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The mechanism of the impact of electronic payments technology on the sustainable development goals in Iraq. Realized Arab opportunities for the period (2017-2021)

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Abstract. The research dealt with a conceptual presentation of electronic payment technology, its means, types and characteristics , with an indication of the concept of sustainable development and the United Nations plan to achieve it during the period (2015-2030) , and a review and analysis of the mechanism of the impact of the adoption of electronic payments technology on the sustainable development plan and its objectives , and reference to indicators to measure the infrastructure supporting this technology , and then the research presents these indicators in (Iraq) and some Arab countries (UAE, Qatar and Bahrain) and then presents the development and economic opportunities resulting from the adoption of these technologies as a society and institutions in some countries of the Arab region that have succeeded in moving towards digitizing the sector Payments and comparing them to Iraq until (2021) , and the research reached a set of conclusions, the most important of which was that there are some determinants that work to deploy and expand ATMs and points of sale represented by the ability to meet local demand on the one hand , and the ability to overcome legal and regulatory obstacles to the deployment of these devices on the other hand, and the research also reached a number of recommendations, the most important of which is to encourage and strengthen cooperation between the public and private sectors to provide the financial and technical resources necessary to deploy and operate ATMs and points of sale in various Iraqi regions, and to facilitate and simplify licensing procedures and organize the operation of ATMs and points of sale in various Iraqi regions. ATMs and Points of Sale.

Keywords: electronic payment methods, sustainable development.

INTRODUCTION

The fact that most civilizations and societies are established and their ability to rise depends mainly on their ability to find the changes necessary to develop their upward movement. Therefore, nations and societies that do not respond to change rule themselves by annihilation. The decline and extinction of most civilizations and societies begins when they fail to understand that they must change their reality in response to the developments that have accompanied the escalating human movement. From this fact came this research. In light of the great development in information and communication technology and the expansion of the use of applications and outputs of financial technology in general and electronic payments technology in particular, especially electronic payment means in most of the Western and Arab world, the Iraqi banking system has to shift towards the introduction and application of modern financial technologies in the joints of its payments system and try to

consolidate these technologies for all segments of Iraqi society, as they carry motors of stimulation and many development opportunities. Some countries in the Arab region have succeeded in harvesting these opportunities, namely (the Emirates, Qatar and Bahrain), and Iraq still faces challenges that hinder the transition towards this technology. This research will attempt to diagnose and assess them in ways to address them.

The Importance of the Research:

The importance of the research lies in explaining the mechanism of the impact of financial technology on the goals of sustainable development through the channel of electronic payments and its potential to generate sustainable development opportunities. Arab comparisons were inferred from countries (UAE, Qatar and Bahrain) with an indication of the reality of Iraq from this technology until the year (2021) .

Research Problem

The problem of research lies in the modest levels of transfer, application and consolidation of electronic payment methods in the Iraqi environment until 2021 .

Research Hypothesis

The research proceeds from the premise that "the Iraqi environment faces multifaceted challenges, which are pitfalls in the path of enabling the establishment of electronic payments technology in Iraqi society."

Research Objectives:

The research aims to reach automatic outputs:

1. Explanation of the concept of electronic payment and its means and review of its impact on the sustainable development plan (2015-2030)
2. Inferring on the development and economic opportunities achieved in some countries of the Arab region and analyzing the results with Iraq

Research Methodology:

In view of the official data available and adopted in the research, the deductive approach was adopted in its analytical descriptive method.

Research Structure

In order to reach the objectives of the research, this study was divided into three sections, the first of which dealt with (electronic payments... A conceptual introduction) in which he reviewed the concept of electronic payment and a statement of the types and means of electronic payment, and the second topic included (financial technology for payments and the possibilities of responding to the goals of sustainable development) in which he explained the mechanism of the impact of electronic payments technology on sustainable development and its objectives while clarifying the indicators of the infrastructure for electronic payment, and the third topic was under the title (indicators of the infrastructure of electronic payments and the development and economic opportunities achieved ... Arab comparisons with Iraq for the period (2017-2021). This section reviewed the successes achieved in some countries of the Arab region (UAE, Qatar and Bahrain) resulting from the shift towards digitizing payments and analyzing them with the Iraqi environment.

Technological development has led to the use of information and communication technology in all fields, including trade and banking, so the electronic nature has become predominantly on them, which necessitates the creation of electronic means of payment in line with the nature of this development. Through this section, the definition of electronic means of payment and their characteristics will be addressed.

First: The Conceptual Framework for Electronic Payment

Definitions of electronic payment: The definitions provided for electronic payment methods are several:

- It is "the means that enables its owner to make direct payments remotely through public telecommunications networks"
- Payment is all the tools that enable everyone to transfer money, regardless of age or the technical method used.

- Electronic payment is money or currency that is exchanged electronically, including electronic money transfers and direct payment. It is also called electronic money.

From the above definitions, electronic payment can be defined as "the technical process that ensures the transfer of funds through electronic means."

THE FIRST CHAPTER

Electronic payments... Conceptual introduction

- The international nature, that is, it is an acceptable means in all countries, as it is used to settle the account in transactions that take place through cyberspace between users all over the world .
- It takes the form of payment in electronic money, which are ordinary monetary units. All that is there is is stored electronically and is fulfilled electronically .
- Helps to settle electronic transactions and contracts concluded over the Internet between parties far apart in the place where payment is made via the Internet through the exchange of information necessary to give the payment order according to electronic data offered by the network to allow direct communication between the parties to the contract .

It should be noted that the existence of an electronic payment system for the settlement of transactions carried out over the Internet requires a banking system designed to complete the payment process and facilitate it, and that the ability of the authorities to manage the operations concluded remotely would provide mutual trust with dealers by these means.

Second: Characteristics of electronic payment methods

There are many types and types of electronic payment liquid and they can be included in the following Figure (1):

Electronic payment methods

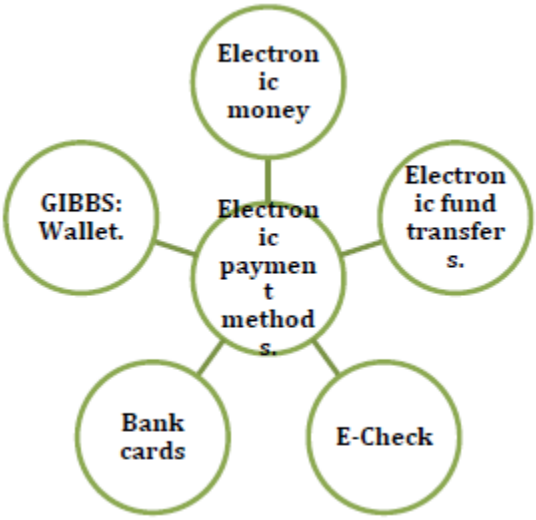


Figure 1.The chart is prepared by the researcher based on : Dr. Salam Monem Meshaal , Means of Electronic Payment, Legal Research, Al-Nahrain University, Faculty of Law, 2015, p . 5 .

