer behavior, deliver better products and services, and make wise judgments. These companies must be able to rely on the data's correctness, dependability, and applicability. Effective big data governance ensures the data is correct and pure, maintaining data quality. The accuracy and dependability of the analytical models used by fintech companies are consequently improved. (PwC, 2017) Fintech businesses need to follow the tight regulations that control the financial sector if they want to avoid legal issues and reputational damage. Effective big data governance can be used to identify and manage risks related to data processing, storage, and transfer. In addition, it ensures compliance with data security and privacy rules, reducing the likelihood of data breaches and minimising reputational damage. (Kshetri) 2018 The establishment and maintenance of customer loyalty and trust are also facilitated by big data governance. Fintech companies are trusted by customers to safeguard and maintain the confidentiality of their personal and financial information. Effective big data governance helps to build and maintain customer trust by avoiding illegal access to or exploitation of consumer data. This boosts client loyalty, which is essential for the development and success of financial companies. (PwC, 2017) The financial industry can benefit from big data governance by fostering innovation. Effective big data governance requires that data be made available to the relevant stakeholders and be easily accessible. As a result, fintech companies can develop new products and services, alter existing ones to better suit

the needs of specific clients, and increase operational efficiency. Big data governance also facilitates collaboration among investors, consumers, and regulators, which can foster innovation and growth in the fintech industry. McKinsey & Company (2016) Numerous studies have demonstrated how big data governance affects fintech. For instance, PwC found that effective big data governance may help fintech companies increase customer satisfaction, cut operating costs, and increase profitability. (PwC, 2017) When utilizing big data effectively, fintech companies are more likely to outperform their rivals, according to a study from McKinsey & Company. McKinsey & Company (2016) In conclusion, big data governance has a substantial impact on the growth and development of the fintech industry. Effective big data governance increases customer loyalty and trust while reducing risks, upholding legal compliance, and enhancing data quality. It encourages innovation as well. Fintech firms focus on big data governance, which raises their chances of success and goal accomplishment. Therefore, this study developed the following hypothesis:

H₁: *There is a significant and positive Effect of Big Data Governance (Strategy and Planning, Ethics and Social Responsibility, Data Quality and Management, and Infrastructure and Architecture) and Financial Technology.*

2.4.2 Big Data Governance and Organizational Culture

Big data governance is regarded to have a substantial impact on organizational culture. Effective big data governance can affect how firms manage their data, make choices, and interact. It can also promote a culture of data-driven decision-making, where decisions are based on accurate and reliable information (Kim, Pan, & Choe, 2019). Big data governance may also promote openness, accountability, and ethical behavior—all of which are essential components of an effective company culture. Recent studies have emphasized the importance of big data governance in affecting organizational culture. As an illustration, a Gartner study found that effective big data governance may encourage collaboration and communication between diverse organizational units (McKendrick, 2017). Another MIT Sloan Management Review investigation found that organizations with strong data governance procedures have a more creative and cooperative culture (Kiron, Prentice, & Ferguson, 2014). Big data governance may also have an impact on how staff members act and perceive data management. Effective big data governance can promote a culture of data ownership and responsibility where employees are aware of their role in maintaining and conserving data (Kim, Pan, & Choe, 2019). This could lead to improved data dependability, accuracy, and quality. In conclusion, big data governance has a tremendous impact on how a business develops its culture. It can support openness, responsibility, and moral behavior while fostering collaboration, communication, and innovation. Organizations that prioritize big data governance are more likely to have a productive workplace environment that promotes data-driven decision-making and ethical data handling. Hence, this study developed the following hypothesis:

H₂: *There is a significant and positive Effect of Big Data Governance (Strategy and Planning, Ethics and Social Responsibility, Data Quality and Management, and Infrastructure and Architecture) on Organizational Culture.*

