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Digitization of financial products in Islamic banks (Dimensions and effects of digitization of financial transactions on the performance of Islamic banks)

Dr. Fatma Zahra Sebaa

Research Center for Islamic Sciences and Civilization in Laghouat- Algeria

Email: f.sebaa@crsic.dz

Dr. Tahir Djkhioa

Institute of Economics and Management Department of Economics, Center University Aflou, Algeria

Email: t.djkhioa@cu-aflou.edu.dz

Abstract---This study aims to identify both the topic of digitization and its relationship to Islamic banks, and we tried to study the importance of digitization in facilitating financial operations in Islamic banks through digitizing financial products. In order to achieve the objectives of the study, the research was divided into axes in which we addressed the most important opportunities and challenges facing Islamic banks in digitizing. We tried to rely on the descriptive analytical approach to study the topic, and the research concluded that Islamic financial products can be digitized by relying on preparing a special environment for this in order to reach tangible results on the ground capable of competing with traditional banks.

Keywords---digitization, Islamic banks, Islamic financial products, financial technology.

Introduction

The interest in the topic of digital transformation has increased significantly in recent years, especially after the Corona virus crisis, which imposed on the world the process of digital transformation in most sectors and in a very rapid manner. Digital transformation refers to the process of integrating digital technology into all aspects of human life and institutions, whether commercial, governmental, or non-profit organizations. Digital transformation also aims to improve efficiency,

enhance innovation, and expand the scope of services provided, by making optimal use of technology and data.

In this context, the importance of digital government development emerges as a key factor in achieving this comprehensive digital transformation. It means adopting digital technology in all aspects of government work, starting from improving administrative procedures to providing advanced services to citizens, such as online government services, dedicated government applications, and electronic platforms for conducting government operations and interacting with individuals. These services enable users to access information and conduct government operations easily, quickly, and securely.

The current era has witnessed a remarkable development in the field of technology and the global trend towards the digital economy and the digital transformation of various data and financial institutions. Islamic banks face many obstacles and challenges resulting from modern digital technologies such as artificial intelligence, blockchain technology, and the use of mobile phones to pay for purchases and e-shopping. They must pay great attention to how to absorb and employ digital technologies and adopt a digital transformation strategy to improve their performance and simulate global technology in order to improve their position and provide more sustainable innovative products for their activities that meet the desires of customers in the banking market. Digital transformation revolves around moving from exploiting modern technology and its applications in the best way in order to develop the performance of Islamic banks and enhance their competitiveness and facilitate the provision of financial products and services through the use of bank cards, mobile phones, and personal computers.

Interest in digital transformation has increased in recent years due to the multiple global financial crises, the technological development witnessed by financial institutions in the world, and the intensification of competition among them, which prompted Islamic banks to take measures to transform to digitalization to overcome the threats imposed by the Corona pandemic and impose their position in the monetary and financial market. Therefore, we raised the following problem: **"The effects of digitizing financial transactions on the performance of Islamic banks?"**

Through the problem, the following sub-questions can be raised:

1. What are the digital transformation technologies and requirements.
2. What are the digital environments that must be available in Islamic banks?
3. What are the challenges and obstacles facing Islamic banks in their digital transformation?

1. What is the digitization of Islamic banks:

The speed of the simultaneous Islamic economic and financial transformations in the financial sector and the emergence of emerging companies in the field of financial technology, helped in the spread of digitization in all fields, including the digitization of Islamic financial products.

1.2 The concept of digitization

Digitalization is defined as "the process of converting data into digital form, in order to process it using an electronic computer."¹

Digitization in Islamic banks is also defined as "Islamic banks adopting a new strategy based on the use of modern digital technologies, in order to benefit from them in banking in a way that produces more innovative digital services and products in order to meet the needs of customers in a manner that does not conflict with the provisions of Islamic law."²

Accordingly, digitization is considered a new model that various Islamic banks rely on using a set of modern technologies to provide their various services through databases in order to meet the needs of customers.