1. Electronic money: Electronic money is one of the most important means of electronic payment and has a set of definitions, as defined by :

   ● IMF as' monetary value in the form of credit units stored in electronic form or in electronic memory for the benefit of the consumer' .

● As for the general definition of electronic money, it is "a monetary value stored on a prepaid electronic means that is not linked to a bank account and is widely accepted by those who have not issued it and is used as a payment tool to achieve various purposes."

2. Electronic wallet: It is a virtual payment method used to pay low-value amounts directly or indirectly, that is, electronic digital units that are transferred in a certain way from one person's account to another, and two agency methods are fulfilled:
   ● The first method: in which the electronic units are stored on the hard drive of the customer's personal computer through a program delivered to him by the company issuing these boards by the bank .
   ● The second method is to store electronic money in a small computer memory installed on a card carried by the consumer so that he uses it in payment through this card.
3. Electronic check: An electronic check is defined as "a secure and authenticated electronic message or document that includes many data (check number, payer's name, payer's account number, bank name, beneficiary's name, value to be paid, unit of currency used, date of validity, electronic signature of the payer and electronic endorsement of the check). The issuer of the check sends it to the recipient of the check (the bearer of the check) via the Internet and maintains a bank account to approve it and submit it to the bank operating on the Internet so that the bank transfers the value of the check to the account of the bearer of the check and then cancels the check and returns it electronically to the recipient of the check (the bearer). To clarify the way in which the electronic check is used, it is as follows: " When the buyer pays the value of his purchases, he issues an electronic check for the value of what was purchased in favor of the seller and signs it with his electronic signature form and sends it via e-mail to the seller, who in turn signs the same check with his electronic signature form and then the seller sends it back to the joint bank by e-mail, which in turn verifies the electronic signatures of both the seller and the buyer. In the event that he confirms the authenticity of the signatures, the bank transfers the amount from the buyer's current account to the seller's current account ."
4. Electronic money transfers system: After the banks were making the transfer based on a written order signed by the customer, it became possible to give the order electronically due to the emergence of secure systems for its use, which is electronic money transfer. An electronic remittance system is defined as' a system that enables the secure electronic transfer of remittances or payments from one bank account to another, as well as the transfer of information related to such transfers.
5. Bank cards: It is common in the recent era of technology to use credit cards in payments and purchases instead of cash, and these cards are a credit card that takes a rectangular shape, and is made of plastic, and the difference between them and the debit card is that the amount paid is not deducted from the bank account directly, but is deducted from the company providing it in the form of a credit amount and is paid once a month, and the companies equipped with the card allow the payment of the amount of debit money in part or in full with the imposition of a bank interest on retail payment. The most common types of credit cards are the cards issued by the two largest international companies, which are cards (Master Card is one of the commonly used credit cards issued by the American company MasterCard Worldwide, and it provides the user with a system for paying with this card. The card issuing company also gives the ability to charge the card with money or withdraw it by an ATM machine provided that the latter carries the Master Card mark. That is, it is withdrawable by this card, and it is often common at international airports.
   Visa Card Multinational Visa Inc. offers prepaid Visa cards that give the user the ability to pay when buying and shopping online, or using them by paying in major stores, and it is the best option for buying online, and it features sixteen-digit numbers in addition to the security code to allow the user to shop, and secure his money with a secret code. It is noteworthy that the Visa card is not associated with a specific bank, as it can be issued from any local or international bank, or through an authorized intermediary) for personal use in various financial transactions instead of carrying cash that is stolen and damaged, and there are several types of bank cards, including:
   ● Payment card: It depends mainly on the availability of an actual balance of the cardholder with the bank or institution issuing the card in the form of a current account. The payments of the cardholder are deducted from this current account and there is no credit granted to the cardholder. His ability to pay depends only on the extent to which his current account balance covers the payments. This current account can be financed from the credit payment card by transferring funds from the credit card to the current account. One of the advantages of this type of card is the saving of customers' time and effort and the high returns of the issuing banks.
   ● Debit card, monthly payment, or deferred credit: The issuance of such cards does not require the holder to prepay the issuing bank in the form of a current account as in the previous type (payment card), but rather to account with him monthly (that is, the credit period of this card does not exceed one month), by sending the bank a statement of account to the cardholder that includes the amounts

due as a result of his purchases of goods and services, as well as his cash withdrawals from ATMs or banks, provided that this is within the maximum limit of the card, and the issuance agreement includes that if the cardholder is late to pay within a specified period, the bank bears him certain interests.

● Credit card: It is the cards issued by banks within the limits of certain amounts that enable the holder to buy immediately for his needs with a deferred payment for their value, provided that he pays the value of the purchases to the bank within 25 days from the date of receiving the purchase invoice. The customer does not pay any interest to the bank on this service if he pays within the specified period, but he bears interest of 15%on the remaining balance without payment. As for the bank, he charges the customer a commission (3-5%) of the invoice value.

Sustainable Development

Perhaps one of the best achievements at the development level during the past two decades was by the United Nations, through its announcement of the Millennium

Section Two

Electronic payments technology and the possibilities of responding to the Development Goals for the year (2000), which presented a new and comprehensive vision to improve the quality of life of the poorest and marginalized groups within a deadline that ended in (2015), followed by the Sustainable Development Plan approved in (2015) with a time limit ending in (2030) , which presented an action program for people, land and prosperity, through its (17) goals set out in Scheme (2) , its (169) goals and its (231) unique indicators. This plan aims to determine the direction of global and national policies related to development, and to provide new options and opportunities to bridge the gap between human rights and development. It also constitutes a general framework that guides global and national development action.

One of the most prominent features of this plan is that it integrated the economic, social and environmental dimensions in a comprehensive and balanced manner in order to achieve economic growth, social inclusion and environmental protection. At that time, the general definition of sustainable development was formulated, which is (development that meets the needs of the present without prejudice to the ability of future generations to meet their needs).

