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ADAPTABILITY OF THE ISLAMIC FINANCIAL SYSTEM TO MODERN TECHNOLOGICAL INNOVATIONS

Abstract. *The article highlights the essential characteristics of the Islamic financial system, its main components and dimensions, identifies ways and forms of adaptability of the Islamic financial system to modern technological innovations. The financing of the real sector of FinTech on the world's largest financial platforms is analyzed. FinTech tools have been identified that can be considered by Islamic finance experts. Opportunities and challenges in the application of FinTech technologies in Islamic finance are revealed. The P2P tools that have been introduced into the practice of Islamic finance are analyzed. The prospects of implementation of digital financial technologies by the Islamic financial system are proved. The mechanism of functioning of modern innovations in the financial sphere is defined and digital decisions of the Islamic banking sphere are analyzed.*

Keywords: *Islamic finance, FinTech, P2P financing, crowdfunding, Islamic products and services, opportunities and challenges*

Introduction. The development of Islamic finance is currently experiencing a new round. However, and the world of finance is not standing still, the processes of globalization and integration also do not bypass the financial systems of the Middle East. The challenges facing Arab economies from "Western partners" are forcing Islamic financiers to look for new ways to diversify cash flows. One such way is to incorporate modern digital technology into some financial systems in some Middle Eastern countries. For example, FinTech and Blockchain technologies with geometric progression capture the financial and economic space of countries where most successful financial institutions operate under Sharia law. Along with this, there is a gradual cautious development of new digital currencies, which, according to some analysts, may push the market for "natural" Islamic finance.

Changing customer behavior in the banking sector requires banks to respond quickly to their new needs and rethink how they provide services. Moving to the next stage of digital banking is a necessary step. Yes, customers, or businesses, or individuals, can access their accounts from devices (computers, tablets, smartphones) without contacting the bank; Money transfers can be made without any intermediary, banks will receive information about customers, as well as promote new products and services. The Ernst & Young (EY) report also states that the adoption of financial technology is no longer an alternative, but is an important requirement for Islamic banks to enter the global market.

The topic of the study is also important from the point of view that Islamic financial institutions have a huge number of opportunities to achieve their strategic goals, such as affordability, customer-oriented financial services, operational excellence and competitive advantage, combining safe investment and social responsibility with innovation and efficient use of available instruments, Islamic finance can use any modern financial instruments and use them effectively.

Analysis of recent research and publications. Issues of development of Islamic finance and Islamic banking are reflected in the works of foreign scholars: Mansur Khan, Ishaq Batti, H. Askari, Z. Iqbal, N. Krichen, A. Mirahor, Muhammad Umer Chapri, F. Sufyan, M. Nur, M Zulkibri, Mahmoud El-Gamala, Mohammed El Korchi and domestic economists: O.M.Mozgovyi, O.V.Subochev, O.M.Yurkevich, Ye.M.Kyyian.

Fundamentals of Islamic financial technology

As you know, the basis of the legal framework of Islamic products and services, as well as the mechanism of implementation of agreements in the field of Islamic finance, are the postulates of the Holy Books of the Qur'an and Sunnah. Therefore, other financial instruments that do not meet the strict requirements of Sharia are unacceptable.

However, the economic and political turmoil in the Middle East is forcing small and medium-sized businesses to seek new investment channels, make management decisions aimed at raising capital and increasing their own financial resources, including the use of the latest information technologies.

By digital technologies – FinTech we mean new technologies and innovations aimed at introduction of modernized methods of providing financial services. FinTech can also be defined as a business whose purpose is to provide financial services using software and modern technology. FinTech tools take the payment industry to the next level. Moreover, with the use of financial technology, transactions become more automated, convenient for customers, which, in turn, will lead to the scaling of the entire banking industry.

Today, FinTech is gaining momentum in areas such as online lending, money transfers, credit ratings, crowdfunding, blockchain and cryptocurrency. In addition, some companies are developing robot consultants who are able to offer solutions for deposits and lending, based on the wishes of customers, and given the various risks. Of course, the use of financial technology can attract a large number of new customers due to efficiency, lower costs and time savings [16].

