



Empowering Afghanistan's Home Economics Through Secure Islamic Fintech Adoption

Zarina Shukur^{1*}, Abdullah Mohd Zin², Islahuddin Jalal³

¹ Center for Cyber Security, Faculty of Information Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bangi, Malaysia.

² Institute of Graduate Studies, Universiti Poly-Tech Malaysia, 56100 Kuala Lumpur, Malaysia.

³ Kabul Education University, Kabul, Afghanistan.

*Corresponding author email: zarinashukur@ukm.edu.my

Article Info:

Received:
21/12/2024
Revised:
16/01/2025
Accepted:
21/08/2025
Published:
15/09/2025

Keywords:

Fintech,
Home
Economics,
Islamic
Fintech,
Afghanistan
Economy,
Digital
Afghanistan

ABSTRACT

This paper discusses the use of Islamic fin-tech in empowering home economics for sustainable economic development especially for countries such as Afghanistan. Fintech, or financial technology, has revolutionized the way financial services are delivered by integrating innovative digital solutions that enhance accessibility, efficiency, and customer experience. Islamic Fintech represents a specialized segment of the Fintech industry that operates in accordance with Sharia principles. This paper shares success stories of selected countries and describes Malaysia experience in term of its eco-system for Fintech. The last part of the paper discusses possible challenges for Afghanistan in term of adopting Fintech.

1. INTRODUCTION

The interdisciplinary area of home economics, sometimes known as family and consumer sciences, is concerned with managing the home and family life. Through the use of knowledge and abilities, it seeks to promote the well-being of individuals and families by combining elements of several disciplines, including economics, sociology, psychology, and nutrition. (Eicher & Roosen, 2015). Sustainable economic development refers to an approach to economic growth that seeks to improve the quality of life by balancing economic, social, and environmental objectives, ensuring that growth is inclusive and environmentally responsible (UN, 1987; World Bank, 2012). World Bank Report (World Bank 2013) discusses how empowering women through education, including home economics, can enhance their participation in the economy and improve household welfare.

Digital economy is defined as economic and social activities that involve the production and use of digital technology by individuals, businesses, and government (MyDigital). Because home economics fosters education, improves resource management, and encourages ethical purchasing, it can be intimately linked to the digital economy and sustainable economic development. Incorporating digital literacy into home economics courses gives students the tools they need to succeed in both traditional and digital environments. Online platforms, for instance, can help people learn about sustainable behaviors including using digital tools for budgeting, using energy-efficient appliances, and making well-informed judgments when making purchases. This digital approach not only broadens the reach of sustainable home economics education but also empowers consumers to critically assess their consumption patterns and make eco-friendly choices (Burgess, 2017).

The combination of home economics and the digital economy manifests in the promotion of sustainable business practices and entrepreneurial opportunities. Digital platforms can enable local producers to showcase their locally-made goods. Online communities and e-commerce can support social enterprises that advocate for environmentally conscious practices, effectively bridging the gap between sustainable home management and the evolving digital landscape (Dino, 2018).

Fintech plays an important role in empowering sustainable economic development through home economics by enhancing financial literacy, promoting ethical consumption, and enabling more efficient household budgeting. Financial technology tools, such as mobile banking apps and budgeting software, provide individuals and families with the resources needed to manage their finances sustainably (Ong & Fong, 2018). By integrating Fintech into home economics, individuals gain not only practical financial management skills but also the ability to contribute to broader environmental goals, aligning personal finance with sustainable practices (Bătae, 2020).

This paper is divided into six sections; second section discusses the concept and issues related to Fintech and Islamic Fintech, third section list three success story in implementing fintech while the fourth section focuses on Malaysia eco-system for Fintech and Islamic Fintech. Finally the fifth section discusses challenges in implementing Fintech in Afghanistan.

1.8. FINTECH, ISLAMIC FINTECH AND RELATED ISSUE

1.1.1. Fintech

Fintech, or financial technology, has revolutionized the way financial services are delivered by integrating innovative digital solutions that enhance accessibility, efficiency, and customer experience. The rise of Fintech has democratized financial services by making it easier for people and companies, especially in underdeveloped countries, to obtain banking, investing, and insurance products.

Peer-to-peer lending platforms, automated investment services, and mobile wallets, for example, have all become popular and offer consumers practical and affordable substitutes for traditional banking. A study by Deloitte shows that the global Fintech business will expand dramatically, reaching about \$305 billion by 2025, highlighting how technology is revolutionizing traditional financial services. (Deloitte, 2021).