The plan entered into force and was officially implemented on January 1, 2016, committing countries to exert efforts to eradicate poverty in all its forms, combat inequality, address climate change, and leave no one behind.

The 2030 Agenda for Sustainable Development is unequivocally rooted in human rights and clearly anchored in the Universal Declaration of Human Rights, international human rights treaties and other relevant instruments such as the Declaration on the Right to Development (paragraph 10). The Sustainable Development Goals “seek to realize human rights for all” (the preamble to the 2030 Agenda) and are universally applicable to all persons and in all countries, including developed and developing countries alike. Most importantly, the 2030 Agenda must be implemented in a manner consistent with international law (paragraph 18).

Outline (2) of the objectives of the Sustainable Development Plan (2015-2030)

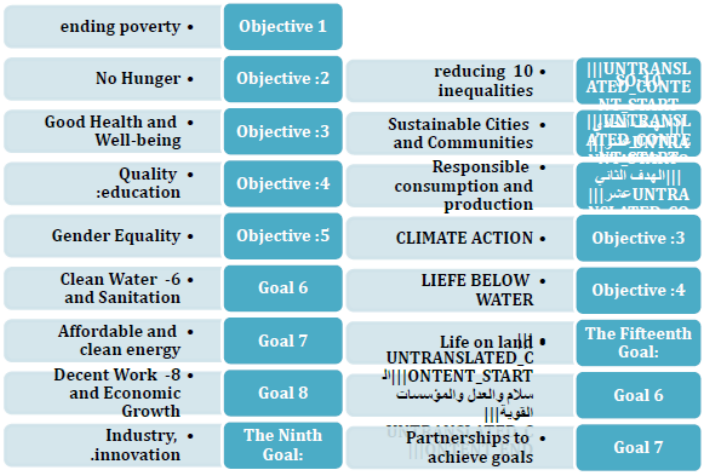


Figure 2, The plan was prepared by the researcher based on the resolutions of the United Nations , 2015 .

Second: The mechanism of the impact of financial technology for payments in achieving sustainable development

The concept of sustainable development has witnessed a gradual development and this is evident through the tracking of human development reports, as sustainable development has exceeded the economic concept based on the quantitative increase in income to a comprehensive and dynamic international societal concept that puts individuals at the center of the development process, and that human beings are the real wealth (), as it is a process of change that harmonizes the exploitation of resources, investment trends, technological development and institutional change. Therefore, this concept focuses on investing natural resources and not wasting them. On the other hand, we find that financial technology represented by electronic payment means contributes to maintaining these resources in an appropriate and sustainable manner.

There is a relationship and a role for financial technology (as a modern financial experience) in the banking sector in enabling it through achieving economic, environmental and social development by enabling various social groups to obtain "electronic services" and benefit from them in meeting their needs , as the results of the technological revolution were reflected on all economic sectors, which led to the production of a number of financial tools that contributed significantly to the development of the banking industry, and as a result of this wide spread of it has become an essential part of human life activities, this reality pushes banks to benefit from that technology and employ innovations, means and modern applications to contribute to achieving sustainable development, and the relationship between financial technology and sustainable development can be visualized through the following Figure 3.

Blueprint (3) The Impact of Fintech for Payments in Achieving Sustainable Development

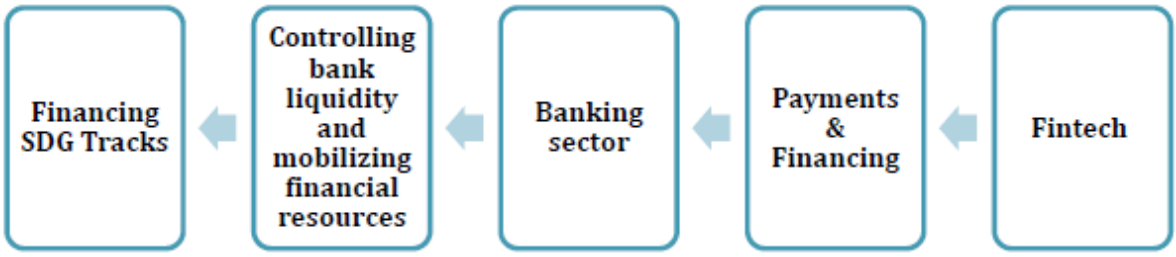


Figure 3, Planned by the researcher based on Susan Ranchber, Stimulating Green Financial Technology for Sustainable Development, Master Thesis, Uppsala University, Sweden, 2018, p . 33 .

It is clear from Scheme (10) that the banking / financial sector is the bridge between modern financial technologies and sustainable development. Beginning with, financial technologies offer their services and advantages to the banking sector through their most widespread channels, which are():

1. Payments Sector: When bill payment services and payment solutions are provided through the "International Information Network" (Internet) , mobile devices, as well as electronic wallets.
   Electronic payment methods also play the role of the gateway to the official banking system when performing someone's legal obligations, and they are a strong engine for growth. These means work to withdraw cash from circulation, include it in bank accounts, and provide low-cost funds to support investment bank lending and thus the entire economic activity. This leads to more transparency and responsibility and enhances the efficiency and performance of the economy .
2. Personal Finance Sector: Through the technical services provided by the "Customer Data" database, through which (spending , saving, and credit) and all tax obligations resulting from electronic payments are monitored.

After the banking sector contains this technology and through the sectors referred to above, the activity of the banking sector will return by withdrawing the cash from circulation and thus will control banking liquidity and increase the money prepared for lending, and then the banking sector will play its role by including a larger number of loan recipients and supporting medium, small and micro enterprises, especially supporting investment projects that develop the environmental aspect and preserve resources , which leads to the improvement of social welfare through the optimal use of available natural resources at the lowest possible cost of damage and abuse to the environment and achieving the goals of sustainable development, and linking modern financial technology technology with its methods, mechanisms and electronic means to the goals of society in achieving sustainable development, which include achieving rapid and beneficial transformation in electronic means and the technological base in order to achieve the ultimate goal (Providing the elements of human well-being with the best quality and the best life) , while improving the quality of labor and production relations, and financial and banking services, as well as accelerating their operations)).

After the activation of financial technology and the inclusion of its innovations in the sectors (payments, personal finance and lending), then the impact of the adoption of financial technologies and technologies can be

analyzed in creating opportunities for the achievement of many of the seventeen goals set out in the Sustainable Development Plan.

