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Exploring the Role of Islamic FinTech Innovation Trialability and Compatibility in Enhancing Islamic Financial Inclusion: A Data-driven Approach

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Abstract

The promotion of Islamic financial inclusion (IFI) is a challenge for Islamic banking industry in Pakistan. Although, Islamic banks are trying to enhance IFI, however, a satisfactory level is not achieved. Therefore, the objective of this study is to examine the role of trialability and compatibility in enhancing IFI. A questionnaire survey was preferred in this study to collected data from clients of Islamic banks in Punjab, Pakistan. 317 valid questionnaires were received and used to obtain findings. Structural Equation Modeling (SEM) was used through Smart PLS to test the study hypotheses. Findings of the study identified that trialability and compatibility has a positive role to promote IFI. Furthermore, compatibility has a positive effect on IFI, however, trialability does not influence IFI directly, it has indirect effect through Islamic FinTech adoption (IFA). Findings of the study provided various important insights for the policymakers to promote IFI.

Keywords: Trialability, compatibility, Islamic financial inclusion, Islamic banking industry, Shariah FinTech.

INTRODUCTION

Islamic finance tackles the problem of financial inclusion by focusing on two approaches (Khan et al., 2024). Firstly, it promotes risk-sharing contracts as a viable alternative to conventional debt-based financing. Secondly, it utilizes specific instruments to redistribute wealth within society (Mohieldin et al., 2015). However, the promotion of Islamic financial inclusion (IFI) is highly challenging in the widespread system of conventional financial inclusion. Because conventional financial inclusion is more popular having strong roots over the decades. Similar to the conventional financial inclusion, the IFI has not attained a significant market share. Pakistan is a less developed country having people with low rate of financial inclusion and literacy (Jafree et al., 2021; F. Z. Khan et al., 2021; Soomro et al., 2022). The rate of financial inclusion in Pakistan is not at satisfactory level as 85% of the population do not have access to the formal financial system. Absence of entry to financial services causes a decrease in the emergence of financial inclusion. It is also mentioned in earlier studies that financial services are no accessible to the people (Elahi et al., 2018; R. U. Khan et al., 2021; Manzoor et al., 2021).

However, the issues in the growth of IFI can be addressed with the help of the latest technological revolution. The current era is the era of technological revolution that nobody can deny the ponderance, and gravity of the technology (Al-Momani & Alrabadi, 2023; Ananto et al., 2024; Hardhienata et al., 2021). Now a days, technology is gaining significant attention in every sphere of life (Al-Momani & Alrabadi, 2023; Hardhienata et al., 2021; Niaz et al., 2020). The distinctive feature of recent era is digitalization, which compelled the businessman to opt digital transformation in sense of internal processes, internal capability, governance and as a business model (Dörner & Edelman, 2015). Islamic FinTech adoption (IFA) by the people has the potential to enhance IFI.

Hence, the objective of this study is to inspect the role of trialability and compatibility in enhancing IFI along with the mediating role of IFA. There are numerous contributions in the present research which are based on literature gap, theoretical contribution, practical contribution, and methodological contribution. This study explored new relationships which have valuable importance to fill the literature gap. The new relationships in this study have importance for the academicians because it led to the exploration of new ideas. For instance, this study introduced the influence of trialability and compatibility on IFA in Pakistani banking sector. This relationship considered by the current study was not addressed by earlier studies. Similarly, the effect of trialability and compatibility on IFI was not addressed by earlier studies. These relationships have major significance for academicians to explore more ideas to promote banking industry through IFI.

LITERATURE REVIEW

The Islamic financial system is built upon the principle of communal prosperity, which is driven by goodness, regardless of the circumstances (Saeed et al., 2023). The current economic system, driven by the assumptions of capitalism, unrestricted resource use, and materialism, is fundamentally different from the concept of the Islamic economic system. Islamic finance has traditionally played pivotal role in financial inclusion in those countries where Islam is a major religion (Ginanjar & Kassim, 2020; Saeed et al., 2023; Wulandari et al., 2016), but it has recently become available to Muslims in the West. The rise of Islamic finance has accelerated financial inclusion in previously less deserving groups and now it is focusing on the right people. Financial inclusion is indispensable because approach to financial services is a key factor in development, growth, and opportunity (Ali et al., 2023; Danladi et al., 2023; Risman et al., 2023).