1.1.2. Islamic Fintech

Islamic Fintech represents a specialized segment of the Fintech industry that operates in accordance with Sharia principles. It prohibits riba and promote risk-sharing over speculation. Islamic Fintech has gained ground particularly in regions with

substantial Muslim populations. The Malaysian government, through initiatives like the Malaysia Fintech Blueprint, has fostered a robust framework for Islamic Fintech, enabling the development of platforms such as Wahed Invest, an investment platform that offers halal investment opportunities and aligns with Sharia principles. According to the Islamic Financial Services Board, the global Islamic Fintech market is projected to reach \$128 billion by 2023, reflecting a growing demand for Sharia-compliant financial services (IFSB, 2019).

Several notable Islamic Fintech initiatives in Malaysia exemplify the successful integration of technology and Islamic finance. For instance, the peer-to-peer (P2P) lending platform, Fundaztic, allows individuals to invest in small businesses while adhering to Islamic principles, offering risk-sharing opportunities that align with Sharia law. Furthermore, companies like Axiata Digital and its flagship product, Boost, have expanded their mobile wallet services to facilitate transactions that comply with Islamic teachings, promoting financial inclusion among Malaysians. These developments illustrate not only the potential of Fintech to cater to diverse consumer needs but also highlight the significance of cultural and religious considerations in shaping financial services. As the Islamic Fintech sector continues to grow, it poses an exciting opportunity for innovation that aligns with ethical and sustainable financial practices (Zarif, 2020).

Figure 1 shows that according to the Global Islamic Fintech Report by IFN Fintech, more than 240 Islamic Fintech currently operate globally, covering a wide range of customers and financial needs via several emerging technologies.



1.2. Technical Regulations and Standard to Handle Security Risk

As with other technologies, Fintech faces potential risks, including data breaches and fraud. Md Arif et al (2020; 2022) discussed the security issues with electronic payment systems including e-Wallets and mobile banking apps. Whilst Seyedmostafa & Zarina (2014) recommended on how to handle privacy aspect of mobile device.

A technical regulation is a document that lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory whereas standardization provides a basis for technical/trade agreements and technical regulations. The difference between a standard and a technical regulation lies in compliance. While conformity with standards is voluntary, technical regulations are by nature mandatory. International standards should be used as a basis for preparing technical regulations except when they are not appropriate to fulfil legitimate interests, for instance, because of fundamental climatic or geographic factors or fundamental technological problems.

Standard	Description
ISO 31000	Risk management principles and guidance
ISO/IEC 27001	An information security management system
ISO 20022-1	Universal financial industry message scheme (UNIFI)
ISO 6166	Securities and related financial instruments. International securities identification ((ISIN)
ISO 10002	Quality management -- Customer satisfaction -- Guidelines for complaints handling in organizations
ISO 22301	Business continuity management systems -- Requirements
ISO 12812-1	Core banking -- Mobile financial services
ISO 21188	Public key infrastructure for financial services -- Practices and policy framework

Figure 2. ISO Standards related to Fintech

Besides ISO, industrial related standard; Payment Card Industries Security Standard (PCI), COBIT 5 by ISACA and CGI by SWIFT can also be referred. COBIT5 provides guidance to help IT and security professionals understand, utilize, implement and direct important information security-related activities, and make more informed decisions while maintaining awareness about emerging technologies and the accompanying threats.

1.3. Mobile Banking Infrastructure and Architecture

The importance of a robust mobile banking infrastructure and architecture lies in its ability to facilitate financial inclusion, enhance transaction efficiency, and foster innovation in the Fintech sector. A well-designed mobile banking system can empower unbanked populations by providing access to essential financial services. This not only enables individuals to save, transfer money, and access credit but also supports local businesses and stimulates overall economic growth (Kumar & Singh, 2021). Sinha & Ranjan (2020) suggested an architecture of mobile banking systems, that include data storage, transaction processing, and user interface design specific to low-internet environments. Challenges related to connectivity and user experience also need to be considered, hence possible technical solutions can be suggested.