Table 1
The main areas of FinTech products and services are in line with the Basel Committee on Banking Supervision [15]

Loans, deposits, raising capital	Settlement – cash transactions, clearing	Investment process management
•Crowdfunding •Lending market •Mobile banking •Assessment of the client's creditworthiness (scoring model)	•Mobile wallet •Calculations 2P2 •Cryptocurrency •The amount of non-cash payments	•High-frequency trading •Copy trading •E-trading •Automated consulting

Analyzing the financing of the real sector of FinTech in the world's largest financial platforms (USA, China, UK), it can be noted that, despite the generally negative results, it began to spread gradually in the Middle East and North Africa.

In addition, over the past 10 years, FinTech startups have raised about $ 100 million. The United States, which shows quite good prospects, given that the above region has just begun its development on technological platforms. However, financial technology, which has been playing a fast-growing role in Islamic banking over the past two years, has gained particular momentum since the beginning of Covid-19. Global lockdown has forced customers to use only digital channels for their day-to-day banking needs, and this has given digital banks the opportunity to expand their business, while many traditional banks have tried to develop their own digital services.

Despite some digital transformations initiated by the governments of the UAE and Bahrain, the penetration of financial technology into Islamic financial institutions is still at an early stage.

Islamic financial technology companies are still emerging in the Gulf and Southeast Asia. The most promising tools are Crowdfunding, P2P lending and digital technology management. The only factor that distinguishes ordinary FinTech from Islamic – the need to adhere to Sharia principles.

Islamic banks, in our opinion, are in a better position than traditional ones, as they are a rapidly growing area of Islamic finance. Therefore, they must make full use of technological improvements and invest more in this area [12].

Islamic finance is based on tradition and is closely linked to the precepts and prohibitions contained in Sharia, but they are open to innovation and development and perception, adaptability to innovative financial solutions and modern technological innovations.

Moreover, financial instruments such as Murabah and Musharraq, which are in great demand among clients, are in fact a "paraphrase" of traditional instruments in the relevant Sharia language, being unchanged in the nature of the transaction.

Another prerequisite for the introduction of FinTech in Islamic banking is the problem of lending. One consequence of this issue is the fact that a large part of the population of the Muslim world is not represented in the context of financial services. Given the principles of justice, social integration and the distribution of public property, this factor is at odds with Sharia law. It is also a short-sighted decision for the effective development of the Islamic financial services system. Moreover, IFIs risk losing a large proportion of customers under the age of 30 who use their smartphone everywhere, with which they can manage their financial accounts, including paying bills, obtaining loans, and opening a bank account digitally.

Potential segments of Islamic banking that FinTech can influence are remittances, insurance, investment consulting and online trading. In the coming years, consumer demand is expected to lead to faster implementation of these technologies in different verticals of the banking and financial sectors [3].

It is advisable to identify those FinTech tools that can be considered by experts in Islamic finance, in particular: financing “P2P”[1];

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[1]P2P financing is an equal loan without collateral from private investors who lend their own funds to entrepreneurs or other people without the participation of the bank. A P2P loan literally means a person-to-person loan, from English "Peer-to Peer" or "person to person".
https://financer.com/ua/zaoshhadzhennya-ta-investyciyi/p2p-kredytuvannja/

Equal financing is based on the concept of risk sharing, which is in line with the principles of Islamic banking. Thus, the known models of Islamic financing – mudaraba and musharaka, which are based on equity participation with the sharing of profits and losses, can play a significant role in the development of FinTech in Islamic banking. In the long run, this model should become attractive to both Muslims and non-Muslims looking for alternative funding options.

P2P instruments that have been implemented in Islamic finance include

➢ crowdfunding;

➢ money transfers;

➢ mobile wallet.

Crowdfunding is a method of financing that involves the collective collaboration of people who provide funds on a voluntary basis, usually on the Internet. Such a "fundraiser" must indicate the stated purpose, the price of its achievement, the expected risks, which, in turn, should be transparent to the public. In its content, crowdfunding is a kind of investment platform where the borrower and the potential investor can find each other, as well as being in different parts of the world. From the point of view of Islamic crowdfunding, it is possible to draw a parallel with Islamic banking instruments such as murabah, musharak and mudarab.