Conventional financial services that do not adhere to Sharia law may cause Muslims to experience a period of self-exclusion. All banking services that are conducted via technology, particularly the internet, are referred to as "digital banking" (Aladwani, 2001). Digital banking has gradually replaced traditional banking, and the transition is currently occurring. The banking industry has seen significant transformation because of technology's quick development (Aloulou et al., 2023; Bidhari et al., 2013; Esteban-Sanchez et al., 2017). These alterations in the banking industry did not occur by accident; rather, it was stressed repeatedly that banks needed to utilise cutting-edge technology. Starting in 2016, the four systemic banks in Greece created a plan that placed a strong emphasis on embracing and promoting innovative technology. According to Rogers (2003), diffusion is the spread of a new idea among people in a society through certain

channels throughout time. The messages relate to new ideas, making it a unique kind of communication. Rogers created the DOI theoretical framework in the early 1960s. The framework is based on the idea that innovations are adopted and disseminated by society through a process known as social construction. This theory addressed that trialability and compatibility are innovation characteristics (Rogers, 2003; Rogers et al., 2005; Rogers Everett, 1995) which are important to increase the level of innovation diffusion. By considering DOI, this study considered trialability and compatibility in relation to IFA and IFI. This relationship is highlighted in Figure 1 a framework of the study.

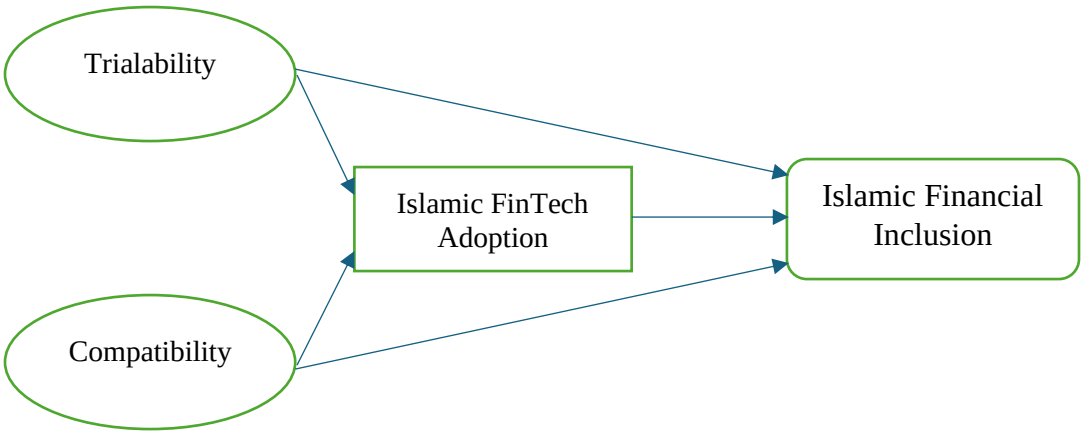

Figure 1.
Framework of the Study

Trialability is defined by Rogers et al. (2005) as the customer's experience with an invention during a specific time frame. According to earlier research, the trialability of idea among customers has a positive influence on the rate of acceptance in the future (Ali & Chin-Hong, 2015; Gardner & Amoroso, 2004; Hausman & Stock, 2003; Sanni et al., 2013). Additionally, Rogers et al. (2005), define the concept of compatibility as a new idea or innovation that is pursuant with the wants and requirements of the customers past experience, values and social cultural norms. Likewise, Cunningham and Gerrard (2003), postulate that customer expectations, beliefs and values regarding innovation are linked with their behavior about adoption.

Furthermore, there is a favourable correlation between trialability and the rate of adoption (Hsbollah & Idris, 2009). The rate of adoption of an innovation such as FinTech innovation increases in direct proportion to the frequency of its trials (Rehman et al., 2023). During the implementation step of the innovation-decision process, as previously mentioned, reinvention might take place at the experimentation phase of the innovation. Subsequently, the potential adopter has the ability to alter or adjust the innovation. Greater reinvention can lead to accelerated acceptance of financial innovation (Liao & Rice, 2010; Marín-Vinuesa et al., 2018), causing to increase financial inclusion. An additional crucial aspect for the acceptance of an innovation is the vicarious trial, which is particularly beneficial for individuals who adopt the innovation at a later stage. Nevertheless, Rogers asserted that individuals who accept innovations sooner prioritise the attribute of trialability more than those who adopt them later which cases to promote financial inclusion.

