



Metaverse-Enhanced Islamic FinTech: Uncovering the Influencers of Diffusion in Scotland

Darpan Tripathi ^{**}^a University of Strathclyde Business School, University of Strathclyde, Glasgow, Scotland. Email: darpan.tripathi@gmail.com*Correspondence: darpan.tripathi@gmail.com

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Abstract

Islamic FinTech has also been spreading in Scotland characterized by growing demand for innovations in the financial sector due to the country's notable emphasis on technology as a prime source for future development. The nation's focus on technology leading to the introduction of metaverse technology. The introduction of Islamic FinTech along with metaverse technology required technological compatibility and user satisfaction. Therefore, this study is an attempt to highlight the Islamic FinTech through compatibility, user satisfaction and metaverse technology in financial industry of Scotland. Data was collected by developing a questionnaire survey among the users of Islamic FinTech and metaverse. 299 valid responses were used in data analysis. RStudio was used for Structural Equation Modeling (PLS-SEM) to examine the relationship between variables. It is observed that compatibility has valuable importance to enhance Islamic FinTech. Furthermore, the adoption of Metaverse technology as a tool for the future presents a game-changing opportunity for Islamic FinTech adoption. It has multiple advantages that affect the user experience, creativity, and industry growth in a beneficial manner.

Introduction

Islamic FinTech, defined as the integration of Islamic finance principles with the cutting-edge financial technology, has been on the rise as a disruptive phenom in the global financial domain due to its innovative nature and unique offerings specifically designed for the needs and preferences of Muslim individuals and businesses (Muryanto, 2023; Shaikh et al., 2020). Islamic FinTech has also been spreading in Scotland – an Islamic-majority state characterized by growing demand for innovations in the financial sector due to the country's notable emphasis on technology as a prime source for future development – due to several factors fueled by demographical changes, regulatory support, market needs, and technology-driven possibilities. The idea of Islamic FinTech, as well as in other major Islamic states globally, has been initially generated due to the integration of the Islamic finance principles with digitalization due to the demand for Sharia-based solutions among the youth and the other groups focused on digitalization. Moreover, Islamic FinTech has been evolving to provide startup vehicles for experienced traditional Islamic finance organizations experiencing low reach due to limited modernization due to the lack of integration with modern technology solutions (Shaikh et al., 2020).

One of the primary driving factors in the rapid adoption of Islamic FinTech is the country's demography (Hasan, Hassan, & Aliyu, 2020; Pasha, Hassan, & Zafar, 2023). Scotland boasts a young, demographic pyramid with a large portion of its population under the age of 30. In addition, these young people

have largely been raised in the digital age, enjoying mobile technology, electronic commerce, digital payments, and other essential advances. Thus, the modern demographic situation drives the young generations to adopt new financial technologies, including Islamic FinTech, that resonate with their values, lifestyle, and digital preferences. Secondly, the regulatory environment evolved to accommodate and promote the development of Islamic FinTech and the FinTech domains in general. The banks adopted regulatory sandboxes, guidelines, and frameworks to enable the development and implementation of innovative FinTech products that comply with Sharia standards and banking regulation. These policies genuinely boost Islamic FinTech development, promoting investor and startup confidence and activity. Finally, the demand factors play an essential role in the diffusion of Islamic FinTech (Pasha et al., 2023; Pasha, Yasirandi, & Oktaria, 2021).

The understanding of Islamic finance grows in United States and worldwide, customers seek alternative but ethical ways of performing traditional financial practices (Chiu, Newberger, & Paulson, 2005). As a result, there is increased demand for an array of Sharia-compliant banking, investing, crowdfunding, and insurance products. Islamic FinTech firms develop these diverse products such as Islamic digital banks, peer-to-peer lending platforms, robo-advisors, and Takaful protocols targeted at Muslim customers. In conclusion, the low take-up of Islamic FinTech in Scotland is a complex issue that involves various awareness, regulatory, infrastructure, ideology, product design, ecosystem, and technological literacy issues. In view of this, the redress of this

complexity will only be possible when all stakeholders including government authorities, regulators, financial institutions, technology providers, startups, academia, and the civil society collaborate to create an enabling environment for innovation, facilitate trust, as well as improved the value proposition for users and investors to drive the growth of Islamic FinTech in Scotland.

The research examining the prominent influencers of Islamic FinTech diffusion in Scotland in the context of trialability, relative advantage, compatibility, and user satisfaction is of considerable significance to a wide range of stakeholders and the overall financial landscape. Some of the key domains, in which the current research contributes to the existing knowledge, include the promotion of financial inclusion, growth of ethical finance, access to financial services, policy and regulation, strategic decision-making, competitive advantage, mediating role of user satisfaction, academic research, and financial sector resilience. First, Scotland financial sector is seriously unbanked and under-banked, which implies that exploring the factors influencing Islamic FinTech adoption may help find new ways of enhancing the level of the financial formality and incorporation of the non-banked segment into the formal financial framework. Second, Islamic finance is meant to serve as an ethical and fair financial conduit that promotes Islamic values, so understanding the drivers of Islamic FinTech diffusion may help improve the efficacy and appropriateness of finance in for the higher good. Third, Islamic FinTech may help broaden the access to a diversified range of services; therefore, uncovering the drivers behind its acceptance may help adjust this access.

Literature Review

Compatibility and Fintech Adoption

To understand connection between compatibility (Nuseir & Elrefae, 2022) and FinTech, it is necessary to consider the meaning of Compatibility due to be accepted and also some aspects of Fintech adoption (Danladi et al., 2023). The very first is Compatibility within the framework of innovation theory, which is understood as the extent to which an innovation aligns with the existing patterns, values, needs, and abilities of potential adopters. In Fintech, such a view includes the technological compatibility between the designed solutions and users' devices and systems, their financial habits and preferences, the possibility to integrate the existing workflow and routines, and the compatibility with the regulatory and sectoral standards. This is the overall look of how well the designed Fintech solutions fit into the citizens, businesses, and even public administration work without many changes and adaptations. Fintech adoption will understand what the process is because it is the degree to which an individual, business, or financial organization accepts and uses finite innovations. The first hypothesis states a positive relationship between compatibility and Fintech adoption (Aloulou et al., 2023; Yang & Zhang, 2022). This means that the more the Fintech solution is compatible with the needs of users as well as their systems

and environments, the more it is likely to be adopted. The first proposition under consideration supports some core technology acceptance theories, which consider compatibility among the individual factors that impact users' willingness or intention to deploy new technology.