2.2 Dimensions of Digitization in Islamic Banks

Digitization in Islamic banks is represented in all of the contextual, informational and organizational matters that are related to the dimensions of any digital society that relies on modern and advanced information and communication technology.³

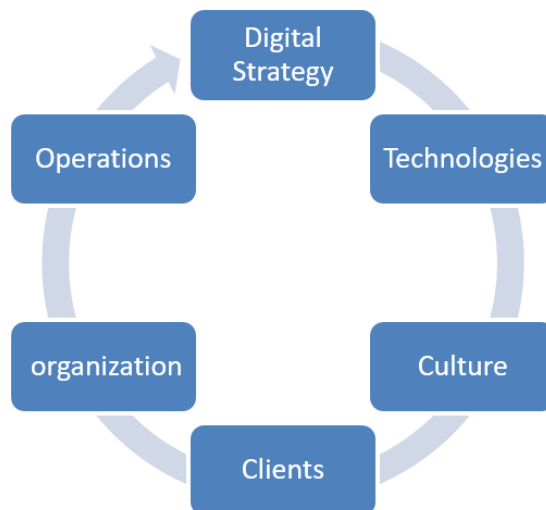


Figure 1: Dimensions of Digitization

Source: Shehata, the same previous reference, 2021, p. 37.

The dimensions of digitization are:

* **Technologies:** Islamic banks seek to provide creative and innovative solutions to customers that are easy to use, which provide them with competitive

¹Lakhdar Ben Said(2020) , Trends of Digital Transformation in Algeria and its Contribution to Sustainable Development, Journal of Horizons of Management and Economics Sciences, p. 316.

²Maha Khalil Shahada (2021), Digital Transformation and Technology, Bayt Al-Mashura Magazine, Issue 17, p.3

³Mohamed Mohamed El-Hadi, Digital Citizenship and Data Revolution in Light of the Fourth Industrial Revolution, Egyptian Society for Information Systems and Computer Technology, 2019, p. 7.

advantages, as the term "digital technology" refers to digital information that has become an urgent necessity for companies and organizations in order to achieve the desired competitive advantage, as financial technology provides an opportunity for Islamic banks to gain distinction and creativity.

- Culture and organization: The culture of innovation and creativity plays a crucial role in the Islamic finance sector, as it is one of the most important sources for building a competitive advantage to provide new services that take into account customer requirements.⁴
- Customers: Customers are considered one of the essential vital aspects without which digital transformation in Islamic banks remains incapable, as customers are an essential member of planning and implementation, and are also considered one of the most important foundations capable of making sound decisions through data analysis.
- Operations: which are considered important activities for producing a specific product or service for customers. Therefore, implementing digital transformation is one of the necessities for establishing an effective technical structure to develop these operations internally and externally in record time with the presence of oversight.⁵
- Digital strategy: Digital technologies affect institutions and most areas of human activity, as organizations need to integrate these digital technologies and their ability to transform operations to compete and strive for the digital world, but the intensive use of technologies is not enough, but rather it must have a clear vision for developing the company and then be supported by the unlimited possibilities of these technologies that are linked to the chosen strategy.
- Digital transformation looks different for businesses and it is difficult to deliver a strategy that works for everyone as there is only one platform needed that connects all business units in the organization.⁶

2. Digital transformation techniques in banks: are as follows:

- **Electronic banking:** Electronic banking is the various financial operations that use technology and digitization as tools to provide innovative and diverse banking services, using automated teller machines and payment machines using debit and credit cards, and benefiting from banking services from a personal computer or using applications produced by banks from mobile phones that have occupied an important position in many countries.⁷
- **Blockchain:** Blockchain technology represents the cornerstone of many successful innovations in the financial sector. It is a special type of distributed ledger based on a dedicated technical basis, as it creates an immutable record and is maintained by a decentralized network, and all

⁴Shahata, the same previous reference.