2.4.3 Organizational Culture and Financial Technology

Organizational culture has a significant impact on the success and growth of financial technology (fintech) companies. The success of an organization in the fintech industry depends on its ability to develop creativity, teamwork, and customer-centricity (Javidan et al., 2016). Additionally, firms with strong organizational cultures may be able to draw and keep top personnel, which is important for the growth and competitiveness of fintech companies (Gittell, Seidner, & Wimbush, 2010). Recent studies have emphasized the value of organizational culture in the fintech industry. For instance, Deloitte (2019) found that a culture of innovation is essential to the success of the fintech industry. The study discovered that an environment that values creativity, collaboration, and lifelong learning can lead to the development of unique financial products and services. According to PwC (2020), a strong organizational culture is essential for fintech companies to gain and preserve the trust and loyalty of their customers. According to the report, customers are more likely to trust and do business with fintech companies that have a welcoming and helpful culture. By building a culture that emphasizes transparency, accountability, and customer-centricity, fintech firms can have the ability to develop and maintain long-term relationships with their clients. The development and adoption of innovative technologies in the fintech industry can also be influenced by organizational culture. A culture that encourages experimentation and risk-taking may lead to the development of innovative and cutting-edge fintech products and services. A culture that is resistant to change, however, can impede the adoption of new technologies and limit the growth of fintech companies (Gittell et al., 2010). In summary, corporate culture is essential to the growth and success of fintech companies. In addition to attracting and keeping great talent, a friendly and encouraging culture may foster creativity, teamwork, and customer-centricity. Businesses in the cutthroat fintech industry are more likely to succeed and thrive if their corporate cultures are strong. Hence, this study developed the following hypothesis:

H₃: *There is a significant and positive Effect of Organizational Culture on Financial Technology.*

2.4.4 Organizational Culture as a Mediator

Recent studies have shown that corporate culture might buffer the relationship between effective big data governance and adoption of financial technology (fintech). Good big data governance can have an impact on organizational culture by encouraging collaboration and innovation while promoting honesty, accountability, and ethical conduct. This could create an environment that encourages the effective application of big data in finance. For instance, PwC found that effective leadership

and a supportive culture are crucial for the implementation of data governance practices in the fintech industry, while McKinsey found that companies with a positive corporate culture are typically more successful at doing so (McKinsey, 2018; PwC, 2019). The application of big data governance in the fintech sector can also be influenced by organizational culture. A culture that emphasizes data ownership and responsibility can make it easier to deploy big data governance initiatives, but a culture that is resistant to change can also make it more difficult (Deloitte, 2020). In conclusion, a positive organizational culture can promote transparency, accountability, and moral behavior while facilitating the effective application of big data governance protocols. If they place a high premium on developing a positive corporate culture, fintech organizations are more likely to be successful in exploiting big data for their commercial goals. Therefore, fintech businesses need to be aware of the significance of organizational culture in the relationship between big data governance and the success of the fintech industry. Therefore, this study developed the following hypothesis:

H4: *Organizational Culture Mediate the Effect of Big Data Governance (Strategy and Planning, Ethics and Social Responsibility, Data Quality and Management, and Infrastructure and Architecture) on Financial Technology.*

2.5 Theory

A conceptual framework that can be used to explain how big data governance influences financial technology is the Resource-Based View (RBV) hypothesis. The RBV hypothesis states that a company's competitive advantage is based on its unique resources and abilities, which make it difficult for competitors to copy them (Barney, 1991). Strategic planning, data quality and management, ethics and social responsibility, and infrastructure and architecture are among the relevant resources and skills in the context of big data governance (Chen et al., 2019). These four components of big data governance are also important. If a company is successful in implementing big data governance practices in these four areas, it can establish specialized capabilities that provide it a competitive edge in the fintech industry. For instance, a corporation with a defined big data strategy and plan could use its data assets to make business decisions that are favorable from a competitive standpoint. Similar to this, a business can enhance decision-making and reduce risks by giving data management and quality first priority. They can make sure that their data is accurate, complete, and trustworthy by doing this. In accordance with the RBV theory, corporate culture can moderate the effects of big data governance on financial technology. A negative organizational culture may prevent the effective deployment of big data governance solutions, whilst a positive culture may encourage it. Big data governance strategies can be applied successfully in an environment that emphasizes data ownership and responsibility, but they can also be hindered by an anti-change environment (Chen et al., 2019). The RBV theory provides a model for understanding the influence of big data governance on financial technology, to sum up. The theory holds that by building specialized resources and competencies in the four areas of big data governance, a business can gain a competitive edge in the fintech industry. Additionally, corporate culture affects how big data governance affects financial technology, highlighting the importance of creating an environment that promotes the effective use of data in fintech.