1.4. Integrating Payment Systems with E-commerce Platforms

Integrating payment systems with e-commerce platforms is crucial for ensuring a seamless and efficient transaction experience, ultimately driving customer satisfaction and retention (Laudon & Traver, 2017). The importance lies not only in facilitating smooth payment processes but also in supporting diverse payment methods to cater to varied consumer preferences and increasing trust in online transactions. However, several technical challenges can impede effective integration, including ensuring robust security measures against cyber threats, maintaining compliance with diverse regulatory standards across different regions, and achieving interoperability between different payment gateways and e-commerce systems (Böhme et al., 2015). Additionally, the complexity of managing real-time transaction processing and potential system downtimes can lead to disruptions in service, impacting both merchant and consumer confidence in the platform (Riggins & Mukhopadhyay, 2017). Addressing these challenges is essential to harness the full potential of e-commerce and drive its growth in the digital economy.

1.5. SUCCESS STORIES

The following are several case studies and examples that illustrate the role of Fintech in enhancing financial inclusion, improving financial literacy, and fostering entrepreneurship.

1.5.1. Karandaaz Pakistan – Digital Financial Services for Women (Karandaaz Pakistan, 2019)

Karandaaz Pakistan works to enhance financial inclusion through innovative technology solutions. Their initiatives focus on increasing access to digital financial services for women entrepreneurs. The program provides training in financial literacy and digital finance, empowering women to manage their homes and businesses effectively. Women who have participated in the training reported improvements in managing household finances and increased access to credit for micro-enterprises.

1.5.2 MyBank – Leveraging Mobile Technology in Bangladesh (World Bank, 2018)

MyBank, a Fintech platform operating in Bangladesh, integrates digital banking with mobile technology to offer savings accounts, payment solutions, and microloans directly to consumers, including farmers and rural entrepreneurs. The platform has been particularly beneficial for women in rural areas, who typically face barriers to accessing traditional banking services. The financial literacy training provided through the platform has empowered users to better manage household budgets, leading to increased investments in education and health services within families.

1.5.3. ZainCash – Mobile Money in Iraq (Zain Iraq, 2020)

ZainCash provides a relevant case study of mobile money that can be adapted to various contexts. ZainCash allows users to make payments, transfer money, and pay for goods and services using their mobile phones. The service has significantly increased financial inclusion among underserved populations, including women, who can now manage their finances independently from households or male family members. This empowerment has been linked to increased investments in home improvement and children's education.

1.5.7. MALAYSIA ECO-SYSTEM FOR FINTECH AND ISLAMIC FINTECH

In this section, we will discuss Malaysia Eco-System for Fintech and Islamic Fintech.

1.6. ICT Infrastructure

The status of ICT infrastructure in Malaysia is shown in Figure 3.

1.7. Regulatory

Malaysia's Fintech ecosystem has rapidly developed into one of the leading hubs in Southeast Asia, bolstered by a supportive regulatory environment and active government initiatives. The Central Bank of Malaysia, Bank Negara, has established a regulatory framework that encourages innovation while ensuring consumer protection and financial stability.

Initiatives such as the Financial Technology Regulatory Sandbox enable Fintech start-ups to test their products in a controlled environment, which helps accelerate the

development of innovative services, including digital banking, payment solutions, and investment platforms (Bank Negara Malaysia, 2021). Whilst Risk Management in Technology (RMiT) Policy Document sets out the Bank's requirements with regard to financial institutions' management of technology risk. Coupled with strong collaboration between financial institutions, technology companies, and venture capitalists, Malaysia has seen a surge in Fintech activities, positioning itself as a pivotal player in the regional Fintech landscape.