⁵S,Sultan&B, M, Adnan (2024), Requirements for Digitizing Islamic Finance Formulas Based on Financial Technology with Reference to Some Arab Countries and Malaysia, Journal of Financial Economics, Banking and Business Administration, Volume 13, Issue 01, p. 230.

⁶A schertner, K,(2017) , Digital Transformation of Business, Trakiajournal of sciences, p15.

⁷ Bukhari, F, The Reality of Applying Electronic Banking and Mechanisms for Activating It in Algerian Banks, Case Study of Algeria (2002-2017), Journal of Administrative and Financial Sciences, Volume 04, Issue 02, 2022, p. 132.

records are unanimously approved (using algorithms). It allows users to view data (transparency) and share it with other parties, in addition to tracking transactions and completing them quickly and efficiently (reducing costs) and the resulting reduction in the degree of uncertainty and risk in transactions.⁸

- **Cryptocurrencies:** They are a fictitious entity that has no physical existence or tangible material entity/ and are not issued by a central bank or monetary authority. In addition, they are not linked to any local or global currency, and can be transferred and stored electronically. They are issued by advanced computers. The trading of virtual currencies depends on blockchain technology, which relies on complex encryption processes that allow the use of digital ledgers as a ledger⁹.
- **Artificial intelligence:** It is defined as the intelligence shown by machines and programs that simulate human mental abilities such as the ability to learn, infer, and react. It is the ability to simulate the human mind and its method of operation such as its ability to think, discover, and benefit from previous experiences. Artificial intelligence can be used in financial services as follows:¹⁰
 - Evaluating the creditworthiness of customers;
 - Communicating with customers through chatbots
 - Evaluating the performance of institutions
- **Big Data:** Big data is a huge amount of complex data that achieves high levels of distribution, huge data sources, high speed and great diversity, and its size exceeds the ability of traditional software and computers to store, process and distribute it.
- **Cloud computing:** Cloud computing is a technology that relies on transferring the processing and storage space of the computer to what is called the cloud, which is a server device that is accessed via the Internet, and the infrastructure of cloud computing depends on advanced data centers, which provide large storage spaces for users and also provide programs as services to users.

3. The effects of digitizing financial transactions on the performance of banks

Digital transformation is currently driving growth in the banking sector due to the unique and distinctive experience it provides to customers through¹¹:

- Diversifying the services provided by digital platforms to banks in several areas, from opening an account, requesting financing, issuing ATM cards, completing payment and purchase transactions, paying bills and transferring money via the Internet and mobile phones, and updating customer data.

⁸A, Karim Qandouz (2019), Financial Technologies and Their Applications in the Islamic Financial Industry, Arab Monetary Fund, p. 47.

⁹A, BouThalja (2022), Centralized Digital Currencies and Their Role in Reducing the Risks of Cryptocurrencies, Academy of Social and Human Studies, Issue 02, Volume 14, p. 47.

¹⁰ B, A, AzzaHisham, Dalal Al-Abadi(2022) , Artificial Intelligence Applications in Financial Institutions as an Introduction to Activating Digital Financial Inclusion - An Analytical Study of International Experiences in the Field of Banking Digitization, Namaa Journal of Economics and Trade, Volume 06, Issue 02, p. 201.

¹¹K, Shushan & H, Bouaouina, (2023), The Role of Digital Transformation in Improving the Services of Algerian Microfinance Banks - A Case Study of Al Salam Bank - Journal of Social Protection Research, Volume 04, Issue 01, p. 101.

•Exploiting the digitization of banking operations allows the use of robots to digitize many routine operations and steps to exploiting human energies to accomplish other banking matters.

•Digital transformation contributes to creating more advanced business models and services that enhance the advancement of the banking sector and provide added value to all stakeholders and support the economy as a whole .

•Regulated access to huge and unlimited data, which gives banks a great opportunity to use this wealth of data.