Third: The Relationship of Fintech for Payments to the Sustainable Development Goals

Indeed, financial technology has shown the cohesion and strong interdependence between it and a world that seeks a more inclusive, flexible, circular and environmentally friendly financial system based on global partnerships. This world is what the Sustainable Development Goals seek to achieve, as evidenced by the G20's inclusion of "sustainable digital finance" as one of its work streams for 2030. Since 2016, the United Nations has been studying the link between financial technology and sustainable development. In the same context, the daily increase in the use of smartphones and the Internet has led to the possibility of all segments of society benefiting from digital financial technologies, which enhances the achievement of the most important sustainable development goals as follows:

1. The first goal (poverty eradication): By providing access to affordable tools and services for low-income families that help increase their economic opportunities and enhance their standard of living in the long term .
2. The second objective (Zero Hunger): Through the easy access of farmers to the necessary funds to increase production and crop at a lower cost, which contributes to increasing total agricultural productivity, in addition to providing appropriate platforms for social transfers for those suffering from malnutrition. In this context, financial technology offers farmers different ways to obtain financing through crowdfunding and digital payment systems, in addition to a digital market that can connect all actors (farmers, landowners, investors and consumers) with a platform that can enhance transparency, empowerment and public participation in agriculture. This strategy contributes to increasing competition among suppliers and improving the sustainable capacity of agricultural products, where customers can see prices, compare products, realize their sustainable advantages and pay directly thanks to financial technology.
3. The third goal (good health and well-being): Digital payments reduce the contact handling of money, especially in light of the (Covid-19) crisis, which limits the spread of viral infections, which leads to raising the indicator of good health.
4. The fourth goal (quality education): Digital finance helps middle- and low-income families improve their financial management and savings through budgeting applications, in order to control and pay for education expenses.
5. Fifth Goal (Gender Equality): By empowering and strengthening the financial capacity of women, digital technologies help to collect data on women entrepreneurs, leading to an understanding of their needs and a better assessment of their creditworthiness, thus being able to design digital financial products specifically targeted at women .
6. The tenth goal (reducing inequalities): The work of financial technology does not depend on the customer's social personality, but rather it is viewed as a person who has effects on society at all levels , and its goal is to increase his income and improve his financial flexibility () .
7. Goal 13 (Climate Action): Digital finance helps individuals, businesses and government to combat and prepare for the adverse effects of climate change, by creating the financial resources necessary to conduct research and development studies and experiments related to future climate changes. Resilience and Stimulation of Sustainable Investments,
8. Goal 16 (Peace, Justice and Strong Institutions): Digital payments improve the transparency of transactions to and from governments, and help raise the level of accountability about governments' use of public funds, allowing to increase the funds available for vital public services, investments and transfers, as well as the work of electronic payments to optimize the fulfillment of financial obligations at the level of (individuals and institutions)
9. Seventeenth Objective (Strengthening and revitalizing the global partnership): Electronic payments work to break free from the bars of trade closure with the countries of the world as they work to open and expand electronic trade of goods on the one hand and free trade exchange through the international transfer system of funds safer and more reliable for all trading parties on the other hand. ()

It is also possible to reflect the virtual role of electronic payments in improving the indicators of the Sustainable Development Goals through the following table (1):

Table (1) Hypothetical scenarios of the effects of electronic payments on some SDGs

Sustainable Development Goals		The Role of Electronic Payments	Assumed results
Seq.	Content		
The first and the second	Poverty Eradication and Hunger Eradication	Increasing access to financial services with the simplest tools and lowest costs	The poverty rate is less than 20% and the phenomenon of hunger is disappearing
third	Good health	Reducing the contact handling of money in light of the spread of the Covid-19 virus	Raising the index of good health and contributing to ending the Covid-19 pandemic
Fourth	Quality education:	Controlling the financial budget of middle- and low-income families through electronic budgeting applications	Optimal spending on education within the same family and thus the return of education indicators to international competition
Grade 5 and 10	Gender Equality and reduce inequalities	Providing financial resources to women in a way that does not differ from funding opportunities for men	Raising the level of economic empowerment of women in the labor market, reducing the size of marginalized groups and promoting balanced economic participation
Thirteenth	CLIMATE ACTION	Mobilize and allocate the necessary financial resources to spend on research and development studies on future climate changes	Contribute to reducing harmful environmental emissions in the future
XVI	|||UNTRANSLATED_CONTENT_START|||والعدل السلام والمؤسسات القوية|||UNTRANSLATED_CONTENT_END|||	Transparency in fulfilling financial obligations at the level of individuals , and enhancing the work of electronic clearing systems between the joints of the state at the level of institutions	Improving community and good government indicators
Goal 7	Enhanced global partnership	Ensuring the fulfillment of financial obligations for foreign trade through the e-commerce channel	Liberalizing the restrictions of international exchange of goods and funds and enhancing trust between different countries

Fourth / Indicators for Measuring Electronic Payments

Countries have relied on indicators to measure financial technology, but the adoption of a specific indicator in one country differs from another as a result of the difference in their economies. There is a group of researchers

who differed in the nomenclature of the elements of financial technology: according to the contribution of financial technology in its multiple sectors or fields (payments , lending, personal finance, money transfer, digital currency, crowdfunding).

As follows, we will present the most prominent indicators related to the infrastructure of electronic payments. It includes indicators that measure the availability of the enabling environment for electronic payments, embodied in the infrastructure for the possibility of electronic payment within the country, which are as follows:

- The spread of ATMs and POS-ATMs, which measure the spread of electronic banking in the country .
- Open banking operations. Open banking is the process of synchronizing financial customer data by banks with electronic payment companies and electronic payment methods. It contains many indicators, but we will limit ourselves to the most available indicator of data in the Middle East and our Arab countries, which is(electronic banking cards in all their forms). This indicator is one of the most important indicators that measure the acceptability of electronic payment methods by the population of the country
- Paying and transferring money for bills over the phone and the Internet; In order to know the structural environment of this indicator, some of its sub-indices must be taken (the spread of smart phones, Internet flows in mobile phones), and thus the possibility of actual uses of electronic payment applications will be known. Table (2) shows the categories and how to measure the indicators in question () .