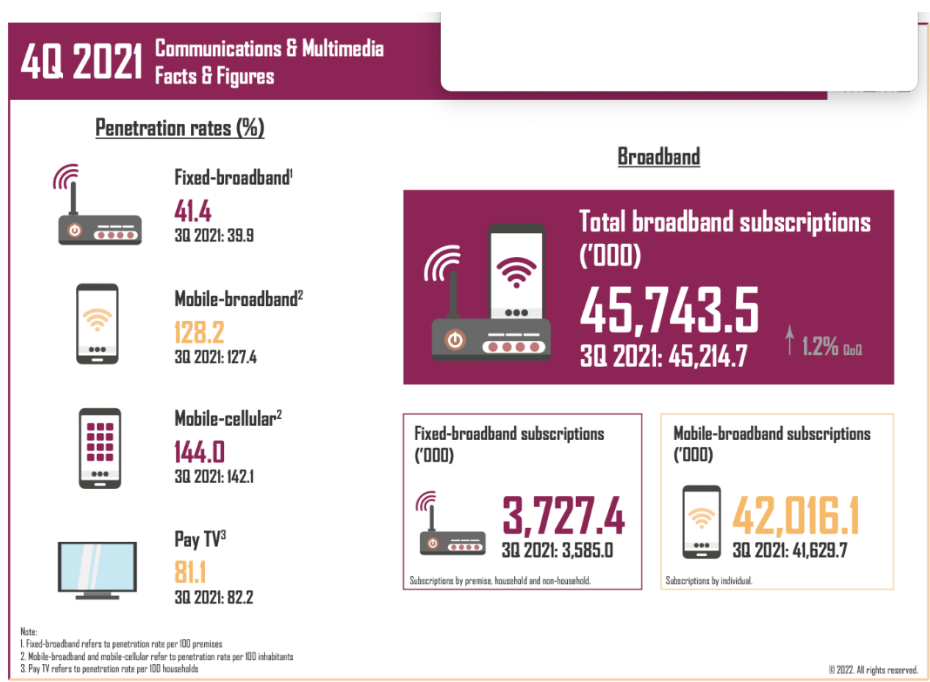


Figure 3. Communication in Malaysia (Source: Malaysia 4Q1)

1.8. Initiatives

The government has launched initiatives like the Malaysia Fintech Blueprint, which specifically supports the development of Islamic Fintech, ensuring that these solutions are integrated into the country's broader financial landscape. As a result, the Islamic Fintech sector not only enhances financial inclusion but also attracts interest from ethical investors beyond the Muslim demographic (Zarif, 2020; PwC, 2019).

The Malaysian government and regulators are actively fostering the growth of the

Islamic Fintech market through various initiatives that designates Islamic finance and the digital economy as Key Economic Growth Activities. The Malaysia Digital Economy Corporation has established a dedicated unit to support this sector, while the Ministry of Science, Technology, and Innovation has created a fund for Islamic Fintech. Furthermore, institutions like the International Centre for Education in Islamic Finance and the International Shariah Research Academy for Islamic Finance focus on capacity building and research in this field. Additionally, the Securities Commission of Malaysia, in collaboration with the United Nations Capital Development Fund, launched FIKRA, an Islamic Fintech accelerator program designed to identify and scale Fintech solutions in Malaysia and foster talent in the sector. (UNCDF)

2. Literature Review

2.1 Afghanistan Background

Afghanistan is a country with beautiful scenery and long historical background. With the ability to generate jobs and improve income distribution, agriculture is positioned to play a significant role in promoting growth and reducing poverty. To increase agricultural resilience and productivity, strategic investments in market access, research, land tenure stability, and irrigation infrastructure are crucial. To support these initiatives and establish a favourable business environment, institutional frameworks and human resources should be strengthened. (World Bank, 2024).

Home economics can significantly contribute to economic development in Afghanistan by empowering individuals and families with essential skills in areas such as budgeting, nutrition, resource management, and small-scale entrepreneurship. By focusing on home-based economic activities, particularly for women, home economics promotes financial independence, enhances food security, and improves health outcomes for families. Educational initiatives in home economics can foster sustainable practices, encourage community resilience, and support local micro-enterprises, thus stimulating economic growth at the household level while also addressing social inequalities. This holistic approach not only improves living standards but also creates a more robust foundation for Afghanistan's broader

economic recovery and development in the face of ongoing challenges. (Baker, 2011) (Siar & Stone, 2014) (UNDP, 2012) (World Bank, 2013)

As of early 2024, Afghanistan had 7.88 million internet users, equating to an internet penetration rate of 18.4% of the population. Additionally, there were 3.70 million social media users, representing 8.6% of the total population, indicating a growing trend in online engagement. The mobile connectivity landscape showed 27.67 million active cellular mobile connections, which accounted for 64.6% of the population, highlighting the dominance of mobile devices as the main means of communication and internet access. These statistics reflect the evolving digital environment in Afghanistan, showcasing a significant user base and increasing online participation despite regional challenges. (Datareportal, 2024). gs.statcounter (2024) website presents the social media user distribution in Afghanistan as in Figure 4.



Figure 4. Social media users in Afghanistan

2.2. E-Commerce and Fintech in Afghanistan

Several ecommerce and Fintech applications have gained popularity in Afghanistan, reflecting recent trends in the digital economy. Notable eCommerce platforms include;

- (i) *Daraz Afghanistan*, a leading online shopping site that offers a wide variety of products such as electronics, clothing, and home goods, and is part of a larger group operating in multiple South Asian countries.
- (ii) *Goosht* is another emerging service that specializes in delivering fresh meat directly to consumers, addressing the increasing demand for convenient food shopping.
- (iii) *AfghanMart* connects buyers and sellers throughout the country, facilitating various transactions and supporting local businesses.