Fintech solutions can ensure compatibility by providing user-centric design and functionalities. It can be achieved by fitting into users' preferences, behaviors, and expectations. For example, if Fintech have an intuitive interface which "learns" client's behavior and then provides personalized recommendations or offer customization options, it can reduce user resistance to a novation and learning curve. Moreover, it can explicitly focus on Compatibility when seamlessly integrates with other devices for easier data collection and processing. Interoperability and Integration: Compatibility can be also achieved through Fintech's interoperability with existing ecosystems and platforms. APIs (Application Programming Interfaces) and open banking allow data to be exchanged between solutions, so that ecosystems as a whole deliver additional value when multiple fintech solutions work together. Thus, Compatibility is achieved with other user-friendly and useful platforms, such as accounting or e-commerce programs, and financial managers. Regulatory Compliance and Trust: Additionally, compliance with established regulations can also safeguard Compatibility. Hence, the users can be assured that it is legal and safe to use the Fintech provided, and there is no need to take risks.

The scalability and flexibility of Fintech solutions also promote compatibility by fitting many aspects of a user's needs, business model, and growth trajectory. The scalable infrastructure, modular architectures, and customizable profiles of Fintech solutions enable providers to tailor their solutions to the market demand, structure of a business, and user choice factories, increasing the apparent fitness and desirability of the solution across various contexts. Educational Resources and Support: Educational programs, tutorials, and responsive support also play a significant role ensuring Compatibility is addressed. The outlined resources and programs help users understand, apply, and optimize the benefits of Fintech solutions. Educational programs on such terms as value, profile, and application of Fintech innovations remove specific technical barriers to Use that results from ignorance and incompetence and promote cultural trends. The relationship between compatibility and Fintech adoption is highlighted in Figure 1.

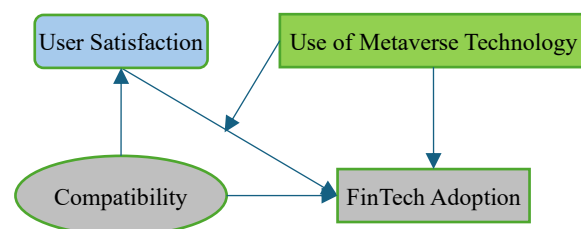


Figure 1: Framework of the Study.

User Satisfaction

The hypothesis postulates that Fintech adoption is influenced by the potential users' and user organization's ability to try out the solution or experience it. The term user satisfaction is a measure of how easily potential users can try out the new technology or innovation to understand it further before a close commitment to the service. There are many ways or types of adoption that may occur, such as the use of mobile payment platforms, online banking platforms, robo-advisors for investment purposes, or peer-to-peer lending platforms. Furthermore, there exist blockchain-based solutions that help complete several types of transactions: satisfaction can be expressed in the belief that the more advantages users or organizations see in using Fintech solutions, the more likely they would be to adopt these activities. Conclusively, this correlates well with the Innovation Diffusion Theory (Keo, Norng, & Seng, 2021; Lou & Li, 2017; Min, So, & Jeong, 2021; Oyelana, Kamanzi, & Richter, 2021; Yuen et al., 2021) because innovations with more benefits are more likely to be adopted sooner and more frequently.

Established financial institutions feel pressured by FinTech's as many incumbents took years to develop the products that startups can offer in months. Thus, many Big Finance players have to collaborate with or adopt FinTech's to be sustainable, and this perception enhances Relative Advantage. The fourth and potentially significant Factor contributing to satisfaction is the regulatory environment and the trust in Fintech's products. Indeed, while the regulatory environment can enhance the perceived benefits and legitimacy of Fintech products, it can also undermine the perception due to security, data protection, and compliance with the law requirements. Therefore, establishing Fintech users' trust will depend partially on the regulatory environment. In conclusion, there are many arguments that support the hypothesis that user satisfaction (Hou, 2012; Kim & Chang, 2007; Nemati, Khan, & Iftikhar, 2010; Tran & Cohen, 2004) positively affects Fintech adoption. As demonstrated through perceived benefits, cost-effectiveness, user experience, competitive structure, regulatory framework and support, the educational component, and network objective, the considerations identified in this paper are necessary to promote further Fintech adoption and ensure the full benefits of financial technology to the modern economy.

It is possible to identify several main factors and mechanisms, as well as the ways in which these aspects contribute to the P-effect of satisfaction on Fintech adoption: - Perceived benefits and value proposition: the major source of the Relative Advantage from Fintech solutions is the real or perceived benefits and value proposition that they offer to consumers. For example, mobile apps offer transactional speed and convenience, whereas robo-advisors offer an unemotional, data-driven approach to investing. These benefits create a value proposition that is appealing to consumers who seek more than what traditional services can offer. Due to the lack of consumers' need to maintain traditional infrastructure and lack

of intermediaries, many Fintech solutions are much cheaper than what traditional services deliver.