Table (2) The most prominent indicators for measuring the infrastructure of electronic payments

ATM and Point of Sale Index (POS-ATM)	
Category	**Indicator**
Measuring Bank Deployment of Devices POS-ATM	Number of ATMs or POS per 100,000 (one hundred thousand) adults of the population
Open Banking Index	
Category	**Indicator**
Knowledge of the acceptability of electronic bank cards in all their forms by the population	Total number of electronic cards for the population / total population × 100
Payment and money transfer index for bills over the phone and the Interne	
Category	**Indicator**
Smartphones	Number of subscribers to communication lines/ total population x 100
Mobile Internet Streams	Total number of subscribers to mobile Internet service lines/Total number of subscribers to mobile phone lines x100
E-wallet Ownership Index	Number of subscribers to e-wallet applications/ Total number of subscribers to mobile Internet service lines x10(

Table prepared by the researcher based on : - Latin American and Caribbean Perspective , The Role of Payment Systems and Services in Financial Inclusion, Mexico, 2016 , p62 .

Section Three

Indicators of the infrastructure of electronic payments and the development and economic opportunities achieved...

Arab comparisons with Iraq for the period (2017-2021)

First : Indicators of infrastructure supporting electronic payment in Iraq and some Arab countries (2017-2021)

Since the payment system is the technical, organizational and institutional infrastructure that is used to transfer funds between individuals, companies and institutions, and in order to analyze the reality of Iraq in the aspect of electronic payment services, it is necessary to review the indicators of the infrastructure supporting electronic payment in Iraq, which simulate the extent of public access to electronic payment and collection services, taking into account the advanced Arab countries in this field (UAE, Qatar and Bahrain) .

ATM and Point of Sale (POC) penetration index

Among the important means that contribute to access to financial and banking services as soon as possible and at the lowest cost are ():

- Automatic Teller Machine (ATM)
- and Point of Sale (POS)

The proliferation of ATMs and POSs is also one of the main indicators of the structure supporting the shift towards electronic payments. By providing these devices, individuals can use electronic cards and other electronic banking services with ease, which encourages the shift towards electronic payment and enhances the digital economy. When the electronic payment infrastructure is strengthened, individuals in low-income communities can access banking services and enjoy financial inclusion.

Increasing electronic payment services is one of the main objectives that the Central Bank of Iraq seeks to increase, in order to introduce the largest possible number of individuals within the financial system, increase operations within the financial system, use electronic payment tools, and gradually eliminate cash handling. We will review the trends of the increase in the spread of (ATM) and(POS) devices throughout Iraq and over the past (5) years and as shown in Table (3):

Table (3) Number of ATMs and POS machines per 100 thousand adults in Iraq for the period (2017 – 2021)

Year	Adult population (inhabitants)	Number of ATMs Device	Number of ATMs per (100,000) Adult:	Number of Point of Sale (POS) Devices Device	Number of point of sale devices (POS) per (100,000) adults
2017	22,065,113	656	2.8	918	4.16
2018	22,970,121	865	3.6	2,200	9.57
2019	23,294,232	1,014	4.1	|||UNTRANSLATED_CONTENT_START|||2,226|||UNTRANSLATED_CONTENT_END|||	9.55
2020	23,902,832	1,340	5.6	7,540	31 of 54
2021	24,522,262	1–566	6.3	151	|||UNTRANSLATED_CONTENT_START|||37.31|||UNTRANSLATED_CONTENT_END|||

The table is prepared by the researcher based on the Central Bank of Iraq, Department of Statistics and Reports , Annual Statistical Bulletin 2021 , p. 111 .

Number of population per one device = number of adult population/number of devices available (total)

Number of devices per (100,000) adult = 100,000 /population per one device

At the local level in Iraq, the number of point of sale devices (POS) has witnessed a clear leap in increase. In 2019, it was (9) devices per (100,000) adults, reaching (37) devices per (100,000) adults (), but this prevalence in payment services is still below the level of global ambition;

In the United States of America, the number of point of sale devices (POS) reached (3318) devices per (100) thousand adults , in Japan it reached (3247) , and in Australia it reached (1189) devices, and it is worth mentioning that there are global determinants on the deployment of these devices in any country, the most prominent of which can be summarized as follows ():

- Ability to meet local demand: The actual use of POS devices depends on the ability of the state to meet local demand when providing these services, by training workers and providing the necessary technical support.

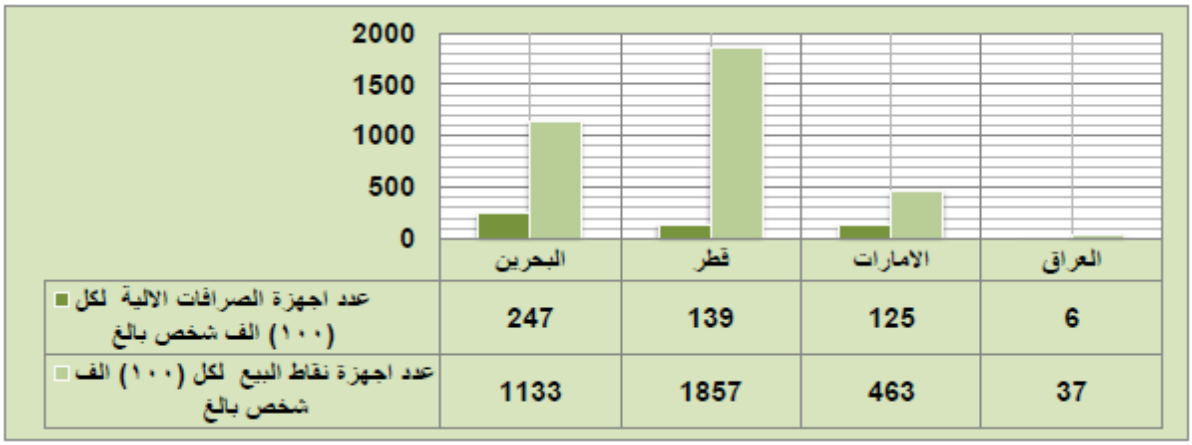
- Legal and regulatory obstacles: Some countries impose legal and regulatory obstacles on the use of point-of-sale devices, which reduces their prevalence in those countries. On the contrary, if there is legal and regulatory support for these devices, they will certainly increase the number of these devices.

Thus, the reason for the modest indicator of the spread of POS devices in Iraq is the weakness of the above-mentioned determinants. In addition, most commercial markets and shops deal in cash and not in POS devices, because of the lack of spread of this culture, and this process is still mysterious to most shop owners, especially in remote areas.