In the Fintech sector,

- (i) *Ariana Money* provides a mobile financial service that allows users to conduct transactions, pay bills, and transfer money via their mobile devices.
- (ii) *M-Paisa*, a service operated by Roshan, enables users to send and receive funds and pay for goods and services through a mobile wallet,
- (iii) *Payk* offers a digital payment solution designed to simplify online transactions for both businesses and consumers.
- (iv) *Kabul Bank*, has expanded its offerings to include various digital banking services, making financial management more accessible for customers. These platforms play a crucial role in enhancing Afghanistan's digital economy and providing necessary services despite the ongoing challenges in the region.

2.3. Challenges

Empowering home economics in Afghanistan through Fintech can yield significant benefits, but several challenges must be considered to ensure effective implementation and sustainable impact; limited infrastructure, cultural barriers, literacy, regulatory and Fintech products.

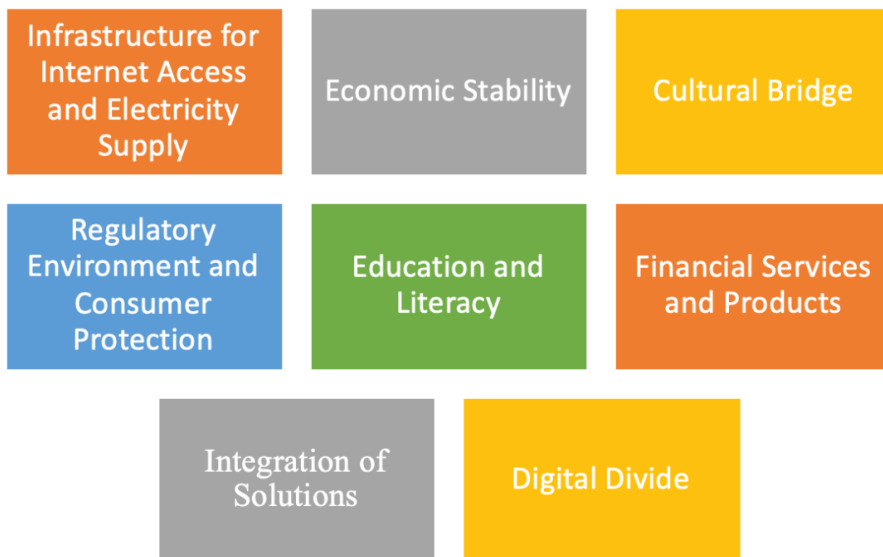


Figure 5. Challenges for Fintech Success

- (i) **Limited Infrastructure for Internet Access and Electricity Supply:** Many rural areas in Afghanistan suffer from poor internet connectivity, which restricts access to Fintech services. Infrastructure improvements are essential to ensure that digital financial services reach all segments of the population. Reliable electricity is needed for technology to function; fluctuations can hinder the operation of digital financial services. (World Bank, 2020b) (AKDN, 2016) (Reuters, 2020) (Zafar & Siddiqui, 2019)
- (ii) **Cultural Barriers in term of social norms and trust issues:** In some Afghan communities, traditional gender roles may restrict women's mobility and access to financial services. Cultural resistance to women engaging in financial activities may limit their participation in Fintech programs aimed at home economics. Many potential users may distrust Fintech solutions, preferring traditional methods of handling finances. Building trust through awareness and education is vital. (CGAP, 2016) (CGAP, 2020) (AKDN, 2016) (Zafar & Siddiqui, 2019)
- (iii) **Education and Literacy:** A significant portion of the population has limited experience with digital tools. Financial literacy programs are necessary to educate individuals on using Fintech solutions effectively. Low literacy rates can prevent users from understanding financial products and services, limiting their ability to engage meaningfully in economic activities. (Khan & Pappas, 2021)
- (iv) **Regulatory Environment and Consumer Protection.** The regulatory environment for Fintech in Afghanistan is still evolving. A lack of clear policies can hinder the growth of Fintech solutions and create uncertainties for entrepreneurs and investors. Without robust regulations, users may be vulnerable to fraud or exploitation, leading to skepticism about using Fintech services. (Khan & Pappas, 2021)
- (v) **Limited Financial Services and Products.** Fintech solutions may not address the specific needs of home-based businesses or households, especially in terms of microloans or savings products that accommodate irregular income streams.