To date, there are several online crowdfunding platforms in the Middle East (UAE, Egypt, Jordan, Lebanon), most of which are in the UAE.

Currently, the pioneer in the development of crowdfunding is Malaysia, known for its innovative approach to Islamic finance.

Malaysia is also the first country to have a Sharia-based crowdfunding platform: Ethis Kapital Sdn Bhd. This platform offers such tools as investing, obtaining financing and Islamic banking instruments: Murabaha and Mudaraba. The Ethic Kapital platform focuses on small business financing and real estate development projects. The main idea is the distribution of wealth and raising the standard of living of society on the basis of economic justice. In addition, there are direct contacts between investors and businesses throughout the South-Eastern region, thus supporting the active development of economic integration. Wanting to become a global center of Islamic finance, Malaysia focuses its efforts on the development of "Islamic" crowdfunding, focusing on the fundamental principles of Islam – to provide high-quality projects that are commercially viable and contribute to the social development of society [5].

FinTech's penetration into Islamic finance

Among the 12 Arab countries where FinTech startups have been launched, the UAE is the most dynamic developing center, showing a CAGR8 increase of almost 60% over the four--year period. For FinTech companies operating in the region, the UAE has a fairly good regulatory environment, which, in addition to government initiatives, can accelerate the development of the national economy, moving away from the region's carbon dependence[2].

The above trends have identified the importance of establishing the first and largest financial technology accelerator in the Middle East, Africa and South Asia region, FinTech Hive, in the Dubai Business Financial Center (DIFC).

In 2018, the financial and technological accelerator received more than 300 applications from more than 32 countries. The majority of applicants are the UAE, the United Kingdom, the United States, India, Nigeria and Singapore.

FinTech startups cover 12 countries, divided between the Gulf countries (43%), Lebanon (29%) and North Africa (29%) (Fig. 1).

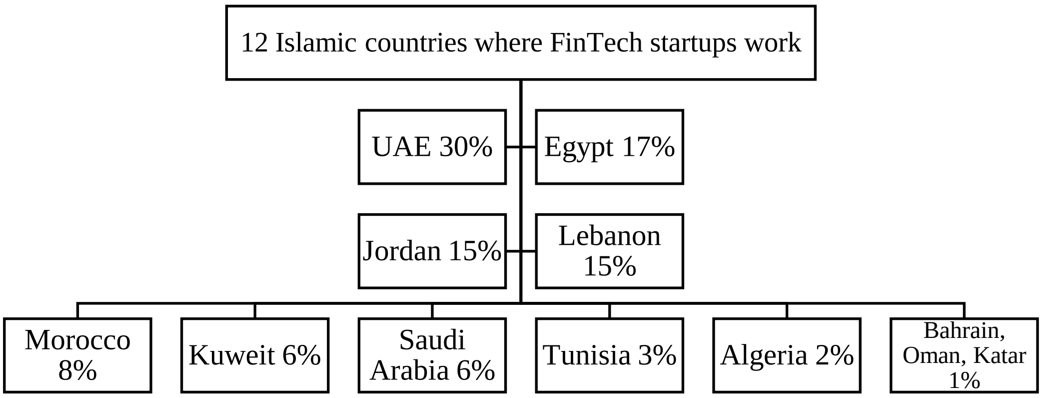

Figure 1. Distribution of FinTech startups in the Middle East
Source: Saba, I., Kouser, R. and Chaudhry, I.S. (2019). FinTech and Islamic Finance-Challenges and Opportunities. Review of Economics and Development Studies, 5 (4), 581-590 DOI: 10.26710/reads.v5i4.887

The number of old people working in the field of financial services in the period from 2013 to 2015 increased from 46 to 105, and is projected to reach 250 by 2022.

Commercial Bank of Dubai (CBD) plans to create a CBD NOW mobile bank in the near future, aimed at a technically knowledgeable audience whose daily activity is related to mobile devices.