2.6 Model

The research model is represented diagrammatically in Fig. 1 where the mediating effect of organizational culture on the effect of big data governance (strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture) on financial technology are shown.

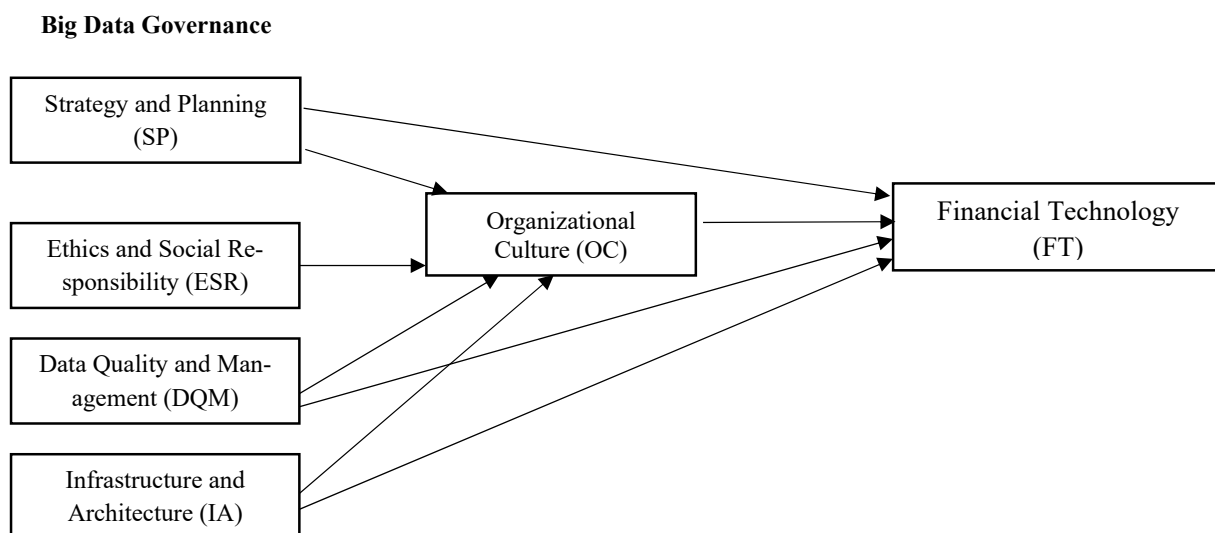


Fig. 1. The proposed model

3. Research Methodology

The study employs a quantitative research design, and the study population consists of employees working in the IT departments of Jordanian commercial banks. The sample size is determined using the convenience sampling method, and a total of 250 respondents are selected for the study. Data are collected using a self-administered questionnaire, which is designed based on the four dimensions of big data governance (strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture), organizational culture and financial technology. The questionnaire items are measured on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The collected data are analyzed using PLS-SEM, which is a second-generation multivariate analysis technique suitable for modeling complex relationships between latent constructs. Due to its capacity to manage small sample numbers, non-normality of data, and complicated interactions between latent components, PLS-SEM is favoured over other SEM techniques. The study used a two-step process to test the research hypotheses. To verify the validity and reliability of the measurement items, the measurement model is assessed in the first stage. The structural model is estimated in the second stage to examine the correlations between the variables and to determine the organizational culture's mediating role.