Hypothesis 1: *Compatibility has a positive influence on FinTech adoption.*

Hypothesis 2: *Compatibility has a positive influence on user satisfaction.*

Hypothesis 3: *User satisfaction has a positive influence on FinTech adoption.*

Use of Metaverse Technology

Virtual worlds within the metaverse differ from realistic simulations of physical settings to fantastic locations limited just by imagination. Avatars are a type of digital representation that permits users to experience or interact with the virtual environment and to engage with other users in the digital environment. Tokens, NFTs, virtual real estate, virtual goods, and digital occurrences are all examples of digital assets that together form the digital economy's circulation, possession, value creation, and digital economy's foundation. Block-chain systems benefit from decentralization that provides security, climbing rights, transparency, and interoperability among the million bits of valuable assets that make up the metaverse. Immersive technology such as virtual reality and by-pass reality 3D surroundings haptic reactions and audio or other types of digital sensors for enhanced interaction and efficiency platforms and protocol all connected create the metaverse.

Metaverse impacts several domains, including entertainment, gaming, media, education, healthcare, retail, finance, social networking, and work collaboration, cultural experiences (Kaur et al., 2023). In entertainment and gaming, metaverse allows users to experience virtual and immersive gaming, virtual events, live performances, digital concerts, and interactive storytelling. Notably, metaverse blurs the lines between gaming, entertainment, and virtual or real-world, creating a seamless experience. Regarding media and content creation, metaverse supports immersive storytelling, virtual production, user-generated content, digital creation and art, virtual museums, and interactive fiction, among others. Metaverse for education includes virtual classrooms, immersive learning platforms, simulation, collaborative learning, project work, skill-building, and personalized learning packs across the globe. This makes education not bound to the geographical location, hence more accessible and engaging and effective. For healthcare, metaverse includes telemedicine, virtual consultations, simulations, remote monitoring, mental health support, patient information, wellness programs, and realistic medical training. This has improved access, service, and innovation in the sector. Moreover, retail and commerce include virtual shops, digital business, virtual farm show, virtual lands, virtual events, experiential shopping, virtual fitting, digital money, and more. Finally, social networking includes virtual places, social platforms, virtual business rooms, digital gatherings, collaborative working spaces, virtual conferences, and meeting other people. This is accompanied by forming relationships, events, and conference creating across

border or continental human-centric community making.

Metaverse in work collaboration are the virtual offices, remote workspaces, virtual meetings, collaborative projects, digital teamwork tools, training simulations, immersive work environments that enable distributed teams to work together, communicate and innovate in a virtual setting, enhancing productivity, flexibility and work-life balance (Ning et al., 2023). Metaverse in the cultural sector enhanced cultural experiences are virtual tourism, historical recreations, cultural exchanges, language learning, art exhibitions, heritage preservation, global collaboration that foster cross-cultural knowledge, diversity and promote cultural enrichment across the globe. In conclusion, the metaverse is a game-changer in how we operate, interact with and experience digital platforms. A boundless treasure trove of opportunities, creativity, innovation and connectivity that pushes the limits of what is achievable in the information age.

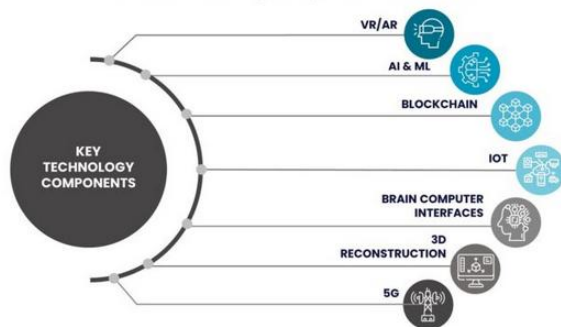


Figure 2: Key Components of Metaverse Technology.

Use of Metaverse Technology as Moderating Variable

The metaverse archetype as a multi-dimensional digital surroundings that integrates augmented reality, virtual reality, artificial intelligence (Aburbeian, Owda, & Owda, 2022; Kaur et al., 2023; Ning et al., 2023), and blockchain provides a new stage for rethinking financial services in conformance with Sharia principles. Focused on this summary, the role of Metaverse Technology in promoting Islamic FinTech Adoption is identified. It is possible to distinguish several important criteria explaining the self-oppression and social conditions of validity today of those 2 areas: * The capabilities of the metaverse for interactive immersion and informative awareness: Complex and accommodating, this Maximum variant provides a real space where end-users can learn or perceive Sharia needs and devices. Immersive perception and insightful acceptance tools present the user with the chance to replace disclosure with interest. Use of Metaverse Technology in strengthening Islamic FinTech Adoption: Metaverse technology aids in elimination the proximity deficit among stakeholders, thus increasing accessibility and willingness to invest and implement: Simulation presentations suggest that boundless geography and portal providence forever enable end-users to visit around accomplish in safe digital banking interfaces for Islamic FinTech platforms, Takaful and Halal investment opportunities.

In addition, Metaverse Technology also supports user

experiences that scale-across space, time, and dimensions, for Islamic FinTech (Ho & Song, 2023). It fosters trust, transparency, and communication, mainly blockchain-based solutions, decentralized networks, among others. Blockchain being one of the building blocks of the metaverse, it supports immutable ledgers, smart contracts, and other cryptographic secure mechanisms that drive the transactions in the Sharia-compliant FinTech systems. All these features make users trust the systems, and that grows the confidence levels among consumers as well as trust levels with investors and regulatory bodies. The innovations ensure that users have confidence in the systems and can rely on them for the investments in Islamic FinTech products and services. Metaverse technology also enhances creative user experiences in Islamic FinTech. VR environments in the metaverse provide options for users to create avatars, employ virtual assistants, consult on trading bots or transactions, and try out trading strategies. All these enable users to have their products designed the way they want them and thus can be satisfied with the usage.

In conclusion, the positive impact of Metaverse Technology on Islamic FinTech Adoption is primarily hinged on access to education, access to services, trust, innovation, and collaboration in advancing the Islamic finance sector. Through the metaverse's immersive and interactive nature, Islamic FinTech initiatives can educate and attract, enable seamless access to Sharia-compliant financial services, assure, personalize, and secure their transactions through the blockchain, and model collaboration that, as a result, enhances the level of adoption, use, and innovation in Islamic finance.

