




“Role of artificial intelligence and BIG DATA capabilities on fintech services: Value co-creation theory”

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ROLE OF ARTIFICIAL INTELLIGENCE AND BIG DATA CAPABILITIES ON FINTECH SERVICES: VALUE CO-CREATION THEORY

Abstract

Studying customers' value co-creation of using fintech Islamic banking services has been a trend of Islamic bank managements to obtain value, competitive advantages, growth, and sustainability. This work endeavors to explore the role of applying artificial intelligence and big data technologies on value co-creation of using fintech Islamic banking services from customers' perspective in Jordan. This study used a quantitative methodology based on survey approach to conduct its goals and objectives. Using structural equation modelling approach, the results indicate that artificial intelligence has a significant role in customers' trust ($\beta = 0.316^{***}$) and satisfaction ($\beta = 1.14^{***}$) of using fin-tech Islamic banking services in Jordan. The results indicate that big data capabilities have a significant role in customers' trust ($\beta = 0.658^{***}$) and satisfaction ($\beta = -0.109^*$) of using fintech Islamic banking services in Jordan. The results show that customers' satisfaction confirms a significant effect on customers' trust ($\beta = -0.132^{***}$) of using fintech Islamic banking services in Jordan. The results uncover that customers' trust have a considerable impact on customers' value co-creation ($\beta = 0.232^{***}$) of using fintech Islamic banking services in Jordan. The results uncover that customers' satisfaction have a considerable impact on customers' value co-creation ($\beta = 0.382^{***}$) of using fintech Islamic banking services in Jordan. This study provides novel contributions regarding financial services of Islamic banks in maximizing customers' value co-creation in Jordan.

Keywords

value co-creation, artificial intelligence capabilities, big data capabilities, fintech, Islamic, bank, Jordan

JEL Classification

D46, D12, L86

INTRODUCTION

Having a high degree of competitiveness is a target of most banks that can occur through applying value co-creation theory in their strategies (Rodríguez-Ardura et al., 2024). It has been documented that frequent development of fintech services among banks assumes to be the most crucial process for growing revenue and sustaining (Bhatnagr et al., 2024). However, nearly all of bank sectors have distributed their internal and external financial services like mobile wallet and mobile Fintech services based on smart devices, taking advantage of their capabilities like value co-creation, net benefits, and others (Alghadi et al., 2024). Nevertheless, digital transformation was considered an impetus for business and banks in terms of reinforcing economic growth, improving business processes, suggesting novel business models, and enhancing customers' relationship and services (Khandelwal & Kapoor, 2024). Both customers and organizations have capitalized from deploying digital transformation technologies to accomplish their short- and long-term activities (Bredt, 2019). Therefore, it has been observed that banks around the world have broadly adopted artificial intelli-



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gence and big data technology to serve their major practices and processes like financial and accounting, human resources, and various others (Alzghoul & Al-kasasbeh, 2024). Recently, Islamic banks have adapted their information systems and technology infrastructure strategies to response the fast growth in information technology industry (Alnsour et al., 2023).

Value co-creation framework has taken significant considerations to be included in banks strategies to achieve valuable outcomes, return revenue, benefit customers, and business process (Chandra et al., 2024). However, searching on factors affecting value co-creation has gained attentions of Islamic bank managements through deploying new technologies to serve their internal and external processes to generate value for customers and banks mutually, specifically in using fintech services setting (Mbaidin et al., 2024). Collecting, classifying, and analyzing customers' opinions and thoughts toward their fintech services has been considered a critical part to develop the current fintech services or produce new fintech services, aiming to generate value successfully (Alhanatleh et al., 2024, a, b). Therefore, the main purpose of this study is to identify the role of artificial intelligence and big data capabilities on value co-creation for Islamic banks that might lead to enhance the consequences of using fintech services and offer many advantages and alternatives for banks and clients.

1. LITERATURE REVIEW AND HYPOTHESES

Fintech as a concept divides into two primary words "financial technology", which indicates the different platforms of applications technology to reinforce, automate, and digitalize various types of financial services (Al_Kasasbeh et al, 2023; Firmansyah et al., 2023; Khandelwal & Kapoor, 2024). Fintech applications can change the form of financial services starting from functions of investment management and insurance to mobile fintech services and digital payments services, especially in banking domains (Wewege et al., 2020). Moreover, fintech industries have leveraged from digital transformation technologies to raise modern financial products and services to serve internal and external financial practices (Mhlanga, 2020). Therefore, fintech applications have widely deployed among banks sectors, providing various advantages for both banks and clients through adding value for financial services based on effectiveness, ease to access, and lower costs (Alshehadeh et al., 2023; Al-Khawaja et al., 2023).