•Combating money laundering and revealing all economically harmful and inflation-causing activities, as all transactions will become transparent, documented and secure.¹²

4. An analytical study of the reality of digital transformation in Arab countries

To study and analyze the reality of digital transformation in Arab countries, we will rely on the data we obtained from the Arab Digital Economy Index 2022 report.

Table: The most important indicators of digital transformation for twenty-two Arab countries in 2022

Countries	Digital Innovation	Digital Citizen Readiness	Digital foundations	Digital Government
UAE	63.94	74.64	71.83	85.55
Bahrain	49.33	72.23	57.38	82.13
SaudiArabia	61.37	76.97	57.55	80.24
Kuwait	45.81	64.44	52.45	79.13
Oman	48.58	76.15	56.38	77.49
Qatar	61.21	77.51	65.51	71.73
Tunisia	44.66	58.04	37.48	65.26
Morocco	46.48	51.79	41.68	57.29
Egypt	48.67	59.33	39.25	55.27
Jordan	49.93	66.85	36.48	53.09
Algeria	43.54	51.73	42.33	51.73
Lebanon	45.96	66.28	35.92	49.55
Palestine	30.60	35.17	12.83	20.05
Yemen	31.16	40.68	13.5	30.45
Mauritania	29.76	40.71	12.83	28.2
Sudan	27.34	35.17	12.83	20.05
Somalia	27.34	35.17	12.83	20.05
Iraq	27.34	35.17	12.83	20.05
Comoros	27.34	35.17	12.83	20.05
Djibouti	27.34	35.17	12.83	20.05
Syria	27.34	35.17	12.83	20.05
Libya	27.34	35.17	12.83	20.05

Source: Prepared by the researcher based on the Arab Digital Economy Index Report, 2022

¹²H,B, Sadfa&M,MarajJabara (2021), Sustainable Banking as an Approach to Supporting Digital Transformation in the Banking Sector in Light of the Repercussions of the Corona Virus Pandemic, Studies and Research, Arab Journal of Research and Studies in Humanities and Social Sciences, Volume 13, Issue 05,, p. 151.

5. The reality of the digital government index in Arab countries

Through the figure that represents the ranking of Arab countries in terms of the digital government index in 2022, we note that the six member states of the Gulf Cooperation Council, namely the UAE, Bahrain, Saudi Arabia, Kuwait, Oman, and Qatar, ranked first in the Arab world in the digital government index with an index exceeding 70 percent. This very important result is due to a set of influential factors, most notably the dedication shown by Gulf governments to promoting information and communications technology. These governments also encourage the use of advanced technologies to provide digital government services. The role of these factors is not limited to that only, as the financial resources available in abundance in these countries allow for significant investment in information and communications technology, in addition to the high level of technological awareness among citizens in these Gulf countries. This awareness has enhanced their use of digital government services and their effective interaction with them.

At the same time, Tunisia, Morocco, Egypt, Jordan, Algeria and Lebanon ranked in the middle ranks of the Arab classification from 7th to 12th, with the digital government index in these countries ranging between 50 and 65 percent, indicating that these countries have taken advanced steps in adopting digital technology and improving digital government services, but they still need additional efforts to achieve a higher level of development in this field.

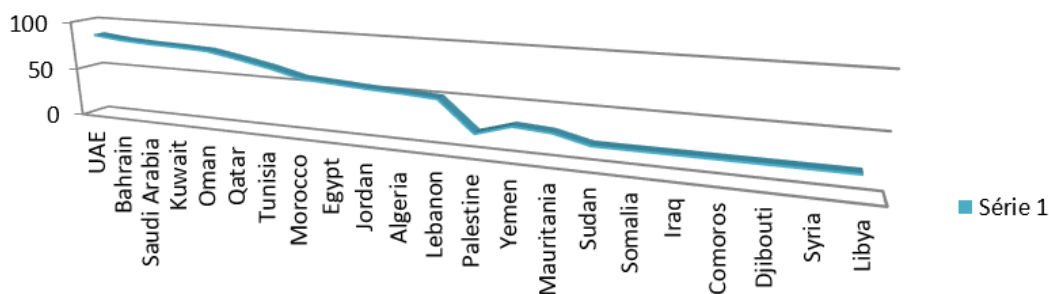


Figure: Ranking of Arab countries in terms of the digital government index in 2022.