Fintech platforms need to establish partnerships with local financial institutions to ensure that funding is available for users wanting to start or expand their home-based businesses.

- (vi) **Economic Instability:** Afghanistan faces unique economic challenges, including inflation and currency instability, which may affect the viability of financial products and users' willingness to invest in long-term savings or loans. Ongoing conflict and instability can discourage investment in Fintech infrastructure and limit the effectiveness of financial services. (Tech in Asia, 2021)
- (vii) **Integration of Solutions:** Fintech solutions must be compatible with existing digital payment systems and banking structures to create a seamless user experience. Ensuring that Fintech solutions are sustainable in the long term requires continuous funding and support, which may be challenging in the current political and economic environment. (Tech in Asia, 2021)
- (viii) **Digital Divide:** A study by Abdul Fareed (2019) about current trend and challenges of online-business in Afghanistan found that many online shopping platforms are currently operating in Afghanistan's major cities, especially in the capital. These platforms primarily use websites and Facebook pages and offer various payment options, though cash on delivery (COD) is the most common method.

2.4. Overcoming Challenges

In order to overcome the challenges discussed in the previous section, we propose the following:

- (i) In order to solve the problem of Limited Infrastructure for Internet Access and Electricity Supply we propose that Afghanistan adopts light Fintech apps with minimum features. These apps requires low development and maintenance cost, low complexity, able to function under low internet environment yet having a basic security feature.
- (ii) In order to handle cultural barriers, we propose that programs to educate the

public so that they are aware about roles of women in business and society must be carried out. As shown by an experiment in Bangladesh, empowering women has proven able to improving home economic.

- (iii) For Education and Literacy in ICT and Fintech, we propose that focus on educating the young generation. Based on Technology Diffusion Theory, general trends indicate that young generation tend to be early adopters of technology compared to older generation.
- (iv) Issues related to Regulatory Environment and Consumer Protection, Limited Financial Services and Products and Economic Stability must be solved by increasing the government commitment to the use of Fintech. In term of cyber protection, our study in Islahuddin et al. (2018) and Khosraw et al. (2015), we have proposed a sustainable model and framework to control and mitigate cyber-attacks at state level of Afghanistan.



Figure 6. Overcoming Challenges

The last issue, that is, Integration of Solutions, we propose adoption of blockchain. Blockchain is the underpinning technology of cryptocurrency that contains cryptography algorithm, ledger and consensus mechanism as core components (Islahuddin et al., 2022). The World Bank's "Fintech Development Report 2020" (World Bank, 2020b) highlights the transformative potential of blockchain

technology for Afghanistan's financial services sector, particularly in enhancing financial inclusion. With a large portion of the population unbanked, blockchain can facilitate access to microfinance and peer-to-peer lending, while secure digital identities could enable individuals to participate in the financial system with limited documentation. This technology can also lower transaction costs for remittances and cross-border payments by reducing the need for intermediaries.

3. CONCLUSION

This paper highlight the impact of Fintech on home economics in underdeveloped countries like Afghanistan. By enhancing access to financial services and providing education and support, Fintech initiatives can empower individuals, particularly women, to take control of their economic futures. These examples illustrate that with the right tools and support, home economics can be a powerful driver of sustainable economic development.

While Fintech holds great promise for empowering home economics in Afghanistan, addressing these challenges is crucial for successful implementation. The challenges include the need to improve infrastructure, enhancing literacy, fostering trust, and developing appropriate regulatory frameworks will be key to leveraging Fintech for sustainable economic development. In order to overcome these challenges, we propose a number of initiatives that include the use of light weight apps, public awareness, focusing on the young generation, increasing government commitment and the use of blockchain technology. Collaboration among government, NGOs, and private sector stakeholders will be essential to create an enabling environment for Fintech solutions to thrive and benefit home economics in Afghanistan.

Acknowledgement

This work is partly sponsored by Yayasan EZ Prihatin, Universiti Kebangsaan Malaysia and Universiti Poly-Tech Malaysia.

Conflict of Interest: All authors express no conflict of interest in any part of the research.

Authors Contributions:

Conceptualization, methodology, software, analysis, investigation, resources, original draft preparation, review and editing, visualization, supervision, project administration and funding acquisition. All authors have read and agreed to the published version of the manuscript.