4. Results and Discussion

4.1 The Measurement Models

By testing the variables' composite reliability (CR) values, all of which were greater than 0.7 as shown in Table 1, the reliability of the variables was evaluated utilizing the internal consistency approach. Additionally, as suggested by Jang et al. (2020) and Chiu et al. (2021), the Cronbach Alpha (CA) value also exceeded 0.7. By determining the Average Variance Extracted (AVE) values, which were greater than 0.5 as indicated in Table 1, convergent validity was evaluated. All of the variables' items, with the exception of FT5 and FT6, had factor loadings above 0.6, as suggested by Kumar et al. (2020), Yang et al. (2021), and Faleye and Isiauwe (2021). Using the Fornell-Larcker test (Table 2) and Heterotrait analysis (Table 3), discriminant validity was assessed. The square root of AVE for each latent variable should be bigger than the correlation between latent variables in accordance with the discriminant validity criterion. According to Table 2, the variables satisfied this requirement. An average HTMT value above 0.90 indicated a potential problem with discriminant validity. But since every HTMT score in this sample was far below the cutoff of 0.90, discriminant validity was not a problem.

Table 1
Measurement Model

Variables	Loading	CA	CR	AVE	
Financial Technology (FT)	FT1	0.787	0.884	0.887	0.685
	FT2	0.882			
	FT3	0.863			
	FT4	0.813			
	FT5	Deleted			
	FT6	Deleted			
	FT7	0.787			
Organizational Culture (OC)	OC1	0.781	0.874	0.871	0.568
	OC2	0.798			
	OC3	0.768			
	OC4	0.815			
	OC5	0.804			
	OC6	0.743			
	OC7	0.846			
Big Data Governance Strategy and Planning (SP)	SP1	0.814	0.845	0.796	0.577
	SP2	0.601			
	SP3	0.842			
Ethics and Social Responsibility (ESR)	ESR1	0.829	0.865	0.888	0.642
	ESR2	0.843			
	ESR3	0.773			
	ESR4	0.800			
	ESR5	0.759			
Data Quality and Management (DQM)	DQM1	0.698	0.863	0.865	0.555
	DQM2	0.824			
	DQM3	0.81			
	DQM4	0.82			
	DQM5	0.801			
	DQM6	0.707			
Infrastructure and Architecture (IA)	IA1	0.775	0.879	0.887	0.542
	IA2	0.777			
	IA3	0.736			
	IA4	0.743			
	IA5	0.717			
	IA6	0.751			
	IA7	0.791			
	IA8	0.778			

Table 2
Fornell-Larcker criterion analysis to check discriminant validity

	DQM	ESR	FT	IA	OC	SP
DQM	0.745					
ESR	0.495	0.801				
FT	0.551	0.266	0.827			
IA	0.628	0.681	0.511	0.736		
OC	0.633	0.655	0.679	0.819	0.754	
SP	0.512	0.276	0.609	0.501	0.660	0.760

Table 3
Heterotrait Analysis Discriminant Validity

	DQM	ESR	FT	IA	OC	SP
DQM	-					
ESR	0.537	-				
FT	0.620	0.273	-			
IA	0.663	0.722	0.589	-		
OC	0.711	0.765	0.693	0.615	-	
SP	0.768	0.343	0.138	0.632	0.758	-

4.2 Goodness of Fit

The goodness of fit (GoF) measures the extent to which the model reproduces the sample covariance matrix and explains the relationships among the observed variables. Various methods exist for evaluating the GoF in PLS-SEM, including the conventional R² value, predictive relevance (Q²) value, and standardized root mean square residual (SRMR) value. The R² value in PLS-SEM gauges the amount of variance in the endogenous latent variables that the model can account for. The Q² value evaluates the model's predictive power by assessing how well it can forecast the values of the endogenous latent variables for new observations. The SRMR value quantifies the difference between the predicted and observed covariance matrices, with lower values indicating a better fit. The results of the GoF assessment are presented in the table below, and they indicate that the R² value, Q² value, and SRMR value all surpass the threshold values.