H1. Trialability has a positive impact on IFI.

H2. Trialability has a positive impact on Shariah FinTech adoption.

Compatibility facilitates the adoption of financial technologies (Kishore & McLean, 2007), leading to benefits for individuals. Compatibility among personnel contributes to the achievement of sustainable growth and enhances productivity. The efficiency of functioning is enhanced when the employees of any organisations are committed to their job and do not encounter any difficulties in implementing and maintaining new practices (Shirowzhan et al., 2020). The advent of new technology empowers Islamic banks to enhance productivity through the utilisation of competent people who possess the adaptability to embrace innovation for the betterment of products and services leading to the financial inclusion. FinTech is considered a powerful instrument for attaining a sustainable financial inclusion (Ediagbonya & Tioluwani, 2023; Firmansyah & Ramdani, 2018). Therefore, it is imperative to implement a sustainable development objective to enhance the operational efficiency of the organisation through the utilisation of efficient FinTech.

H3. Compatibility has a positive impact on IFI.

H4. Compatibility has a positive impact on Shariah FinTech adoption.

H5. Shariah FinTech adoption has a positive impact on IFI.

H6. Shariah Fintech adoption mediates the relationship between trialability and IFI.

H7. Shariah Fintech adoption mediates the relationship between compatibility and IFI.

METHODOLOGY

Quantitative research is exercised in this study because the nature of research objectives is consistent with this methodology. This study considered the relationship between trialability, compatibility, IFA and IFI which is suitable through cross-sectional research design. This study included all Islamic banks operating in Punjab, Pakistan, and data was gathered from their clientele. As data was assembled from the clients of Islamic banks, therefore, unit of analysis is individual. The population of the current study is spread over a wide area. To cover the whole population, area cluster sampling is the most suitable technique. Moreover, it is the most cost-effective technique as compared to other techniques (Sekaran & Bougie, 2016). To apply the area cluster sampling, Punjab was split into numerous clusters. After that study was chosen a few clusters randomly among all. After selection of clusters, data was collected randomly from all selected clusters.

Sample size determination is based on the instructions of Krejcie and Morgan (1970) which addressed that if the population exceeds 100,000, the sample size should be 384. Since in the current study, the population is more than 100,000. Hence by following these instructions, the sample size of the current study is 384. However, this study distributed 1000 questionnaires to the customers of Islamic banks. 317 questionnaires were returned and used in data analysis. IFI is assessed according to five attributes: utilisation, access, quality, welfare, and satisfaction. The questionnaire items were adapted from different studies like the World Bank (2017) Findex Survey, Bongomin et al. (2019) and Mindra and Moya (2017). The scale items for FinTech are adapted from Dwivedi et al. (2021). Trialability is measured based on the use on trial basis, properly try out and use it on long basis to check how it will work. Scale items for trialability are adapted from Karahanna et al. (1999) which were

chosen from Moore and Benbasat (1991). Additionally, items of compatibility are adapted from Moore and Benbasat (1991).

RESULTS

The current study carried out Structural Equation Modeling (SEM) through statistical tool, namely, Smart PLS. PLS-SEM is the most popular and significant data analysis tool which is suggested by numerous earlier studies (F. Hair Jr et al., 2014; Götz et al., 2010; Hair & Alamer, 2022; Hair Jr et al., 2021; Hulland, 1999). PLS-SEM is majorly based on two major steps, these two steps along with other details are shown in Figure 2.