REFERENCES

- Abdul Fareed Delawari. (2019). Online-business in Afghanistan, Current Trend and Challenges Ahead: A Conceptual Study. *Journal of Emerging Economies and Islamic Research* 7(2): 44 – 57. **(Journal article)**
- AKDN Aga Khan Development Network. (2016). Financial Inclusion and Women's Empowerment in Afghanistan. <https://www.akdn.org/publications/financial-inclusion-and-womens-empowerment-afghanistan> **(Report)**
- Baker, J. (2011). The Impact of Home Economics on Well-Being and Quality of Life. *International Journal of Home Economics* 4(1): 32-39. **(Journal Article)**
- Bank Negara Malaysia. (2021). Fintech Regulatory Sandbox - Frequently Asked Questions. <https://www.bnm.gov.my> **(Webpage)**
- Bătae, D. (2020). Fintech: A Catalyst for Sustainable Development in Financial Management. *International Journal of Financial Studies* 8(3): 48 **(Journal Article)**
- Böhme, R., Christin, N., Edelman, B., & Moore, T. (2015). Bitcoin: Economics, Technology, and Governance. *Journal of Economic Perspectives* 29(2): 213-238. **(Journal Article)**
- Burgess, J. (2017). Innovative Pedagogy: Linking Education with Sustainability. *Journal of Environmental Education* 48(3): 235-247 **(Journal Article)**
- CGAP Consultative Group to Assist the Poor. (2016). The Fintech Revolution: Financial Inclusion in Afghanistan. <https://www.cgap.org/blog/fintech-revolution-financial-inclusion-afghanistan> **(Report)**
- CGAP Consultative Group to Assist the Poor. (2020). Digital Financial Services in Afghanistan: Understanding the Landscape. <https://www.cgap.org> **(Report)**
- Datareportal, 2024 <https://datareportal.com/reports/digital-2024-afghanistan> **(Report)**
- Deloitte. (2021). Fintech by the Numbers: The 2021 Global FinTech Report. https://www2.deloitte.com/content/dam/insights/us/articles/7921/Fintech-by-the-numbers/DI_Fintech-by-the-numbers.pdf **(Report)**
- Dino, L. (2018). Digital Economy and Sustainable Development: A New Era of Social Enterprises. *Sustainability* 10(4): 1005. **(Journal Article)**
- Eicher, J. B., & Roosen, J. (2015). *Home Economics: A Handbook for Home Economics Teachers*. New York: Routledge. **(Book)**
- Gstatcounter. (Nov 2024). <https://gs.statcounter.com/social-media-stats/all/afghanistan> **(Report)**

- Islahuddin Jalal, Khairul Azmi Abu Bakar, Zarina Shukur & Norleyza Jailani. 2022. Achieving liveness in validators' performance efficiency consensus (VPEC) based blockchain system using the Zakat principles. *2022 International Conference on Cyber Resilience (ICCR)*, 06-07 October 2022 (**Conference Article**)
- Islahuddin Jalal, Maryati Mohd Yusof, Zarina Shukur & Mohd. Rosmadi Mokhtar. 2018. A Model for Afghanistan's Cyber Security Incident Response Team, *International Journal on Advanced Science, Engineering and Information Technology* 8(6): 2620-6 (**Journal Article**)
- IFSB Islamic Financial Services Board. (2019). Islamic Financial Services Industry Stability Report. <https://www.ifsb.org> (**Report**)
- IFN Fintech Global Islamic. Fintech Report by IFN Fintech. www.ifnfintech.com (**Report**)
- Karandaaz Pakistan. (2019). Fintech and Women's Financial Inclusion. <https://karandaaz.com.pk> (**Report**)
- Khan, S. & Pappas, I. O. (2021). The Role of Fintech in Promoting Financial Inclusion: A Study of Developing Countries. *Journal of Business Research* 123: 154-164 (**Journal Article**)
- Khosraw Salamzada, Zarina Shukur & Marini Abu Bakar. (2015). A Framework for Cybersecurity Strategy for Developing Countries: Case Study of Afghanistan. *Asia-Pacific Journal of Information Technology and Multimedia* 4(1):1-10 (**Journal Article**)
- Kumar, A., & Singh, D. (2021). Financial Inclusion through Mobile Banking in Developing Countries. *Journal of Financial Services Marketing* 26(2): 160-171 (**Journal Article**)
- Laudon, K. C. & Traver, C. G. (2017). *E-commerce: Business, Technology, Society*. 13th ed. Pearson. (**Book**)
- Malaysia 4Q1 Communication Multimedia Facts and Figure. https://mcmc.gov.my/skmmgovmy/media/General/C-M-Q4_220331_BI_PDF_1.pdf (**Report**)
- Md Arif Hassan, Zarina Shukur & Mohammad Kamrul Hasan. (2020). An efficient secure electronic payment system for e-commerce. *Computers* 1-13 (**Journal Article**)
- Md Arif Hassan, Zarina Shukur & Masnizah Mohd. (2022). A penetration testing on Malaysia popular e-wallets and m-banking apps. *International Journal of Advanced Computer Science and Applications* 692-703 (**Journal Article**)
- MyDigital. <https://www.mydigital.gov.my> (**Report**)
- Ong, T. S. & Fong, S. (2018). The Role of Fintech in Financial Inclusion and Management in Emerging Markets. *Journal of Applied Finance & Banking* 8(3): 15-25. (**Journal Article**)
- PwC. (2019). Islamic Fintech: The Promise and the Challenge.