Co-creation of value has involved and availed three primary elements at the same time, which are bank, employees, and consumers. Service-dominant logic theory has introduced value co-creation platform as a business strategy that enables and motivates customers to participate in creating their products and services (Tommasetti et al., 2017; Vargo & Lusch, 2017). As critical re-

sources of value co-creation, customers show a willingness to participate in value co-creation stages to implement products and services relying on their desires and achieved perceived value (Yu et al., 2013). It has been notarized that value co-creation model has been employed to represent customers value, where service-dominant logic theory ensures that services are considered a critical element of economic growth, merchandise are just a distribution method (Sudarti & Fachrunnisa, 2024; Pareigi et al., 2011). It has been asserted that direct interactions between banks and their services establish novel methods of relationship, participation, and involvement with clients, which exerts a positive effect on the financial performance of banks such as reduced operational expenditures and maximized the revenue of investment (Hidayat-ur-Rehman & Hossain, 2024; Gulzar et al., 2024; Medberg & Heinonen, 2014). Besides, the rapid growth of digital services has enabled clients to be the principal element in evolving and ameliorating their services or products, leading to creating value (Alhanatleh et al., 2022; Chepurna & Criado 2018; Peña-García et al., 2021). Thus, banks considerably encourage consumers to contribute to their knowledge, experience, and thoughts regarding the process of collaboration.

Recently, the advancements of digital transformation technologies have offered creative opportunities to banking institutes' strategies based on value co-creation model, which significantly supports a high level of competitive advantage (Carranza et

al., 2021). Through integrating bank strategy with technology infrastructure and information systems strategies in the context of value co-creation, Islamic banks have utilized the advancements of smartphone devices and websites to launch their fintech services based on mobile and electronic applications mechanisms (Kumar & Rani, 2024). In this way, Islamic banks will benefit from customers to find personalized and useful fintech services for fulfilling their practices. Therefore, adopting modern digital technologies in developing fintech services among Islamic banks based on features of secure, reliable, ease of use and others is considered a primary component in terms of creating customers' value (Lähteenmäki et al., 2022). In this context, artificial intelligence applications have broadly been adopted to facilitate banking financial operations (Rahman et al., 2023). Artificial intelligence refers to science that aims to develop machines to act as a human based on intelligence theories (Enholm et al., 2022). Empirical documents in adopting artificial intelligence among banking scopes have affirmed that applications of artificial intelligence (like ChatBot) present numerous advantages such as enhancing customer relationship through reinforcing consumers support, promoting the mobility of access banking services, offering consumers assistance all the time, processing a huge amount of requests effectively, and improving client experience (Parthiban & Adil, 2023; Zhang & Lu, 2021). Besides, it has been uncovered that algorithms of artificial intelligence applications allow banks to get better understanding toward client desires and preference, as well as offering comprehensive recommendations, eventually improving client satisfaction, trust, and loyalty (Alhanatleh, 2021; Shumanov & Johnson, 2021).

Likewise, the researches on big data in fintech services have demonstrated that the adoption of big data tools has widely been dominated over the recent years. Big data are defined as a high degree of volume, velocity, and diversity of information resources and assets that require lower-cost and creative platforms in terms of information handling for using in various purposes of organizations like improving internal processes, supporting decision-making process, and several others (Mekhlal & Khwaja, 2019). The significant role of big data application on fintech services in banking domain

has been established through a high quality of informed decisions, supporting client-centric services realm to present personalized and useful financial services, managing the risks, supporting the process of customers' segmentation, detecting fraud resources, and enhancing security matters (Nobanee et al., 2021). Nonetheless, the investigations in relevant literature have uncovered that big data mechanisms are fundamental to fintech services because their capabilities to handle tremendous amount of financial data and information in real-time (Zhuo et al., 2020).