Hypothesis 4: *Use of metaverse technology has a positive effect on FinTech adoption.*

Hypothesis 5: *Use of metaverse technology moderates the relationship between user satisfaction and FinTech adoption.*

Methodology

Research Design

Research design can be defined as the plan, or a roadmap denotes a framework that describes the entire structure, tools, techniques, and processes of a research project (Shuttleworth, 2008). In other words, it contains the nature of data, the method or tool of measuring the data, and the procedure to investigate them. A well-formulated research design maintains the validity and reliability of the data and the results. It helps to answer the research question of hypothesis in a planned manner. The research design of this study is cross-sectional. This study used a quantitative research approach in which data was collected by using a questionnaire.

Population of the Study

The population of the study is the whole group of individuals, cases, or elements that a researcher intends to investigate or make conclusions about in a research study (Sekaran, 2003; Sekaran & Leong, 1992). It is the target population that the researcher obtains the sample from and is defined with consideration to the

research questions and objectives. Knowledge of the population of the study is fundamental as it assists in defining the sampling frame, determining generalizability of findings, and ensuring that the research outcomes are relevant and applicable to the wider population. The population’s size, demographics, location, and features are some of the considerations that must be made when carrying out research. Population of the study is the client of Islamic banking industry. The respondents of study were chosen from Scotland.

Sample Size

Sample size refers to the number of participants, cases, or observations sampled in any given study (Goodhue, Lewis, & Thompson, 2012; Krejcie & Morgan, 1970). Statistically, the sample size is determined by several factors, including the study’s confidence level, margin of error, and the expected effect size. Ideally, a study with a larger sample size is more reliable

and generalizable, given that the margin of error is narrowed, and the test’s statistical power is made stronger. In contrast, an extremely large sample size is uneconomical, while a very small one may fail to capture meaningful flows or patterns accurately. As such, researchers can use statistical methods such as sample size or power analysis to estimate a study’s ideal sample size. The sample size of the study is 500. Finally, 299 questionnaires were used for data analysis.

Variable Operationalization

Compatibility

Compatibility is measured based on the compatible system, fit system and also system fit with working style. In addition, the working system of innovation and new technology is compatible and adjustable with the existing system. All the items for compatibility are adapted from Moore and Benbasat (1991). Scale items are given in Table 1.

Table 1: Scale items for Compatibility.

Construct	Survey Items	Source
Compatibility	01. Using the system is compatible with all aspects of my work. 02. I think that using the system fits well with the way I like to work. 03. Using the system fits into my work style.	Moore and Benbasat (1991)

Islamic FinTech Adoption

Islamic Fintech adoption used as mediator in this research. It is measured based on adoption as a new opportunity, inevitable in Scotland, innovative products and services for bankers, adoption is favorable according to Scotland

regulations, adoption is very smooth, adoption process required strategic management, adoption is supported by everyone, and adoption creates new channels. Scale items are adapted from Dwivedi, Alabdooli and Dwivedi (2021), as shown in Table 2.

Table 2: Scale items for Islamic FinTech Adoption.

Constructs	Scale Items	Source
Islamic FinTech Adoption	01. Islamic FinTech adoption created a new opportunity for banking sector. 02. Islamic FinTech in Scotland banking is inevitable. 03. Islamic FinTech helps to innovate products and services for banks. 04. Islamic FinTech adoption is favorable in Scotland regulations. 05. Islamic FinTech adoption process is smooth to adopt in your bank. 06. Islamic FinTech adoption required a strategic approach of technology management. 07. Islamic FinTech adoption is supported by everyone in the bank. 08. Islamic FinTech adoption creates new channels.	Dwivedi et al. (2021)

Use of Metaverse Technology

Use of metaverse technology is measured by using perceived usefulness and perceived ease of use. Three scale

items were taken from Aburbeian et al. (2022). Scale items are reported in Table 3. It includes how metaverse technology helps the user.

Table 3: Scale items for Use of Metaverse Technology.

Constructs	Scale Items	Source
Use of Metaverse Technology	01. Using Metaverse will be helpful. 02. I can go to places using the Metaverse that I can’t go to in real life. 03. Using Metaverse is easy; it depends on using devices.	Aburbeian et al. (2022)

User Satisfaction

User satisfaction is the meditating variable in the current study. User satisfaction is measured by customer satisfaction.

The scale items are adapted from Junejo, Shah and Bachani (2019). Three scale items are reported in Table 4. While using scale items, it is observed that whether the user is satisfied or not.

Table 4: Scale Items for User Satisfaction.

Constructs	Scale Items	Source
User Satisfaction	01. The E-Banking services of my bank perform right at the first time. 02. E-Banking services of my bank deliver the quality as required. 03. E-Banking services of my bank perform tasks with reliability and accuracy.	Junejo et al. (2019)

Data Analysis Tool

The current study used Structural Equation Modeling (SEM) (Fattah & Setyadi, 2019; Rihatno & Nuraini, 2023; Ringle, Sarstedt, & Straub, 2012). SEM and multivariate data analysis used in order to study the conceptualization of variables (Hafkesbrink, 2021; Hair, Ringle, & Sarstedt, 2011; Hair Jr et al., 2016). Various software’s are specifically designed for structural equation modeling for complex models involving latent constructs and small samples, as it maximizes the amount of variance in dependent variables. SEM was employed by using RStudio.

Data Analysis and Results

Preliminary Data Analysis

Preliminary data analysis is a step one takes in investigating a dataset. It involves cleaning, summarizing, and visualizing the content (AlAnazi, Shamsudin, & Johari, 2016; Shehu & Mahmood, 2014; Won, Wan, & Sharif, 2017). The intention is to get a sense of the data’s quality, structure, patterns, and potential discoveries. Additionally, basic statistical analysis can be performed to show trends, outliers, and correlations in the data. This first stage enables the researcher or analyst to

determine the best methods to analyze and test his hypotheses. It is observed that data is free from any case of missing value, outlier and issue of normality. After data screening, data statistics are reported in Table 5 and Figure 3.