[2]Saba, I., Kouser, R. and Chaudhry, I.S. (2019). FinTech and Islamic Finance-Challenges and Opportunities. Review of Economics and Development Studies, 5 (4), 581-590 DOI: 10.26710/reads.v5i4.887

Payment systems based on Internet technology have become quite popular in the Gulf countries. Dubai-based company Emcredit is launching Empay, a secure mobile wallet and payment platform based on a payment wallet.

In Saudi Arabia, financial technology is encouraged at the governmental level, taking into account a number of factors, including measures to reduce oil dependence, increase the share of young people (50% of the population under 30) and the Vision 2030 strategy, which attaches great importance to technologies and their contribution to the development of the kingdom.

In addition to the development of FinTech at the national level, partnerships between countries are also developing. So, in December, the Central Bank of the UAE announced a joint project with the Saudi Monetary Authority to use blockchain technology to issue digital currency, which will be used in cross-border transactions between the UAE and Saudi Arabia.

Qatar and Bahrain are also seeking to become FinTech's leading centers in the Middle East. In 2017, Bahrain, the Singapore company Singapore FinTech Consortium and the asset management company Trucial Investment Partners entered into a partnership to create the FinTech ecosystem and a special regulatory framework in the country.

In Malaysia, FinTech is growing rapidly, and global investment in 2022 will amount to 32 billion dollars. US dollars compared to 1.8 billion dollars. USA in 2010. In addition, the Central Bank of Malaysia also stated that the country is an ideal "test platform" for the development of FinTech solutions, as the growth of the sector has provided innovative opportunities in the banking and financial industry[3]. The successful collaboration between FinTech and Islamic Banking in Malaysia is the recent development of the Investment Accounts Platform (IAP), which is expected to be a cross-border channel linking regions and the global economy. IAPs facilitate direct investment by investors in viable enterprises of their choice. Here, the bank's role is not to provide financing, but to ensure compliance with the draft Sharia law [17].

FinTech also receives support from the Saudi Arabian Monetary Authority, where all 12 banks operating in Saudi Arabia offer Sharia-compliant financing and are also looking forward to using FinTech in their financial activities. The 2016 EY report notes that the introduction of FinTech will increase the client base of Islamic finance from 100 million today in 2016 to 250

[3] Zalyaldinova L. R. Islamskaya bankovskaya sistema: sovremennyie tendentsii i regionalnyie osobennosti: Dissertatsiya na soiskanie nauchnoy stepeni kandidata ekonomicheskih nauk. Sankt-Peterburg, 2018. 85 s. URL: https://dspace.spbu.ru/bitstream/11701/12509/1/Magistreskaya_dissertaciya_Zalyaldinova_L_R.pdf .

million by 2020[4]. However, we are faced with the question of how to ensure the regimes of regulating the promotion of FinTech benefits, protecting consumers from the negative consequences.

The Central Bank of Malaysia and the financial regulator Bank Negara Malaysia have initiated the implementation of the regulatory platform "Sandbox" for the development of the FinTech sector in the country. Adjustable sandbox is a concept in which companies can test innovative products, services, business models and mechanisms with less stringent compliance requirements. At the end of the application, the product leaves the sandbox and begins to operate in the real world, where it is required to comply fully.

The newest Islamic banks, or exclusively digital banks, began to form outside of Islamic countries. Particularly active in the UK, posing a threat to traditional Islamic banks in their non-core markets. These new banks offer banking experience to more than 3 million Muslims living in the UK. In early 2020, two digital Islamic banks were opened in the UK – Rizq and mobile Niyah. Four more digital banks based in the UK, Malaysia and Kenya are currently under development.

Halad robber adviser Wahed Invest and the recently launched Minted gold trading platform have also announced plans to create Sharia-compliant digital banks in the first quarter of 2021. However, operations are being introduced only to accept deposits, which will complement the main investment business of these companies, and there are no plans to provide loans in the future. Similarly, the Saudi Arabian Monetary Authority (SAMA) issued licensing guidelines for digital banks in early 2020, including the requirement that they be established as joint stock companies registered with the CSR and maintain a physical presence in the kingdom. It was reported that two businesses had applied for a digital banking license from the regulator. The only bank that currently has a digital presence in Saudi Arabia is Meem, the Islamic banking subsidiary of Gulf International Bank, which mainly operates online while strengthening its physical presence [12] (Fig. 2).