The primary objective of artificial intelligence science is to provide the data, information, knowledge, and experiences based on information technology capabilities, contributing to offering a real perceived value for both banks and clients. Recent empirical findings have ensured that quality of artificial intelligence can enhance users' satisfaction and continuous use of e-services among banks (Dantsoho et al., 2021). Most modern confirmations have indicated that artificial intelligence applications are progressively adopted among fintech services in banking sectors, resulting in achieving clients' satisfaction, loyalty, and business value (Ashta & Herrmann, 2021; Karaki & Al-Kasasbeh, 2024). Besides, it has been acknowledged that robotics have positively influenced fintech services usage through increasing the degree of social interactions. Adopting artificial intelligence tools like ChatBot and robotics have resulted in reinforcing productivity of fintech services, especially among banking scopes (Mhlanga, 2020). Moreover, it has been discovered that customers are familiar using robot-advisors in fintech services that robotics support a high level of effectiveness and efficiency of fintech services, improve consumers' engagement, and boost consumers' satisfaction and loyalty with high quality of fintech services (Belanche et al., 2019). Furthermore, recent empirical examinations have strongly affirmed that the capabilities of artificial intelligence applications bolster a vigorous role in enhancing the quality and efficiency of financial reports among Islamic banks, leading to improve the processes regarding management of financial risks (Mbaidin et al., 2024).

Currently, adopting fintech services based on the power of artificial intelligence among banks can enhance clients' behavior toward continuous use

of fintech services, making clients more satisfied and trusted (Kumar & Balaramachandran, 2018). However, it has been noted that banks during adopting the artificial intelligence tools among fintech services should take a great attention toward various risk types such as financial, privacy and security, reputation, technical, and human (Ebrahim et al., 2021). By doing so, clients' trust and satisfaction of using Fintech banking services expect to be increased, leading to maximize their benefits and value. Besides, Parthiban and Adil (2023) indicated that investing in artificial intelligence in fintech services among banks domains supports the clients' adopting behavior through increasing the rate of clients' trust and satisfactions for performing their financial activities, ultimately generating mutual value for banks and clients. Moreover, Met et al. (2020) asserted that artificial intelligence applications have empowered customers with inclusive self-assistance solutions and alternatives during executing their financial operations based on fintech banking services. Based on that, value can be established through increasing customers' response vastly, enhancing interactions quality, and maximizing customers' engagement.

Big data has been a critical technology that assist in predicting customers' behavior and trends. Among banking sectors, a fundamental observation is that big data allows banks to have comprehensive analysis of information and details regarding consumers' demeanor, especially during fulfilling financial practices on fintech services applications (Bueno et al., 2024). Besides, big data applications have contributed to producing new fintech services based on customers' demands. The advancements of digital transformation technology on the developments of fintech banking services applications, including big data algorithms, have become novel orientations in enhancing clients' experiences, and provided modern business model for improving fintech services of banks (Awotunde et al., 2021). Furthermore, the improvements in big data tools have positively contributed to strategies of fintech banking services through their capabilities to collect, categorize, store, and analyze financial transactions, resulting in reinforcing overall banking performance, enhancing customers' journey and experience, improving the processes of short- and long-term

planning, supporting a high-quality relationship with consumers, and many others (Choudhary & Thenmozhi, 2024). However, it has been indicated that employing big data applications on fintech banking services can support clients' satisfaction and trust, expecting to meet their presuppositions and demands, and to make them more loyal and gain several values (Jain et al., 2024).

The process of integrating big data tools and artificial intelligence applications has remarkably influenced the behavior of consumers, especially in fintech banking services (Akour et al., 2024). Trust and satisfaction are considered worthy keys of exploring customers' demeanors that have been measured in multiple literature fields, particularly in customers' value co-creation theory (Kini et al., 2024; Aboalghanam et al., 2024). Both of these concepts describe willingness, desires, and future trends of customers' attitude regarding adopting specific technology, establishing a robust relationship between organizations and customers (Daabseh & Aljarah, 2021). Satisfaction is considered an influential factor for banks to achieve a high competition degree through dealing with bank's competitors and taking a high position in the market (Tajvidi et al., 2021). It has been uncovered that increasing the speed of response time of providing fintech banking services is considered a major key to concur the consumers' needs and demands for conducting their financial functions, leading to add value from the use (Ngo & Nguyen, 2024).