Table 5: Data Statistics.

	Mean	Median	SD	Kurtosis	Skewness
COM1	3.596	4	1.169	-0.51	-0.531
COM2	3.783	4	1.148	-0.354	-0.712
COM3	3.724	4	1.125	-0.323	-0.609
US1	3.732	4	1.13	-0.263	-0.64
US2	3.676	4	1.146	-0.42	-0.608
US3	3.61	4	1.171	-0.608	-0.503
UMT1	3.757	4	1.091	-0.527	-0.513
UMT2	3.662	4	1.096	-0.502	-0.46
UMT3	3.702	4	1.11	-0.354	-0.559
IFA1	3.754	4	1.082	-0.584	-0.477
IFA2	3.732	4	1.127	-0.606	-0.542
IFA3	3.721	4	1.123	-0.407	-0.561
IFA4	3.702	4	1.048	-0.14	-0.574
IFA5	3.798	4	1.115	-0.049	-0.779
IFA6	3.739	4	1.099	-0.543	-0.538
IFA7	3.724	4	1.102	-0.562	-0.464
IFA8	3.651	4	1.114	-0.365	-0.559

Note: COM = Compatibility: US = User Satisfaction: IFA = Islamic FinTech Adoption: UMT = Use of Metaverse Technology

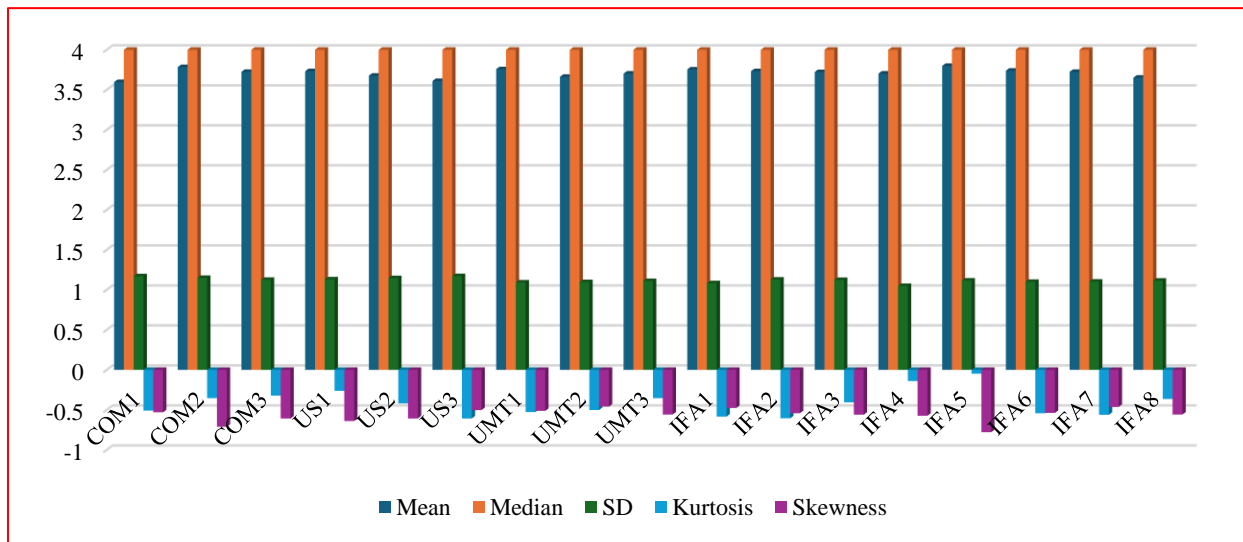


Figure 3: Data Statistics after data Screening.

Note: COM = Compatibility: US = User Satisfaction: IFA = Islamic FinTech Adoption: UMT = Use of Metaverse Technology

Structural Equation Modeling (SEM)-RStudio

Regarding RStudio, a measurement model assessment is the inspecting of the reliability and validity of the measurement model in an SEM context (Hair et al., 2010; Hair Jr, Howard, & Nitzl, 2020; Shair et al., 2021). In other words, a measurement model inspection establishes the associations between the latent constructs and their observed indicators to verify the alignment of the measurement model with the Theory Concepts. The convergence validity, divergence validity, and reliability of the measurement model are evaluated in a measure mode assessment. In so doing, the measure model assessment examines the factor loadings and the average variance extracted

of the indicators to confirm the ability of the observed variables to measure their latent constructs. The discriminant validity examines the square root of AVE and the correlations between constructs CMC values to ensure that the constructs are unique. The reliability measures of Cronbach alpha and composite reliability are evaluated to ensure the measurement model’s internal consistency (Callaghan et al., 2007; Cheah et al., 2018; Henseler et al., 2014; Ringle et al., 2012). Therefore, a measurement model assessment using Smart PLS is utilized to verify the authenticity of the measurement instruments governed by an SEM method and assure the accuracy of the model for subsequent analysis and interpretation. For the

current study, measurement model assessment is given in Table 6. In the case of individual items reliability, all the factor loading is higher than 0.5. It can be observed that composite reliability is higher than 0.7 and Cronbach alpha is also higher

than 0.7. Additionally, AVE is higher than 0.5 which confirmed that convergent validity. The measurement model results are reported in Figure 4.

Table 6: Factor Loadings, Cronbach Alpha, Composite Reliability and AVE.