Table 5
Goodness of Fit Result

	Financial Technology	Organizational Culture
R ²	0.857	0.803
Q ²	0.569	0.440
SRMR	0.055	-

4.3 Common Method Bias (CMV)

In this research, Harman's single factor and common latent factor (CLF) analyses were employed to assess the potential issue of common method bias (CMB) in the study's data (Greene et al., 2019). The results of Harman's one factor test demonstrated that there were no CMB concerns as the first variable accounted for 39.194 percent of the variance, which is lower than the 50% threshold (refer to Table 6).

Table 6
CMB Result

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	28.611	39.194	39.194	28.611	39.194	39.194

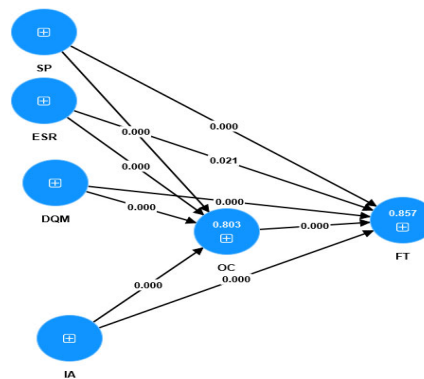


Fig. 2. PLS-SEM Results

Table 7
Result of the Hypotheses

Path	Beta	S.E	T	P
Strategy and Planning → Financial Technology	0.704	0.018	38.884	0.000
Ethics and Social Responsibility → Financial Technology	0.052	0.023	2.308	0.021
Data Quality and Management → Financial Technology	0.302	0.036	8.507	0.000
Infrastructure and Architecture → Financial Technology	0.161	0.036	4.460	0.000
Strategy and Planning → Organizational Culture	0.222	0.026	8.505	0.000
Ethics and Social Responsibility → Organizational Culture	0.252	0.031	8.115	0.000
Data Quality and Management → Organizational Culture	0.338	0.042	7.961	0.000
Infrastructure and Architecture → Organizational Culture	0.256	0.050	5.122	0.000
Organizational Culture → Financial Technology	0.129	0.030	4.349	0.000

The first hypothesis states that there is a significant and positive effect of big data governance (strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture) and financial technology. The results in Table 7 and Fig 2 show that strategy and planning have significant and positive effects on financial technology (Beta=0.704, T=38.884, P<0.05). In addition, the results reveal that ethics and social responsibility have significant and positive effects on financial technology (Beta=0.052, T=2.308, P<0.05). Moreover, the results indicate that data quality and management have significant and positive effects on financial technology (Beta=0.302, T=8.507, P<0.05). Similarly, the result discovered that infrastructure and architecture have significant and positive effects on financial technology (Beta=0.161, T=4.460, P<0.05).

Furthermore, the second hypothesis argues that there is a significant and positive Effect of Big Data Governance (Strategy and Planning, Ethics and Social Responsibility, Data Quality and Management, and Infrastructure and Architecture) on Organizational Culture. The results in Table 7 and Fig 2 show that strategy and planning have significant and positive effects on organizational culture (Beta=0.222, T=8.505, P<0.05). Similarly, the results reveal that ethics and social responsibility have significant and positive effects on organizational culture (Beta=0.252, T=8.115, P<0.05). Additionally, the results indicate that data quality and management have significant and positive effects on organizational culture (Beta=0.338, T=7.961, P<0.05). Finally, the results show that infrastructure and architecture have significant and positive effects on organizational culture (Beta=0.256, T=5.122, P<0.05).

Additionally, the third hypothesis argues that there is a significant and positive Effect of Organizational Culture on Financial Technology. The results in Table 7 and Fig 2 show that organizational culture has a significant and positive effect on financial technology (Beta=0.129, T=4.349, P<0.05).

Table 8
Results of Mediation Analysis

Path	Beta	S.E	T	P
Strategy and Planning → Organizational Culture → Financial Technology	0.029	0.008	3.77	0.000
Ethics and Social Responsibility → Organizational Culture → Financial Technology	0.032	0.008	3.966	0.000
Data Quality and Management → Organizational Culture → Financial Technology	0.044	0.011	3.917	0.000
Infrastructure and Architecture → Organizational Culture → Financial Technology	0.033	0.01	3.149	0.002

The fourth hypothesis argues that Organizational Culture Mediates the Effect of Big Data Governance (Strategy and Planning, Ethics and Social Responsibility, Data Quality and Management, and Infrastructure and Architecture) on Financial Technology. The results in Table 8 show that organizational culture positively mediates the effect of big data governance (strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture) on financial technology.