Many recent empirical works have asserted that trust and satisfaction are expendably employed for estimating and measuring the value co-creation of customers, employees, or organizations due to their capacity for identifying the features of behavior, attitude, and orientations toward adopting technology in banking domains (Carranza et al., 2021; Mostafa, 2020). Besides, it has been realized that forming banks strategies based on value co-creation theory is expected to ensure customers' trust, satisfaction, and loyalty of using banking services (Kumar et al., 2024). Moreover, the effectiveness and efficiency of digital transformation technologies like big data and artificial intelligence bring a high extremely opportunity to improve the fintech banking services based on customers' experiences of usage, resulting in ac-

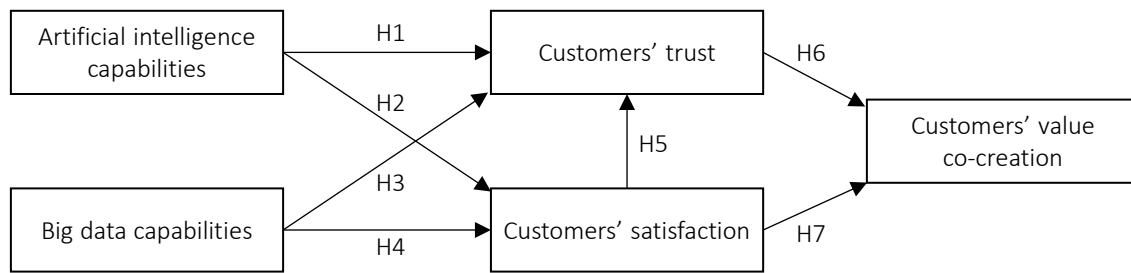


Figure 1. Value co-creation model

complicating their trust and satisfaction toward adopting attitude and empowering to generate value for consumers and bank managements mutually (Polireddi, 2024; Chernoff & Jagtiani, 2024).

Rhanoui (2022) explored the rate of clients' trust and satisfaction of using fintech banking services, discovering that a high rate of trust and satisfaction increases the degree of clients' adopting fintech banking services and benefits clients with value. Based on trust theoretical model, trust can determine customers' adoption behavior or ongoing usage of fintech services based on various features: perceived risk, perceived reputation, service quality, and perceived regulatory support (Amnas et al., 2023). Besides, the relationship between satisfaction and trust was widely measured in fintech banking services settings and showed that a high degree of customers' satisfaction leads to achieving their trust (Alshurafat et al., 2024; Mainardes et al., 2023). Empirical evidences have uncovered that clients are more satisfied and trusted of adopting fintech banking services when they realize banks will seriously improve and develop their fintech services based on providing various advantages and benefits for clients such as performance, cut-off cost, and response time (Bravo et al., 2024).

This research endeavors to explore the critical influence of artificial intelligence and big data capabilities on customers' value co-creation of using fintech services in Islamic banking sectors as Figure 1 represents the conceptual model of this study. To do so, the following hypotheses are conceptualized:

H1: Artificial intelligence capabilities have a valuable influence on customers' trust of using fintech services in Jordanian Islamic banks.

H2: Artificial intelligence capabilities have a valuable influence on customers' satisfaction of using fintech services in Jordanian Islamic banks.

H3: Big data capabilities have a valuable influence on customers' trust of using fintech services in Jordanian Islamic banks.

H4: Big data capabilities have a valuable influence on customers' satisfaction of using fintech services in Jordanian Islamic banks.

H5: Satisfaction has a valuable influence on trust of using fintech services in Jordanian Islamic banks.

H6: Trust has a valuable influence on value co-creation of using fintech services in Jordanian Islamic banks.

H7: Satisfaction has a valuable influence on value co-creation of using fintech services in Jordanian Islamic banks.

2. METHODOLOGY

The quantitative methodology was carefully chosen to serve the critical objectives of this research through the following scientific and sequential stages. The quantitative methodology was designed to perform the role of artificial intelligence and big data capabilities in value co-creation among clients of fintech banking services in Jordan. The processes of selecting the methodology of this study were achieved based on the following:

- 1) conceptualizing a well-qualified literature framework by connecting the factors of this

study to measure the degree of clients' value co-creation of using fintech Islamic banks services in Jordan;

- 2) choosing a proper research methodology consisting of sample approach, data collection, analysis process, including software tools and approaches;
- 3) reporting the analyzed results;
- 4) exploring the hypotheses findings and comprehensively discussing them;
- 5) generating the practical and theoretical implications of the results.

The instrument of this study was a questionnaire design that developed and measured the constructs' items as they have been adapted based on prior investigations. The constructs' items of this research were classified into three layers of constructs: artificial intelligence capabilities and big data capabilities factors as an independent variables layer, customers' trust and satisfaction factors as a mediation layer, and customers' value co-creation construct as a dependent layer. Starting from exogenous factors, the items of artificial intelligence capabilities factor were measured through adapting 6-items form (Rajkhowa & Das, 2020). Moreover, the items of big data capabilities factor were measured through adapting 5-items form (Erevelles et al., 2016; Loebbecke & Picot, 2015; Jayachandran et al., 2005). In terms of mediation factors, the items of customers' trust were measured through adapting 4-items form (Kini et al., 2024). The items of customers' satisfaction factor were evaluated through adapting 5-items form (Kini et al., 2024). Ending with exogenous factor, the items of customers' value co-creation factor were evaluated through adapting 8-items form (Daabseh & Aljarah, 2021). All constructs' items have been measured based on 5-point Likert scale, encoding from 1 to 5 (1 as totally disagree to 5 as totally agree).