[4]Islamic Financial Services Industry Stability Report 2016. Kuala Lumpur: Islamic Financial Services Board, 2016. 154 p.

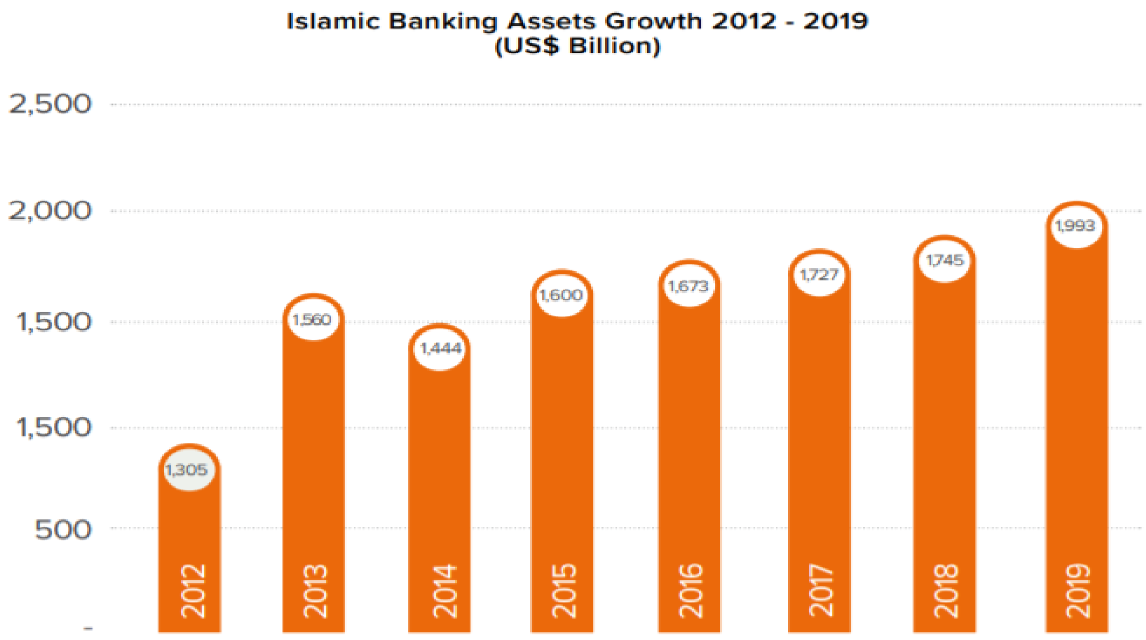

Figure 2. Growth of Islamic banks' assets in 2012-2019 (billion USD)
Source: ICD-Refinitiv. Islamic Finance Development Report 2020. Progressing Through Adversity [Electronic resource], access mode: https://icd-ps.org/uploads/files/ICD-Refinitiv%20IFDI%20Report%202020201607502893_2100.pdf

According to the Islamic Corporation for the Development of the Private Sector (Islamic Development Bank) and Refinitiv in their joint report for 2020 (Islamic Finance Development Report), the total assets of Islamic banks globally is $ 2 trillion. The United States with growth in 2019 by 14% compared to 2018. The share of Islamic banking in the world (assets) in 2019 is 6%. The total number of Islamic banks at the end of 2019 is 526. Morocco is the fastest growing market for Islamic banking today (Fig. 3).