5. Discussion

According to Table 7's findings, there is a statistically significant and positive correlation between the strategy and planning (SP) component of big data governance and financial technology in Jordanian commercial banks. This shows that Jordanian Commercial Banks' financial technology outcomes may benefit from having a defined strategy and plan on how to govern their big data. These results are in line with earlier studies in the area. For instance, Wu and Chiu's (2018) study discovered a positive correlation between better organizational performance and having a well-defined big data governance strategy and planning technique. Furthermore, a study by Park and Kim (2018) suggested that the banking sector's adoption of financial technology could benefit from the strategic use of big data. The results show that big data governance based on ethics and social responsibility (ESR) has a significant and positive impact on financial technology in Jordanian Commercial Banks is consistent with earlier research that indicates ethical considerations are crucial for the adoption and use of new technologies in the financial sector. For instance, research by Chen and Huang (2017) discovered that ethical issues around data security and privacy posed substantial obstacles to Taiwan's adoption of financial technology. Additionally, the priority that Jordanian banks are giving to corporate social responsibility and ethical business practices may be contributing to the good impact of ESR on financial technology. Most Jordanian banks have an ethics code in place, according to a study by Al-Nimer et al.

(2019), and adopting ethical practices is positively correlated with financial performance. The results also imply that an emphasis on ESR in the governance of big data may boost consumer and stakeholder trust and confidence in the use of financial technology, possibly resulting in its widespread adoption and success in the Jordanian banking industry.

According to the study's findings (Table 7), financial technology in Jordanian commercial banks is significantly and favorably impacted by the Data Quality and Management (DQM) component of big data governance. This result is in line with earlier studies (Fan, Liu, & Du, 2021; Wang, 2019), which highlighted the significance of data quality in attaining successful big data deployment and exploitation in businesses. In order to support decision-making processes and enhance organizational performance, effective data management is crucial for assuring the correctness, dependability, and consistency of data (Al-Otaibi, Al-Abdulkarim, & Al-Shehri, 2019). Organizations can reduce the risk of mistakes, inconsistencies, and biases in their data and increase the value and usability of the data for a variety of reasons, including financial technology, by using data management techniques that ensure data quality. Consequently, the beneficial impact of DQM on financial technology in Jordanian commercial banks suggests that these organizations are investing in the creation of strong data management processes and technologies to support their big data initiatives and are aware of the significance of data quality as a key enabler of their digital transformation strategies.

The findings in Table 7 show that financial technology in Jordanian commercial banks is significantly and favorably impacted by the Infrastructure and Architecture (IA) of big data governance. This shows that these institutions may benefit from investing in big data infrastructure and architecture in terms of improved financial technology results. The technical tools and frameworks required to efficiently manage and analyze large data are referred to as infrastructure and architecture. Hardware, software, data storage, and data processing capabilities are all included. Banks may increase the quality of their data collection, storage, and analysis capabilities, which will enable them to make better forecasts and decisions. According to research, infrastructure and design are crucial to the effective execution of big data activities. Infrastructure and architecture were among the major elements determining the success of big data analytics projects in healthcare, according to a study by Gandomani et al. (2019). Similar findings were made by Wang et al. in their 2019 study, which revealed that infrastructure and architecture were critical to the success of big data analytics initiatives in the industrial sector. Overall, the findings imply that Jordanian commercial banks should concentrate on spending money on big data architecture and infrastructure to enhance their financial technology outcomes. They can improve their capacity to compete in a financial environment that is rapidly changing and better serve their clients by doing this.