The population of the recent research was clients who depend on fintech Islamic banking services in Jordan; therefore, the size of population regarding this study is not fix. For identifying the required sample size from the target population of

this study, minimum 384 clients of fintech services are a qualified size to embark the data collection procedures (Morgan, 1996). To access the population sample, convenience sampling approach was selected due to its features of representing the population to achieve the goals of this study (Cohen et al., 2017). As a critical process, the initial version of questionnaire was distributed among 20 clients of fintech Islamic banking services in Jordan to produce the last version without syntax errors and meaning mistakes of constructs' items. Next, the electronic questionnaire version was created using Google drive website to facilitate the data collection. The data collection has been progressed by asking the selected clients of this study to provide their knowledge and experience toward fintech Islamic banking services in Jordan. The number of disseminated questionnaires was 700 that clients received. Just 593 questionnaires were returned, while just 568 valid questionnaires were used in the analysis stage, as 593 responses are sufficient for getting the results (Hair et al., 2019). The authors accessed the clients to fill the questionnaires through digital social media tools such as WhatsApp, Facebook, messenger app, and various others. The period of the data collection was five weeks that started from January 15, 2024.

For retrieving the developed hypotheses of the value co-creation model of this research, several statistical techniques were fulfilled based on SPSS and AMOS version 22 programs due to their capacity to produce authoritative outcomes (Sarstedt et al., 2020). The outcomes of this research have been produced by performing the following required steps: applying SPSS software for preparing data, and applying AMOS to obtain hypotheses results by measuring the reliability and validity of model constructs based on Confirmatory Factor Analysis (CFA) and estimating hypotheses results based on SEM (Hair et al., 2021).

To evaluate the validity and reliability of the value co-creation model regarding this research, one-pool CFA approach has taken place. Awang (2014) affirmed that the convergent validity, construct validity and discriminant validity assessments are required statistical tests to estimate the validity and reliability instruments of the value co-creation model. Initially, all items' constructs have been entailed one-pool CFA method to estimate

the factor loading and covariance correlation features, as their threshold values are ($\geq .5$ and $\leq .85$), respectively (Raza & Awang, 2021). After that, fit indices of the value co-creation model can be evaluated, as it is a critical procedure for ensuring the model validity and reliability.

3. RESULTS

After ensuring the model fit indices, factor loading, and covariance correlation characteristics, the convergent validity and construct reliability can be evaluated. Table 1 shows the results of model fit indicators based on their cut-off values that provide significant verification regarding the value co-creation model fit.

After ensuring the model fit indices, factor loading, and covariance correlation characteristics, the convergent validity and construct reliability can be evaluated. Convergent validity can be estimated based on the criteria of factor loading and Average Variance Extracted (AVE) through achieving their threshold values as both of them should be $\geq .50$ (Hermida, 2015). Construct reliability can be estimated based on the criteria of composite reliability (CR) and Cronbach's Alpha (α) through meeting their threshold values as both of them should be $\geq .70$ (Brown, 2015). Table 2 clarifies the summary results of the convergent validity and construct reliability depending on their statistical threshold values that significantly support the construct validity and reliability in terms of convergent validity and construct reliability.

As a final stage of the constructs model validity and reliability, Henseler et al. (2015) confirmed that discriminant validity is a required measurement

to finalize the validation process of constructs model. Discriminant validity of value co-creation model can be measured based on the following equation: computed values of all value co-creation model constructs must be $>$ computed values of inside correlations, as proposed by Dijkstra and Henseler (2015). Following this equation, Table 3 summarizes the results of the discriminant validity assessments, concluding that discriminant validity of the value co-creation model constructs has been accomplished. Accordingly, the validity and reliability of the value co-creation model constructs have been obviously traversed which guide the processes of analysis to conduct next stage.