- <https://www.pwc.com/gx/en/services/financial-services/fintech.html> **(Report)**
- Reuters. (2020). Afghanistan's economy facing deepening crisis as Covid-19 worsens. <https://www.reuters.com/article/us-afghanistan-economy-idUSKBN22719Y> **(Report)**
- Riggins, F. J. & Mukhopadhyay, T. (2017). The Role of Big Data in the Development of Consumer Behavior Analytics for E-commerce. *Decision Support Systems* 102: 65-81. **(Journal Article)**
- Seyedmostafa Safavi & Zarina Shukur. (2014). Conceptual Privacy Framework for Health Information on Wearable Device. *PloS ONE* 1-16. **(Journal Article)**
- Siar, S. V. & Stone, E. (2014). Home Economics: A Vehicle for Empowerment. *Home Economics Research Journal* 42(2): 178-195 **(Journal Article)**
- Sinha, A. & Ranjan, J. (2020). Mobile Banking: Architecture, Security, and Solutions. *Journal of King Saud University - Computer and Information Sciences* **(Journal Article)**
- Tech in Asia. (2021). Navigating Afghanistan's underbanked demographic: ow fintech can play a role. <https://www.techinasia.com/navigating-afghanistan-underbanked-demographic-role> **(Report)**
- United Nations (1987). Our Common Future: Report of the World Commission on Environment and Development. <http://www.un-documents.net/wced-ocf.htm>
- UNCDF. <https://www.uncdf.org/finlab/fikra-islamic-fintech> **(Report)**
- UNDP, United Nations Development Programme. (2012). Afghanistan Human Development Report 2011: The Pan Afghan Survey of Youth. Kabul: UNDP. **(Report)**
- World Bank. (2012). Inclusive Green Growth: The Pathway to Sustainable Development. Washington, D.C.: *World Bank Publications*. <https://openknowledge.worldbank.org/handle/10986/6018> **(Report)**
- World Bank. (2013). Women, Business and the Law 2014: Removing Barriers to Economic Inclusion. Washington, D.C.: *World Bank Group*. <https://openknowledge.worldbank.org/handle/10986/11885> **(Report)**
- World Bank. (2018). Using Fintech to Support Women's Economic Empowerment. <https://www.worldbank.org> **(Report)**
- World Bank. (2020a). Afghanistan: Economic Update – Navigating the COVID-19 Crisis. <https://www.worldbank.org/en/country/afghanistan/publication/economic-update-navigating-the-covid-19crisis> **(Report)**
- World Bank. (2020b). How blockchain can reshape the financial services industry in Afghanistan, Fintech development report. **(Report)**
- World Bank. (2024). Afghanistan Development Update: Navigating Challenges: Confronting Economic Recession and Deflation, April 2024. **(Report)**
- Zafar, A. & Siddiqui, S. (2019). Role of Financial Technology in Financial Inclusion in Pakistan. *International Journal of Research and Innovation in Social Science* 3(10): 163-168 **(Journal Article)**

- Zain Iraq. (2020). ZainCash: Financial Inclusion for Everyone. <https://www.zain.com>
(Report)
- Zarif, M. (2020). The Potential of Islamic Fintech: Opportunities and Challenges in Malaysia. *Journal of Islamic Finance* 9(1): 43-55. **(Journal Article)**