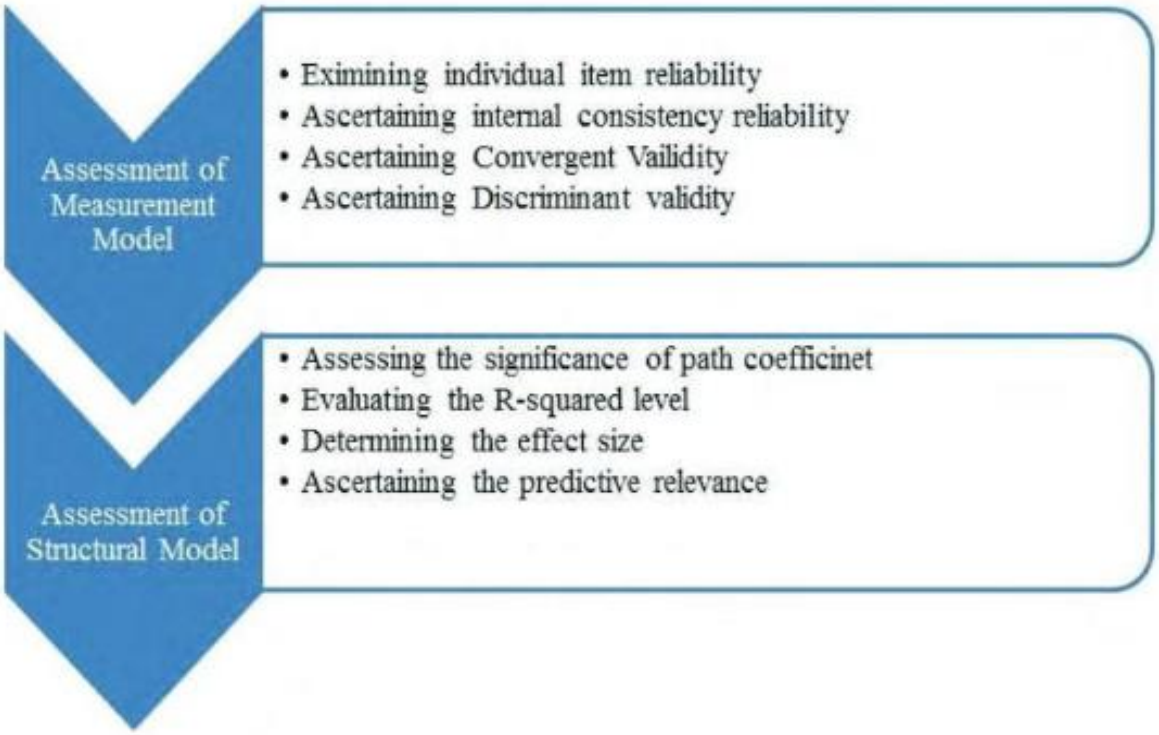

Figure 2.
PLS-SEM Two Step Process

The measurement model was employed to consider the factor loadings in which the reliability of scale items was confirmed. Furthermore, reliability of constructs was confirmed along with the convergent validity as well as discriminant validity. Based on the research conducted by Hair et al. (2010), it is recommended to remove items that have a factor loading of 0.5 or lower. All the items in the present investigation exhibit factor loadings higher than 0.5. Therefore, all the scale items found reliable in this study and none of the scale items are deleted. Campsite reliability is also higher than 0.7 and AVE higher than 0.5 which confirmed the convergent validity. Results are reported in Table 1.

Table 1.
Reliability and Convergent Validity

Variables	Items	Loadings	Alpha	CR	AVE
Compatibility	COM1	0.869	0.828	0.895	0.739
	COM2	0.864			
	COM3	0.846			
Islamic FinTech Adoption	IFA1	0.659	0.844	0.88	0.503
	IFA2	0.693			
	IFA3	0.697			
	IFA4	0.714			
	IFA5	0.749			
	IFA6	0.719			
	IFA7	0.663			
	IFA8	0.636			
Islamic Financial Inclusion	IFI1	0.634	0.899	0.917	0.528
	IFI10	0.685			
	IFI2	0.653			
	IFI3	0.716			
	IFI4	0.643			
	IFI5	0.783			
	IFI6	0.793			
	IFI7	0.802			
	IFI8	0.71			
	IFI9	0.816			
Trialability	TRI1	0.813	0.766	0.865	0.682
	TRI2	0.826			
	TRI3	0.838			

Note: TRI = Trialability; COM = Compatibility; IFA = Islamic FinTech Adoption; IFI= Islamic Financial Inclusion

Discriminant validity is another important element which is needed to confirm before proceeding further for data analysis such as hypotheses testing. This study used Heterotrait-Monotrait ratio of correlations (HTMT). HTMT is one of the statistical techniques used to measure discriminant validity, particularly in management research (Alarcón et al., 2015; Dirgiatmo, 2023; Hafkesbrink, 2021). Results are stated in Table 2 and Figure 3 which highlights that none of the values is higher than 0.9 which established the discriminant validity.