The reality of Iraq until the year (2021) witnessed the spread of ATM devices and achieved an increase in their spread throughout Iraq, and this increase was especially concentrated in large cities such as the capital (Baghdad) and governorates of an internal commercial nature such as the governorates of the Kurdistan Region of Iraq (Erbil , Sulaymaniyah , Dohuk). The justification for this is due to the fact that these cities are characterized by the spread of large commercial institutions, as can be seen from the prevalence of payment services to the population of Iraq per (100,000) in 2017, which is low to the extent of (2019) , but there has been a noticeable improvement during the period between (2019-2021) After the number of ATMs was (4) devices per (100,000) adults, in (2021) it reached (6) devices per 100,000 adults, as (ATM) devices were limited to malls, commercial centers, some government departments, and borrowing headquarters from institutions and bank branches, and there are no devices deployed in public areas, but with the continued security improvement in Iraq, coinciding with the efforts of the Central Bank of Iraq to encourage banks to open as many ATMs as possible, this percentage is expected to increase in the coming days ().

Referring to the comparison of Iraq with some countries in the Arab region that are advanced in the deployment of ATMs and point of sale devices (POS), we will find what is shown in Figure (1):

Figure (1) Number of ATMs and Points of Sale (POS) per (100,000) adults in Iraq and some Arab countries for the year (2021)



The form is prepared by the researcher based on :

1. Table data (6)
2. Telecommunications Sector, the official portal of the UAE government, available on the website: https://u.ae/en-ae/information-and-services/infrastructure/telecommunications Last accessed on 27/4/2023. 2-The Qatari Ministry of Communications and Information Technology, available on the website: https://mcit.gov.qa/en Last accessed on 27/4/2023.
3. Bahrain Ministry of Communications and Transport, available on the website , https://mtt.gov. bh/en Last accessed on 28/4/2023.

Figure (1) shows the significant decline of Iraq in the field of deploying ATMs and POS devices compared to the advanced Arab countries in the field of the structural environment for electronic payments. Despite the improvement and increase in the number of these devices in Iraq over the years (2017-2021) and the increase in their number from (3-6) ATMs per (100,000) adults respectively , as well as the increase in the coverage of POS devices from (4-37) devices shown in the previous table (6); however, these numbers are very low compared to the regional ones mentioned in the figure (); The reasons for the comprehensive coverage of these devices in the comparison countries are due to several institutional measures taken by these countries, including ():

1. Providing financial incentives to financial and commercial institutions in order to increase and deploy ATMs and points of sale (ATM-POS) in both urban and rural areas.

2. Their central banks have established partnerships with banks and other financial institutions to expand the deployment of these devices .

3. Establishing advanced electronic platforms and applications to provide and disseminate electronic culture and appropriate education and training, as well as financial support and continuous incentives for workers in the field of innovation and development in order to submit continuous development proposals in this regard .

In Iraq, it is worth mentioning that one of the most important structural weaknesses in this field is the lack of a fixed organization related to bearing the costs of deploying and increasing the number of these devices , which is one of the justifications for the reluctance of the dealing parties in Iraq to shift towards modern technology in electronic payments, and to stick to the traditional cash system.

Second : The development opportunities resulting from the adoption of electronic payment...Arab approaches with Iraq until (2021)

The transition to electronic payment is one of the practices that support sustainable development in many global and regional countries, and some countries in the Arab world have made remarkable progress in sustainable development indicators as a result of the adoption of electronic payments.

The structural indicators of the electronic payments environment in Iraq and some of the advanced Arab Gulf countries in this field, namely (the United Arab Emirates, the State of Qatar and Bahrain) until the end of (2021), reflected the great efforts to get rid of the traditional paper system to the payments technology system. Progress in these indicators has resulted in the achievement of development opportunities

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that contribute significantly to achieving the objectives of the sustainable development plan, as shown in the following chart (3):

Scheme (3) Development opportunities achieved in the countries (UAE, Qatar and Bahrain) following the shift towards payments technology for the year (2021)

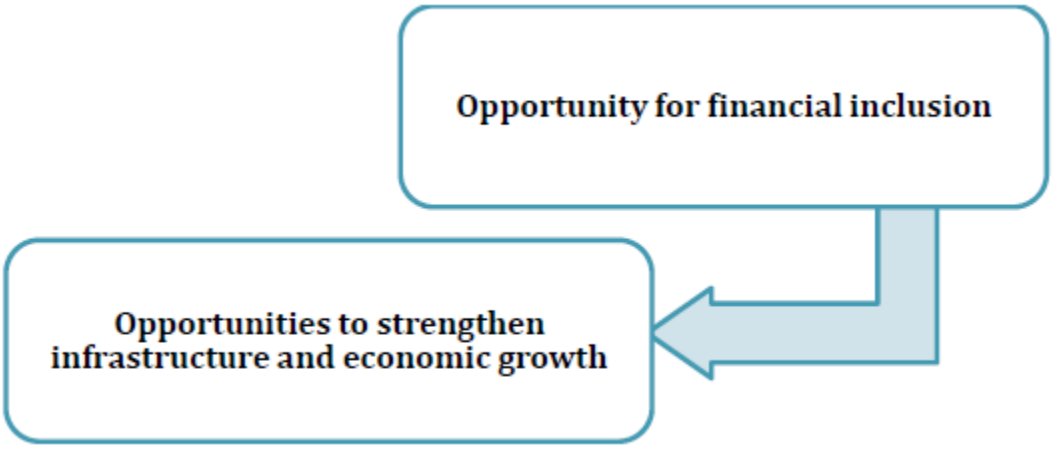


Figure 4, The plan is prepared by the researcher based on , Transformations of the electronic payment sector in the Arab Gulf countries, Challenges and opportunities, University of Bahrain Study, 2021 , p. 29 .

Figure 4 shows the developmentally responsive opportunities as a result of the shift towards electronic payment applications in the comparison countries, which were embodied in three opportunities, but their impact was significantly and clearly reflected in the progress and increase in the rates of development and economic indicators. The reality of these opportunities achieved in the comparison countries will be inferred successively until the year (2021) .

1-The Opportunity to Achieve Financial Inclusion for Comparative Countries and Iraq

Financial inclusion enables individuals to access basic financial services and banking products regardless of where they are through the deployment of ATMs and points of sale (POS) as well as providing means of use to the farthest point in society , which helps improve their lives and reduce poverty for the individual and society .