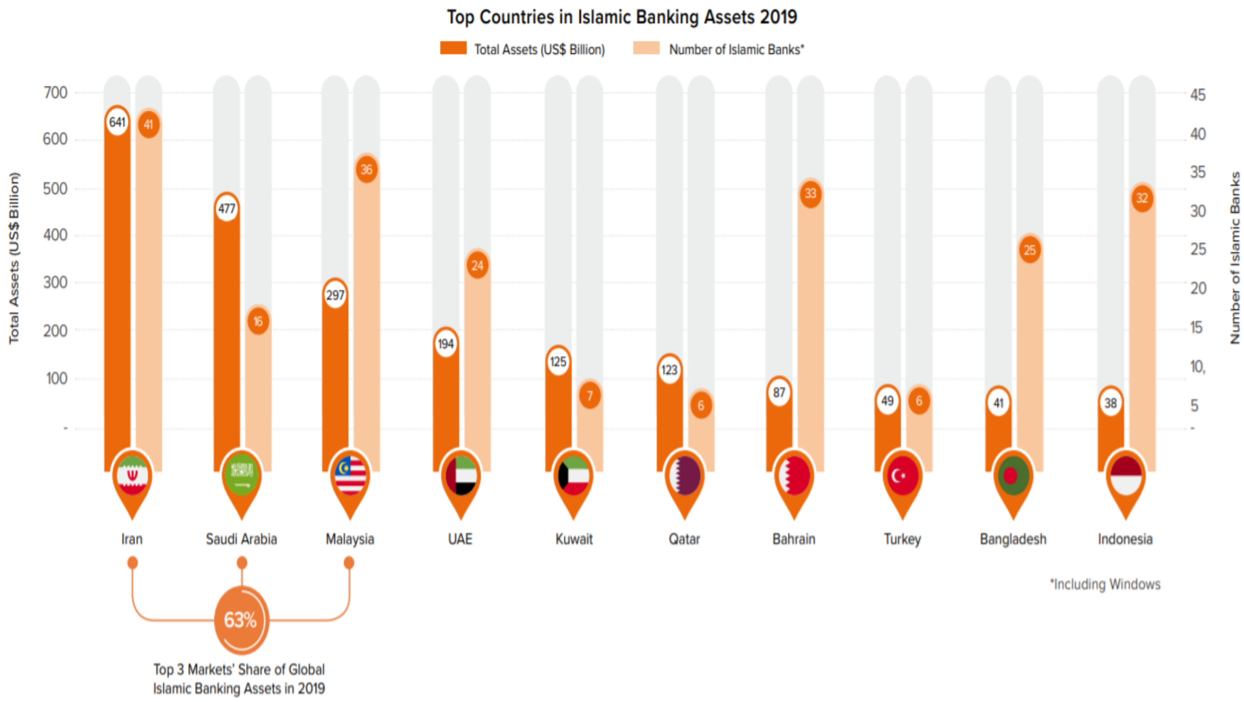

Figure 3. Top countries by assets of Islamic banks in 2019

Source: ICD-Refinitiv. Islamic Finance Development Report 2020. Progressing Through Adversity [Electronic resource], access mode: https://icd-ps.org/uploads/files/ICD-Refinitiv%20IFDI%20Report%202020201607502893_2100.pdf

The leaders in the Islamic banking sector (assets) in 2019 are Iran, Saudi Arabia and Malaysia. At the same time, despite small assets compared to the leaders, a large number of Islamic banks operate in Bahrain, Indonesia, the UAE and Bangladesh (Fig. 4).