The findings in Table 7 show that organizational culture in Jordanian Commercial Banks is significantly and favorably impacted by the Strategy and Planning (SP) component of big data governance. This research implies that banks' organizational cultures are positively impacted when they apply efficient planning and big data governance procedures. The findings confirm earlier studies' findings that organizational culture and successful planning and strategy implementation are positively correlated (Kumar & Jain, 2018; Liu & Zhang, 2019). Establishing a roadmap for execution, setting specific objectives and targets for big data initiatives, and aligning the usage of big data with the organization's overall business strategy are all essential for effective planning and strategy implementation for big data governance (Bendoly et al., 2016). These initiatives aid in ensuring that big data utilization is incorporated into organizational processes and culture, which has a positive effect on the culture of the organization as a whole. Additionally, the fact that effective planning and strategy implementation for big data governance requires collaboration and communication across different departments and levels within the organization may help to explain the positive relationship between SP and organizational culture in Jordanian Commercial Banks (Duan et al., 2018; Yaqoob et al., 2019).

The conclusion in Table 7 that the Ethics and Social Responsibility (ESR) component of big data governance has a significant and positive effect on organizational culture in Jordanian commercial banks emphasizes the significance of social responsibility in forming the beliefs and actions of workers. Ethical data use and social responsibility promotion are part of the ESR component, which also includes safeguarding consumer privacy and preventing biases in decision-making. The significance of ethical and social responsibility issues in determining organizational culture has also been highlighted in earlier studies. For instance, Gao and Greenberg's (2016) study discovered that organizational culture in Chinese enterprises was positively impacted by ethical leadership. Similar to this, Trevino et al.'s (2014) study discovered that encouraging moral conduct and social responsibility through training and communication can have a positive effect on organizational culture and lower instances of unethical behavior. The ESR component of big data governance's beneficial impact on organizational culture in Jordanian commercial banks can therefore be linked to its capacity to encourage morality and social responsibility. This may result in a culture of integrity, trust, and responsibility, which may improve the performance of the firm as a whole and the success of financial technology efforts.

The study's conclusions demonstrate that organizational culture in Jordanian commercial banks is significantly and favorably impacted by Data Quality and Management (DQM). This finding implies that an organization's culture can be favourably impacted by a strong focus on data quality and management, which can then result in greater performance and results. Data quality and management are crucial elements of big data governance because they guarantee the accuracy, dependability, and consistency of the data utilized for decision-making. Businesses that prioritize data management and quality are more likely to make decisions that will benefit their operations. Additionally, a culture that values and prioritizes data management and

quality can motivate staff to take greater ownership and accountability for the data they generate and utilize. Similar findings in studies have been made with regard to the beneficial interaction between data management, corporate culture, and quality of data. For instance, Wang et al. (2017) observed that procedures for data quality management had a positive effect on organizational culture and were linked to increased organizational performance. Additionally, Jia et al.'s (2018) study discovered that data quality management techniques had a positive impact on corporate culture and worker behavior.

The conclusion in Table 7 that big data governance's Infrastructure and Architecture (IA) has a significant and positive impact on organizational culture in Jordanian commercial banks is in line with earlier studies that emphasize the significance of technology infrastructure in determining organizational culture (Zhang et al., 2019; Thakur & Srivastava, 2021). By fostering employee communication, cooperation, and creativity, a well-designed and effective infrastructure that supports the application of big data governance policies can help to create a positive organizational culture (Zhang et al., 2019). As a result, financial technology may be adopted and used more effectively, and employee engagement and work satisfaction may also increase. Additionally, by encouraging ethical conduct, data quality and management, as well as efficient planning and decision-making, a supportive and positive organizational culture can also increase the success of big data governance methods (Thakur & Srivastava, 2021). This emphasizes how crucial it is to take organizational culture and big data governance into account when implementing financial technology in Jordanian commercial banks.