Based on the procedures in CFA stage regarding the reliability and validity of the constructs' value co-creation model of this study, a new data set has been generating based on data imputation method in AMOS.22 software. The imputed data set of the value co-creation model was utilized to draw the relationships between constructs of this study based on SEM approach for obtaining the hypotheses outcomes. Therefore, Figure 2 and Table 4 illustrate the summary results of the hypotheses regarding the current research that deduce all hypotheses have been satisfied. Besides, the returned results show the computed values of squared multiple correlations (R^2) that depict the variance effect of independent variables on dependent variables as can be notable on Figure 2. Thus, the computed value of R^2 regarding customers' satisfaction is nearly 0.733, meaning that the independent variables (artificial intelligence capabilities and big data capabilities) interpret 73.3% of variance effect on customers' satisfaction of using fintech Islamic banking services in Jordan. Moreover, the computed value of R^2 regarding customers' trust is nearly 0.783, meaning that the independent vari-

Table 1. Summary of model fit indicators

Indicator code	Results	Accepted value	Reference	Decision
RMSEA	.051	RMSEA < 0.08.	Talwar et al. (2019)	Exemplary
GFI	.868	GFI > .85 → satisfied, or GFI > .90 → exemplary		Satisfied
AGFI	.854	AGFI, CFI, CFI, TLI, NFI >.85 → satisfied or AGFI, CFI, CFI, TLI, NFI >.90 → exemplary	Talwar et al. (2019)	Satisfied
CFI	.938			Exemplary
TLI	.927			Exemplary
NFI	.895			Satisfied
Chi-sq/df	2.135	Chi-squared/df < 5 → satisfied, or Chi-squared/df < 3 → exemplary	Talwar et al. (2019)	Exemplary

Table 2. Summary outcomes of the convergent validity and construct reliability

Constructs	Coded items	Convergent validity		Construct reliability	
		Loaded factor	AVE	α	CR
Artificial intelligence capabilities	AIC.1	0.795	0.572	0.874	0.889
	AIC.2	0.794			
	AIC.3	0.750			
	AIC.4	0.719			
	AIC.5	0.781			
	AIC.6	0.694			
Big data capabilities	BDC.1	0.821	0.579	0.849	0.872
	BDC.2	0.800			
	BDC.3	0.616			
	BDC.4	0.808			
	BDC.5	0.742			
Customers' satisfaction	SA.1	0.795	0.703	0.903	0.922
	SA.2	0.803			
	SA.3	0.896			
	SA.4	0.905			
	SA.5	0.786			
Customers' trust	TR.1	0.792	0.632	0.861	0.873
	TR.2	0.765			
	TR.3	0.834			
	TR.4	0.788			
Customers' value co-creation	CVCO.1	0.764	0.567	0.901	0.912
	CVCO.2	0.786			
	CVCO.3	0.725			
	CVCO.4	0.686			
	CVCO.5	0.767			
	CVCO.6	0.819			
	CVCO.7	0.768			
	CVCO.8	0.697			

Table 3. Outcomes summary of the discriminant validity

Constructs	1	2	3	4	5
Customers' satisfaction	0.839				
Artificial intelligence capabilities	0.713	0.756			
Big data capabilities	0.638	0.745	0.761		
Customers' trust	0.552	0.737	0.709	0.795	
Customers' value co-creation	0.621	0.706	0.531	0.525	0.753

ables (artificial intelligence capabilities, big data capabilities, and customers' satisfaction) interpret 78.3% of variance effect on customers' trust of using fintech Islamic banking services in Jordan. Finally, the computed value of R² regarding customers' value co-creation is nearly 0.465, meaning that the independent variables (customers' trust and customers' satisfaction) interpret 46.5% of variance effect on customers' value co-creation of using fintech Islamic banking services in Jordan.

Additionally, Table 4 clarifies the summarized hypotheses results of the value co-creation model. The outcomes uncovered that artificial intel-

ligence capabilities confirm a significant and positive influence on customers' trust of using fintech Islamic banking services in Jordan ($\beta = 0.316^{***}$), resulting in accepting the first hypothesis. Moreover, the retrieved results revealed that artificial intelligence capabilities confirm a significant and positive influence on customers' satisfaction of using fintech Islamic banking services in Jordan ($\beta = 1.14^{***}$), leading to affirming the second hypothesis. Furthermore, the results clarify that big data capabilities ensure a significant and positive influence on customers' trust of using fintech Islamic banking services in Jordan ($\beta = 0.658^{***}$), resulting in affirming the third hy-