Table 2.
HTMT

	Compatibility	IFA	IFI	Trialability
Compatibility				
IFA	0.739			
IFI	0.802	0.687		
Trialability	0.851	0.7	0.833	

Note: TRI = Trialability; COM = Compatibility; IFA = Islamic FinTech Adoption; IFI= Islamic Financial Inclusion

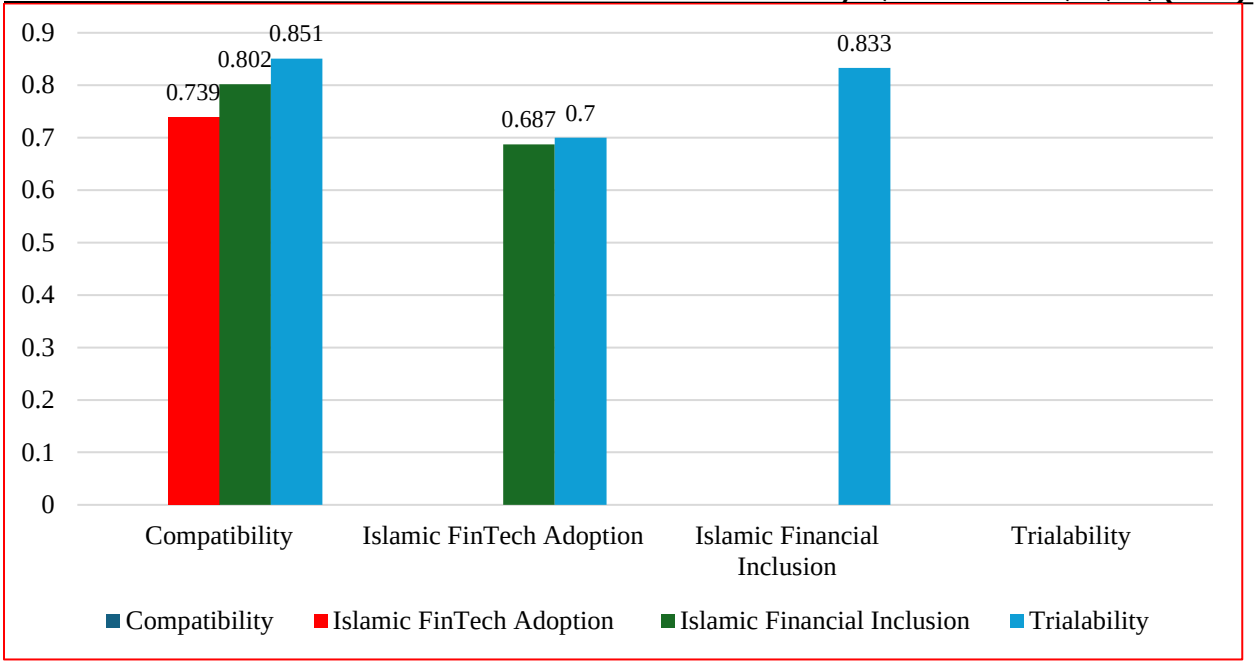

Figure 3.
HTMT

Bootstrapping is used to examine the statistical significance of different path coefficients in PLS-SEM analysis (Hafkesbrink, 2021; Hair et al., 2017; Hair Jr et al., 2016; Hameed et al., 2020; Tajeddini et al., 2022; Ul-Hameed et al., 2019; Zhang, 2009). Bootstrapping was used to test the study hypotheses. T-value 1.96 was considered to check the significance of the relationship and beta value was considered to check the direction. Compatibility has a positive effect on IFA and IFI. Islamic FinTech also has positive effect on IFI. However, trialability has no direct effect on IFA, it has positive effect on IFI.