Variables	Items	Loadings	Alpha	CR	AVE
Compatibility	COM1	0.823	0.755	0.86	0.671
	COM2	0.821			
	COM3	0.813			
Islamic FinTech Adoption	IFA1	0.768	0.877	0.903	0.538
	IFA2	0.754			
	IFA3	0.755			
	IFA4	0.726			
	IFA5	0.748			
	IFA6	0.728			
	IFA7	0.677			
	IFA8	0.707			
Use of Metaverse Technology	UMT1	0.892	0.815	0.891	0.731
	UMT2	0.827			
	UMT3	0.845			
User Satisfaction	US1	0.85	0.804	0.884	0.718
	US2	0.82			
	US3	0.872			

Note: COM = Compatibility: US = User Satisfaction: IFA = Islamic FinTech Adoption: UMT = Use of Metaverse Technology

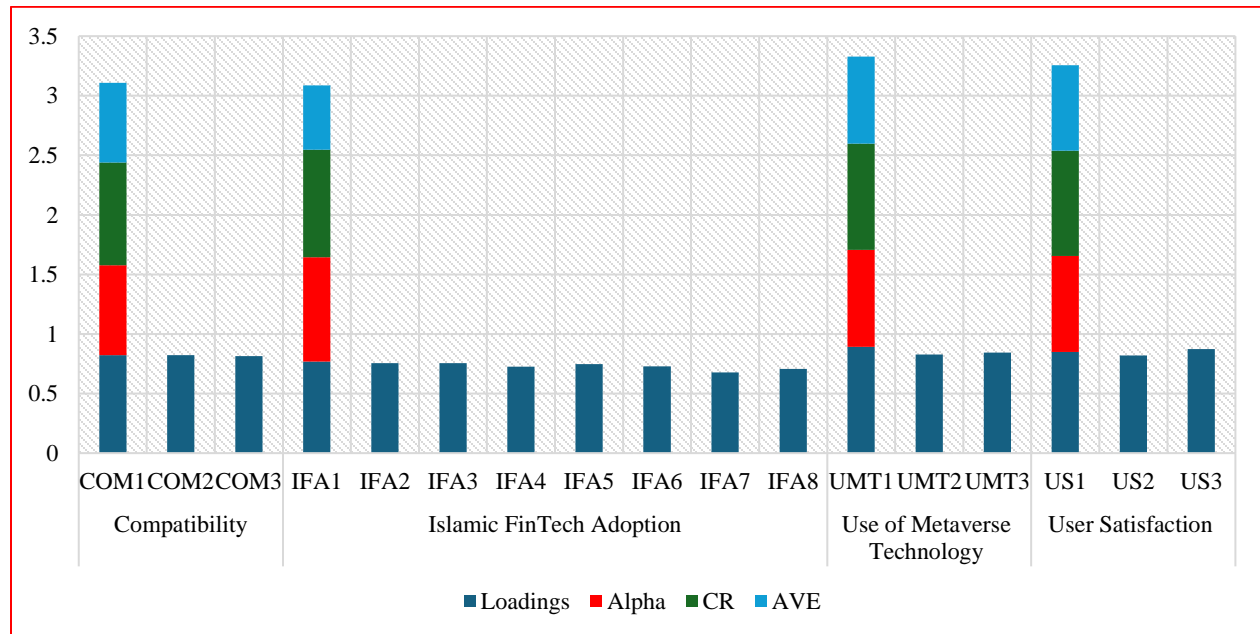


Figure 4: Measurement Model Results.

Note: COM = Compatibility: US = User Satisfaction: IFA = Islamic FinTech Adoption: UMT = Use of Metaverse Technology

Moreover, discriminant validity, which is often guaranteed by Heterotrait-Monotrait ratio of correlations (HTMT), is an essential part of SEM (Alarcón, Sánchez, & De Olavide, 2015; Hafkesbrink, 2021; Henseler, Ringle, & Sarstedt, 2015). The HTMT ratio is a parameter that reflects the relationship between correlations across constructs heterotrait and correlations within a construct between manifest variables monotrait. Good discriminant characteristics are reflected in a

low value of the HTMT ratio, which should be lower than 0.85 or 0.90. A discriminant ratio may indicate that measurement accurately reflects the constructs and does not result in measurement overlap or compensations. This issue is important for examining whether the items measuring one construct are more revealing of construct 1 than of construct 2. Therefore, discriminant validity based on the HTMT ratio can improve the accuracy and consistency of the results, thereby ensuring

evidence-based decisions and interpretations. It is reported in Table 7.

Structural model assessment in RStudio involves evaluating the relationships between latent constructs and examining the overall model fit to assess the validity and reliability of the structural equation model (SEM) (Hair Jr et al., 2020; Hair Jr & Sarstedt, 2019; Matthews, 2017; Streukens & Leroi-Werelds, 2016). This judgment includes analyzing

path coefficients, significance levels as well as effect sizes of the relationships between various constructs to define strength and direction of the hypothesized relationships. It aims to validate theoretical framework and hypotheses anticipated in the SEM, ensuring that the model adequately signifies relationships between variables and provides meaningful insights for interpretation and inference in research studies. Results are reported in Table 8.

Table 7: Heterotrait-Monotrait Ratio of Correlations (HTMT).

	Compatibility	Islamic FinTech Adoption	Use of Metaverse Technology	User Satisfaction
Islamic FinTech Adoption	0.672			
Use of Metaverse Technology	0.807	0.578		
User Satisfaction	0.654	0.831	0.823	

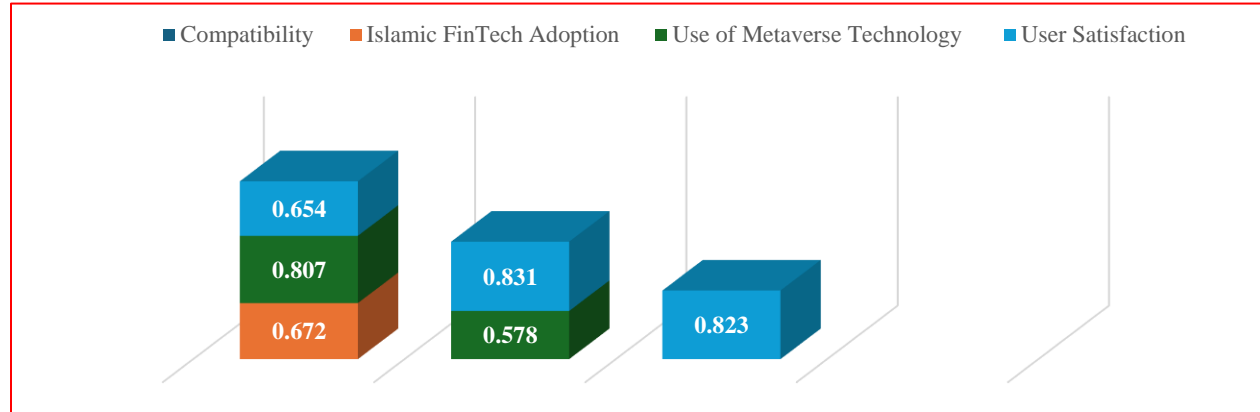


Figure 5: HTMT_{0.9}.