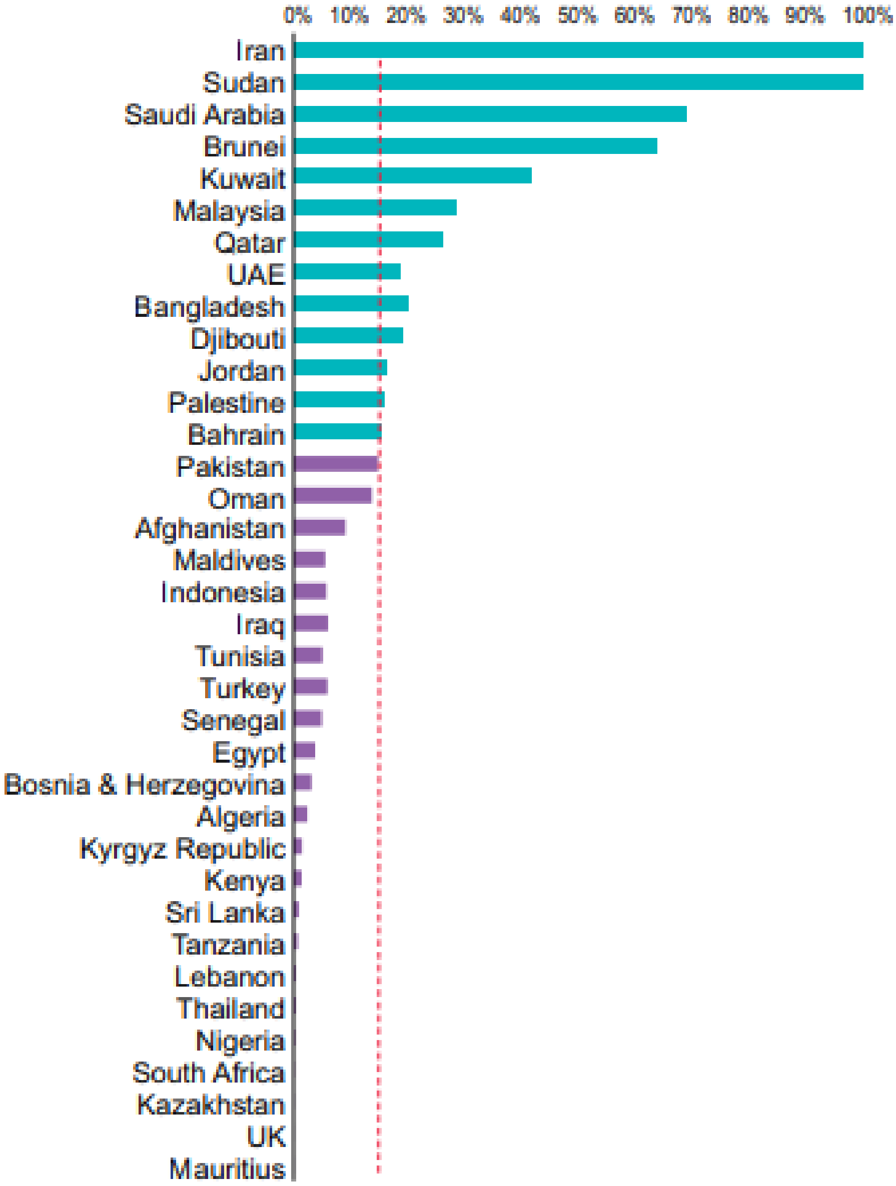

Figure 4 Share of Islamic banking in total banking assets by jurisdiction (3rd quarter of 2019)
Source: Islamic Financial Services Board, Malaysia. Islamic Financial Services Industry Stability Report 2020, July, 2020

As the diagram shows, in only two countries is Islamic banking occupying the entire market share of banking services. Countries with more than 10% Islamic banking are Saudi Arabia, Brunei, Kuwait, Malaysia, Qatar, the UAE, Bangladesh, Djibouti, Jordan, Palestine and Bahrain. In other countries, the development of Islamic banking services is insignificant compared to traditional banking [12].

Opportunities and challenges for Islamic finance [5]

Table 3
Opportunities and challenges for Islamic finance

Islamic FinTech Opportunities	Islamic FinTech Challenges
Islamic FinTech companies can help thenew startups in a big way	Lack of good and authentic research in theIslamic FinTech sector.
Islamic FinTech companies can provide a wide range of innovative products andservices.	Developing the Islamic FinTech has been the lack of trained human personnel andclear policy from the government.
It provides an option to the customers touse both traditional financial services aswell as new and innovative services.	Educational intuitions must bring good researches and provide trained personneland academic researchers must provide good research.
It can provide cost-effective solution to thefinancial services and will give a lifeline to traditional Islamic banks to go digital andprovide financial services at a low cost.	Islamic FinTech needs to keep itself at pace with the rapid development going in the conventional finance world.
Islamic FinTech is transparent, accessibleand easy to use and can gain customer confidence easily.	Islamic FinTech must maintain the stabilityand must protect the investors and institutions from the fraudulent trade practices.
It can be linked to the cryptocurrencies, Blockchain and other areas such as crossborder payments.	The banks are exposed at every level astechnology brings more transparency.
It can easily gain the confidence of Musliminvestors as it is in accordance with the rules prescribed by the sharia.	Since, Islamic FinTech is still new and investors are not able to make sure howmuch investments are worth investing.