Source: Prepared by the researcher based on Table 1

Ten Arab countries ranked last in the Arab classification, from 13th to 22nd, as the e-government development index did not exceed 30 percent. This result is due to the impact of conflicts, wars, and political, security, and economic unrest on most of these countries, as all of these factors have hindered the progress of the information and communications technology infrastructure and prevented the development of digital government.

5.1 The reality of digital foundations in Arab countries:

We note from Figure 2, which represents the ranking of Arab countries in terms of the digital foundations index in 2022, that the Gulf Cooperation Council countries also ranked first in the Arab world in the digital foundations index with an index exceeding 52 percent. This result is due to the fact that these countries have a strong and advanced infrastructure in terms of technology and communications, meaning that they have achieved remarkable progress in developing the digital infrastructure, which enables them to provide information and communications technology services well and improve digital communication between citizens and the government and between various sectors.¹³

In the same context, Algeria, Morocco, Egypt, Tunisia, Jordan, and Lebanon ranked in the middle ranks of the Arab classification, with the digital foundations index for these countries exceeding 35 percent. This result is due to a number of reasons, the most important of which is that the countries have allocated an average level of investment to develop their digital infrastructure, which allowed them to achieve noticeable progress, but not on a large scale compared to the high-performing Gulf countries. These countries may have faced some challenges that affected their progress in developing the digital infrastructure, such as economic challenges or political stability. Finally, the remaining Arab countries ranked last in the Arab classification with an index that did not exceed 14 percent.

5.2 The necessary environment for digitizing Islamic banks

Digitizing Islamic banking products cannot be achieved unless the infrastructure or the previous environment is available that is compatible with its advanced nature. However, in our discussion, we will limit ourselves to the necessary environment for digitizing Islamic banks, including:

- Preparing the legislative environment:

Establishing any digital bank requires providing an appropriate legislative and legal environment that ensures its safe operation. Among the most prominent legislations required in this field are the Electronic Transactions Law, the Electronic Crimes Law, the Cybersecurity Law, as well as the policy of classifying and managing government data, artificial intelligence, the policy of cloud platforms and their services, and the policy of programming open applications in a manner that suits the application environment for practicing digital products in a way that preserves the rights of customers from being lost and so that the bank's operations are clear and free of any ambiguity or confusion towards those who deal with it, which leads to an increase in the bank's total proceeds. Preparing the legislative environment also requires developing the laws and internal provisions for the work of banks each time in order to remove legislative

¹³M,Bouatli (2023), Developing Digital Governance as a Key Factor for Achieving Digital Transformation in Arab Countries: An Analytical and Classification Study Using the Hierarchical Cluster Analysis Technique During the Year 2022, Al-Muntada Journal for Economic Studies and Research, Volume 07, Issue 02, p. 97.

obstacles to the digitization of financing formulas or even the digitization process as a whole.¹⁴

- Preparing the legislative environment: Since Islamic finance is based on Islamic law, everything new that is proposed must have a legal environment before it is implemented. Preparing the legal environment in the field of digitizing Islamic finance formulas is represented in several matters, including: training and preparing legal experts in what is necessary in the science of financial technology to enable them to correctly understand what is new in matters so that they are more capable of developing digital products and are able to give the correct ruling on digital products developed by others.