Table 8: Results (Direct Effect and Moderation).

	Beta	Mean	SD	T Statistics	P Values
Compatibility -> Islamic FinTech Adoption	0.213	0.217	0.067	3.192	0.001
Compatibility -> User Satisfaction	0.532	0.535	0.08	6.645	0
Moderating Effect 1 -> Islamic FinTech Adoption	0.053	0.054	0.015	3.525	0
Use of Metaverse Technology -> Islamic FinTech Adoption	0.366	0.367	0.071	5.155	0
User Satisfaction -> Islamic FinTech Adoption	0.144	0.144	0.073	1.965	0.025

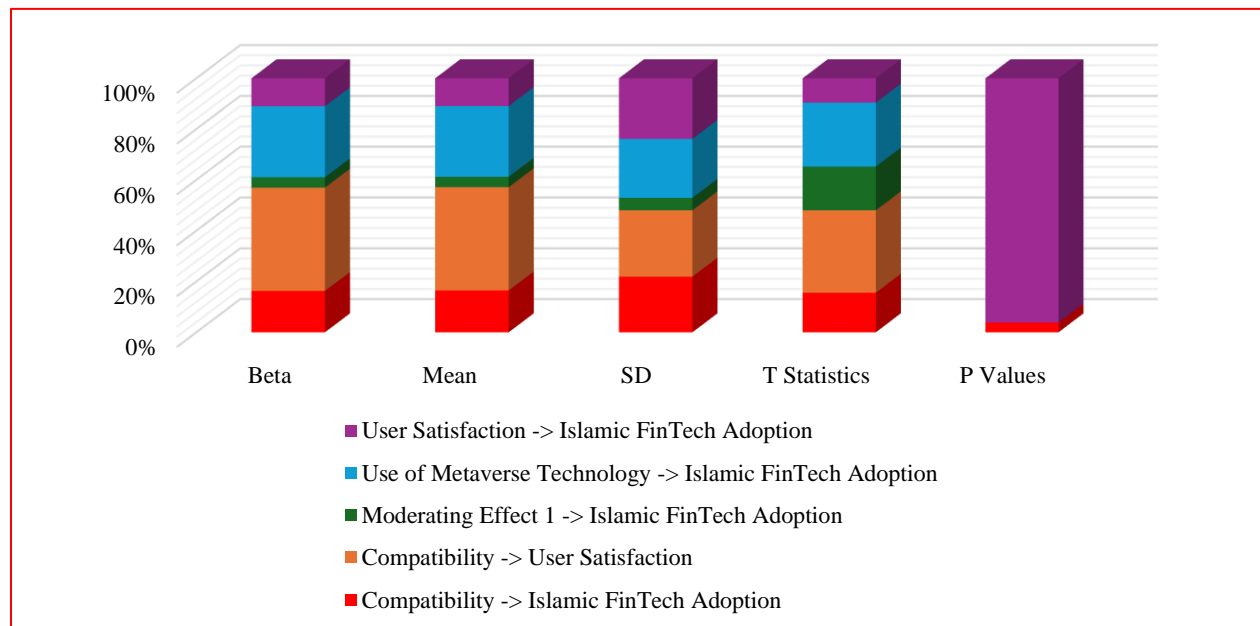


Table 8: Hypotheses Results.

Results of the hypotheses are assessed by using t-value 1.96 and p-value 0.05. Hypotheses having t-value above 1.96 were considered as supported, however, the hypotheses having t-value below 1.96 were considered as not supported. Similarly, hypotheses having p-value less than 0.05 were supported and hypotheses having p-value higher than 0.05 were considered as not supported. Results are given in Table 8 and Figure 8 which highlighted that trialability, relative advantage and compatibility has positive effect on user satisfaction and

Islamic Fintech adoption. Furthermore, user satisfaction has positive effect on Islamic Fintech adoption. Additionally, use of metaverse technology positively associated with Islamic Fintech adoption and it moderates the relationship between user satisfaction and Islamic Fintech adoption. As reported in Figure 9, use of metaverse technology strengthen the positive relationship between user satisfaction and Islamic Fintech adoption.



Figure 9: Moderation effect of Use of Metaverse Technology between User Satisfaction and Islamic Fintech Adoption.

Discussion and Conclusion

Compatibility is a significant factor influencing user satisfaction (Sebetci, 2018), and the adoption of FinTech is in fulfillment. This is the degree to which the new technology matches the existing values, needs, and practices. From the perspective of Islamic FinTech, compatibility is based on the need to comply with the principles of Shariah and conduct ethical finance. Users who value Islamic finance and ethics are more likely to choose Islamic FinTech to be compatible with their values and lifestyles. Based on the presented empirical studies and industry trends, it is evident that the positive influence of compatibility is observed and has a direct impact on the users' satisfaction and adoption of Islamic FinTech. To start with, the opportunity to trial FinTech facilitates the regular use of these solutions by its advocates (Afjal, 2023; Alorfi et al., 2023; Risman et al., 2023). The first-time trial helps to mitigate initial skepticism and develop trust in the solution as well as identify the apparent advantages offered by top-tier FinTech providers.