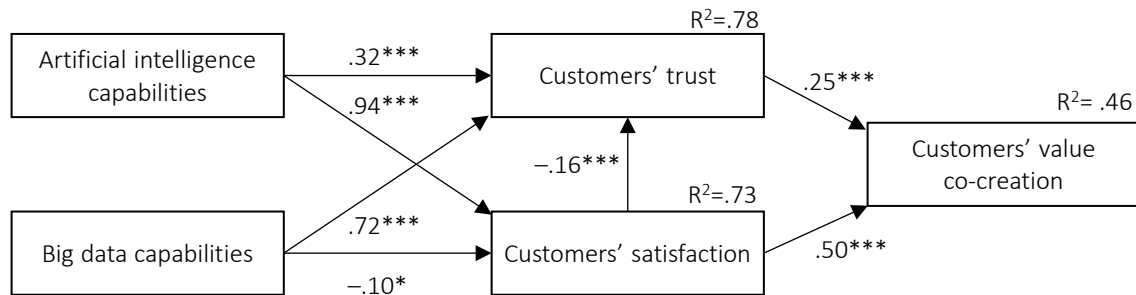


Figure 2. Outcomes summary of hypotheses' value co-creation model

Table 4. Results for hypotheses of this study

Developed Hypotheses	β	S.E.	C.R.	P
Artificial intelligence capabilities → customers' trust	0.316	0.061	5.149	***
Artificial intelligence capabilities → customers' satisfaction	1.14	0.059	19.202	***
Big data capabilities → customers' trust	0.658	0.04	16.277	***
Big data capabilities → customers' satisfaction	-0.109	0.054	-2.013	0.044
Customers' satisfaction → customers' trust	-0.132	0.038	-3.507	***
Customers' trust → customers' value co-creation	0.232	0.043	5.347	***
Customers' satisfaction → customers' value co-creation	0.382	0.036	10.679	***

Note: Significant p-value: * < 0.05, ** < 0.01, *** < 0.001.

pothesis. The results also showed that big data capabilities ensure a significant direct influence on customers' satisfaction of using Fintech Islamic banking services in Jordan ($\beta = -.109^*$), resulting in emphasizing the fourth hypothesis. Besides, the results confirmed that customers' satisfaction ensures a significant direct influence on customers' trust of using fintech Islamic banking services in Jordan ($\beta = -0.132^{***}$), resulting in accepting the fifth hypothesis. Next, the results provided that customers' trust affirms a significant and positive influence on customers' value co-creation of using fintech Islamic banking services in Jordan ($\beta = 0.232^{***}$), resulting in confirming the sixth hypothesis. Lastly, the results disclosed that customers' satisfaction ensures a significant and positive influence on customers' value co-creation of using fintech Islamic banking services in Jordan ($\beta = 0.382^{***}$), resulting in confirming the seventh hypothesis.

4. DISCUSSION

The obtained results uncover that artificial intelligence capabilities support a considerable effect on customers' trust, meaning that *H1* is in accordance with prior empirical confirmations

(Belanche et al., 2019; Dantsoho et al., 2021; Mbaidin et al., 2024). This empirical confirmation asserts that artificial intelligence capabilities significantly and affirmatively influence customers' trust of using fintech Islamic banking services in Jordan, meaning that artificial intelligence applications such as sound, visualization, and robotics can increase the performance of fintech Islamic banking services, leading to improve customers' behavior in terms of improving security, privacy, and response time. The findings also ensure that artificial intelligence capabilities provide a positive effect on customers' satisfaction of using fintech Islamic banking services in Jordan, meaning that *H2* is in line with prior investigations in the existing literature (Ebrahim et al., 2021; Met et al., 2020; Parthiban & Adil, 2023). These confirmed findings indicate that artificial intelligence capabilities can meet the customers' expectations during performing their financial services based on fintech Islamic banking services, resulting in achieving of customers' satisfaction in terms of improving the quality services, efficiency, and effectiveness.

Another insight acquired from the results is that big data capabilities provide a significant and

positive impact on customers' trust, meaning that *H3* is in line with prior empirical confirmations (Choudhary & Thenmozhi, 2024; Jain et al., 2024). This confirmation reveals that big data applications can provide a sufficient analyzed information regarding customers' security, privacy, requirements, and needs of their fintech Islamic banking services usage, leading to restructuring fintech services based on customers' demands for increasing their degree of trust during usage. Moreover, the results discover that big data capabilities affirm a significant role on customers' satisfaction, meaning that *H4* is in line with previous empirical confirmations (Awotunde et al., 2021; Bueno et al., 2024). This confirmation discloses that big data tools can produce a comprehensive information about customers' demands of using fintech Islamic banking services, leading to redesigning fintech services that enables customers to personalize and customize their services during fulfilling financial practices. Another value obtained from the results is that customers' satisfaction provides a considerable effect on customers' trust, meaning that *H5* is in line with similar empirical confirmations (Alshurafat et al., 2024; Ngo & Nguyen, 2024). These results uncover that customers' satisfaction can determine customers' trust of using fintech Islamic banking services in Jordan, meaning that adopting artificial intelligence and big data capabilities within Islamic banks enable to offer and develop fintech services based on customers' expectations and orientations leading to make their customers more trusted.