Table 8's findings show that organizational culture in Jordanian Commercial Banks mediates the effects of Strategy and Planning (SP), Ethics and Social Responsibility (ESR), Data Quality and Management (DQM), and Infrastructure and Architecture (IA) of big data governance finance technology. According to the study's findings, big data governance and financial technology in Jordanian commercial banks are mediated by organizational culture. The findings show that big data governance's strategy and planning, ethics and social responsibility, data quality and management, and infrastructure and architecture all significantly and favorably influence organizational culture, which in turn significantly and favorably influences financial technology. Numerous academics have looked into how organizational culture influences the interaction between big data governance and financial technology. For instance, organizational culture was found to act as a mediator in a study by Hao, Fan, and Zhao (2019) between big data analytics competence and organizational performance. In a study published in 2019 by Zhang, Shi, and Qian, the researchers discovered that organizational culture mediates the link between big data analytics and innovation performance. Liao, Luo, and Zhang (2017) discovered that organizational culture mediates the association between big data analytics capabilities and business performance in a different study. Additionally, Joo, Kim, and Yoon (2019) discovered that organizational culture mediates the association between organizational agility and big data analytics capabilities. In conclusion, the findings of the present study indicate that organizational culture in Jordanian commercial banks significantly mediates the relationship between big data governance and financial technology. The results confirm that fostering a positive organizational culture is crucial for the banking sector's successful adoption of big data governance policies and advancement of financial technology.

5. Conclusion, Implications and Limitations

Big data governance has received a lot of attention recently in the banking industry, notably in Jordanian commercial banks. This study sought to determine how big data governance affected financial technology in Jordanian commercial banks with an emphasis on the organizational culture's mediating function. In Jordanian commercial banks, the study discovered that big data governance practices like Strategy and Planning (SP), Ethics and Social Responsibility (ESR), Data Quality and Management (DQM), and Infrastructure and Architecture (IA) have significant and advantageous effects on both financial technology and organizational culture. According to the study's findings, Jordanian commercial banks may use more financial technology and have a more positive corporate culture because of employing sound big data governance policies. The findings are in line with other studies (Liu et al., 2021; Safaei and Nazemi, 2018), which highlighted the significance of big data governance in gaining a competitive edge in the banking industry. By stressing the mediating role of organizational culture in the interaction between big data governance and financial technology in Jordanian commercial banks, the study also adds to the body of previous work. The study discovered that the association between big data governance procedures and the adoption of financial technology is mediated by organizational culture. The effectiveness of big data governance methods and their impact on organizational performance have both been linked to organizational culture (Pilkington et al., 2015). The results of this study indicate that an encouraging corporate culture can improve the efficacy of big data governance policies, resulting in a rise in the adoption of financial technology in Jordanian commercial banks. The management of Jordanian commercial banks will need to consider the study's practical outcomes. The study emphasizes the significance of putting into practice efficient big data governance approaches, like SP, ESR, DQM, and IA, to increase the use of financial technology and boost organizational culture. The results imply that managers should be mindful of the organizational culture's mediating function in the relationship between big data governance and the use of financial technologies. The adoption of big data governance policies and the usage of financial technology should be encouraged by managers who concentrate on creating a supportive and positive business culture. In conclusion, this study adds to the body of knowledge on financial technology adoption and big data governance in Jordanian commercial banks. The study highlights the mediating function of organizational culture in this relationship and provides evidence of the considerable and positive effects of big data governance policies on financial technology adoption and organizational culture. In order to increase the adoption of financial technology and boost organizational performance, the findings have significant practical implications for the management of Jordanian commercial banks,

highlighting the necessity to develop efficient big data governance policies and build a positive organizational culture. The study does have some drawbacks, though. First, because only Jordanian commercial banks are the subject of the study, the conclusions cannot be applied to other banking industries or nations. Future studies could look into how organizational culture and the adoption of financial technology are affected by big data governance in other nations and industries. Second, the study only uses cross-sectional data, which makes it difficult to prove that one condition causes another. The use of financial technology, organizational culture, and big data governance policies may all be related causally in future studies using longitudinal data. Finally, while the study focuses on the organizational culture's mediating function, other elements like the regulatory landscape and consumer behavior may also be at play in the relationship between big data governance and the use of financial technology. Future studies could investigate how these elements affect the banking industry's organizational culture and adoption of financial technology.

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