- Preparing the technical environment: This is done by creating appropriate electronic platforms that are compatible with the nature of Islamic financing formulas, so that this environment must be characterized by quality in its work, accuracy and security, while linking these Islamic banks and financial institutions electronically to the ministries, departments and governments whose work is linked to those departments. Through the technical environment, employees and clients must be prepared for new developments and how to provide digital products via electronic platforms, as well as technicians in order to carry out the necessary continuous maintenance.¹⁵

In general, the establishment of Islamic digital banks will attempt to provide important financial solutions to their customers, as well as develop the Islamic financial ecosystem, encourage integration and enhance financial services in Islamic financial markets.¹⁶

The aim of these requirements is to achieve legitimate and safe Islamic financing that responds to the objectives of Islamic law in preserving money, and not just formal financing, because digital Islamic financing must be built on a comprehensive view that takes into account all legislative and technical requirements inspired by its principles with Islamic law, while striving to make this financing fair and comprehensive to give everyone the opportunity to benefit from it. The importance of this necessary environment is highlighted by its reflection on the images and products of digital Islamic financing in order to provide innovative digital Islamic products to its customers, which enhances its competitive strength, which requires addressing all digital Islamic financing contracts and requires that the latter be based on electronic and technological technologies, and benefiting from software engineering and available technologies in order to reach the stage of producing legitimate digital tools and products specific to this financing, as the use of these technological techniques through digital platforms helps this aspect¹⁷.

¹⁴Moatasema, Al-Zayout (2022) , Digitization of Islamic Finance Formulas in Light of the Corona Crisis, Islamic Transactions Jurisprudence Research Center, p. 100.

¹⁵Sami ,M&, S, Maqash (2021), Islamic Finance in the Face of the Challenges of Digital Transformation and the Repercussions of the Corona Pandemic, Al-Asil Journal of Economic and Administrative Research, Issue 1, p. 168.

¹⁶K, I ,Aslan &K, Shushan (2022), Islamic digital banks between importance and establishment requirements - a case study of Nomo Bank, Al-Ibdaa Magazine, Issue 01..

¹⁷Nadia Jawdat, Digital Islamic Finance in Light of the Corona Crisis: Opportunities, Challenges and Future Prospects, Jordanian Journal of Islamic Studies, Volume 18, Issue 01, 2022, 75.

Conclusion

The current time in which we are in has obliged Islamic banks to adopt modern financial technologies for the purpose of their various services, which gives them a competitive advantage within the market. This requires adopting a legislative, legal and technical environment to keep pace with all requirements. These services must be compatible with the true Islamic religion so that Islamic financial products are based on a strong and correct structure and customers benefit from them through digital platforms, which saves time, effort and cost, in line with their desires.

Results: Through the study, a set of results were reached, the most important of which are:

- Digitization provides opportunities for innovation and the provision of new financial services that save time and effort at a low cost;
- The application of digitization of banking transactions is still very low in Islamic banks in Algeria;
- The absence of a clear vision for digital transformation in Islamic banks, which requires the adoption of a clear strategy and vision for the advancement and development of financial services and products provided.
- Islamic banking is based on a set of characteristics and principles compatible with Islamic law, avoiding uncertainty and driving the wheel of economic and social development.
- Islamic banks offer several products such as participation, speculation, murabaha and financial leasing that operate in accordance with the controls of Islamic law, taking into account the interests of the bank and the customer, which gives customers the freedom to choose and differentiate between these products.
 - Digitizing financial transactions and exploiting technology in Islamic banks in Algeria will contribute to the development of Islamic banking and the ability of these banks to compete and impose their position in the financial and banking market.
 - The absence of companies investing in financial technology in Algeria.
 - The absence of a financial market in Algeria has negatively affected the activation of technology techniques and digital transformation.

Recommendations:

- Providing more digital platforms for various Islamic financial products such as Salam, Mudaraba, Muzara'ah and Musaqah;
- That the digital transformation strategy be subject to monitoring by the Sharia Board to meet all the requirements of those based on it;
- Providing sufficient statistics regarding the number of digital platforms for Islamic financing formulas to gain a sufficient idea about them in order to gain experience on them in the future.

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