It is worth mentioning that the opportunity to achieve financial inclusion is also reflected in many development goals such as (eradicating hunger, promoting gender

equality and promoting sustainable economic growth). For example, financial inclusion can help promote economic growth in remote areas where individuals suffer from difficulty in accessing traditional financial services, by providing payment methods and innovative financial solutions based on digital technology. Financial inclusion can also improve the situation of women, youth, poor and disadvantaged groups, and enable them to obtain small loans and improve their opportunities to work and live in dignity. Therefore, it can be said that financial inclusion is one of the main tools to achieve higher rates in the sustainable development plan. The percentage of progress in levels of financial inclusion can be inferred from knowing its most important statistical indicator, which is;

"Percentage of owners of official bank accounts" are adults in society, as this indicator is one of the important and basic global indicators to measure the rates of access to financial services by all groups of society. It reflects

the ability of individuals to access banking and financial services and lift the poor out of their poverty. Figure (2) shows the regional significance of the comparison countries when adopting the electronic transfer of payments and what they have achieved by raising the percentage of the financial inclusion measurement index:

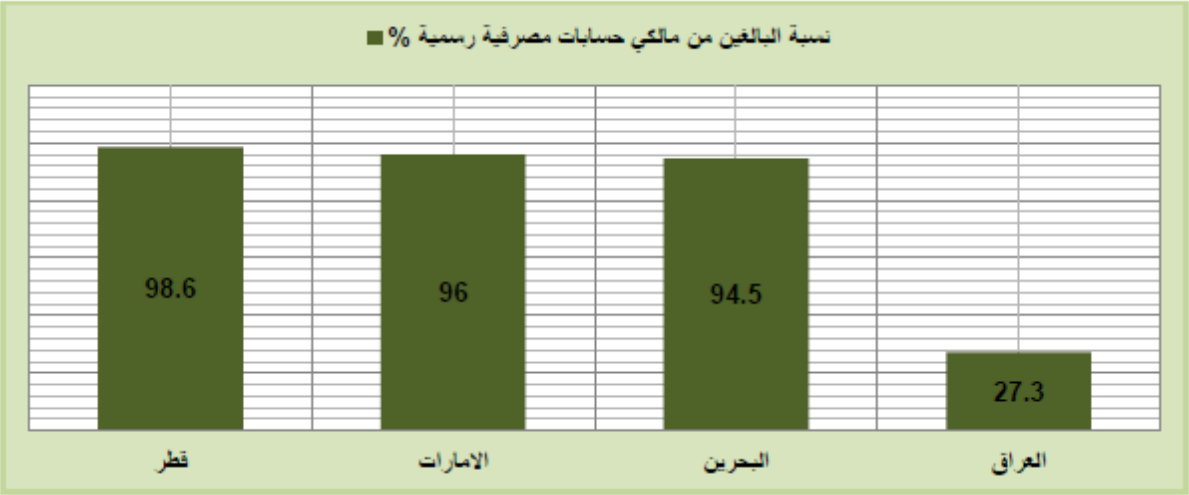


Figure (5) Percentages of owners of official bank accounts in some Arab countries and Iraq for the year (2021)
Figure 5 Prepared by the researcher based on:

1. Central Bank of Iraq , Annual Statistical Bulletin 2021 , p. 113 .
2. Telecommunications Sector, the official portal of the UAE government, available on the website: https://u.ae/en-ae/information-and-services/infrastructure/telecommunications Last accessed on 1/5/2023.
3. The Qatari Ministry of Communications and Information Technology, available on the website : https://mcit.gov.qa/en Last accessed on 1/5/2023. 3- Bahrain Ministry of Communications and Transport, available on the website , https://mtt.gov. bh/en Last accessed on 1/5/2023.

From this comparison in Figure (2), we find that Iraq is one of the countries with low financial coverage rates, as the statistical site of the Central Bank of Iraq for the last statistic in (2021) indicates that the adult population of Iraq, including (27.30%) have bank accounts. On the other hand, we find that 72.7% of adults in Iraq did not have access to financial services. Despite the development of the proportion of those who have accounts in financial institutions to double, it is still below the required level, and far from the regional average.

At the regional level, especially the developed countries in this field (Bahrain, the United Arab Emirates and Qatar), we find that the majority of their citizens have a bank account in an official institution with rates exceeding 90%. The justification for this progress is mainly the adoption of modern financial technologies, in addition to several reasons, including:

- Government support: Governments in these countries play an important role in encouraging citizens and residents to open official electronic bank accounts, by providing a legal and legislative environment that motivates people to do so.
- High electronic banking regulation: By opening an electronic channel between bank accounts, as it allowed localization accounts to synchronize their balances with other bank savings accounts, which led to banks increasing the number of bank accounts opened with high organization and coordination.
- Digital transformation: Modern technology facilitates the process of opening bank accounts and transferring funds easily and quickly, and makes them more secure, encouraging citizens and residents to use these services.
- Financial culture: These countries work to promote financial culture and raise awareness of the importance of official bank accounts to achieve personal and family financial goals. There is also a strong and advanced infrastructure for electronic payments in these countries, in addition to the existence of training and awareness programs to increase the digital and financial awareness of citizens and residents, which helps to increase the number of owners of bank accounts in these countries.

In contrast, these percentages were in Iraq. Despite the development of the percentage over the past(5) years, it still suffers from a decline in regional comparison. This is due to the fact that the majority of young people in Iraq do not enjoy financial independence before the age of 25 years, and individuals under the age of 18 cannot open and manage their own bank accounts, as the laws determine the age of 18 as the age of puberty and below is considered a minor, which led to low rates of financial coverage in Iraq , and there are other factors that led to the decline of these percentages, which can be summarized as follows :

- Political stability: Iraq suffers from political and security instability for a long time, which leads to a decline in citizens' confidence in the banking system and unwillingness to invest in it.
- Lack of confidence in the banking system: The population in Iraq may have misconceptions about and distrust of the banking system, which makes them prefer to rely on cash and cash transactions instead of electronic banking services.
- Lack of technical awareness: Some populations in Iraq may suffer from lack of technical awareness and inability to use modern technology, which prevents them from benefiting from electronic banking services.
- Weak e-payment infrastructure: Lack of technical infrastructure in Iraq can affect the ability to provide reliable and secure e-banking services, resulting in reduced willingness to use these services.

In general, it can be said that the low rates of owning bank accounts in Iraq are due to a combination of economic, social and technical factors, and require multiple solutions to improve this percentage .