Another additional insight derived from the outcomes is that customers' trust has a significant and affirmative role on customers' value co-creation, meaning that *H6* is consistent with similar empirical investigations in existing literature (Carranza et al., 2021; Mostafa, 2020). This confirmation discloses that maximizing customers' trust can arise the degree of customers' value co-creation of using fintech Islamic banking services in Jordan, meaning that reinforcing customers' trust level through improving fintech Islamic banking services features can generate value mutually. Finally, another valuable insight obtained from the findings is that customers' satisfaction has a considerable

and positive impact on customers' value co-creation, meaning that *H7* is consistent with similar empirical studies in the existing literature (Bravo et al., 2024; Rhanoui, 2022). This affirmation uncovers that keeping a high level of customers' satisfaction of using fintech Islamic banking services in Jordan can generate value and benefits for both Islamic bank management and customers.

Similar to previous investigations, this study consists of various challenges and limitations from various perspectives. Firstly, convenience-sampling method may not represent the population of this study. Future trends may focus on utilizing other methods that can provide reliable outcomes regarding the model of this study. Moreover, the present study employed in single nation of emerging countries that is difficult to generalize the findings. Thus, future research may conduct a cross-sectional approach, aiming to generalize the outcomes of developed model regarding this study. Secondly, the direct effect of artificial intelligence and big data capabilities on value co-creation does not include to the research model. Therefore, future trends may theorize the direct nexus between artificial intelligence and big data capabilities with value co-creation that expects to add valuable contributions in the field of this study. Besides, the mediation role of trust and satisfaction does not examine as widely evaluated in several literature. Thus, estimating the mediation role of trust and satisfaction may provide credible findings regarding value co-creation of this study. Thirdly, adding other factors to the model of this study expects to obtain novel insights regarding value co-creation of using fintech Islamic banking services. Thus, cybersecurity awareness, cloud computing capability, block-chain technology, and metaverse applications capabilities suggest to generate value for both Islamic banks and customers. Lastly, the rapid growth in digital technologies could affect the banks environment and customers' behavior. Thus, time series analysis is a required method to deeply explore the customers' behavior during their using of Fintech Islamic banking services, expecting to offer a better understanding regarding customers' trends and demands.

CONCLUSION

This study tested the actual effect of artificial intelligence and big data capabilities in shaping customers' co-creation value among Fintech Islamic banking services. The findings supported that artificial intelligence applications and big data tools in Islamic banks have a great opportunity to develop and sustain fintech Islamic banking services. The findings also confirmed that applying co-creation value as a strategic key based on digital technologies can provide Islamic bank managements a proper view regarding their customers' behavior, expecting to reinforce customers' knowledge and experience. Besides, the outcomes affirmed empirical evidences regarding customers' trust and satisfaction that drive top managements of Islamic banks to develop their fintech Islamic banking services, leading to establish value co-creation and enhance Islamic banks financial performance.

As also confirmed by this study outcomes, Islamic bank management can benefit through achieving customers' loyalty and retention of using their fintech services, growing revenue, reducing operation cost of financial services, and enhancing overall financial performance. Whilst, customers can benefit through improving privacy of their information, reinforcing the security level, and redesigning fintech services based on their needs, and minimizing cost of financial services. Besides, deploying artificial intelligence applications and big data tools can reinforce customers' experience that play a critical role in the development of fintech Islamic banking services. The findings also affirmed that top managements of Islamic banks in Jordan should take a considerable attention regarding the technological solutions for developing and sustaining fintech services among Islamic banks, providing novel insights to redesign, reshape, and remodel their business strategies based on the interactions between variables of this study. Finally, the outcomes of this study could drive the policymakers of Islamic banks in Jordan to evolve the recent fintech services and produce more services based on customers' demands in terms of increasing financial services efficiency and effectiveness for generating value.

AUTHOR CONTRIBUTIONS

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