A number of Islamic scholars in the field of finance and law believe that the virtual financial system will open up new opportunities for working with financial instruments, in particular make transactions more transparent and prevent speculation and dubious transactions, which are very typical of traditional financial markets.

It is important to note that the main concern of Islamic financial market analysts regarding the cryptocurrency market is caused by the possibility of market manipulation by unscrupulous counterparties.

Currently, one of the main obstacles to the introduction of bitcoins in the Islamic financial system is the lack of full regulatory understanding between legal scholars within a single school of law.

In terms of the negative component of the introduction of cryptocurrency in the Islamic finance market can be noted:

- cryptocurrency is not backed by any tangible assets, can be issued without control of the country's authorities;

[5]Saba, I., Kouser, R. and Chaudhry, I.S. (2019). FinTech and Islamic Finance-Challenges and Opportunities. Review of Economics and Development Studies, 5 (4), 581-590 DOI: 10.26710/reads.v5i4.887

- lack of supervision and control by supervisory authorities exercising control over financial markets;
- numerous risks associated with cryptocurrency, including the possibility of fraud and price manipulation;
- cryptocurrency has high volatility;
- speculative nature of cryptocurrency trading. Agreements with this currency can weaken the state's legal system by facilitating tax evasion, money laundering, fraud and terrorist financing.

Despite the positive dynamics of development and application of FinTech technologies in Islamic finance, it is worth noting that on the way to full-scale implementation of FinTech startup programs in the region, there are several rather difficult problems:

- investment legislation, which with sufficient "openness" is quite difficult for investors in implementing the rules of this legislation.
- legislation on the use of FinTech technologies in financial markets. This problem has been described above, in many countries financial Internet technologies are at the stage of research or partial testing and it is too early to talk about their full-scale inclusion in business processes;
- high level of starting costs for the implementation of FinTech technologies.

Summarizing the above, we outline the opportunities for the development of FinTech in Islamic finance:

➢ A large part of the Muslim population of the world does not use banking services, so there is great potential for increasing the number of users of "Islamic FinTech". According to data from 64 countries, which account for 75% of the Muslim population, only 24% of Muslims have a bank or formal financial institution, compared to 44% of the rest of the world's population, while the world average has reached 49%;

➢ The Islamic economy continues to grow both globally and nationally. Thus, the assets of Islamic banks increased by 1.5%, compared to traditional banks – by 1% in 2018--2019. The use of online banking can reduce possible losses to the industry in a pandemic [8];

➢ Islamic financial regulation in Muslim countries already exists and has significant support. However, Islamic FinTech is under development. It needs regulation to provide opportunities for the development of financial innovation in line with Islamic values;

- Digitalization of Islamic banking and the development of Islamic FinTech can expand the opportunities offered to consumers through new ethical products, as well as expand the reach of the consumer audience by reducing the number of intermediaries;
- Digitization of Islamic financial products will also increase opportunities for the development of products aimed at ensuring the economic prosperity of the community, such as the transfer and collection of zakat (mandatory annual tax for Muslims of 2.5% of certain property items. Applicable to those , whose income exceeds a certain value) and waqf (optional, non-refundable donation (including in the form of property), transferred for the welfare of society) by simplifying processes [6].

Thus, by combining safe investment and social responsibility with innovation, Islamic finance can use any modern financial instruments and use them effectively. As a result, the competitiveness of Islamic financial institutions will increase. The Islamic financial system demonstrates its resilience through social financial services and adaptability to innovation challenges and is becoming a true competitor to the traditional financial system. In terms of niche sectors, Islamic FinTech will help improve access to Islamic financial services through technology and contribute to socially responsible development in accordance with the principles of Islamic finance. This can be done for both the retail market and the corporate world. There is a huge demand for innovative solutions to finance the purchase of cars, housing and related insurance policies, as well as for the fast-growing SME sector.

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