2- Opportunities to strengthen infrastructure and economic growth

The results of the opportunities to enhance infrastructure and economic growth are reflected in the eighth goal (decent work and economic growth) and the ninth goal (industry, innovation and infrastructure) of the sustainable development goals. In order to know the extent to which this opportunity contributes to the promotion of the two mentioned goals, it is necessary to review and know the most prominent indicators of these two goals, which are targeted by the research through Table (4) as follows :

Table (4) Indicators of Goals (VIII and IX) of the indicators of the Sustainable Development Goals 2030

Objective	Content	Indicator
The eighth	Work and Economic Growth).	Number of ATMs per 100,000 adults
		Percentage of adults who have an account with a mobile financial services provider (e-wallet applications)
Nine	Industry, Innovation and Infrastructure	Percentage of Internet users in mobile phones out of the total adult population %

Table (4) shows the significance of the contribution of the adoption of payments technology in raising the achievement rates of the Sustainable Development Goals in the comparison countries, when the indicators of Goals (VIII and IX) intersect and overlap with the indicators of the electronic payments infrastructure of these countries .

With regard to the indicator of the number of ATMs (ATMs) per 100,000 adults, Bahrain provided the highest percentage of deployment of these devices by (247) devices, followed by the State of Qatar by (139) devices, the United Arab Emirates by (125) devices , and Iraq by (6) devices per 100,000 adults. Therefore, the percentage of achievement of the eighth goal as a result of these results for Bahrain (81.2%), the State of Qatar by (79.4%), the Emirates by (76.1%), and Iraq with a very limited achievement rate of (17.1%). As for the ninth goal indicator, the results of the indicators were common with the indicators of the electronic payment infrastructure. The reasons for the paradoxes in the results shown are the same as mentioned in the previous discussion, which leads to the need to actually change the reality of payment methods and work to create the environment necessary to achieve them Conclusions and Recommendations

CONCLUSIONS

From the above, the following conclusions were reached:

1. Financial technology plays an indicator role on the sustainable development plan and its targets through the electronic payments channel by expanding the paths of financial inclusion by relying on the deployment and distribution of ATMs and POS devices to the farthest geographical point.
2. There is an intersection between the indicators of the infrastructure of electronic payment means and the indicators of economic growth and job creation embodied in the eighth and ninth goals of the

Sustainable Development Goals, which indicates a positive relationship between the infrastructure of electronic payment with the objectives of sustainable development

3. There are some determinants that work on the deployment and expansion of ATMs and points of sale are the ability to meet local demand on the one hand , and the ability to overcome legal and regulatory obstacles to the deployment of these devices on the other hand, and therefore the reason for the modest indicator of the spread of ATMs and points of sale (POS) in Iraq is the weakness of the above determinants; In addition, most commercial markets and shops deal in cash and not in POS devices, because of the lack of spread of this culture, and this process is still mysterious to most shop owners, especially in remote areas.

SECOND, RECOMMENDATIONS:

Based on the conclusions reached , we recommend the following :

1. Forming relevant cadres by the Central Bank and obliging the Association of Iraqi Banks to form fragmented detachments, each according to its geographical area, with the task of technical education, increasing digital awareness of users, and promoting the benefits of electronic handling of funds and the risks of paper money.
2. Encouraging and enhancing cooperation between the public and private sectors to provide the necessary financial and technical resources for the deployment and operation of ATMs and POS in various Iraqi regions, facilitating and simplifying licensing procedures and regulating the operation of ATMs and POS, and encouraging operators and banks to invest in these services.

REFERENCES

1. Abdulghani et al., Money and Banks, Lord International Foundation for University Affairs, Bahrain, 11th Edition, 2006 .
2. Salam Monem Meshaal , Electronic Payment Methods, Legal Research, Al-Nahrain University, Faculty of Law, 2015 .
3. Zawawi Zahari and Nafisa Hajjaj , Financial Technology, The Financial Payment Revolution, Reality and Prospects, Ijtihad Journal for Legal and Economic Studies, Algeria, Volume 7 , Issue 3 14, 2018, p . 21 .
4. Yousef Masadawi. Electronic Banks " , Forum of the Algerian Banking System and Economic Transformations Reality and Challenges, Master Thesis , University of Blida , Algeria, 2008 .
5. Atra Dignouch , The use of the Internet as a tool to provide banking services and its impact on banking performance: The case of Algerian banks, published doctoral thesis, Faculty of Economics, Management and Commercial Sciences, University of Mohamed Khidr , Algeria, 2017 .
6. Rokaya Mansouri and Asmaa Abdelmalek , Electronic Banking Services, Master Thesis Published Faculty of Economics, Management and Commercial Sciences, Abu Bakr Belkaid University, Algeria, 2014, p . 37
7. Christina Chueca, Luis Verz, Technology and Sustainability, Master Thesis, University of Zaragoza , Zaragoza , Spain 2020, p . 37 .
8. Shehata , M. , A proposed accounting model for measuring and disclosing financial technology innovation information as an anchor to promote financial inclusion in Egypt , 2019 , p. 17.
9. Zahra Alexander, The Role of Financial Technology in the Dimensions of Financial Inclusion (A Standard Study of the Opinions of a Sample of Employees in Mosul Bank for Development and Investment, Nineveh Governorate) , Journal of Management and Economics, Iraq, Volume 9, Issue 33, 2020 .
10. Central Bank of Iraq, Department of Statistics and Reports , Annual Statistical Bulletin 2021 .
11. "Digital Payments in the Gulf Region" , Gulf Research Center, Report, United Arab Emirates, 2021.
12. Jonas Vail et al. Financial Technology in the Middle East and North Africa, Trends, 2014 .
13. Hannig, A., and S. Jansen. 2010. Financial Inclusion and Financial Stability: Current Policy Issues. Working Paper. Tokyo: Asian Development Bank Institute. Available: www.adbi.org,
14. Nycedc.. Center For Economic Transformation, Industry Trends &Insights, Exploring New York City's Economic Sectors, Fintech In New York City. (2015). -4 "ATM Industry Outlook, 2021-2026" Company report Markets, India , 2021
15. Telecommunications Sector, the official portal of the UAE government, available on the website:
16. https://u.ae/ar-ae/information-and-services/infrastructure/telecommunications 2- Qatar Ministry of Communications and Information Technology, available at: https://mcit.gov.qa/ar
17. Bahrain Ministry of Communications and Transport, available on the website , https://mtt.gov.bh/arAuthor, *Title*. Degree, Academic Department, University, Place Published. DOI