Table 3.
Direct Effect Results

	Beta Value	Mean	SD	T-Value	P Values	Decision
Compatibility -> IFA	0.15	0.15	0.058	2.566	0.011	Supported
Compatibility -> IFI	0.21	0.21	0.073	2.859	0.004	Supported
IFA -> IFI	0.1	0.1	0.051	1.961	0.049	Supported
Trialability -> IFA	0.025	0.027	0.051	0.494	0.622	Not Supported
Trialability -> IFI	0.281	0.286	0.079	3.556	0	Supported

Note: TRI = Trialability; COM = Compatibility; IFA = Islamic FinTech Adoption; IFI= Islamic Financial Inclusion

Mediation effect of IFA is reported in Table 4. Same criteria of t-value and beta value is followed to test the indirect effect hypotheses. According to these results, IFA mediates the relationship between compatibility and IFI. However, IFA is not a mediating variable in the relationship between compatibility and IFI.

Table 4.
In-Direct Effect Results

	Beta Value	Mean	SD	T-Value	P Values	Decision
Compatibility -> IFA -> IFI	0.025	0.025	0.013	2.071	0.041	Supported
Trialability -> IFA -> IFI	0.003	0.002	0.007	0.374	0.709	Not Supported

Note: TRI = Trialability; COM = Compatibility; IFA = Islamic FinTech Adoption; IFI= Islamic Financial Inclusion

DISCUSSION AND CONCLUSION

This study considered the relationship between trialability, compatibility, IFA, and IFI. Hypothesis 1 identified the relationship between trialability and IFI which is supported. According to the findings, trialability has positive effect on IFI. The promotion of trialability in Islamic FinTech can promote IFI. Few studies addressed the positive effect of trialability in relation to financial inclusion and reported the positive relationship between trialability and financial inclusion (Agrawal & Jain, 2019; Maris et al., 2023), however, these are very limited studies. Therefore, this relationship is quite unique in literature. Hypothesis 2 considered the relationship between trialability and IFA. Results of the study proved an insignificant relationship between trialability and IFA. Trialability has no direct effect on the IFA. It can be further described as the ability to test the intervention cannot influence the rate of IFA. The possible reason behind this is the unavailability of trialability services for the Islamic banking customers.

Hypothesis 3 considered the relationship between compatibility and IFI which is supported. Prior studies emphasized the major role of compatibility in innovation (Gualandi et al., 2014; Kishore & McLean, 2007; Shirowzhan et al., 2020), similarly, this study also proved a significant role of compatibility in the promotion of IFI. Hypothesis 4 investigated the relationship between compatibility and IFA which is supported. Hence, according to the findings, compatibility has a positive effect on IFA. The promotion of compatibility of innovation has the potential to enhance Islamic FinTech in Islamic banking industry. In addition, hypothesis 5 is significant which highlighted the positive role of IFA in the promotion of IFI.

First mediation effect of Shariah FinTech adoption between trialability, and IFI found insignificant. Shariah FinTech adoption does not mediate the relationship between trialability and IFI. Therefore, hypothesis 6 is not supported. Second mediation effect of Shariah FinTech adoption was proposed between compatibility and IFI which is significant and supported the hypothesis 7. These results indicates that Shariah FinTech adoption has the potential to transfer the positive effect of compatibility on IFI. Previous studies also reported the significant role of Islamic FinTech to promote Islamic banking practices (Firmansyah & Ramdani, 2018; Kharrat et al., 2024; Muneeza & Mustapha, 2021; Shaikh et al., 2020), which further causes to increase IFI in the society.

IMPLICATIONS OF THE STUDY

This study identified that trialability and compatibility has positive contribution to the promotion of IFI. Therefore, management of Islamic banks should promote these

innovation characteristics to increase diffusion rate of IFI. Furthermore, it is also important to highlight, this study found that three innovation characteristics such as trialability and compatibility has positive contribution to the promotion of IFA among the public of Punjab, Pakistan. Consequently, by considering the future of banking industry, top management of Islamic banks should introduce and focus these innovation characteristics. Additionally, this study proved the positive role of IFA in IFI. Islamic banks must consider the promotion of IFI which is possible through IFA by the people living in Punjab.

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