The more favorable rates, customized financial solutions, and seamless digital experience, also contributes to the positive users' feedback which maximizes satisfaction levels. Therefore, Islamic FinTech companies invest heavily in creating easy-to-navigate user interfaces, mobile application optimization, and deploying AI-integrated chatbots to improve customer experiences (Hasan et al., 2020; Karim, Naeem, & Abaji, 2022; Rabbani, Khan, & Thalassinis, 2020; Saba, Kouser, & Chaudhry, 2019). This approach helps to create a

positive impression of the platforms and promotes usage and trust among users. Secondly, user satisfaction in Islamic FinTech is also related to Shariah compliance and ethical standards. Islamic FinTech offer products that are aligned with Islamic finance; therefore, they offer products that do not charge interest on credit and conventional loans.

Moreover, user satisfaction also influences Islamic FinTech adoption positively (Megahed, Al-Kayaly, & Al-Hadad, 2021) as the rising trend for creative financial products and services aimed at various user categories shows. With data science, machine learning, and blockchain technology, Islamic FinTech vendors create customized recommendations, computerized investment opportunities, and seamless payment system experiences. These enterprises meet users' requirements, financial objectives, and risk tolerance which boosts user satisfaction and involvement and continuity of using these solutions. Additionally, satisfied customers endorse the word of mouth and positive feedback necessary for popularizing Islamic FinTech products (Pasha et al., 2023). This way, they encourage their friends, family members, and associates, becoming brand ambassadors ideal for boosting organic development and user customer growth. Users' positive ratings affect potential users' mindset and confidence towards Islamic FinTech, driving higher acceptance rates. Nevertheless, user satisfaction with Islamic FinTech also has macro-level consequences. The surge in success builds leads to further investment, enables more policy support, and encourages more experienced specialists to join the industry. Thus, user

satisfaction not only boosts user involvement but also contributes to the increased Islam FinTech development. Ultimately, user satisfaction defines Islamic FinTech success and global dissemination.

Metaverse technology provides an innovative approach to Islamic FinTech adoption and presents an opportunity for significant transformation (Kaur et al., 2023). Primarily Metaverse integration and adoption will enable Islamic FinTech to realize several benefits, influencing the user experience, innovation, and industry growth positively. It will install a dynamic and interactive motion in the Islamic finance ecosystem and promote customer satisfaction, trust, and accessibility. Furthermore, its use in Islamic FinTech adoption will promote global interaction and accessibility where financiers will join together in a Metaverse issue and investment in Islamic finance. It will further promote financial competitions, learning opportunities, and community interactions presented virtually to empower users on financial knowledge. Metaverse technology also promotes the user experience in financial planning, portfolio management, and usage of Islamic Finance services. Virtual assets, gamified investment competitions, and VR and AR tools also influence user engagement and education.

Moreover, Metaverse technology also facilitates the offers of innovative financial products and services (Aburbeian et al., 2022; Hwang, Shin, & Lee, 2023; Kaur et al., 2023) that cater to the requirements of Islamic finance users. Available services which virtual marketplaces, digital asset exchanges, and decentralized lending platforms support in the Metaverse ecosystem diversify investment avenues, liquidity alternatives, and risk management tools that comply with Shari'a requirements. The diverse array of services draws a larger followership of Islamic finance users, investors, and institutions promoting the use and growth of the Islamic FinTech sector. In addition, Metaverse technology supports an integrated flow of cross-platform and interconnectedness across different platforms. Integration with Metaverse platforms enables Islamic FinTech companies to offer unified financial experiences, tokenized assets, and digital identity solutions that surpass physical boundaries and enhance user accessibility and convenience. The connectedness fosters a mutually beneficial relationship between the Metaverse technology and the Islamic FinTech accords that promotes innovation and market growth.

Implications of the Study

Several implications can be deduced for researchers, industry players, policymakers, and users. First, researchers in the finance and technology fields can conduct detailed studies on the Metaverse technology in Islamic studies in Scotland. For example, researchers can conduct empirical studies, surveys, and at the same time use qualitative research to determine perceptions and preferences of users in virtual financial environments. They can also conduct research on the impact of

Metaverse technology on inclusive developments, access, and economic empowerment of the Islamic finance market segments in Scotland. Industry players on their part have a chance to develop more improved and creative Metaverse integrated Fintech products. Companies and start-up firms on Islamic Fintech, in particular, can embrace the new technologies such as augmented reality, virtual reality and decentralized finance offered in Metaverse environments to increase the attraction and retention of clients. Investment in innovation and R & D can also be achieved through strategic partnerships with technology firms or through direct investment. Policymakers, in turn, have a role to develop appropriate policies and legislation on Metaverse Technology. Financial authorities should also prioritize regulation and policy formulation based on the current Fintech trends. In general, there will be several implications of the study on Metaverse technology. Generally, it can be concluded that the Metaverse technology has a transformative potential in the Islamic FinTech. stakeholders in the academia, industry, policy, and users should responsibly embrace the change to realize their potential value, creation, and impact on the Metaverse in the Islamic FinTech.

Limitations and Future Directions

The data presented mainly refers to theoretical discussions and general trends and might be potentially limited by the sample bias. Future research might include empirical studies of different user groups and stakeholders in the Islamic finance and Metaverse communities to provide more rigorous conclusions concerning the emphasis of relevance and trends in the field. The technological aspect of Metaverse technology adoption in Islamic FinTech, including the internet connection, and the usage of virtual reality devices, may vary and become a challenging aspect due to the discrepancies between the countries. Future research might also investigate the technological barriers, impacts on the adoption, and their influence on the user experience and the available strategies. Since the regulatory environment of Metaverse-driven Islamic FinTech is new and varies by jurisdiction, it offers additional complexities and requirements for compliance. Additional research is needed to emphasize the regulatory problems, as well as opportunities, challenges, and implications regarding virtual assets, decentralized finance, and digital identities.

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